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A REPORT
BY THE
FEDERAL COMMUNICATIONS COMMISSION
ON THE
NORTHEAST POWER FAILURE
OF
NOVEMBER 9-10, 1965,
AND ITS
EFFECT ON COMMUNICATIONS

FEBRUARY 23, 1966

4-7-66

C O N T E N T S

C O N T E N T S (CONTINUED)

I. INTRODUCTION

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This is a report by the Federal Communications Commission on the effect on communications of the power failure in the Northeastern United States in November, 1965. The largest commercial electric power failure in history began at approximately 5:16 p.m. on November 9, 1965, and extended into November 10, 1965. The effect encompassed momentary power interruptions in some areas to a complete loss of electric power in other areas for varying periods up to 13 hours. New York City and much of the Northeastern United States and the Province of Ontario, Canada, were blacked out, affecting some 30 million people in an 80,000 square mile area. The states of Connecticut, Massachusetts, New Hampshire, New York, Rhode Island, Vermont and several small pockets in Maine, New Jersey, and Pennsylvania were affected. The communications industry, which depends upon commercial electric power sources, was affected by the electric power failure in varying degrees.

Early on November 10, 1965, the Federal Communications Commission initiated an investigation of the effect on communications of this widespread power failure. A questionnaire was sent to all Broadcast Service licensees in a nine-state area. Similar information was requested of the Radio Press/Wire Services, the Radio and Television Networks, the Common Carrier Communications Services (domestic and international), and the Safety and Special Radio Services.

A Special National Industry Advisory Committee (NIAC) Working Group was formed to work with the FCC staff in compiling and analyzing the voluminous data and preparing a report of the facts pertaining to this emergency.

Preliminary reports began coming to the Commission at once, and, on November 18, 1965, Chairman Henry of the FCC gave a short report to Senator John O. Pastore, Chairman of the Communications Subcommittee of the Commerce Committee.

The National Industry Advisory Committee (NIAC) report was submitted to the Federal Communications Commission on January 6, 1966. Copies of the NIAC Report were forwarded to the White House and to the Congress shortly thereafter. The NIAC Report sets out the basic facts and many details of the power failure effect on communications, and the Commission herewith adopts the factual parts of that report.

Continuing study has been made of this matter by both the communications industry and the FCC staff and will continue into the future in view of the licensee's and industry's responsibilities and reactions to localized emergencies and also in connection with the Commission's emergency preparedness responsibilities set forth in Executive Order 11092. Corrective action has been VOLUNTARILY initiated by most segments of the communications industry to remedy deficiencies disclosed by this emergency. Details are set forth in the Appendix to this report.

II.

COMMUNICATIONS FACILITIES OF THE FEDERAL COMMUNICATIONS COMMISSION

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The Federal Communications Commission maintains a communications network which serves to interconnect its 18 monitoring stations and its headquarters office in Washington, D. C. Recognizing that its monitoring and direction finding operations frequently involve matters of a critical nature, the Commission has, as a long-standing procedure, equipped each monitoring station with an auxiliary power generator for use in emergencies. In connection with the Northeast Power Failure of November 9th and 10th, the only Commission monitoring station located in the affected area is at Canandaigua, New York. When commercial power failed, the emergency generator at this station was started almost immediately and in approximately 30 seconds was supplying the full power needs of the installation. Thus, an outage of approximately 30 seconds was experienced at Canandaigua.

Since the Washington buildings in which the Commission's offices are located do not have emergency auxiliary power generators, a failure of the commercial power supply could "blackout" the Washington, D. C., Headquarters Office of the Commission's radio monitoring and direction finding stations. In this eventuality, Network Control Operations would automatically be shifted to the monitoring stations at Chillicothe, Ohio, (1st Alternate) or Laurel, Maryland (2nd Alternate).

With these auxiliary facilities and alternate procedures, the Commission is well prepared to continue its required functions in any emergency arising from failures in commercial power sources.

It should be pointed out that in the event of a power failure in Washington, D. C., the sole adverse impact which the Commission might experience in the area of communications concerns its telephone system and the need for a power source to supply the indicator lights on its switchboard and telephones. When these lights cease to function, it is impossible to determine when an outgoing call is being attempted or which line an incoming call may be on at a particular phone. The latter may not be too critical, since any particular phone will have relatively few lines to sample before locating the active one. The problem with outgoing calls, however, is formidable as the FCC utilizes a manually operated switchboard. The operators on duty rely upon signal lamps for an indication that any particular extension wishes to originate a call. This matter is being given appropriate attention.

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III. B R O A D C A S T

III. BROADCAST

A. Introduction

A detailed analysis of data received indicates that 121 Standard Broadcast Stations within the six-state blackout area were in operation at various times providing service to the public throughout the area affected. Seventy-four unlimited time stations resumed operation with emergency power generators, 48 of which resumed operation within 15 minutes. Thirteen daytime only stations resumed extended-hours operation with emergency power. Television and FM broadcast service was generally available in major population centers, again because of emergency power sources.

Commercial Radio Network operations either continued as normal or were switched to other cities. Generally speaking, network television facilities in the blackout area were impaired to the greatest extent. ABC, NBC and CBS report switching control of their television operations to other cities not affected by the blackout.

By and large, the operations undertaken by broadcast licensees during the November 9-10, 1965, power blackout were efficiently geared to the efforts of government officials and public service organizations to maintain order, provide reassurance, and restore vital services. Many lessons were learned.

Many suggestions have been received from the broadcast industry and others bearing on the Commission's contingency planning for emergency communications. These suggestions, many of which appear meritorious, are under active study. However, certain conclusions are already evident:

1. The capability of the industry to respond to an emergency of this magnitude was demonstrated.

2. The character of that response was technically and otherwise satisfactory to that portion of the public having battery-operated receivers.

3. A broadcast license is granted upon a finding that the public interest, convenience and necessity will be served. To prepare for and to operate in an emergency, in coordination with appropriate authorities in his community, and with other broadcast licensees, is the duty and responsibility of the individual broadcaster.

4. Each broadcast station should establish Standing Operating Procedures for emergencies. This involves training its staff and establishing channels of communications with local

and state officials and with news sources. This is of the utmost importance, particularly, for those stations holding National Defense Emergency Authorizations (NDEA).

5. Further effort is needed to provide for the use of Emergency Broadcast System (EBS) facilities and systems (which were not activated in this case) in day-to-day peacetime emergencies. In recognition of this need, a Special National Industry Advisory Committee (NIAC) Working Group was appointed on June 30, 1965, with the objective of developing recommended detailed guidance for the voluntary use of EBS facilities and systems during peacetime large area and local emergencies. This will be actively pursued.

6. Further effort is needed to complete the DETAILED STATE EBS OPERATIONAL PLANS adequately to fulfill the emergency communications requirements of state and local authorities and organizations responsible for the public well-being. INTERIM State EBS plans were approved and issued by the Commission on October 26, 1965.

B. Standard Broadcast

1. General. The wisdom of placing primary reliance upon standard broadcast stations (535 kc/s-1605 kc/s) for providing emergency broadcast service to the general public was clearly demonstrated. The standard broadcast facilities and personnel and the large number of pocket-sized battery-operated standard broadcast receivers and battery-operated automobile receivers supplied the basic systems providing the general public with almost immediate access to vital information concerning the scope and nature of the blackout emergency. The facilities and personnel of the interconnecting commercial radio networks and radio press/wire services also were demonstrated to be an essential element of the basic emergency system.

2. Specific. The reaction of the standard broadcast stations in the six-state area based upon responses to the FCC questionnaire as of January 3, 1966, may be summarized as follows:

Summary Table

(Excluding Maine, Pennsylvania, and New Jersey)

STANDARD BROADCAST
UNLIMITED TIME STATIONS

1 station	- did not respond to questionnaire
34 stations	- reported no power failure
64 stations	- disabled for the duration of the power failure
48 stations	- resumed operation within 15 minutes with emergency power
10 stations	- resumed operation within 30 minutes with emergency power
7 stations	- resumed operation within one hour with emergency power
9 stations	- resumed operation within two or more hours with emergency power
1 station	- not in operation for other reasons
174	Total

STANDARD BROADCAST
DAYTIME ONLY STATIONS

4 stations	- did not respond to questionnaire
100 stations	- had signed off for the day
5 stations	- disabled for the duration of the power failure, then resumed extended-hours operation
13 stations	- resumed extended-hours operation with emergency power
2 stations	- not in operation for other reasons
124	Total

In the six states that were blacked out, 34 standard broadcast stations reported no commercial power outage and continued uninterrupted operations.

An additional 48 standard broadcast stations resumed operations with emergency auxiliary power within 15 minutes of the commercial electric power failure.

Within two or more hours, an additional 39 standard broadcast stations had resumed operations with emergency auxiliary power.

During the blackout, the area was thus completely covered within approximately two hours with 121 standard broadcast signals providing reassuring information and instructions from government officials and public utility officials concerning the commercial power blackout.

Vital services performed by those stations that were able to remain on the air or to resume broadcasting included contacting electric and power officials, telephone company officials, mayors, police and fire departments, the offices of governors, civil defense organizations, water commissioners, school superintendents, Red Cross and other services. Special news roundups were prepared and aired on traffic and travel

conditions, ways and means to avoid losses stemming from the power failure, and other public service messages. Many stations, particularly daytimers which had closed down at local sunset, retained their staffs and relayed news to the public by answering telephone inquiries. Remote pickup facilities were mobilized and dispatched to key locations throughout service areas, relaying back to the station vital information for immediate broadcast (where the station was on the air) or for taping for broadcast later when the station returned to the air.

C. FM Broadcast

1. General. FM broadcast stations perform an important function in providing an emergency broadcast service to the general public. Highly flexible statewide STATE DEFENSE NETWORKS (FM) have been formed for the purpose of providing emergency intercity relay of program material for reception and rebroadcast by standard broadcast stations. FM broadcast stations also provide for highly flexible local emergency program distribution. The general public can utilize battery-operated FM broadcast receivers for direct reception of emergency information.

2. Specific. The reaction of the FM broadcast stations in the six-state area based upon responses to the FCC questionnaire as of January 3, 1966, may be summarized as follows:

FM Broadcast

(Excluding Maine, New Jersey and Pennsylvania)

17 stations	- did not respond to questionnaire
18 stations	- reported no power failure
96 stations	- disabled for the duration of the power failure
18 stations	- resumed operations within 15 minutes with emergency power
2 stations	- resumed operation within 30 minutes with emergency power
5 stations	- resumed operation within one hour with emergency power.
4 stations	- resumed operation within two or more hours with emergency power
8 stations	- not in operation for other reasons
168	Total

D. Television Broadcast

1. General. Television broadcast stations also perform an important function in providing an emergency broadcast link for standard and FM broadcast stations. The aural portion of television broadcast stations have been substituted for FM broadcast stations as primary and alternate facilities in the formation of STATE DEFENSE NETWORKS (FM). Special (sound only) receivers are required for this purpose.

Generally speaking, despite many technological advancements, the electric power requirements for television broadcast studio operations remains at a relatively high order of magnitude.

As pointed out by many of the television broadcast station licensees in the blackout area, the commercial electric power failure that affected the television broadcast stations also caused a blackout of virtually all television receivers of the general public. It is recognized that battery-operated television receivers exist, however, the total number is of a relatively low order of magnitude.

A factor limiting the use of television in an emergency, such as a power failure, is the fact that it is necessary to broadcast the video (picture) transmission in order to permit reception of the audio (sound) because of limitations in the design of television receivers which do not provide for reception of the sound without a picture signal. One television station lost commercial power at the studio but continued broadcasting from its transmitter site with the video transmissions being made in the "black," that is, with no picture intelligence. Audio transmissions were originated with auxiliary equipment at the transmitter site in order to be able to continue to provide some emergency service. Continuous operation in "black" over long periods of time is not a recommended practice since transmission of a black picture drives the transmitter at, or near, maximum power, which rapidly ages components.

2. Specific. The reaction of television broadcast stations in the six-state area based upon responses to the FCC questionnaire as of January 3, 1966 may be summarized as follows:

TV Broadcast

2 stations	- did not respond to questionnaire
3 stations	- reported no power failure
30 stations	- disabled for the duration of the power failure
12 stations	- resumed operation within 15 minutes with emergency power
2 stations	- resumed operation within one hour with emergency power
2 stations	- resumed operation within two or more hours with emergency power
51	Total

E. Emergency Broadcast System

1. General

a. BASIC Emergency Broadcast System (EBS) Plan. (FG-E-4.1):

This plan was prepared as a joint industry-government effort under the provisions of Section 3(b) of Executive Order 11092. It is based upon all known requirements for emergency communications with the general public under national emergency conditions, and contains approved policy guidelines for the development of DETAILED OPERATIONAL PLANS, SYSTEMS, and PROCEDURES to fulfill detailed national, regional, state, and local emergency broadcast requirements. The BASIC EBS PLAN was approved by the FCC on December 4, 1963, and concurred in by the DOD(OCD) and the OEP on December 12 and 13, 1963, respectively.

A Special NIAC Working Group was appointed on July 21, 1965, for the purpose of conducting a joint industry - government review and updating of the BASIC EBS PLAN. The White House statement of requirements was revalidated by letter dated November 24, 1965. Revised Department of the Army (Office of Civil Defense) requirements were received on November 22, 1965. Consistent with these statements of requirements the work of this group is rapidly proceeding.

b. DETAILED STATE EBS OPERATIONAL PLANS have been prepared for the 50 states, District of Columbia, Guam, Puerto Rico, and the Virgin Islands. These were prepared as a joint cooperative effort among the broadcast industry, government, and state and local authorities within each state and territory. These were approved as INTERIM PLANS by the FCC on October 26, 1965.

Meetings of State Industry Advisory Committees have been held throughout the country for the past several months, looking toward clearing up all obvious deficiencies, and making further voluntary improvements in technical arrangements and programming procedures for the DETAILED STATE EBS OPERATIONAL PLANS.

The DETAILED STATE EBS PLANS contain the following:

a. Subdivision of each state into geographical OPERATIONAL AREAS.

b. Emergency LOCAL program origination points and program circuits and program distribution arrangements for all EBS stations within each Operational Area within each state.

c. Emergency STATE program origination points and program distribution arrangements for all EBS stations within each state.

d. Detailed interconnection arrangements for receipt of Presidential Messages, National Programming, and News by means of the combined facilities of the commercial radio networks (ABC, CBS, MBS, NBC, Yankee, and Intermountain) and television aural networks (ABC-TV, CBS-TV, and NBC-TV).

e. Detailed arrangements for receipt of the EBS EMERGENCY ACTION NOTIFICATION via:

(1) The AP/UPI Radio Press/Wire Networks.

(2) The internal alerting facilities of the commercial radio and television networks.

(3) Off-the-air reception from other broadcast stations.

2. Specific

a. EBS Activation

The EMERGENCY BROADCAST SYSTEM (EBS) was not activated during the blackout emergency. EBS can be activated only by order of the President or his delegate and is intended for use in the event of an actual or threatened attack upon the United States. There was no occasion to consider activation of EBS during the period of the power failure.

Detailed facilities and procedures (classified) have been developed and implemented to achieve activation of EBS in appropriate circumstances on a voluntary basis within the five-minute time limitation specified in the White House statement of requirements.

b. Adaptation of EBS Facilities to Day-to-day Emergencies

The Commission and the National Industry Advisory Committee have continued to encourage the broadcast industry in the adaptation of applicable EBS facilities and systems to statewide and local area emergencies involving the safety of life and property. Many have responded to this encouragement and are voluntarily cooperating in the operation of their EBS STATE DEFENSE NETWORKS (FM), and other related broadcast facilities under the names of "State Governor's

Network," "State Association of Broadcasters Network," and "State Weather Network," etc. The same facilities are utilized, only the points of program origination, program content, and network title are changed. Others have responded by leasing and maintaining a special statewide interconnecting land-line program distribution network for this purpose.

A Special NIAC Working Group under the Chairmanship of Mr. Lester G. Spencer, Radio Station WKBV, Richmond, Indiana, was appointed on June 30, 1965, for the purpose of developing detailed guidance for the voluntary use of STATE EBS systems and procedures in peacetime state and local emergencies. A study of FCC's peacetime emergency broadcast rules and regulations will be included in this activity. This detailed work is proceeding. Completion of this study in the near future is anticipated.

c. Radio Station Protection Program

The Department of the Army (Office of Civil Defense) (DOA-OCD) Radio Station Protection Program is proceeding in cooperation with the FCC. Standard broadcast stations holding a valid National Defense Emergency Authorization (NDEA) and participating in the Detailed State EBS Plans are selected by DOA(OCD) for contracts to install, at Federal expense, radiological fallout shelters, emergency power generating equipment and fuel storage facilities, emergency programming equipment for shelters, and radio communications circuits between the shelter and a local Emergency Operating Center where state or local authorities are to be located. Five hundred forty-one stations are presently under contract. The DOA(OCD) expects to terminate the program in FY 1967 with a total of 658 "hardened" stations.

d. Public Information

A Special NIAC Working Group was appointed on July 20, 1965, to assist the Federal Communications Commission (FCC), the Office of Emergency Planning (OEP), and the Department of the Army (Office of Civil Defense) (DOA-OCD) in defining problems and providing guidance to the public about the functioning of the Emergency Broadcast System, and the information to be provided to the public in time of emergency via EBS facilities.

A series of spot announcements has been distributed by the DOA(OCD) to over 5,000 broadcast stations under the title "Production Series '65." In addition, more than 2000 stations have been provided with a musical series call "Stars for Defense." In the latter are one-minute spots describing the Emergency Broadcast System. All of this material was prepared as a joint effort among the industry, DOA(OCD) and the OEP (Government Readiness Office). Additional material and guidance is in process of preparation.

e. Emergency Alerting of the General Public.

Section 73.961 of the FCC Rules and Regulations presently provides as follows:

> "Sec. 73.961 Emergency Weather Warnings.
>
> "Upon receipt of notification from the United States Weather Bureau of an Emergency Weather Warning of a condition of immediate danger to life and property, all standard, commercial FM, and television broadcast stations may, at their option, during authorized hours of operation only, transmit the Emergency Action Notification Signal, as set forth in Section 73.921(b)(2), prior to broadcasting the Emergency Weather Warning, as provided in Sections 73.90, 73.296, and 73.632, respectively. Nothing in this section shall be construed as permitting a standard broadcast station licensed to operate daytime only or limited time to operate during unauthorized hours."

Early in 1963, a Special NIAC Working Group was appointed to study and recommend techniques whereby standard, FM, and television broadcast stations could be utilized to provide an emergency alerting capability for the Emergency Broadcast System (EBS) and the general public. Three subgroups were appointed to study and make recommendations in the related areas of transmitters, receivers and interconnecting facilities. These groups jointly examined some 13 alerting system proposals. Through the appointment of three Ad Hoc committees, a systems analyses was completed narrowing the number of systems to four, which were then field tested on AM, FM and TV. The most recent step has been the appointment of a Transmission Standards Committee commissioned to examine all work thus far accomplished and reduce the system proposals to one. This step has been completed. Performance specifications for test receivers have

been completed and forwarded to the Office of Civil Defense. OCD will issue invitations to receiver manufacturers to bid on approximately 350 receivers for the purpose of conducting systems reliability tests. It is anticipated that sufficient tests can and will be completed in time to issue a Notice of Proposed Rule Making looking toward establishing technical transmission standards for this purpose prior to the end of this calendar year.

3. Proposed Action

a. Promotional Campaign on AM/FM Battery-Operated Receivers.

It is apparent that small, battery-operated transistor radio receivers and battery-operated automobile radio receivers were the principal means of informing the public during the period of the power failure, and that they served an invaluable purpose. In the present state of our technical knowledge we will necessarily rely on such receiving sets in any similar future emergency for means of mass communication. In view of these facts it has been urged that the broadcasters and the Commission engage in a campaign to persuade the public of the desirability of possessing such sets and to promote the sale and distribution of such sets. The Commission believes that this is a proper and useful activity for the broadcasters to engage in but that it would be inappropriate for the Commission, as a government agency, to engage in such a campaign. Accordingly, the Commission will make the facts public and advise the broadcasters of its position on this proposal.

b. Comparative Cases Involving Standard Broadcast and FM Broadcast Licenses.

On July 28, 1965, the Commission issued a Policy Statement on Comparative Broadcast Hearings (FCC 65-689), which indicates the factors of decisional significance which will be considered in comparative broadcast proceedings. On the basis of the experience gained in the northeast power failure, where it was clearly demonstrated that the broadcast services alleviated many potential problems during such an emergency, the Commission will supplement its Policy Statement to include the acquisition and proposed use of auxiliary power equipment as an additional factor of decisional significance in comparative cases involving applications for AM and FM station licenses.

IV. COMMON CARRIER

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A. Introduction

The ability of the common carriers to maintain service during the blackout depended upon the availability of emergency or alternate power sources, and the switching or transferring of certain traffic loads to unaffected areas.

1. Telephone

Telephone companies for many years have equipped central offices and communications centers with emergency power arrangements. Larger offices have permanent emergency power plants which can be quickly switched into service. Some smaller telephone offices have arrangements for portable plants. Microwave radio relay stations and cable repeater locations are similarly equipped with emergency power supplies.

In spite of abnormally heavy loads, the telephone companies handled all emergency business and most of the offered regular calls. During the peak of the emergency, when great numbers of people wanted to use the telephone to report their whereabouts, line-load control was used in some offices to protect emergency services. Very little trouble was experienced in maintaining government services.

Long distance and overseas services were unimpaired, as was local service, except for the problems of providing service to equipment which depended upon local power sources for operation of the customers' communication equipment such as teletypewriters and other printing equipment. Private branch exchanges or other service depending upon commercial electric power to operate signalling and other controls caused impairment of incoming service.

2. Telegraph

Most of the telegraph company main offices and radio relay points have emergency power systems and in addition a small number of portable power generating units are strategically located for coverage of smaller offices in limited emergencies.

In New York City, the main Western Union office, one of thousands of buildings in that city affected by the lack of power, was out of service due to loss of both AC and DC commercial power sources. This office is equipped for emergency power protection from a failure of either AC or DC by means of converters, but was not prepared for loss of both sources.

3. International Record Carriers

The international record common carriers operating in New York City did not have sufficient independent emergency auxiliary power at the time of the failure to provide for normal operations.

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Public service was interrupted in varying degrees with some traffic being handled by rerouting and by arrangements with voice carriers. Normally these carriers depend upon electric power being fed to their main operating offices from separate points of the New York commercial power system. However, some emergency power units with limited capacity, on location or obtained elsewhere, were pressed into service at varying times after power was lost.

B. Domestic Services

Telephone calling volumes reached new highs, which indicated the value of this communications medium to help control panic during this unprecedented emergency. Telephone company planning for emergencies, in addition to providing emergency power sources, includes training of employees who responded almost automatically to the unusual situation which resulted from the power failure.

Many telephone people who were not on duty returned to the job and helped handle the heavy calling load as well as being of service to others. In the Bell System exchanges, for example, over 14,000 people were on duty during the blackout, compared to about 9,000 on a normal night. Portable power equipment was loaned to hospitals to maintain service on their vital private branch exchanges. Telephone people were located at other hospitals, police and fire departments during the duration of the emergency.

Employees of the telegraph industry responded to meet the unusual emergency requirements. They worked long hours of overtime without question and used considerable ingenuity in delivering messages as detailed later.

1. Telephone

In the case of local service, all operator positions were covered to handle the extraordinary number of calls requiring operator assistance. Heavy calling caused delays in some cases. Line-load control equipment which maintains adequate originating service for essential agencies and coin-operated telephone stations, maintains incoming service to all lines and allocates the remaining originating capacity among other users was employed. In downstate New York, where local calling loads were heaviest, 60% of the central offices of the New York Telephone Company utilized this control feature for short periods of time, and in the other affected areas fewer than 10% of the offices required its use.

Private branch exchange switchboards (PBX) require a power supply for operation of signals and controls. A number of PBXs do have auxiliary power supplies which are furnished by the common carriers in some cases, and by the customer in other situations. While trunk lines and station equipment operated for PBXs which did not have emergency power supplies,

the failure of the signals handicapped the customer in answering calls. Fortunately, the hours of the blackout were mostly in the period when businesses are closed for the night. Teletypewriters require commercial power for operation of the machines, and where the customer had no emergency power source, this equipment was not in service.

In the case of long distance service, network management action made the best use of long distance telephone facilities, by arranging call-routing patterns through the system to protect service to non-affected areas. Special instructions were given to operators to use special practices to improve service on calls to the affected area. Preference was given to calls from the blackout area by establishing or augmenting outgoing circuit groups to key cities. Recorded announcements were used to inform customers when all circuits were busy, which reduced repeated ineffective calling attempts.

The Long Lines Department of the AT&T Company reported that with the exception of New York, there were only minor problems in maintaining long distance circuits. Minutes after the power failed, 122 Long Lines emergency power units were in operation in the affected states. Failures in the broadband long distance services were for varying periods of time, ranging from the shortest outage of 15 minutes to the longest outage of 195 minutes. None of these outages was serious or extensive enough to cause any service problems, due to the rerouting arrangements.

While the emergency power plants are tested frequently, the unusual loads and other circumstances caused some temporary failures in diesel and gasoline emergency generators. The most serious problem occurred in the New York offices, where a variety of troubles such as diesel engine overheating, failure of valves in fuel supplies, and problems in air pressure required to start some engines, caused failures for short periods. A couple of the overheating problems were caused by low pressure in the city water system. A portable generator was brought to the New York office as a standby. In general, the interrupted operation of diesel generators caused no service problem, except for temporary circuit outages caused by voltage variations.

Independent companies operating in the blackout area total 141. Many of these were located in areas where the power failure was of short duration. Local service, through the use of emergency power generating equipment, was well maintained by this segment of the domestic common carrier industry. In the larger cities in the affected area, heavy

traffic loads were noted. In Rochester, New York, for example, slow dial tone was experienced for the first 1/2 to 3/4 hour, after which it levelled off. Information boards and dial service assistance operators in this city had about 30% increase over normal traffic load. Direct distance dialing operations were 30% above normal for a short period, then levelled off. Some toll circuits were lost by this company due to lack of power for AC carrier circuits. However, only portions of routes were affected and there was no serious effect on service.

The domestic telephone companies, while their services generally were maintained through the use of emergency generating equipment, experienced a very few failures of valves, fuses and other devices. These problems are included in the correction plans, which will be based on a complete review of the auxiliary power supplies. Fuel supplies, changes in arrangements for starting emergency generators where trouble was experienced, improvement in training employees in the use of emergency equipment, will all be reviewed to avoid any failures or delays should subsequent commercial power failures occur.

2. Telegraph.

New York City received the most paralyzing effect from the power failure. The main Western Union office, one of thousands of buildings involved, was out of service due to loss of both AC and DC commercial power sources. The history of commercial power supply to the Western Union building for more than two decades has never shown a similar situation where both sources failed concurrently, nor has either supply failed for such a prolonged period of time.

The tradition that Western Union people have established for service restorations in emergencies, was again confirmed by their actions during this major power blackout. Personnel throughout the stricken area either stayed on their jobs, or returned to their assignments where possible. Many were still on the job 18 hours after the emergency started, rerouting circuits and assisting in clearing backlogs. In New York, the day force was augmented by those of the night force who could find means of transportation back into the city, despite prostration of subways, tubes and other electrically-operated transportation.

Service over the public message system reflected the widespread effect of the power interruption. Tributary offices in New England and New York State were out of operation primarily due to loss of commercial

power at the towns not escaping the creeping power paralysis. Those that were affected were out of service, varying from one hour and 20 minutes to five or more hours. Those unaffected and connected to reperforator centers by intact facilities continued to operate with the announced "subject to possible delay" where traffic was destined to points within the northeastern section. Since message loads fall off considerably after the business day, the traffic into the Boston and Syracuse reperforator offices was such as to prevent overloads. Traffic trunks, interrupted by power failures at intermediate points, were restored by emergency reroutes. The greatest "backlog" of traffic was, of course, for New York City.

While emergency power proved its worth at those locations where it was available, it did not insure service. This was illustrated at Boston, where the absence of power at branches and customers' offices precluded operation beyond the central office until commercial power was restored.

Many private wire users had closed operations for the day when the power disruption occurred. Of those operating on a 24-hour basis, most commercial and several government subscribers did not have power available on their own premises. Service to these subscribers was not restored until commercial electric power became available.

The alternate restoration control at Western Union's Danville, Illinois, relocation center began to function immediately after the power failure, enabling restoration of essential commercial and government circuits whose terminals were not affected by the loss of commercial power.

Since the Northeast Power Failure, Western Union has taken steps to correct deficiencies disclosed and preserve service continuity in the event of future power failures. Direct measures taken include the installation of an automatic start diesel engine generator plant with automatic load transfer at the company's main office in New York, a program to install emergency power plants in other Western Union offices through which critical military circuits are routed, and relocation of carrier terminal equipment used for certain military circuits to "on base" locations where emergency power is available.

As a result of its experience during and immediately following the power failure, Western Union is also improving its priority circuit restoration procedures, and rerouting of essential services to effect greater diversification. Additional spare circuit groups are being established on its microwave system, and additional facilities leased from the telephone company to improve "make-good" capabilities.

Western Union's January, 1966, status report on steps taken to preserve service continuity in the event of future power failures is included as one of the appendices to this report.

C. Overseas and International Services.

The power failure clearly indicated the weak points in the overseas and international communications services. Except for the delays caused by overloading of domestic facilities, there were no interruptions of overseas telephone services because reasonably adequate emergency power was available at all important communication centers.

The picture was different with respect to overseas record services. The main operating offices in the New York City area were able to handle only a relatively small amount of traffic during most of the blackout period because of the lack of satisfactory emergency power. Radio and submarine cable stations in the vicinity of New York City did have emergency power installations in operation but, of course, were unable to exchange traffic with their respective operating offices in metropolitan New York.

Another major difficulty in the record services, as provided independently or jointly by both the domestic and international telegraph and telephone carriers, was the need for power at customer premises to operate equipment such as teleprinters and equipment associated with data transmission. In other words, even if the carriers' facilities were operating with emergency power, the equipment in the customers' offices could not transmit or receive communications without power being available.

The affected international record communications common carriers main operating offices are all located in the mid-downtown area of Manhattan in New York City. All are dependent on commercial power supplied by Consolidated Edison Company. Each company has multiple power feeders to their central office and the record of reliability over the years had been excellent. In most cases power was fed from two separate substations with one station serving automatically as backup for the other. Several years ago an investigation of the reliability of commercial power in lower Manhattan resulted in the power company advising that the average expectancy of an outage for any individual customer is once in fifty years.

The initial effect of the loss of commercial power was a momentary immediate blackout of public service which was dependent upon this source. This is primarily because customer connecting facilities terminate in teletype, data or facsimile machines on the customers premises which require normal in-house power. Carriers having emergency power supplies immediately made these operational. Thus, key service was supported. However, normal public service could not be served. Had generators been available in the central offices such would not have been of assistance to tie-line customers because the lack of power in the customers' offices would have precluded service.

All carriers responded at once despite the totality of the blackout. Immediate reaction was a call for generators. The Defense Communications Agency supported the carriers by making available mobile generators from reserve and active units. This permitted some priority services to be honored.

Each carrier established rerouting services with overseas points via their gateways in Washington and San Francisco as well as via Canada and various overseas Communication Centers. Although limited by comparison to the normal structure, the alternate reroutes established illustrated the versatility and adaptability of the systems.

These record carriers report that a complete review of emergency plans was made by all carriers and programs have been prepared for additional emergency power supplies to permit service beyond the priority requirements. Defense support plans for mobile facilities have been prepared. Carriers will conduct tests on emergency facilities.

The biggest problem is that of costs for the purchase, installation and maintenance of such items as large generators. A basic unit necessitates a second or third backup unit. Reroute and alternate lines and secondary technical control centers which would be most desirable are costly and may be used rarely.

Communications companies should improve their emergency power to protect a reasonable amount of service in an emergency. Of necessity, each should be prepared to meet its own priority obligations.

Reports received thus far from the record carriers indicate that they are proceeding as rapidly as possible with the installation of adequate emergency power systems at each of the primary communication centers. It should be recognized that 100% backup with emergency power at all of the record carriers' operating locations such as all branch offices, would be very expensive and in the end such expenses would have to be born by the using public in the form of possible increases in charges for services.

The Commission will request regular reports from the carriers as to the progress being made toward installation of emergency power systems at their strategic communication centers. With respect to emergency power at customer premises, it appears advisable to inform the using public of the need for providing on its own emergency supply units as insurance toward continuity of service, if such is desired by the customer. These power supply units may be provided by the customers or, if there is sufficient demand, the carriers might provide such units in accordance with appropriate tariffs filed with the Commission. It

appears that the carriers recognize their responsibility to provide emergency power at those weak points made apparent by the blackout and they are proceeding on a voluntary basis with corrective measures. Reports as to the present status of these corrective measures, from the major international communication carriers, is attached to this re report. However, in order to reach desired objectives the Commission, if necessary, will take steps by appropriate action to require the carriers to provide emergency power systems at important locations such as main operating centers and radio station sites.

V. SAFETY AND SPECIAL RADIO SERVICES

209-528 O - 66 - 5

IV. SAFETY AND SPECIAL RADIO SERVICES

A. Introduction

The Safety and Special Radio Services constitute a highly diverse grouping of radio station licensees and radio communications systems integrated into the day-to-day operations of State and local governments, and the nation's industrial complex. Hobby and personal use of radio communications is also provided within the Safety and Special Radio Services.

Specifically, the Safety and Special Radio Services are subdivided into the following categories:

1. AMATEUR RADIO SERVICE
2. AVIATION RADIO SERVICE
3. CITIZENS RADIO SERVICE
4. INDUSTRIAL RADIO SERVICES
    a. Power Radio Service
    b. Petroleum Radio Service
    c. Forest Products Radio Service
    d. Motion Picture Radio Service
    e. Relay Press Radio Service
    f. Special Industrial Radio Service
    g. Business Radio Service
    h. Industrial Radiolocation Service
    i. Manufacturers Radio Service
    j. Telephone Maintenance Radio Service
5. LAND TRANSPORTATION RADIO SERVICES
    a. Motor Carrier Radio Service
    b. Railroad Radio Service
    c. Taxicab Radio Service
    d. Automobile Emergency Radio Service
6. STATIONS ON LAND IN THE MARITIME SERVICES
7. STATIONS ON SHIPBOARD IN THE MARITIME SERVICES
8. PUBLIC SAFETY RADIO SERVICES
    a. Local Government Radio Services
    b. Police Radio Service
    c. Fire Radio Service
    d. Highway Maintenance Radio Service
    e. Forestry-Conservation Radio Service
    f. Special Emergency Radio Service
    g. State Guard Radio Service

Approximately 500,000 licensees in the Safety and Special Radio Services are located within the six-state area affected by the commercial electric power failure of November 9-10, 1965. Because of the very nature of the Safety and Special Radio Services, particularly those services directly related to the safety of life and property, i.e., the Aviation Service, Public Safety Radio Services, and the Maritime Radio Services, very few communications problems were encountered during the blackout because of their inherent flexibility of operations and their advanced state of day-to-day emergency preparedness.

As a result of the large number of licensees involved and the relatively limited time within which to collect necessary data, the amount of information for each of the various radio services varies considerably; in no case is there comprehensive data available for the whole service but sufficient data have been collected from which useful general conclusions may be drawn.

B. AMATEUR RADIO SERVICE

1. General

An Amateur Radio Emergency Corps (AREC) is in operation on a daily basis. These peacetime amateur radio networks are organized to function in an emergency on a National (Sectional), Regional, State and local basis.

Apart from the peacetime AREC, a Radio Amateur Civil Emergency Service (RACES) is organized primarily for the purpose of providing emergency communications in the event of a national defense emergency. This service utilizes specifically authorized radio amateur facilities under the direction of civil defense officials. The assistance of RACES is also available in other emergency situations.

2. Specific

The emergency networks and organizations of the Amateur Radio Service, both inside and outside the blackout area, were alerted and operational to handle local and regional emergency communications. Countless other amateurs placed their stations in operation. Fixed stations operating with emergency power, and mobile stations were active throughout the area. Little emergency traffic was handled, however, because the telephone circuits continued to operate with but few interruptions.

C. AVIATION RADIO SERVICE

The problems encountered by the Aviation Services were not serious. Scheduled air carrier operations continued and sufficient

reliable communications between the aircraft and supporting ground facilities were available.

Public telephone and land lines remained in operation making voice communications available although record communication (teletype) was lost in locations where local power was unavailable for periods varying from 13 minutes to 16 hours.

High frequency facilities at the New York aeronautical gateway stations were inoperative because of the power failure for a period of about an hour. During this period international air operations in the North Atlantic area and to the south were dependent on V.H.F. facilities. Those aircraft outside V.H.F. range of New York were dependent upon the facilities at Miami, San Juan, Bermuda, and Gander for communications.

Many types of support land-line facilities used by the air transport service were inoperative where dependent upon public source of power. This had no adverse effect on air safety although it substantially affected the efficiency of certain ground support functions.

D. CITIZENS RADIO SERVICE

Individual Citizens Radio Service licensees functioned in key positions -- as auxiliary units for local police and fire departments; arranging for emergency transportation and assisting in traffic control. These were strictly voluntary efforts.

The mobile units in automobiles and the battery-operated walkie-talkie units, being unaffected by the power failure, were important to the overall communications during the blackout.

E. INDUSTRIAL RADIO SERVICES

The power failure caused some communications interruptions to the majority of licensees in the Industrial Radio Services.

Most advised their telephone communications were not affected. Some had difficulty. Most users reported teletype failure for private line, TWX and Telex. One reported its entire Eastern United States and Western European teletype communications network went out.

Many users reported their base radio stations, which depend upon commercial power, were out. Thirteen users reported they have auxiliary power capable of remaining in operation from four hours to extensive periods of time. General information from the licensees indicated that some in-plant radio communications could always be maintained by individually-powered mobile units.

Microwave radio systems were not affected since these are almost entirely equipped with emergency generators or battery power.

A cross-sampling of the Industrial Radio Services indicates that approximately one-third of the licensees are not equipped with auxiliary emergency power plants. Generally, the larger systems or those which cover a large geographical area are equipped with auxiliary emergency power. The smaller systems, in most cases, indicated the desirability of standby power for their communications facilities but could not economically justify the procurement. Some systems without auxiliary power for their base stations used mobile stations to serve as base stations. In these cases normal coverage was achieved by strategically locating other mobile units and using them as repeating stations.

While few industrial systems had teletype operations, many of them use telemetry for remote reading of gauges and meters. These, as in the case of teletypewriters, required commercial power and were therefore inoperative even though auxiliary power was available at the distribution stations and the common carrier circuits used to carry the telemetry were operative.

F. LAND TRANSPORTATION RADIO SERVICES

In the Land Transportation Radio Services inquiries were made to Automobile Emergency, Bus, Rail and Trucking licensees. The general response indicates that the impact of the power blackout on these groups' communications needs was minimal. In a number of instances, some form of emergency power source was available or mobile units were placed in service to replace the radio base station that was inoperative. The majority of the Land Transportation licensees depend on remote transmitter sites to cover their communications area and in many instances these sites are leased from others with no emergency power facility available. The time of the power failure was at a time such that minimum impact resulted, particularly in the trucking industry, where most of the business for the day had been completed, and with the exception of New York City the power was restored by the next day. Certain features of private line systems were inoperative but the circuits themselves functioned almost normally, creating very little inconvenience to the user.

The power blackout caused failure of approximately one-third of the railroad base stations in "point-to-train" and "yard" service in the affected area for the duration of the power interruptions. However, in many cases, mobile units were placed in service to serve in lieu of the inoperative base stations. Only a few "key" locations of the major railroads are provided with emergency auxiliary power

supplies. Nearly all railroad microwave radio stations are provided with emergency auxiliary power supplies and normally, in such cases, the railroad land mobile base stations are at the same locations and are powered from the same sources. Cases were reported where remotely-controlled base stations were operative but could not be used because the control equipment was dependent on commercial power. In other cases, the base stations were inoperative even though the remote-control equipment was operative on local battery.

In general, common carrier and railroad telephone circuits remained operative except in cases where local repeaters in railroad lines rely upon commercial power and hence had to be bypassed. Teleprinter, data and similar circuits were rendered inoperative due to commercial power requirements.

Nearly all railroad track signal systems operate from batteries on "trickle charge" as primary power, hence very few, if any, signal systems, crossing gates, etc. were inoperative. Train dispatcher telephone and telegraph circuits also operate on local battery and were unaffected. In general, the communication facilities of the railroads which remained operative were adequate to continue railroad operation on a limited basis during the emergency.

The Motor Truck Transportation, Bus and Automobile Emergency communications were less affected by the power blackout than the railroads. A few licensees reported loss of base station service due to lack of standby power and loss of teleprinter service due to lack of power at the terminating locations, but in general these services were not seriously affected.

Those of the Land Transportation users who have a great element of safety involved in their use of radio are making plans to reduce the possible impact of a future power failure.

C. MARITIME SERVICES

There were no adverse effects on actual ship operations because all ships generate their own power. Some delays in loading and unloading were experienced during the power blackout and a few cases of personnel delays holding up a ship sailing were noted, but overall there were no serious consequences.

In some cases, communications with docks were maintained with battery-powered portable sets used by tow boat companies. Tow boats were useful in serving as communications relay points.

Common Carrier coast telegraph stations continued to function through the use of emergency power generators. Teletype service was interrupted, however, telephone service continued and important message traffic was delivered by telephone wherever possible and warranted.

Similarly, the power failure had but minor effect in the common carrier marine telephone service. Public coast stations operated by the common carriers within the affected area utilize several receiver locations for each station which gives an overlapping coverage of the service area. Thus, although a small number of the receiver locations were without power the service was continued with but minor effect. All transmitting stations have adequate auxiliary power and continued to function. Studies are underway with the common carriers to determine the desirability of equipping the remaining receiver locations with auxiliary power.

H. PUBLIC SAFETY RADIO SERVICES

Police and fire departments were generally not adversely affected by the power blackout. Since the nature of their operation requires continuous uninterrupted communications, almost 90% of those replying to the questionnaire are equipped with auxiliary emergency power plants. Those that do not have auxiliary power plants have made plans to use mobile radio facilities to handle the communications function.

Many police and fire departments are planning for and procuring either larger auxiliary power plants and/or automatic start power plants to decrease the time required to change over from commercial to auxiliary emergency power.

A number of fire departments pointed out the loss of fire alarms due either to 220 Volt operation requirement or inability for other reasons to operate it from the auxiliary power plant. The home alerting systems for firemen were also inoperative due to the commercial power operational requirement.

A major complaint of police and fire departments was the initial unreliability of the telephone systems due to overload. Since most fire reports are initiated by telephone it is imperative that the telephone systems be reliable. In an emergency such as this the broadcast stations could render a great service by advising people to only use the telephone for calls of an emergency nature.

I. GENERAL CONCLUSIONS

1. As a general matter, it does not appear that the power blackout seriously impeded the continuation of needed emergency communications in the services covered herein. As a matter of fact, the Safety and Special Radio Services were generally in a position to meet their emergency needs and render assistance to public authorities. It must be recognized, however, that the time at which the blackout occurred made a major difference. General communications serving all licensees and business were seriously impeded, but the time of the blackout prevented serious repercussions from the communications outages. If the blackout had occurred between 8:00 a.m. and 5:00 p.m., the problems would have been much more acute.

2. The suggestions contained in the responses respecting improvements that may be desirable in order to meet future emergencies included reference to such matters as a need for additional frequencies in some instances and the possibility of more flexible provision in the Commission's Rules for intersystem use of facilities during time of emergency. However, the thrust of the comments received was in the words of one respondent: "If this emergency pointed out any requisites for continued communications in time of emergency, it pointed to the necessity of having auxiliary power."

3. The problem, thus presented, however, is a difficult one. The Commission, in cooperation with licensee groups is expediting its study looking toward a more precise determination of which services must be maintained in an operational posture during time of emergency. The question that must be answered is which services are so important to the public safety and welfare as to justify the imposition on them by legal requirement of the expense of maintaining independent power sources for the infrequent periods of power failure. Answers to this question demand a series of economic and social judgements that the Commission has not yet made.

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VI. A P P E N D I X

Reports from various communications carriers regarding action taken since the power failure to insure the continuity of service in the event of another power failure.

APPENDIX VI (A)

THE WESTERN UNION TELEGRAPH COMPANY

PENNSYLVANIA BUILDING • 425 13TH STREET N.W.
WASHINGTON 4, D. C.

G. W. SHAFFER
ASSISTANT VICE-PRESIDENT

February 7, 1966

Hon. Lee Loevinger
Federal Communications Commission
Washington, D. C.

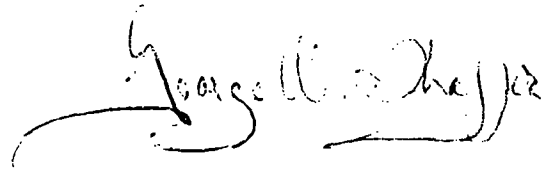
Dear Mr. Commissioner:

In the Western Union report on the Northeast Power Failure of November 9, 1965, which we submitted to your office by way of letter of December 8, 1965 to Mr. Elmer Pothen, Chairman of Domestic Communications, Common Carrier Subcommittee, you were informed that subsequent reports would follow dealing with recommendations or further corrective action.

Attached is the January 1966 status report dealing with short term recommendations and the status of the steps our Company has taken to preserve service continuity in the event of future power failures, which will supplement our preliminary report of November 16, 1965 and the detailed report of December 1, 1965. It is expected that another report on the long-range application of our recommendations will be available later this month.

As suggested by Mr. Kenneth Miller I am addressing this transmittal directly to you and sending a copy to Mr. Elmer Pothen.

Very truly yours,



WESTERN UNION REPORT ON THE NORTHEAST POWER FAILURE
NOVEMBER 9, 1965

INTRODUCTION

This supplements the preliminary report of November 16, 1965, and detailed report of December 1, 1965 and covers steps taken leading to corrective action to preserve service continuity in the event of another disaster caused by massive power failure.

EMERGENCY POWER AT NEW YORK

An Automatic Start Diesel Engine Generator Plant with automatic load transfer has been installed at 60 Hudson Street, New York, N.Y., to protect all Western Union Communication facilities through New York City, plus essential local services which have their own back-up power at the Tributary Stations.

PROVIDING EMERGENCY POWER AT CRITICAL OFFICES

We have started a phased program to install emergency power plants in Western Union offices through which critical military circuits are routed.

Engineering is now underway to produce the installation specifications for Automatic Start, Automatic Load Transfer, engine generator plants for these offices.

RELOCATION OF CIRCUIT DERIVATION EQUIPMENT FOR GOVERNMENT SERVICES AT SELECTED "ON BASE" LOCATIONS

When circumstances warrant, Western Union will provide to the military, locations at which "on base" installation of circuit derivation equipment should be made for greater protection of service.

ALTERNATE MEANS OF PROTECTING PRIORITY SERVICES

Additional spare base groups have been established on the Microwave network, and more are being authorized.

Additional off-beam leased facilities to improve "Make-Good" capabilities are being provided.

Western Union restoration control offices (dispatching) are reviewing the requirements to determine all possible pre-planned restorations. The conflict of diversity with ability to make good a limited amount of services must be resolved as to what will best serve national interests.

PROTECTION OF PRIMARY ORDER CIRCUITS

The order circuits involved in the protection of governmental services are being re-routed to effect greater diversification from Radio Beam facilities.

We are proceeding with the installation of a High Frequency Radio Network, Western Union point to point, to coordinate circuit restorations during emergencies. This is subject only to the assignment of frequencies by the military for use on this emergency radio.

PROVISION OF AUTOMATED OR SEMI-AUTOMATED RECORDS AT RESTORATION CONTROL CENTERS (DISPATCHING)

A field trial will be initiated at Switchman by mid-February which will simulate the type of automation later required in the more complicated system control functions.

Based on the findings during this field trial we will then move the trial into the New York General Dispatching office and expand the application. This will probably be by mid-summer.

After we make the adjustments and changes necessitated by our experience with semi-automation at the New York Restoration Control Office (General Dispatching), we will then evaluate the use of a computer center for the restoration control relocation point (Danville, Ill.).

It is our plan that automation of records will include its' use in field test rooms. This could not only provide an input to the final computer installation, but will also provide, on a local basis as well as for outside use, the quick ability to bring out in display the priority services involved in that office. We expect that this should result in improved ability to provide attention to all services and, in particular, those which are vital to the national interests.

APPENDIX VI(B)

WESTERN UNION INTERNATIONAL INC.

521-12TH STREET, N.W., WASHINGTON, D.C. 20004

H. G. CATUCCI
Vice President

Area 202
Telephone: 638-6724

February 9, 1966

Honorable Lee Loevinger
Federal Communications Commission
Washington, D. C.

Dear Commissioner Loevinger:

On Friday, February 4, your staff requested a follow-up report on our emergency power program. You will note we outlined in our original report Western Union International immediately following the power failure incident in New York City took immediate steps to provide emergency power on both a temporary and permanent basis at all Western Union International operating offices.

In our New York operation center, the temporary power unit is still on hand and is capable of providing full protection for all government lease circuits. The permanent emergency power installation at our New York center was started about a month ago properly upon delivery of the emergency gas driven generator equipment. This installation is well underway and hopefully will be completed by February 19, but no later than March 1, 1966.

The permanent emergency power installation at Western Union International's Honolulu operation center was completed on November 19, 1965, and has already automatically protected our operations without interruption on at least two occasions of subsequent power failure in Honolulu.

A similar emergency power installation has been on order for several months for our San Francisco operation center, but delivery of the equipment cannot be made until the middle of March. The complete activation of the San Francisco unit is, therefore, forecasted for no later than April 1, 1966.

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Western Union International installations; such as, our standby cable station at Hammel Long Island, and at the Miami Beach gateway center, as well as our northern station in Canada, have for some years been equipped with emergency power facilities.

If there is any other specific information you desire, please feel free to call on me.

Warm personal regards.

Sincerely yours,

Henry G. Catucci

Henry G. Catucci
Vice President

APPENDIX VI(C)

RCA COMMUNICATIONS, INC.

A SERVICE OF RADIO CORPORATION OF AMERICA

66 BROAD STREET

NEW YORK 4, N. Y.

E. D. BECKEN
VICE PRESIDENT
AND CHIEF ENGINEER

TELEPHONE
~~HANOVER 2-4811~~
212-363-4060

February 10, 1966

Mr. Lee Loevinger
Defense Commissioner
Federal Communications Commission
Washington, D.C. 20554

Dear Mr. Loevinger:

In accordance with the verbal request from Mr. K. Miller on February 4th, I am pleased to submit the following report on the present status of additional emergency power installations in the New York area since the November 9-10, 1965 power failure. If we can furnish any additional information, please let us know.

Central Telegraph Office, 66 Broad Street, New York, N.Y.

Immediately after the November 9-10, 1965 power failure, a 30 KW diesel engine generator set was obtained and installed on a temporary basis. In addition, a 300 KW diesel engine generator plant was purchased and this installation is in the final stages of implementation. It is expected that this 300 KW plant will be available for operation beginning this Saturday, February 12, 1966. It will supply sufficient power to carry all leased channels, telex and a significant portion of the regular message service at the New York central telegraph office. It will also provide power for program, radiophoto and TV service.

Microwave Relay Station, 20 Exchange Place, New York, N.Y.

A 10 KW diesel engine generator has been purchased for emergency power supply for the microwave relay facilities in 20 Exchange Place and installation will begin as soon as the city permits are received which is expected shortly. This microwave system carries a portion of the control channels between the New York central telegraph office and the high frequency radio stations at Rocky Point and Riverhead, Long Island, New York. New York Telephone lines are utilized also for carrying a substantial portion of the channels to Rocky Point and Riverhead.

Sincerely yours,

E. D. Becken

EDB:hg

APPENDIX VI(D)

ITT World Communications Inc. *subsidiary of International Telephone and Telegraph Corporation*

1707 L St N W Washington D C 20036

Joseph J. Gancie *Vice President*

February 11, 1966

The Honorable
Lee Loevinger
Defense Commissioner
Federal Communications Commission
Washington, D. C. 20554

Dear Commissioner Loevinger:

In compliance with Mr. Miller's request for a status report on actions subsequent to the power outage, we submit the following.

A. ITT Worldcom was equipped to meet high priority circuit response by means of a generator which was installed several years ago. A routine monthly test by running the generator continuously for eight hours has been adjusted for more frequent checks. This permits inspection of items such as gaskets which may decay and not show up on a monthly check.

B. Backing up the main generator are two smaller self-contained units that have been placed in ready storage. These may be used for lighting purposes as well.

C. An intensive engineering study has been completed with the object in mind of improving emergency power capabilities at the main central office in New York.

D. Lesser items such as emergency lights and battery supplies have been installed and inspection procedures have been implemented.

E. A personnel utilization plan has been established on the basis of accommodating on-duty staffs to cover positions which would have no reliefs due to transportation problems in a power failure.

F. Emergency plans have been thoroughly worked out with defense agencies for top-priority circuits. This includes the use of mobile military and reserve generators as were utilized during the blackout. This company sponsors an affiliated Signal Corps Reserve unit and talks have been held with authorities to utilize employee-reservists and equipment in absolute emergencies.

G. The New York power failure has served as a catalyst to review plans in all key areas served by ITT and especially attracted attention to Washington, D. C., where we are also negotiating to install emergency generators.

We will report progress or new plans as such develop.

Sincerely yours,

Joseph J. Gancie
Vice President

JJG:drs

APPENDIX VI(E)

UNITED STATES
INDEPENDENT TELEPHONE ASSOCIATION
438 PENNSYLVANIA BUILDING, WASHINGTON, D. C., 20004
AREA CODE 202
628-6512

February 11, 1966

Honorable Lee Loevinger
Defense Commissioner
Federal Communications Commission
Washington, D. C.

Dear Commissioner Loevinger:

The following information is furnished in response to a request from Kenneth Miller for a report on any actions being taken by the Independent telephone companies involved as a result of lessons learned during the recent power blackout in the Northeastern United States.

As our earlier reports have indicated the Independent industry was not seriously affected in the New England area due to (1) the small number of Independent telephone companies involved and (2) the short duration of the blackout, 30 minutes to an hour, in the areas served by Independents in Vermont and New Hampshire. There were no reported failures of communications by companies in this area and the short duration of time under which they used emergency power apparently did not result in aggravated situations requiring any change in present procedures.

In the state of New York the Independent companies involved reported little or no difficulties in maintaining communications during the blackout. Again the time factor varied but under no circumstances was it anywhere near as long as that which affected the New York City area. I have requested comment from three of our larger companies in the area: Rochester Telephone Corporation, Rochester, New York; Chenango & Unadilla Telephone Corporation, with headquarters at Norwich, New York; and General Telephone Company of Upstate New York, with headquarters at Johnstown, New York. I am enclosing the comments received from the presidents of Rochester Telephone Corporation and Chenango & Unadilla Telephone Corporation and will forward any comments from General Telephone Company of Upstate New York, as soon as received.

You will note that Chenango & Unadilla did not encounter difficulties which would warrant any changes in their present procedures to cover such emergencies. Rochester Telephone Corporation service during the power blackout lasting from approximately 5:20 p.m. until shortly after 9 p.m. suffered no major interruptions. Mr. Beinetti's letter indicates actions under consideration to tighten up certain areas within the telephone company's operations.

Within the United States Independent Telephone Association the subject of emergency operations is being reviewed by our Engineering, Plant and Traffic Committees with a view towards the publication of updated general information and guide lines for our members throughout the country.

Yours very truly,

Thomas R Warner

THOMAS R. WARNER
Technical Director

TRW:elc

Enclosures

Serving
CENTRAL
NEW YORK STATE

C&U TELEPHONE CORPORATION
NORWICH, NEW YORK 13815
AREA CODE 607 334-5511

February 8, 1966

Mr. Thomas R. Warner
Technical Director
United States Independent Telephone Assoc.
438 Pennsylvania Building
Washington, D. C.

Re: Northeast Blackout

Dear Tom:

Our regular checking of emergency generating equipment paid off in this instance. All of our emergency equipment came on automatically at the time of the blackout and we had no unusual troubles whatsoever.

As a result, I can think of no change we should make in our procedure to cover such emergencies.

Sincerely,

William S. Kingman
President

WSK:dl

ROCHESTER TELEPHONE
CORPORATION

100 MIDTOWN PLAZA
ROCHESTER, NEW YORK 14604
AREA CODE 716
325-9851
GEORGE S. BEINETTI
PRESIDENT

February 8, 1966

Mr. Thomas R. Warner
Technical Director
United States Independent Telephone Association
438 Pennsylvania Building
Washington, D. C. 20004

Dear Tom:

As discussed during our telephone conversation yesterday, Rochester Telephone survived the blackout of November 9, 1965, without any major service interruptions. A review of events during the blackout suggests that to further improve the reliability of service during such emergencies we take action as indicated in the following paragraphs of this letter.

A program presently under way to convert all carrier terminals to DC operation will be completed.

The Engineering Department is studying the feasibility of providing a continuous AC supply to our North Fitzhugh Street Microwave transmitters, receivers and certain of the Multiplex channels. Other Multiplex channels are being engineered for battery operation because of their connection to certain carrier systems.

The feasibility of, and the reliability of self-contained, water-cooled, diesel engines for two of our central offices is being studied in the event municipal water pumps should fail due to lack of power.

The Service Consultants in our Traffic Department are reviewing emergency operating procedures during the course of their routine visits to PBX operator locations.

Essential emergency lighting is being reinforced in several of our central office locations.

A plan is presently being implemented whereby a minimum of one bell will be permanently installed directly across the first line of all Hand Illuminated Key Telephone Systems which are AC powered, and which employ common ringing.

The provision of a continuous AC supply to the computers in our Corporate Services Department is being considered.

Sincerely,

G. S. Beinetti
President

AMERICAN TELEPHONE AND TELEGRAPH COMPANY

1730 K STREET, NORTHWEST

WASHINGTON, D. C. 20006

AREA CODE 202
392-5155

W. ELMER POTHEN
EXECUTIVE ASSISTANT

February 14, 1966

The Honorable Lee Loevinger
Defense Commissioner
Federal Communications Commission
Washington, D. C. 20554

Dear Commissioner Loevinger:

Mr. Kenneth Miller of your staff asked the communications common-carriers for a report indicating what steps have been taken by the common-carriers to remedy deficiencies disclosed in the recent power failure in northeastern United States. This letter is intended to respond to that request and will, therefore, supplement the report already submitted in behalf of the Bell System, through the National Industry Advisory Committee, to the FCC.

Shortly after the resumption of commercial power, we in the Bell System undertook a review of our performance during the blackout in order to draw lessons for our improved performance in future emergencies. We felt that, although service failures during this outage were few, we should make every reasonable effort to eliminate these entirely in any future emergency that might befall us. The Bell Companies are still engaged in this effort, and probably will be similarly engaged almost indefinitely into the future. In general, our efforts fall into two rather distinct areas:

1. Efforts to assure continuity of power at telephone company central operational locations.

2. Efforts to improve the continuity of communications service at outlying stations which normally depend upon commercial power (usually customer-furnished) for their operation.

The solution to neither of these problems is simple. However, the central office problem appears to be a straightforward operating matter, the blackout experience having confirmed the soundness of our planning to provide emergency power to protect against such situations. The few failures that did occur have stimulated a further review to improve our arrangements for emergency power.

At outlying stations a wide variety of circumstances may be found and these require individual study to see what needs to be done. We are, therefore, undertaking a review of individual problems and specific locations. I would like to cite a couple of examples of these activities.

We have launched a program of inspections of major central office locations, aimed particularly at the power supply which makes these locations operate. The inspections call for a visual review of more than 70 items in each location which could significantly affect the ability of the office to continue operations when power has failed. Any deficiencies noted in this visual inspection are remedied as rapidly as possible. Following this, emergency measures are implemented in order actually to test our capability to operate. First, the entire communications load is thrown on the emergency battery supply to test its continued operation for a reasonable period of time. Of course, in most locations, the battery is provided as a stabilizer and engineered to carry the communications load only for whatever short time might be required until the emergency generator can be put into operation, either automatically or manually. At that time the generator carries the load with the battery acting as a stabilizer of the power supply. In the test after the battery, unaided, has carried the load for a reasonable period of time, the emergency generator is run with the full communications load for a prolonged period of time. The objective here is to disclose any deficiencies in the starting capability of the generator and its ability to continue operation under load. Deficiencies are, of course, remedied as rapidly as possible. This program is under way, and while initially our most important offices are selected for this treatment, the program will expand to virtually every important office we operate.

The second area of effort is a joint activity with our most critical customers. In general our customer-located equipment depends on local commercial power for its operation. Some of our customers have emergency power sources of their own for their own purposes. When this situation prevails, the problem is one of reviewing the situation with our customer to make sure that our communications equipment on his premises can quickly be switched to the customer's emergency power source when the need arises. Where no customer-owned emergency power source exists other arrangements can be provided by the telephone company if communication service in a power failure is urgently needed. Again we are reviewing with our most essential customers what needs to be done to insure continuity of their most important services. This will be a continuing function and will extend indefinitely into the future.

Thus both of the foregoing areas of activity represent merely a renewed emphasis on measures that we have always felt were good business and a proper part of our responsibility as common-carriers. I am sure that the power failure has provided a useful stimulus to increased effort to improve the reliability of our services.

Sincerely yours,

N. E. Gorrell Pothier

APPENDIX VI(G)

AMERICAN BROADCASTING COMPANIES, INC.

7 WEST 66TH STREET · NEW YORK 23, N. Y. · SUSQUEHANNA 7-5000

MORTIMER WEINBACH
ASSISTANT GENERAL COUNSEL
VICE PRESIDENT
AMERICAN BROADCASTING COMPANY

February 11, 1966

Honorable Lee Loevinger,
Defense Commissioner
Federal Communications Commission
Washington, D. C. 20554

Dear Commissioner Loevinger:

This will confirm that the following wire was sent to the Commission today:

"MR. BEN F. WAPLE, SECRETARY
FEDERAL COMMUNICATIONS COMMISSION
NEW POST OFFICE BUILDING
WASHINGTON, D. C. 20554

ATTENTION: MR. KENNETH MILLER

REFERENCE IS MADE TO YOUR REQUEST FOR A PROGRESS REPORT FROM THE ABC RADIO NETWORK CONCERNING EMERGENCY PROVISIONS RELATIVE TO THE NORTHEAST POWER BLACKOUT. ALL AREAS HAVE BEEN SURVEYED AND MINIMAL OPERATING REQUIREMENTS ARE BEING DETERMINED. AS PREVIOUSLY ADVISED, AN 8 KW EMERGENCY GENERATOR IS MAINTAINED AT THE NEW YORK NETWORK STUDIOS AND EMERGENCY GENERATORS ARE MAINTAINED AT THREE OF THE SIX OWNED AND OPERATED RADIO STATIONS. SINCE THE BLACKOUT, COPPER-TO-COPPER TELCO CIRCUITS HAVE BEEN ESTABLISHED AROUND THE NETWORK 'ROUND ROBIN' CIRCUIT, AS WELL AS BETWEEN THE NETWORK STUDIOS AND WABC STUDIOS AND BETWEEN THE WABC STUDIOS AND THE WABC TRANSMITTER, WHICH WOULD PERMIT TRANSMISSION DURING POWER FAILURE. BATTERY POWER SUPPLIES HAVE BEEN PROVIDED FOR LIVE STUDIO OPERATION BY WABC. PLANS ARE BEING MADE FOR A LARGER EMERGENCY GENERATOR AT WABC WHICH WILL PERMIT THE EMERGENCY OPERATION OF THE MAIN TRANSMITTER. THESE PLANS HAVE BEEN RECOMMENDED BY THE NEW YORK STATE INDUSTRY ADVISORY COMMITTEE AS WABC HAS BEEN DESIGNATED AS THE 'KEY' STATION FOR AREA C. IN CONNECTION WITH THE INSTALLATION OF NEW STUDIOS AT STATION KABC, LOS ANGELES, THE PLANS INCLUDE POWER SUPPLY FACILITIES FOR NEAR-NORMAL OPERATION DURING AN EMERGENCY.

AMERICAN BROADCASTING COMPANY
BY: MORTIMER WEINBACH, VICE PRESIDENT"

Very truly yours,

Mortimer Weinbach

APPENDIX VI(H)

AMERICAN BROADCASTING COMPANIES, INC.

7 WEST 66TH STREET · NEW YORK 23, N.Y. · SUSQUEHANNA 7-5000

MORTIMER WEINBACH
ASSISTANT GENERAL COUNSEL
VICE PRESIDENT
AMERICAN BROADCASTING COMPANY

February 11, 1966

Honorable Lee Loevinger,
Defense Commissioner
Federal Communications Commission
Washington, D. C. 20554

Dear Commissioner Loevinger:

This will confirm that the following wire was sent to the Commission today:

"MR. BEN F. WAPLE, SECRETARY
FEDERAL COMMUNICATIONS COMMISSION
NEW POST OFFICE BUILDING
WASHINGTON, D. C. 20554

ATTENTION: MR. KENNETH MILLER

REFERENCE IS MADE TO YOUR REQUEST FOR A PROGRESS REPORT FROM THE ABC TELEVISION NETWORK CONCERNING EMERGENCY PROVISIONS RELATIVE TO THE NORTHEAST POWER BLACKOUT. ALL PERTINENT AREAS HAVE BEEN SURVEYED AND MINIMAL OPERATING REQUIREMENTS ARE IN THE PROCESS OF BEING DETERMINED. AS PREVIOUSLY ADVISED, AN EMERGENCY TELEVISION STUDIO IS MAINTAINED AT THE EMPIRE STATE BUILDING, ALSO AN EMERGENCY MOBILE UNIT WITH SELF-CONTAINED POWER PLANT, AS WELL AS MICROWAVE AND RADIO COMMUNICATIONS, IS MAINTAINED. SINCE THE BLACKOUT, PROVISIONS HAVE BEEN MADE FOR AN EMERGENCY LIVE AND FILM STUDIO AT UNION CITY, NEW JERSEY, INCLUDING A MICROWAVE CIRCUIT TO THE EMPIRE STATE BUILDING, WHICH WOULD BE A BACKUP TO TELCO CIRCUITS. IN COOPERATION WITH THE NEW YORK TELEPHONE COMPANY, THE SPARE COAXIAL CABLE BETWEEN THE 66TH STREET STUDIOS AND TELCO NR IS ROUTED VIA THE 611 TENTH AVENUE TELEPHONE BUILDING WHERE BACKUP MICROWAVE CIRCUITS TO NR ARE AVAILABLE. THE APPLICATION FILED WITH THE COMMISSION BY THE AMERICAN BROADCASTING COMPANY FOR A COMMUNICATIONS SATELLITE WOULD, IF APPROVED, PROVIDE TELEVISION NETWORK CIRCUITS INDEPENDENT OF THE TELEPHONE COMPANY CIRCUITS.

AMERICAN BROADCASTING COMPANY
BY: MORTIMER WEINBACH, VICE PRESIDENT"

Very truly yours,

Mortimer Weinbach

APPENDIX VI(I)

CBS

Columbia Broadcasting System, Inc.
51 West 52 Street
New York, New York 10019
(212) 765-4321

Leon R. Brooks
Vice President and General Counsel

The Honorable Lee Loevinger
Defense Commissioner
Federal Communications Commission
Washington, D.C. 20554

Reference: 2500

Dear Commissioner Loevinger:

Columbia Broadcasting System, Inc. is pleased to furnish the following information concerning review and improvement of its emergency facilities which have taken place since the November 9th Northeast power failure, as requested by your office.

As noted in our response to your letters of November 10, 1965, most CBS radio facilities were only slightly affected by the power blackout. One exception occurred in Boston, where station WEEI had emergency power at its AM transmitter, but not at its studios where the transmitter remote control equipment is located. This caused WEEI to remain off the air for just over an hour following the power failure, until station personnel could be sent to the transmitter to activate it manually. The WEEI studios are about to be moved to a new location in Boston; pending this move, temporary provisions are being made to supply emergency power to remote control apparatus at the present studios. In addition to the CBS Radio emergency facilities noted earlier, such facilities are now available at stations KCBS, San Francisco, KMOX, St. Louis, and KNX, Los Angeles.

As noted in our prior response, the CBS Television Network would have been able to continue originations of programs from New York had not the emergency power source for a repeater maintained by the New York Telephone Company failed to operate. This failure has been the subject of discussions between CBS and New York Telephone Company, with the goal of preventing a similar failure should another power blackout occur. In addition, CBS is currently investigating the feasibility of installing an emergency power generator at the WCBS-TV auxiliary transmitter location.

Our earlier response noted that, while telephone service continued during the emergency period, telephone ringing equipment and indicating lights generally did not operate. Most of this equipment is supplied with power from commercial lines. CBS is investigating methods by which this equipment may be connected to auxiliary power sources in an emergency, insuring that essentially normal telephone service will continue.

In New York, a private telephone line system operable from emergency power provides communication between the CBS Broadcast Center, main and auxiliary television transmitter locations, and the AT&T New York Television Operating Center. Additional outlets will be added at other New York facilities of CBS. A similar private line system, also operable from emergency power, is available at CBS facilities in the Los Angeles area. A new and larger emergency power source is planned for that location.

The foregoing examples illustrate the extent to which CBS is reviewing its emergency procedures and, where necessary, providing additional equipment to increase the capacity and reliability of its facilities.

Very truly yours,

Leon R Brooks

Leon R. Brooks

February 15, 1966

APPENDIX VI(J)

NATIONAL BROADCASTING COMPANY, INC.

A SERVICE OF RADIO CORPORATION OF AMERICA

RCA Building, Radio City, New York 20, N.Y.

CIRCLE 7-8300

WILLIAM H. TREVARTHEN
VICE PRESIDENT

February 16, 1966

The Honorable Lee Loevinger
Defense Commissioner
Federal Communications Commission
Washington, D. C., 20554

Dear Commissioner Loevinger:

This is in reply to the oral request of Mr. Kenneth Miller on February 11th, 1966, for a progress report supplementing our letters of November 22nd, 1965, to you concerning the effect on the NBC Radio and Television Networks of the power blackout in the Northeastern United States (your Ref. No. 2500).

We are studying our technical requirements in the event of a similar blackout for operation of the NBC Radio Network origination facilities in New York and for Television Network origination of a basic news service since Television Network entertainment can be alternatively originated from West Coast or New York centers. An engineering firm has been retained to supply to our management a proposal for the installation in Radio City, New York, of emergency generating equipment necessary to accomplish this objective which would be subject to the approval of the owners of the building and of course must comply with the Rules and Regulations of the City of New York. Heretofore, the installation of emergency generators requiring fuel storage has been prohibited in our premises.

Because of the power failure, we are hopeful that the City of New York may relax its prior rulings and permit the installation of such equipment.

Very truly yours,

William H. Trevarthen

William H. Trevarthen
Vice-President

cc: Mr. Kenneth Miller

APPENDIX VI(K)

SUBSIDIARY OF 3M COMPANY

MUTUAL BROADCASTING SYSTEM

135 WEST 50TH STREET • NEW YORK, NEW YORK 10019 • TEL. LT 1-6100

JOSEPH F. KEATING
VICE PRESIDENT

February 11, 1966

The Honorable Lee Loevinger
Defense Commissioner
Federal Communications Commission
Washington, D. C. 20554

Dear Commissioner Loevinger:

As our report to you of November 12, 1965, indicated the complete radio network schedule was aired without interruption and our previously worked out emergency procedures functioned very efficiently. Based on this experience we did, however, determine that additional emergency lighting was required in the operating areas of both New York and Washington. This equipment has been provided.

As a further precaution, we are also providing additional self-powered speech input and recording equipment to increase our flexibility under emergency conditions. In addition, our emergency capabilities and procedures will be a matter of continuing study and review so that our readiness to meet these conditions will be assured.

Sincerely yours,

Joseph F. Keating
Vice President
Programs and Operations

APPENDIX VI(L)

THE ASSOCIATED PRESS
GENERAL OFFICE
50 ROCKEFELLER PLAZA
NEW YORK, N. Y. 10020

February 14, 1966

Mr. Lee Loevinger
Defense Commissioner
Federal Communications Commission
Washington, D.C.

Dear Mr. Loevinger:

We are advised that you seek information on steps taken by The Associated Press to remove any deficiencies in emergency preparedness revealed by the November 9th power blackout.

As previously reported, the principal handicap was a lack of immediately available auxiliary power. Various proposals for power backup currently are under active consideration.

Sincerely,

David L. Bowen

DLB/fbw

DAVID L. BOWEN
GENERAL EXECUTIVE

APPENDIX VI(M)

United Press International
GENERAL OFFICES
NEWS BUILDING, 220 EAST 42ND STREET
NEW YORK 17, N.Y.

JAMES F. DARR
GENERAL MANAGER
OF COMMUNICATIONS

February 23, 1966

Honorable Lee Loevinger, Commissioner
Federal Communications Commission
Washington, D.C.

Dear Sir:

This will comply with your request for a letter regarding UPI's plans for emergency power in case of future blackouts such as was recently experienced on the East Coast.

We have urged the foreign carriers involved with the transmission of our foreign news and picture reports via radio and cable to take steps to assure availability of emergency power in case of any future emergency. I have been advised that these steps are being taken.

UPI is exploring the possibility of setting up emergency centers in Washington, Chicago, Boston, Atlanta, Pittsburgh, Dallas, Salt Lake City, San Francisco, Los Angeles and New York City in locations that already have emergency power equipment available. It would be our plan to install teletype news and newspicture transmitting facilities at such locations. Our New York bureau is equipped with limited emergency power and we are studying the feasibility of providing power at other UPI bureaus throughout the country.

Cordially,

James F. Darr

James F. Darr

JFD:jmc

February -- 1966

CHAIRMEN AND VICE CHAIRMEN
STATE INDUSTRY ADVISORY COMMITTEES

	Address	Telephone No.
ALABAMA		
James A. Hudson (Chairman)	Radio Station WHMA 1330 Noble Street Anniston, Alabama 36201	205-236-7545
William P. Hannigan (Vice-Chairman)	Southern Bell Telephone & Telegraph Co. 1706 Second Avenue, North Birmingham, Alabama 35903	205-328-2797
ALASKA		
Alvin O. Bramstedt (Chairman)	Radio Station KENI P. O. Box 1160 Anchorage, Alaska 99501	FA-2-1270
John Griffin (Vice-Chairman)	Television Station KTVF P. O. Box 509 Fairbanks, Alaska 99701	GL-2-3636
ARIZONA		
Sheldon A. Engel (Chairman)	Radio Station KALF P. O. Box 1510 Mesa, Arizona 85202	602-964-5641
Harold B. Klaiber (Vice-Chairman)	Mountain States Telephone and Telegraph Co. 16 W. McDowell Road Phoenix, Arizona 85003	602-258-3611
ARKANSAS		
Sam Anderson (Chairman)	Radio Station KFFA Helena National Bank Building Helena, Arkansas 72342	501-HI-4-2361
Russell M. McKinney (Vice-Chairman)	Southwestern Bell Telephone Co. 900 West Capitol Street Little Rock, Arkansas 72201	501-FR-2-1701

CALIFORNIA

Philip G. Lasky (Co-Chairman - Northern)	Radio Station KPIX 2655 Van Ness Avenue San Francisco, California 94109	415-393-7334
Loyd Sigmon (Co-Chairman - Southern)	Radio Station KMPC 5939 Sunset Boulevard Hollywood, California 90028	213-468-1037
S. E. Henderson (Vice-Chairman)	Pacific Telephone & Telegraph Co. 116 New Montgomery Street Room 804 San Francisco, California	415-968-5216

COLORADO

Harry W. Hoth (Chairman)	Radio Station KRDO P.O. Box 1457 Colorado Springs, Colorado 80901	303-632-1515
Joseph O. Bean (Vice-Chairman)	Mountain States Telephone & Telegraph Company 931 - 14th Street 1st Floor Denver, Colorado 80202	303-266-4211

CONNECTICUT

Fred G. Edwards Chairman)	Radio Station WTIC 3 Constitution Plaza Hartford, Connecticut 06115	203-632-1515
Donald B. Henderson (Vice-Chairman)	Southern New England Telephone Co. 227 Church Street New Haven, Connecticut 06506;	203-771-3351

DELAWARE

Ewing B. Hawkins (Chairman)	Radio Station WILM 920 King Street Wilmington, Delaware 19801	302-OL-4-7771

DELAWARE (Con't)

Thomas D. Callahan (Vice-Chairman)	Bell Telephone Co. of Pa. One Parkway Philadelphia, Pennsylvania 19102	215-466-3874

DISTRICT OF COLUMBIA

Granville Klink, Jr. (Chairman)	Radio Station WTOP 40th & Brandywine Streets, N. W. Washington, D. C. 20016	202-244-5678
Allen Powley (Vice-Chairman)	Radio Station WMAL 4461 Connecticut Avenue, N. W. Washington, D. C. 20008	202-KE-7-1100
John G. Rogers (Alternate Vice-Chairman)	Radio Station WRC 4001 Nebraska Avenue, N. W. Washington, D. C. 20016	202-EM-2-4000

FLORIDA

William J. Ryan (Chairman)	Radio Station WNOG P.O. Box 1128 Naples, Florida 33940	305-MI-2-5127
Charles L. Wentworth (Vice-Chairman)	Southern Bell Telephone and Telegraph Company P.O. Box 390 Jacksonville, Florida 32201	904-353-2131

GEORGIA

James W. Woodruff (Chairman)	Radio Station WRBL 1350 13th Avenue Columbus, Georgia 31902	404-324-2441
Harry F. Whitney (Vice-Chairman)	Southern Bell Telephone and Telegraph Company 805 Peachtree Street, NE Atlanta, Georgia 30308	404-529-8611

HAWAII

William O. Paine, (Chairman)	Radio Station KGU P.O. Box 3110 Honolulu, Hawaii 96802	563-626
Louis W. Robello (Vice-Chairman)	Hawaiian Telephone Company 1130 Alakea Street Honolulu, Hawaii 96805	577-833

IDAHO

James A. Johntz, Jr. (Chairman)	Radio Station KBOI P.O. Box 2600 Boise, Idaho 83701	208-342-9331
Carroll Valentine (Vice-Chairman)	Mountain States Telephone and Telegraph Co. 619 Bannock Street Boise, Idaho 83702	208-343-7581

ILLINOIS

Joe M. Baisch (Chairman)	Station WREX-TV Auburn & Winnebago Roads Rockford, Illinois 61105	815-331-1096
Charles J. Stadtman (Vice-Chairman)	Illinois Bell Telephone Co. 219 S. 4th Street Springfield, Illinois 62701	217-544-9981

INDIANA

Lester G. Spencer (Chairman)	Radio Station WKBV 2301 West Main Street Richmond, Indiana 47375	317-962-6533
C. A. Anthony (Vice-Chairman)	Indiana Bell Telephone Co. 240 N. Meridian Street Indianapolis, Indiana 46204	317-ME-5-9811

IOWA

Paul A. Loyet (Chairman)	Radio Station WHO 1100 Walnut Street Des Moines, Iowa 50307	515-288-6511
John E. Van Ninwegen (Vice-Chairman)	Northwestern Bell Telephone Co. 909 High Street Des Moines, Iowa 50309	515-244-6161

KANSAS

Paul A. Winders (Chairman)	Radio Station WIBW P.O. Box 119 Topeka, Kansas 66601	913-323-6151
Marion M. Christensen (Vice-Chairman)	Southwestern Bell Telephone Co. 823 Quincy Street Topeka, Kansas 66612	913-CE-4-9911

KENTUCKY

James M. Caldwell (Chairman)	Radio Station WAVE 725 S. Floyd Street Louisville, Kentucky 40203	502-895-2201
Walter D. Bales (Vice-Chairman)	Southern Bell Telephone and Telegraph Company P.O. Box 538 Louisville, Kentucky 40201	502-584-9011

LOUISIANA

Raymond Boyd (Chairman)	Radio Station KNOE P.O. Box 1472 Monroe, Louisiana 71205	318-325-2240
Arnold L. Taylor (Vice-Chairman)	Southern Bell Telephone and Telegraph Company 1215 Prytania Street New Orleans, Louisiana 70130	504-529-9011

MAINE

Carleton Brown (Chairman)	Radio Station WTVL 36 Silver Street Waterville, Maine 04901	207-873-3311
Robert L. Catell (Vice-Chairman)	New England Telephone & Telegraph Company 139 State Street Augusta, Maine 04330	207-623-9930

MARYLAND

John T. Wilner (Chairman)	Radio Station WBAL 3800 Hooper Avenue Baltimore, Maryland 21211	301-467-3000
Richard H. Green (Vice-Chairman)	C & P Telephone Company 320 St. Paul Place Baltimore, Maryland 21202	301-539-9900

MASSACHUSETTS

Wilmer C. Swartley, Jr. (Chairman)	Radio Station WBZ 1170 Soldiers Field Road Boston, Massachusetts 02134	617-AL-4-5670
Victor P. McDavitt (Vice-Chairman)	New England Telephone and Telegraph Company 185 Franklin Street Boston, Massachusetts	617-743-9800

MICHIGAN

Charles Kocher (Chairman)	Radio Station WXYZ Broadcast House 20777 West Ten Mile Road Detroit, Michigan 48219	313-KE-4-7000
Lee M. Augustus (Vice-Chairman)	Michigan Bell Telephone Company 23500 Northwestern Highway Southfield, Michigan 48076	313-544-9900

MINNESOTA

MINNESOTA

John M. Sherman (Chairman)	Radio Station WCCO 625 Second Avenue, South Minneapolis, Minnestoa 55402	612-FE-2-1202
(VACANT)		

MISSISSIPPI

Granville Walters (Chairman)	Radio Station WNSL P.O. Box 2336 Laurel, Mississippi 39441	601-425-1491
George T. Sheffield (Vice-Chairman)	Southern Bell Telephone & Telegraph Company P.O. Box 811 Jackson, Mississippi	601-948-0911

MISSOURI

G. Pearson Ward (Chairman)	Radio Station KTTS P.O. Box 1716 Springfield, Missouri 65805	417-865-6614
Michael A. Carroll (Vice-Chairman)	Southwestern Bell Telephone Co. 1010 Pine Street, Room 508 St. Louis, Missouri 63101	314-CH-1-9800

MONTANA

Richard S. Kober (Chairman)	Radio Station KGHL P. O. Box 1746 Billings, Montana 59101	406-252-4641
Elias M. Willis (Vice-Chairman)	Mountain States Telephone & Telegraph 560 North Park Avenue Helena, Montana 59601	406-442-7050

NEBRASKA

(VACANT)

Charles J. Raffensperger (Vice-Chairman)	Northwestern Bell Telephone Co. 100 South 19th Street Omaha, Nebraska	402-341-6000

NEVADA

Lee D. Hirshland (Chairman)	Station KOLO-TV P.O. Box 2610 Reno, Nevada 89505	702-358-0132
Carl E. Ernest (Vice-Chairman)	Bell Telephone of Nevada 12 State Street Reno, Nevada	702-323-2211

NEW HAMPSHIRE

Parker H. Vincent (Chairman)	Mt. Washington TV, Inc. (PO Box Jackson, New Hampshire 161)	207-SP-3-5664
William M. Cott (Vice-Chairman)	New England Telephone & Telegraph Co. P.O. Box 527 Laconia, New Hampshire	603-524-9911

NEW JERSEY

John Struckell (Chairman)	Station WFPG Steel Pier Atlantic City, New Jersey	609-345-2188

(VACANT)

NEW MEXICO

NEW MEXICO

George S. Johnson (Chairman)	Radio Station KOB P. O. Box 1351 Albuquerque, New Mexico 87103	505-243-4411
William G. Dale (Vice-Chairman)	Mt. States Tel. & Tel. Company 625 Silver, S. W. Albuquerque, New Mexico 87102	505-765-6611

NEW YORK

E. R. Vadeboncoeur (Chairman)	Radio Station WSYR 1030 James Street Syracuse, New York 13203	315-GR-4-3911
Alan Burgess (Co-Vice-Chairman)	Radio Station WSYR 1030 James Street Syracuse, New York 13203	315-GR-4-3911
Vincent P. Herzog (Vice-Chairman)	New York Telephone Company 158 State Street Room 906-A Albany, New York 12207	518-463-9971

NORTH CAROLINA

Robert M. Wallace (Chairman)	Radio Station WOHS P. O. Box 1401 Shelby, North Carolina 28150	704-487-6313
Eddie M. Veale (Vice - Chairman)	Southern Bell Tel. & Tel. Co. P. O. Box 240 Charlotte, North Carolina 28201	704-372-2515

NORTH DAKOTA

William A. Eckberg (Chairman)	Radio Station KFYR Fourth at Broadway Bismarck, North Dakota 58502	701-CA-3-0900
James C. Jackson (Vice - Chairman)	Northwestern Bell Telephone Co. Forum Building Fargo, North Dakota 58102	701-235-1141

OHIO

Mrs. Jeanette Heinze (Chairman)	Radio Station WCKY 501 Carew Tower, Cincinnati, Ohio	513-577-1666
George E. Melvin (Vice-Chairman)	Ohio Bell Telephone Company 221 North Front Street Room 504 Columbus, Ohio 43215	614-227-9911

OKLAHOMA

J. R. Bellatti, (Chairman)	Radio Station KSPI Stillwater, Oklahoma 74074	405-FR-2-7800
Robert L. Christian (Vice-Chairman)	Southwestern Bell Telephone Co. 705 South Elgin Street Tulsa, Oklahoma 74120	918-LU-5-6911

OREGON

Rodney F. Johnson (Chairman)	Radio Station KWJJ 931 S. W. King Avenue Portland, Oregon 97205	503-228-4393
Richard C. Chamberlin (Vice-Chairman)	Pacific Northwest Bell Telephone Co. 509 Southwest Oak Street Portland, Oregon 97204	503-224-6261

PENNSYLVANIA

John S. Booth (Chairman)	Radio Station WCHA Professional Arts Building Chambersburg, Pennsylvania 17201	717-CO-4-7121
Thomas D. Callahan (Vice-Chairman)	Bell Telephone Co. of Pennsylvania One Parkway Philadelphia, Pennsylvania	215-466-3874

RHODE ISLAND

H. William Koster (Chairman)	Radio Station WEAN 75 Fountain Street Providence, Rhode Island 02902	401-DE-1-0600
Charles P. Hughes (Vice-Chairman)	New England Telephone and Telegraph Company 234 Washington Street Providence, Rhode Island 02903	401-525-9950

SOUTH CAROLINA

Harry C. Weaver (Chairman)	Radio Station KOKE P.O. Box 183 Charleston, South Carolina 29402	803-RA-3-1643
James M. Calvert (Vice-Chairman)	Southern Bell Telephone Company Room 812 Owen Building Columbia, South Carolina	803-256-9092

SOUTH DAKOTA

Max F. Staley (Chairman)	Radio Station KIJV 1726 Dakota Avenue, South Huron, South Dakota 57350	605-352-8621
Howard M. Scott (Vice-Chairman)	Northwestern Bell Telephone Co. 132 South Dakota Avenue Sioux Falls, South Dakota 57102	605-336-2120

TENNESSEE

Henry W. Slavick (Chairman)	WMC Stations 1960 Union Avenue Memphis, Tennessee 38104	901-274-8515
Chester A. Jones (Vice-Chairman)	Southern Bell Telephone Company Green Hills Office Building Nashville, Tennessee 37215	615-244-9011

TEXAS

Durward J. Tucker (Chairman)	Radio Station WRR Fair Park Dallas, Texas 75226	214-TA-3-6101
John T. Mayfield, Jr. (Vice-Chairman)	Southwestern Bell Telephone Co. 702 Life Building Dallas, Texas 75202	214-RI-7-5311

UTAH

Reed Bullen (Chairman)	Station KVNU P.O. Box 264 Logan, Utah 84321	801-752-5141
Willard H. Morton (Vice-Chairman)	Mountain States Telephone and Telegraph Company 70 South State Street Room 504 Salt Lake City, Utah 84111	801-524-7200

VERMONT

E. Dean Finney (Chairman)	Radio Station WTWN Concord Avenue St. Johnsbury, Vermont 05819'	802-748-2344
Cedric A. Lavalla (Vice-Chairman)	New England Telephone and Telegraph Company 260 College Street Burlington, Vermont 05404	802-862-9964

VIRGINIA

Frank Soden (Chairman)	Radio Station WRNL P.O. Box 6792 Richmond, Virginia 23230	703-282-9731
Hunter W. Hughes (Vice-Chairman)	C & P Telephone Company 703 E. Grace Street Richmond, Virginia 23219	703-648-9121

...GTON

James C. Upthegrove (Chairman)	Radio Station KIRO 1530 Queen Anne Avenue, North Seattle, Washington 98109	206-AT-3-9800
Stewart S. James (Vice-Chairman)	Pacific Northwest Bell Telephone Co. 1915 Terry Street Seattle, Washington 98101	206-MU-2-9000

WEST VIRGINIA

John Shott (Chairman)	Radio Station WHIS Municipal Building Bluefield, West Virginia 24701	304-327-7115
Richard H. Ayre (Vice-Chairman)	C & P Telephone Company 816 Lee Street Charleston, West Virginia 25301	304-343-9911

WISCONSIN

Paul J. Mueller (Chairman)	Radio Station WBKV P. O. Box 60 West Bend, Wisconsin 53095	414-334-2344
Donald R. Bye (Vice-Chairman)	Wisconsin Bell Telephone Company 722 North Broadway Milwaukee, Wisconsin 53202	414-393-9300

WYOMING

Jack Rosenthal (Chairman)	Radio Station KTWO 4200 East Second Street Casper, Wyoming 82602	307-237-3711
Bill G. Lloyd (Vice-Chairman)	Mountain States Tel. & Tel. Co. 155 North Wolcott Casper, Wyoming 82601	307-235-2541

PUERTO RICO

Hector Reichard (Chairman)	Radio Station WABA P.O. Box 188 Aguadilla, Puerto Rico 00603	891-0840
Luis Romero (Vice-Chairman)	Puerto Rico Telephone Company P.O. Box 4275 San Juan, Puerto Rico 00905	

GUAM

William E. Nielsen (Chairman)	Radio Station KUAM P. O. Box 368 Agana, Guam, M.I.	Phone: 7961
John Driver (Vice-Chairman)	Radio Corp. of American (RCA) P.O. Box 577 Agana, Guam	

VIRGIN ISLANDS

Raymond E. Higdon (Chairman)	Radio Station WIVI P.O. Box 931 Christiansted, Virgin Islands 00821	773-0390 or 773-0490
(VACANT)		

U.S. GOVERNMENT PRINTING OFFICE: 1986 O - 209-528

6589/308 1/18/66 Cert

LIBER 6589 PAGE 308

STATE OF NEW YORK EXECUTIVE DEPARTMENT
OFFICE OF GENERAL SERVICES

In the Matter of Compliance :
with :
the condition in Letters Patent to Consolidated Edison Company of New York, Inc., dated October 27, 1959, Hudson River, Town of Cortlandt, County of Westchester. :

CERTIFICATE

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., has applied for a certificate pursuant to the provisions of Section 14 of the Public Lands Law, certifying that compliance has been had with the conditions contained in the letters patent issued to it for a beneficial enjoyment grant of the land under the waters of the Hudson River, Town of Cortland, County of Westchester, dated October 27, 1959 and recorded in the Department of State in Book 75 of Patents at page 181.

The letters patent contain the condition that the land should be improved within five years by the filling in of the land under water.

A report of examination made by the Department of Public Works on February 23, 1965 states that:

"The following structures have been erected on the grant:

1. Intake Tunnel
2. Screen Well
3. A portion of the Main Generating Plant
4. Outlet Tunnel
5. Storage Building
6. Sand Filter Pit
7. Loading and Unloading Dock

A portion of the grant has been filled in to provide parking and working areas."

The Attorney General has submitted a report dated January 5, 1966 advising that the Commissioner of General Services may issue

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a certificate acknowledging compliance with the conditions respecting improvement if he is satisfied that the conditions respecting improvement have been substantially complied with.

I find that the conditions respecting improvement in the letters patent have been substantially complied with.

THEREFORE, pursuant to Section 14, subdivision 1 of the Public Lands Law, it is

CERTIFIED, that the Commissioner of General Services hereby acknowledges compliance with the conditions contained in letters patent issued to Consolidated Edison Company of New York, Inc., dated October 27, 1959 and recorded in the Department of State in Book 75 of Patents at page 181.

Dated: January 18, 1966

Robert D. Stone
Deputy Commissioner of General Services

STATE OF NEW YORK)
) SS.:
COUNTY OF ALBANY)

On this 18th day of January, 1966, before me the subscriber personally came Robert D. Stone, to me known and known to me to be the Deputy Commissioner of General Services of the Office of General Services, in the Executive Department of the State of New York, and known to me to be the same person described in and who executed the foregoing instrument, and he duly acknowledged to me that he executed the same as such Deputy Commissioner of General Services, for and on behalf of the said Office of General Services as the act and deed of The People of the State of New York pursuant to the statutes and order recited in the said instrument.

CHARLES H. JENNINGS
Notary Public 1966125
State of New York
Qualified in Seneca County
Commission Expires March 30, 1967

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CERTIFICATE of Compliance

THE PEOPLE OF THE STATE OF NEW YORK

TO

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

NEW YORK STATE
Department of State

January 20, 1966

JOHN P. LOMENZO
Secretary of State

Recorded in Vol. 15 of Misc. Deeds & Title Papers, at page 480.

By: Lillian W. Countryman, D.C. Clerk
Miscellaneous Records

The premises affected by the within instrument lies in Town of Cortlandt, Westchester County, N. Y.

Record and Return to
JOHN M. KEEGAN, Esq.
130 East 15th Street
New York, N. Y.

The foregoing instrument was endorsed for record as follows: The property affected by this instrument is situate in the TOWN OF CORTLANDT County of Westchester, N. Y. A true copy of the original CERTIFICATE OF COMPLIANCE

RECORDED FEB. 16, 1966 at 3:24 PM at request of JOHN M. KEEGAN

FEE: $ 5.50 No. 9474

EDWARD L. WARREN, County Clerk.

Liber 6614 Page 70

The People of the State of New York, by the Grace of God, Free and Independent,

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

MAY 19 1966

USIR STAMPS ATTACHED $

Know ye, *That*, pursuant to subdivision 7 of Section 75 of the Public Lands Law, a delegation of authority by the Commissioner of General Services in the Executive Department of our State to the Deputy Commissioner of General Services, dated November 3, 1960, and Findings made by the Deputy Commissioner of General Services dated April 21, 1966, and in consideration of the sum of Thirty-One Thousand Two Hundred Twenty Three Dollars ($31,223.00), lawful money of the United States of America, paid to us by CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., a corporation organized and existing under the laws of our State, having its principal office and place of business at No. 4 Irving Place in the Borough of Manhattan, City, County and State of New York,

WE, THE PEOPLE OF THE STATE OF NEW YORK, have granted and released and by these presents do grant and release, upon the covenants, terms and conditions hereinafter expressed, unto the said CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., the owner of the land adjacent to the land hereinafter described, its grantees and successors, hereinafter referred to as the Patentee, all those two parcels of land now or formerly under the waters of Lent's Cove, an estuary of the Hudson River, in the City of Peekskill, County of Westchester, State of New York, bounded and described as follows:

Parcel "A"

Beginning at a point on the westerly boundary of a grant of land to Standard Brands Incorporated dated July 2, 1954 said point being distant eighty-six and thirty-eight hundredths feet on a bearing of north fifty-four degrees,

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nineteen minutes, fifty seconds west from a cross cut on the easterly curb of Broadway, said point being also distant four hundred forty-five and three hundredths feet on a bearing of south twenty-eight degrees, nineteen minutes, five seconds west from an iron bolt set in concrete near the westerly edge of said Broadway on the southerly line of grant of land to Standards Brands Incorporated dated December 27, 1954; thence along the westerly line of said grant south thirty-six degrees, forty-nine minutes, twenty seconds west eighty feet to the original shore line of Lent's Cove and the Corporation Line between the City of Peekskill and the Village of Buchanan; thence along said shore line and the Corporation Line the following courses and distances: north forty-seven degrees west sixty-two and nine hundredths feet: due west ninety feet; south sixty-five degrees, fifty-six minutes, thirty seconds west one hundred twenty-two and sixty-five hundredths feet; north eighty-three degrees, thirty-one minutes west eighty-eight and fifty-seven hundredths feet; north forty-one degrees, fifty-eight minutes west twenty-six and nine tenths feet; north five degrees, eighteen minutes east one hundred forty and six tenths feet; north forty-two degrees, twenty-six minutes west forty-seven and forty-two hundredths feet; south eighty-one degrees, twenty-one minutes west thirty-three and thirty-eight hundredths feet; north eighty-five degrees, twenty-five minutes west one hundred and thirty-two hundredths feet; north thirty five degrees, fourteen minutes west twenty and eighty-one hundredths feet; north thirteen degrees west eighty and five hundredths feet; north fourteen degrees, nine minutes east one hundred twenty-two and seventy-two hundredths feet; north twenty-five degrees, twenty-eight minutes west twenty three and twenty-six hundredths feet; north eight degrees, fifty-three minutes east thirty and nine hundredths feet to a point; thence across the waters of Lent's Cove south fifty-four degrees, nineteen minutes, fifty seconds east six hundred eighty seven and seventy-three hundredths feet to the point or place of beginning, containing one hundred ten thousand five hundred thirty-six square feet of land more or less.

Parcel "B"

Beginning at a cross cut on ledge rock on the original shore line of Lent's Cove and the Corporation Line between the City of Peekskill and the Village of Buchanan, said point being distant one thousand one hundred seventy-four feet on a bearing of north fifty-four degrees, nineteen minutes, fifty seconds west from previously described point of beginning for Parcel "A"; thence across the waters of said Lent's Cove south fifty-four degrees, nineteen minutes fifty seconds east four hundred twenty-five and seventy-four hundredths feet to a point on said shore line and Corporation Line; thence along said shore line and Corporation Line the following courses and distances; south eighty-

degrees, seventeen minutes west fifty-one and fifty-nine hundredths feet; south nineteen degrees, twenty-six minutes west thirty-six and five hundredths feet; south eight degrees, eight minutes east seventy and seventy-one hundredths feet; south thirty-nine degrees, fifty-eight minutes west forty-eight and twenty-eight hundredths feet; south nineteen degrees, twenty-four minutes east fifty-seven and twenty-five hundredths feet; due south one hundred thirty-six feet; south thirty-two degrees, fifty-four minutes east eighty and ninety-nine hundredths feet; due south forty-five feet; north seventy degrees, forty-three minutes west twenty-one and nineteen hundredths feet; south seventy-one degrees, twenty-one minutes west one hundred sixty-eight and eighty-seven hundredths feet; north seventy-nine degrees, thirty-four minutes west thirty-eight and sixty-nine hundredths feet; due north one hundred fifty feet; north forty degrees, three minutes east thirty-two and sixty-six hundredths feet; north nine degrees; forty minutes west forty-seven and sixty-eight hundredths feet; north sixty-five degrees, fifty-two minutes west thirty-one and seventy-nine hundredths feet; north sixteen degrees, twenty-six minutes west two hundred eight and fifty-two hundredths feet; due north forty feet; north eleven degrees; forty-four minutes west one hundred thirty-two and seventy-seven hundredths feet; north seventeen degrees, twenty-one minutes east thirty-three and fifty-three hundredths feet; north eighteen degrees, four minutes west forty-eight and four tenths feet; due north fifty-seven feet to the point or place of beginning, containing one hundred forty thousand three hundred five square feet of land more or less.

All bearings are referred to the true meridian.

These Letters Patent are issued, however, and this grant is made and accepted upon the express condition that if, at the end of five years from the date of these presents, or at anytime thereafter, the said land hereby granted is not improved by having been filled in, behind substantial bulkheads erected and to be maintained by the Patentee, its grantees and successors, along all off-shore lines of the fill and within the area hereby granted, then these Letters Patent and this grant become null and void as to the part not so improved; and no right, title or interest in and to the land hereinabove described, not so improved, shall

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vest in the said Patentee or accrue by virtue of these presents; and we may thereupon re-enter into and become possessed of the land hereinabove described or any part thereof which has not been or which is not then so improved, without any liability.

THERE IS RESERVED to us the full and free right, liberty and privilege of entering upon and using all and every part of the above described land which has not been improved as aforesaid, as we might have done had this grant not been made.

THIS GRANT IS SUBJECT TO the presently existing riparian rights of owners along the streams and brooks which flow into the above described Parcels A and B, with respect to navigation, drainage and water rights, and all other riparian rights affecting those streams and brooks and, through those streams and brooks, affecting the above described Parcels A and B.

IT IS UNDERSTOOD, AGREED AND COVENANTED, by the Patentee, for itself and its grantees and successors, that our title in and to land under water outside of the above described Parcels A and B shall not be diminished or affected by any accretion, accumulation or addition of soil to any upland of the Patentee, its grantees and successors, occurring as a result of the aforesaid fill, erection of the aforesaid bulkheads or their effect on water currents, and any and all such resulting accretion, accumulation or addition to upland shall be our property.

LIBER 6614 PAGE 74

IN WITNESS WHEREOF, our Deputy Commissioner of General Services has executed these letters-patent in our name this 27th day of April, 1966

THE PEOPLE OF THE STATE OF NEW YORK

By Robert D. Stone

DEPUTY COMMISSIONER OF GENERAL SERVICES

STATE OF NEW YORK } ss.:
DEPARTMENT OF STATE }

I hereby certify that the Great Seal of the State of New York was hereto affixed on the twenty-second day of April, 1966

John J. Ghezzi, ~~Deputy~~ Deputy Secretary of State

Approved as to form this 3rd day of May, 1966

LOUIS J. LEFKOWITZ
Attorney General
By Edward Klaus
Assistant Attorney General

Approved this 2nd day of April 1966

ARTHUR LEVITT
State Comptroller
By

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The People of the State of New York

TO

CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.

LETTERS PATENT

STATE OF NEW YORK
Department of State

May 12, 1966

Recorded in Book of Patents

No. 78 *at page* 426

JOHN P. LOMENZO
Secretary of State

By [signature]
Lillian Countryman, Sr. Clerk
Miscellaneous Records

Form SRP 16 (3-65) 2M 4D-267)

The Property affected by this Instrument is situate in the City of PEEKSKILL in the County of Westchester, New York

STATE OF NEW YORK
OFFICE OF GENERAL SERVICES
ALBANY, N.Y.

RECORD AND RETURN
TO
JOHN M. KEEGAN
130 EAST 15TH ST
NEW YORK 3, N.Y.

The foregoing instrument was endorsed for record as follows: The property affected by this instrument is situate in the CITY OF PEEKSKILL County of Westchester, N. Y. A true copy of the original LETTERS PATENT

RECORDED MAY 19, 1966 at 11:01 AM at request of JOHN M. KEEGAN

FEE: $ 10.00 No. 28451 EDWARD L. WARREN, County Clerk.

ATOMIC ENERGY LAW JOURNAL

Volume 8 FALL, 1966 Number 3

A NEW LOOK AT NUCLEAR POWER†

By DR. GLENN T. SEABORG*

I am honored by this third invitation to speak to the Commonwealth Club of California, an organization that has been addressed by so many distinguished speakers. When I last had the pleasure of speaking to you, in June 1965, my topic—"The International Atom: Peril or Promise?"—was broad and had a few harsh overtones. Today I would like to both narrow my subject matter and place my emphasis on a most promising aspect of the atom. I believe it is fairly easy to do both since so much has happened in the field of nuclear power in the United States during the past two years that is encouraging and merits discussion.

Why is this an appropriate time for a new look at nuclear power in the U.S.? Primarily because the electric utilities in this country are accepting the large nuclear power reactor as a reliable and an economically competitive means to generate electricity and are putting a good deal of their money where their conviction is.

I was not sure that this situation would ever arise when I spoke to the Commonwealth Club ten years ago. This is what I stated on August 9, 1957: "It is too soon to say—coming back to the question of cost—whether nu-

* Chairman, U.S. Atomic Energy Commission.
† Address at Commonwealth Club of California, May 12, 1967.

clear energy will be able to compete with other forms of energy such as coal. In order to be competitive in this country, on the average, the overall cost will have to be of the order of 6 to 7 mils per kilowatt hour. That's usually the unit of energy that is used to describe this. Now, there have been some estimates by competent engineers that this will be possible. But on the other hand a number of equally competent engineers have expressed grave doubts. However, the present cost of electrical energy is greater in some areas, and in some places in the world the cost is much greater than in the United States, so that nuclear energy will in any event be competitive in such situations beginning almost immediately. It should be emphasized that nuclear energy will be important regardless of the eventual outcome of the cost situation because of its concentrated form, and hence of its possibility of doing things that no other form of energy can do at any price, and hence you can't put a cost value in dollars and cents on it."

That is what I said ten years ago. Today I am happy to say that those "equally competent" but more conservative engineers were wrong. The cost of electricity from the large water cooled nuclear power plants being constructed today is projected to be on the order of 4 to 5 mils per kilowatt hour. In addition to the economic factors promoting nuclear power is the fact that the general public is now accepting nuclear power as a safe, clean source of the electricity which every year in growing amounts becomes more essential to our way of life.

The growth of nuclear power within the past two years has been nothing short of remarkable. To explain why, let me go back a little farther in our nuclear history.

As you may recall, by the end of 1962 private industry and the electric utilities working closely with the AEC had placed in operation around the country several relatively small light water reactors to demonstrate the reliability of nuclear power to generate electricity. But as reliable as these reactors proved to be they were not economically competitive with conventional power plants, and therefore utilities were in no hurry to contract for nuclear plants on their own. A turning point began, however, late in 1963 with the announcement by the Jersey Central Power and Light Company that it had contracted for a 515,000 kilowatt nuclear plant at Oyster Creek which, according to the company's economic evaluation, would be competitive with a fossil fuel plant. This was the first case where a utility had selected a nuclear power plant on purely economic grounds, without Government assistance, in direct competition with a fossil fuel plant.

But perhaps more important from the standpoint of the nuclear industry, it was the beginning of the realization that the key to the economic success of nuclear plants was their size. Units ranging from 500,000 up to and exceeding 1,000,000 kilowatts could compete with fossil fuel plants, and in some cases would later compete successfully even in areas where these fuels were naturally abundant. Although other nuclear plants were announced in 1963 it took about a year for nuclear power to start growing significantly, and that it is now doing in an almost snowballing fashion.

In 1965 orders for ten nuclear plants with a combined capacity of more than 5,000,000 kilowatts were announced. In 1966 orders for another 29 nuclear plants with a combined capacity of more than 23,000,000 kilo-

watts were announced. As of May 1 of this year — although we expected orders to taper off—we have already had 14 new nuclear plant announcements for a total of more than 11,000,000 kilowatts. I should add that these new orders include second and third orders of nuclear plants by the same utilities. And in some cases nuclear plants are being planned essentially in the heart of coal-producing areas.

As of May 1, the U.S. had 14 nuclear plants in operation, 16 under construction, and plans had been announced for the construction of 43 additional nuclear power plants. The total capacity of these 73 plants will be about 44,000,000 kilowatts. And this is enough electricity to take care of all the electric power needs of more than 30 million people.

What is perhaps even more indicative of the sudden success of nuclear power is the fact that the 29 nuclear power plants announced last year represented 55 per cent of the steam-electric generating capacity announced by the utility industry in 1966.

At this point let me inject the thought that while economics played a major role in the surge of nuclear power, another advantage of nuclear power has recently been getting its fair share of attention, and rightfully so. There has been a growing awareness that nuclear plants are clean sources of power which do not contribute to the current burden of air pollution.

All this has given some trouble to those of us whose business involves projecting the growth of nuclear power. We have had to continue updating our projections. For example, when I spoke to this organization in 1965 I was enthused about the fact that we were predicting about

6,000,000 kilowatts of nuclear power in operation by 1970. Today, only two years later, we are confident that we will reach 10,000,000 kilowatts by 1970. I also stated two years ago that we might have 70,000,00 kilowatts of nuclear power installed by 1980. Today the AEC is predicting more than 100,000,000 kilowatts by that date. And some analysts are already calling our current forecast far too conservative.

This remarkable growth of nuclear power has not been the result of an interest in the atom alone. Our use of all energy sources is growing, and particularly our demand for electricity which has for some time been doubling every decade. Many of us feel that the growing economic competitiveness of nuclear power is only a first step in a process which will see the atom dramatically affecting our ability to produce electric power at an increasingly lower cost. As the cost of nuclear power comes down through the introduction of more efficient and larger nuclear systems, so will the competitive cost of other power resources be reduced. The results of these reductions could mean substantial savings to the consumer. It has been projected that sometime within the coming decades, on a saving of as little as 1 mil per kilowatt hour, the power-consuming public in the U.S. could begin to profit by savings of more than a billion dollars a year!

This type of reward and perhaps even far greater benefits could be possible through the use of large breeder reactors. The breeder reactor creates new fissionable material for refueling itself and other reactors while producing power. The extensive use of large breeder reactor systems (and we are at work today developing

these) could offer electric power cheap enough to revolutionize much of our industry from both a technological and economical standpoint. One can see very low-cost nuclear electricity and process heat radically affecting the way we obtain our water, grow our food, control and recycle our waste, process our raw materials and produce our new products.

During the past year or so I have, on several occasions, projected some thoughts on a highly automated, nuclear-powered industrial complex that would desalt seawater, process natural resources, recycle old materials, and turn out new products while also supplying electricity to distant cities and transportation systems. Such complexes, many parts of which might even be underground, many someday allow us to live in a junkless, unpolluted world where our cities and our countryside can be relatively independent of our heavy industry. Admittedly, all this is not just around the corner, but based on developments taking place today and the type of environmental thinking engaged in by many of our leading scientists, engineers and social planners, the potential is there. And the current acceptance of nuclear power today is an important step toward this kind of goal.

Now, having established the present status and future promise of nuclear energy in the U.S. in general, let me address myself specifically to its impact upon this great State of California. California has been accustomed to being first among the states in many things—or, if not first in each and every category, at least having the near-term potential of being first. California is the state which has had, in the last five years, a net increase of 300,000 people per year. It is a state in which the

population has grown from 7,000,000 in 1940 to 20,000,000 today—a figure which makes it the most populous state in the Union. Its Gross State Product has risen from approximately $7.2 billion in 1940 until today it has reached more than $85 billion, while its Gross Personal Income rose from a 1940 level of about $6 billion to the point today where it exceeds $65 billion. California's dynamism has almost reached the category of a household word throughout the nation. Even the would-be detractors of the state stand a bit in awe at times of its past accomplishments and future potential.

If I were to stop here, I might well qualify as a member in good standing of the Chamber of Commerce. Unfortunately, there is a darkening cloud which looms over all this, one which is of concern to me as a Californian and to other Californians. This great social, cultural, industrial complex that has blossomed here on the West Coast is in the real sense of the word a "High Energy Society." I have used that term over the past several years to describe a truly modern technological culture whose measure of advancement can almost be equated to its consumption of energy and particularly energy in its most useable form, electricity—electricity to power industry, electricity to help produce and process a plentiful harvest, electricity to air-condition the home.

Up until the past few years, California has been blessed with nearby resources of hydro power, supplemented by efficient electricity generating steam plants. Unfortunately, with the advent of the air pollution problem, it has been necessary to place certain restrictions on the fuels that electricity generating steam plants could burn—restrictions which generally require cleaner burn-

ing, higher cost fuel. Coincidentally with this, most of the potential hydroelectric sources have now been tapped.

Today, the State of California and its citizens are faced with momentous questions. There are demands for increased energy now, and even greater demands can be foreseen tomorrow. Some of these may spring from essentially new developments. For example, it has recently been estimated by the Federal Power Commission that by 1985 electric automobiles in the U.S. might require approximately 50 billion kilowatt hours of electricity annually. Since California has more than ten per cent of all the automobiles registered in the U.S.—and its share seems to be increasing every year—at least another five billion kilowatt hours of electricity could be added to this State's annual demand for electricity by that time, if these non-polluting cars are in common use by then. And the current interest in them seems to make at least a good portion of that a good possibility.

If California were to proceed along the path that it has in the past, relying on the traditional sources of electric energy, there is no doubt that the cost of energy would increase substantially in the coming years. This is directly related to the fact that the new increments of electric energy required would have to be supplied by electricity generating steam plants fueled with cleaner burning, higher cost fuel.

If there were no alternative source of electric energy available to California, I could predict some rather dire economic consequences for its future. For after all, California is not the only high energy sector in our country. The East Coast, the Midwest, and the South are all

burgeoning and growing. California may be a step ahead in the race at this point, but the race is not over. If California had to make do with significantly higher cost electric energy than other areas of our great Nation, California might well find itself falling behind in the race while other high energy sectors of our nation forge ahead to build the scientific and technological societies of the 70's and 80's.

Now, of course, there is an alternative. As a Californian, I would not have painted this black a picture if there were not a way out. As Chairman of the U.S. Atomic Energy Commission, I am happy to suggest as an alternative the use of nuclear power. As I indicated earlier in my remarks, nuclear power is here today—it is a real honest-to-goodness alternative. Utility officials say it can produce electric energy competitvely, not only as compared to conventional fuel here, but competitively with other areas of the country. This latter point arises from the fact that the cost of producing nuclear energy is largely independent of geography. No massive quantities of fossil fuels need to be transported daily, weekly, or monthly to the generating plants. Instead, every year or two only small amounts of new nuclear fuel need to be brought in and the safely packaged waste products taken out for re-processing and disposal elsewhere.

A further benefit of nuclear power, and one that I touched on before, is that it does not contribute to the air pollution problem. Nuclear plants do not create combustion products. Nuclear energy is a clean source of power and, in fact, it is possible to construct nuclear power plants without tall stacks or chimneys. Such a

power plant is being built in New York State today.

With all of this going for it, the obvious question is why isn't the California countryside sprinkled with nuclear generation stations? One answer to this is that there have been problems in bringing nuclear power here which are specific to this area of the country. And I will discuss these in a moment.

Logically, California should be among the foremost users of nuclear power. California was an early leader in the nuclear age, with the pioneering work of Professor E. O. Lawrence at the Radiation Laboratory of the University of California, a laboratory with which I was fortunate enough to be associated for some years.

Nuclear power also had an early beginning here with the Sodium Reactor Experiment generating facility outside of Los Angeles and the Vallecitos boiling water reactor outside of San Francisco. While both of these experimental units have now ceased operation, they were followed by the Humbolt Bay nuclear power plant of Pacific Gas and Electric Company, which is operating successfully and reliably today. This nuclear power plant near Eureka was one of this country's first ventures in the use of the power of the nucleus to provide electric power for our homes. Its initial operation in February 1963 followed closely the startup of the pioneer Yankee and Indian Point reactors on the East Coast and the Dresden Nuclear Power Station in the Midwest near Chicago.

Since then a number of problems have clearly slowed the pace of development of nuclear power in California. Resolution of these problems will require patience and understanding. Their solution will require not only the

best efforts of the AEC but also of the people of California, their State and local governments, their utilities and industries, and their citizen organizations.

As you are all well aware, the safety of nuclear power reactors is a major responsibility of the Atomic Energy Commission. Our emphasis has been and will continue to be based on a conservative approach to this important regulatory responsibility, with the public's well-being considered first and foremost. In our view, reactor location, or siting, is one of the most important considerations related to public safety during this present period when operating experience with nuclear power reactors is being accumulated.

Thus, we consider it to be vitally important that locations be selected for large power reactors based upon a careful, thorough, and objective evaluation of all the environmental factors which can potentially affect reactor safety. Of crucial and unique importance to the siting of power reactors in California are the geological and seismological conditions of this part of the country.

The immediate question which then comes to mind is, are there any sites in California seismically adequate for the construction of nuclear power reactors? And, if so, how can they be identified? The answer to the first question is a resounding yes. In a state approximately 800 miles long and 300 miles wide, there are areas which are not beset by major active faults and other significant seismic features. In answer to the second question, the AEC and its earth science consultants stand ready to assist prospective applicants in the site selection process when the relative geological and seismological considerations of alternate sites are being considered.

In addition, the AEC and the U.S. Geological Survey have embarked on a related program to gather together all pertinent information on the history of faulting along several of the major California fault systems. This information, even though as yet incomplete, can now be used by Survey personnel in providing their consultative advice to the AEC on potential seismic effects at alternate sites which a prospective applicant may have under consideration. Of course, when this work is completed, it will be published and publicly available to all.

Finally, the AEC is supporting a large research and development program whose purpose is to develop reactor design features which can reliably compensate for some of the geological and seismological conditions such as those found here in California. This program is being coordinated by our Oak Ridge National Laboratory and will develop conceptual designs of reactor plants which would accommodate moderately severe seismic effects, including permanent ground displacement.

Assuming that it is possible to site reactors here in California which will meet the high safety standards set by the AEC, there would still remain some real issues to be resolved. As a Californian myself, I am aware of the great heritage of natural beauty which we enjoy in this State. We have been blessed with an environment that is the envy of the other states. When we look about us and see the effects of air pollution and the damage ofttimes wreaked by man upon nature, there are many of us who would wish to put a stop to it all. Of course, the extreme is not the answer to this situation.

We cannot, nor do most of us want to, return to a primitive state in order to retain our planet in a totally unspoiled and unsullied form. The needs of man and society both for creature comforts and basic necessities require that we make use of our natural resources.

But I sincerely believe, as I know many others do, that it is possible for civilized man to coexist with nature. It is not an "either/or" situation. A rational man can both enjoy and use his environment. There is a constructive approach – an approach of reason which must be applied to the future growth of the State and to nuclear power plants in it. For if this State is to continue to grow and prosper and flourish, new nuclear electric generating facilities will have to be constructed. By their very nature, these new facilities will require cooling water, and the general trend is to place them along the coast or near large rivers, both of which are scenic and recreational areas. If we proceeded to build plants randomly along our coast and waterways with no regard for conservation and scenic beauty, I would be as much concerned as any other Californian. But, again, constructive reasonableness would seem to say that carefully selected sites can be found along our coasts and waterways for the generating plants needed to meet the future high energy requirements of the California area, that it will be possible for natural beauty and nuclear plants to coexist. In this regard, I am greatly encouraged by the constructive reasonableness shown by the members of the Sierra Club in their recent decision concerning the Diablo Canyon site for a nuclear plant.

A few people may still feel we can always revert to

more traditional lines and build only fossil fuel generating plants. But complete reliance on such plants may not be much of an alternative in the future, when limited fossil fuels grow more costly and air pollution restrictions grow more stringent. And, if one pauses to reflect for a moment, in addition to its other advantages, a nuclear power plant may be more aesthetic than a fossil fuel plant. There need be no coal pile or large fuel storage area at the plant site, nor continuous rail traffic to and from the site. Nuclear power plants — without tall stacks — can offer relatively attractive buildings designed to blend into the surroundings. They can be the type of facilities that lend themselves to coexistence with nature.

An example, which may be a bit embarrassing to us Californians, but nonetheless a good example of what can be done in the way of coexisting with nature, is the Turkey Point Nuclear Plant in Florida. Florida Power and Light Company is working with the Tropical Audubon Society, the Boy Scouts, the Girl Scouts and other citizen groups to use the area surrounding and adjacent to the plant as a wildlife preserve and recreation area. On the 1700-acre site surrounding the power complex, which will include two large nuclear plants, there has already been created a 1500-acre wildlife sanctuary, the Boy Scout and Girl Scout Camps (discreetly separated), two nature trails, a new beach and picnic area, and four miles of canals which will be available for canoeing and boating. The wildlife preserve, by the way, is the home of more than 100 kinds of birds, raccoons, foxes, otters, bobcats, panthers and alligators. Orchids and native ferns abound in the area. And all this variety of life

will continue to thrive there while the nuclear plants quietly go about their necessary job of generating electricity for the growing communities of Southern Florida.

But enough about Florida! Being an old Californian and imbued with California's capabilities, I am certain that this State will be more than a match for any other. I feel confident that California and its people will continue to progress and prosper in the High Energy Society which lies ahead of us in the decades to come. I am also certain that it will be possible for the people of this State to enjoy the benefits of an increasingly scientific and technological society while still protecting and enjoying their natural heritage.

One benefit of nuclear power that I think California will be the first to enjoy is that of large scale nuclear desalting. The dual-purpose nuclear electric and desalting plant currently being planned for the Los Angeles area by the Metropolitan Water District, the City of Los Angeles, the Southern California Edison Company and the San Diego Gas and Electric Company, the AEC, and the Office of Saline Water of the Department of the Interior will be the world's largest nuclear desalting plant. It will generate 1,800,000 kilowatts of electricity and desalt 150 million gallons of water per day. (I often point out that this is enough water to supply the needs of a city the size of San Francisco, but then some wag usually asks, "How come you're building it in Los Angeles!")

As Chairman of the AEC, one of the most interesting phenomena I have observed in recent years and often commented on is our growing awareness that modern science and technology must serve and not dominate

man. In a democratic society this can happen only when all men try to understand something of the forces of science and technology, their environment, and their common goals. With some understanding of these, some patience, and some imaginative leadership, plans can be laid, rational decisions made, and real progress can take place.

Nuclear energy today is a force that lends itself to such progress. And the fullest use of its enormous potential will not depend solely on the work of a few scientists, or the AEC, or the power industry, or the electric utilities. It may depend to a great extent on the understanding and cooperation of the power-consuming public. I hope you will help us in our efforts to use this great new source of power widely and wisely so that the promise which it is beginning to fulfill today can be more fully realized in that rapidly approaching tomorrow.

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ATOMIC POWER DEVELOPMENT IN NEW YORK STATE†

By OLIVER TOWNSEND*

It is indeed a pleasure for me, whose education and experience has been primarily in the field of political science, to have this opportunity to participate in this occasion acknowledging scholarly achievement in the field of the natural sciences.

It is a particular pleasure to be able to do this here at Manhattan College, whose leadership in nuclear technological education is such a valuable component of this state's nuclear resources.

I congratulate those of you whose excellence in science is being recognized today by your induction into Sigma Xi, and I wish you every continued success in the pursuit of your well chosen careers.

You are in fact involving yourselves in careers in science at a most exciting point in time—when the results of the work of scientists and technologists are tumbling out of the laboratories at such an impressive rate that one of the principal challenges of our era is that of determining how these results can most effectively and fairly be absorbed into the overall socio-economic scheme of things, with minimum disruptive effect and maximum realization of their almost limitless potential for good.

It is here, I think—in this need to meld the products of the scientific revolution with the tested essence of the American political and economic system, innovating

* Chairman, New York State Atomic and Space Development Authority.

† Address at Eleventh Annual Sigma Xi meeting, Manhattan College, N .Y., May 10, 1967.

where necessary but not at the expense of doing violence to the system—that the aims of the natural scientist and of the political scientist begin to converge, with the result that a good natural scientist, if he wants to see the fullest and best use made of the products of his work, should probably now consider becoming just a little bit of a political scientist too, and, of course, vice versa.

It was on last March 28th that Brother Gabriel Kane invited me to speak here tonight on the subject of atomic power development in New York State.

To me, this is a most appropriate subject, not only because New York State currently leads the nation in the construction of atomic electric generating capacity, but also because of the very close inherent relationship that exists between atomic power and science.

Atomic power, more than any other source of energy, is a product of the scientific revolution. It is also a very good example of the kind of scientific development that—because of its origins, its striking success and enormous future significance—is not automatically capable of being absorbed into the socio-economic scheme of things without at least some disruptive effect.

This absorption problem is essentially one of political philosophy. In other words, it is a problem primarily of determining, under the American political and economic system, the degree to which the device of direct government ownership and management should be employed to protect the public's obviously vital interest in the use that is made of commercially significant products emerging from scientific programs, often sponsored in large part by the government itself.

Atomic power is not the only product of the scientific

revolution that has provoked national soul-searching and debate with respect to this problem. Another example is the communications satellite, where we have seen, as part of the national effort to solve the problem, the creation by Congress of the organizational innovation known as Comsat, which is a federally chartered private corporation seeking—in the international communications field—to combine the advantages of the private enterprise system with a carefully measured accommodation of the public interest through government participation in the corporation's policy-making processes.

Not all of the problems of the absorption of the communications satellite have yet been definitely settled, however, especially as they affect the establishment of a domestic communications satellite system, and neither have they been settled with respect to atomic power.

Of all of the manifestations of the government-versus-private ownership problems, in fact, by far the most volatile and emotion-charged occurs in the field of power. This is because, unlike the communications industry, for example, the power industry already has government ownership in it to a substantial degree, so that there is not only political philosophy involved, but also substantial vested interests on both sides.

Unfortunately—and I say "unfortunately" because, as an administrator, I am keenly aware of the inhibiting effect that controversy almost always has on technological progress, and most certainly has had in this instance—the New York State atomic development program during the closing days of the last session of the State Legislature became a prime focal point of the contending national pressures that have built up over many

decades around the virulent government-versus-private power issue.

We did not seek to be a pressure point on this national issue, but now that we are—or more accurately have been made to be, through the working of the national forces involved—it is important, I feel, that we try to understand the issue as it affects atomic power development in New York State.

The government-versus-private power alignment in this country breaks down roughly into a little over 20% government, including municipal systems and government-financed cooperatives, and a little under 80% private.

Historically, government power has for the most part been produced from falling water, which long ago was largely taken over by government as a power source when federal agencies—under a now-generally accepted, Constitutionally-derived prerogative—began developing the navigable rivers of the country for a variety of purposes such as navigation, flood control and irrigation as well as power generation.

Private power, on the other hand, has for the most part been produced by thermal means—that is, from the heat generated by the burning of coal, oil and natural gas, which were long ago largely taken over by private enterprise through private development and productive utilization.

At the risk of some over-simplification, I think it is fair to say that most of the controversy that has been provoked by the government-versus-private power issue in this country, at least in recent decades, has centered on the question of the degree to which, and the mech-

anisms through which, government agencies and government-supported agencies should be authorized and funded to engage in the production of power by thermal means.

To date only one large federal hydroelectric agency has been so authorized. This is the Tennessee Valley Authority which was expressly authorized by Congress to build its first thermal plant in 1940 and its second in 1949. Today, over 80% of the power produced by the TVA—which has become the largest single power-producing organization in the country—is by thermal means.

It is in this type of metamorphosis that the private sector of the American power economy perceives the seeds of its ultimate demise. On the other hand, it is in the possibility of their perpetual confinement to a primarily hydro future that government power advocates perceive for government a steadily diminishing relative status in the national power economy.

It is into this situation that the scientists have delivered the phenomenon of atomic power.

Atomic power under the current state of its technology is produced from atomic energy by thermal means—that is, through the use of nuclear fuels to generate heat which is in turn converted into electricity. It is, therefore, so far as its source of energy is concerned, more like coal, oil and natural gas than it is like falling water.

Atomic power, however, unlike power derived from coal, oil and natural gas, is to a large extent an outgrowth of governmental research and development programs. It therefore could be interpreted to be, in that respect at least, analogous to power derived from falling water.

On the other side of the coin, however, is the fact

that the governmental research and development activity that has produced atomic power was undertaken, and largely has been carried on, for military rather than civilian purposes—suggesting that a case might reasonably be made for considering atomic power to be simply the type of technological spin-off that industry regularly takes from government programs, with government encouragement, and absorbs into the commercial world, such as aviation and computer technology.

It is in this ambiguous derivation and character of atomic power that one finds much of the source of the controversy that has surrounded the problem of how this basic new energy source should be incorporated into the very taut government-versus-private power alignment prevailing in this country. And when one considers that, during the past 18 months, over half of all the new electric generating capacity ordered in this country was atomic—and that by 1980 over 25% of all the power generated in the country is estimated to be atomic—then one begins to understand the significance of the problem to the parties involved, as well as to the nation.

Actually this problem has been dealt with more than once at the national level—most notably in connection with the adoption in 1954 of legislation, often called the "private ownership" law, which made it possible for others than the federal government to own and operate atomic power stations. Prior to then, the national atomic energy program had been a statutorily-imposed federal monopoly, administered at first by the U.S. Army under its wartime powers, and subsequently, following World War II, by the then newly-created U.S. Atomic Energy Commission.

During this early period, for national security reasons, private enterprise was effectively excluded from participating in atomic development except as a contractor to the federal government.

By 1953, the Atomic Energy Commission had concluded, and so informed the Congress, that, in order to achieve the peaceful potential envisioned for atomic development, all of the resources of the American economy, including most especially its private sector, would have to be made fully available for the task at hand. The Commission further had concluded, and so informed the Congress, that, if the resources of the private sector of the economy were to be made fully available, the rights of private investors to own the results of their investment would have to be reasonably provided for.

It was consequently proposed by the Commission in 1954 that legislation be adopted permitting others than the Commission to own atomic production facilities, including atomic power plants, and to possess the atomic materials that serve as the fuels of such plants, under a system of federally administered regulatory controls designed to protect the public's interest in national security, health and safety, and the prevention of the creation of a private monopoly in the atomic energy field.

By "others than the Commission," the Commission took pains to make clear that it meant, in addition to private industry, any other elements of the American power economy, including municipal power systems and rural electric cooperatives, that might otherwise be authorized to generate power from atomic energy.

So far as the Commission's own role in the production of power was concerned, this continued, under the

Commission for permission to build an atomic power plant under the national "private ownership" legislation of 1954. Such permission was subsequently granted, and construction of the project was begun at Indian Point, near Peekskill, on the Hudson River in 1957. The 270,-000-kilowatt plant was completed in 1962 and it continues to be in successful operation today.

The Indian Point project was expensive, which is not surprising considering the still-formative state of atomic power technology at the time the project was undertaken. Even so, its cost per kilowatt was considerably less than the cost of the nation's first demonstration atomic plant built in the mid-1950's by the Atomic Energy Commission, under its developmental powers, at Shippingport, Pennsylvania.

The next noteworthy step in the evolvement of atomic power development in New York State occurred in 1959, when, upon the recommendation of the then newly-installed Governor Rockefeller, there was adopted the state's first atomic energy law, which created an Office of Atomic Development along with an Atomic Energy Coordinating Council of governmental officials and a broadly representative General Advisory Committee, both appointed by the Governor.

One of the first actions of the then-new Office of Atomic Development was to prepare, with the advice and concurrence of the Coordinating Council and Advisory Committee, an "Atomic Development Plan for the State of New York" which established as its first objective, and I quote:

"Expansion of the state's atomic power capacity, including particularly the construction at the earliest prac-

ticable date of either an economically competitive full-scale atomic power plant or a prototype leading directly toward the construction of an economically competitive full-scale plant."

Although the concurrence in that objective of the Advisory Committee, including its utility members, was unanimous, one of the members of the Committee—the representative of the State Power Authority—proposed that there be added to the report a recommendation that legislation be adopted authorizing the Power Authority to build and operate atomic power plants. Such legislation would be required if the Power Authority were to enter the atomic power business because—like all federal hydroelectric agencies with the exception of the TVA—the Power Authority's state-issued charter expressly limited it to the production of power from falling water.

No other member of the Advisory Committee joined in that proposal, which was submitted without any technical or economic justification, and I, as Director of the Office of Atomic Development, did not accept it. This is because I felt then, as I do now, that the issue of whether or not government agencies created to produce power from falling water should be authorized to produce power by thermal means is an issue that should be resolved, either frankly and openly on ideological grounds—and then in a broader arena than simply that of atomic development—or, if the issue arises because of a specific need, on the basis of a well-documented technical and economic case.

Following the completion in late 1959 of the "Atomic Development Plan for the State of New York," the private utilities of the state in 1960 created the Empire State

Atomic Development Associates, a non-profit membership corporation aimed at advancing atomic power technology through the sponsorship of research and development, and one of the members of the association—the Niagara Mohawk Power Corporation—commenced a program leading toward the construction of the economically competitive atomic power plant that the Plan's first recommendation had in mind.

This is the plant—500,000 kilowatts in size—that is now nearing completion at Nine Mile Point, near Oswego, on Lake Ontario.

Since that project was undertaken, and as evidence of the striking way in which atomic power has taken hold here in New York State, construction starts have also been made on an 875,000-kilowatt second unit at Indian Point and a 420,000-kilowatt facility at Rochester; contracts have been let for a 750,000-kilowatt plant near Troy, a third unit of nearly 1,000,000 kilowatts at Indian Point and 500,000 kilowatts at Shoreham on Long Island, and plans have been laid for another 500,000 kilowatts on Long Island and another 1,000,000 kilowatts in the mid-Hudson Valley.

These are the actions that have brought New York State to its position of national leadership in the development and utilization of atomic power. To give you an idea of the significance of the thrust of these actions, I think it is worth noting that, as of now, there is only one thermal power generating unit in New York State of more than 500,000 kilowatts in size—this being the coal-and-oil-fueled plant at Ravenswood, in New York City.

In the presence of this type of eloquent response to its atomic power objectives, the government of the state has concentrated its own efforts and resources, not on

atomic power generation itself, but on the establishment and growth within the state of the industries that are required to support atomic power. These industries, through their proximity, help to keep atomic power costs down within the state, and they also, of course, create employment.

As a result of this emphasis, there has now been created within the state the nuclear fuel reprocessing industry—the industry that periodically treats the nuclear fuels used in atomic power stations to restore their energy-producing capability.

This industry has been established in New York—and thereby for the first time in this nation—at a state-owned atomic energy reservation, called the Western New York Nuclear Service Center, at West Valley, south of Buffalo.

The way in which this new industry was brought into being constitutes a rather unprecedented mechanism in itself—not exactly like Comsat in the satellite field, but with the same objective in mind; that is, an effort to combine the advantages of the private enterprise system with a carefully measured accommodation of the public's interest in the development and use of atomic energy technology.

Specifically, at West Valley, the state owns the site of the industry, thereby accommodating the public's vital interest in the acceptability of the locations where atomic activities are carried on, and also has assumed responsibility for the perpetual care of the radioactive residues of the industry, thereby accommodating the public's vital interest in the continued protection of the public health and safety.

I think it is worth mentioning that there was included

in the private investment that helped to create the re-processing industry a substantial research and development contribution by the Empire State Atomic Development Associates. I also think it is worth mentioning that, in my opinion, the beginnings of this potentially very large and important industry would not have been established in New York if the utilities of the state had not taken hold of atomic power development as vigorously as they did—an action that clearly demonstrated the attractiveness of this part of the country as a market for reprocessing services.

The instrument that the state has used in its cooperation with private industry in the creation of the nuclear fuel re-processing industry has been the New York State Atomic and Space Development Authority, which was established in 1962 and has largely supplanted the Office of Atomic Development as the principal mechanism through which the state's atomic development activities are carried out.

The Atomic and Space Development Authority is, to some extent, an organizational innovation itself. Although, as a state-owned corporation, it is in its format derived from such long-established agencies as the Power Authority, the Port of New York Authority and the Thruway Authority, it is in its mission quite different, in that, along with private industry, it is trying to develop a new technology, and find a place for this new technology —at least at the state level—in the economy.

This mechanism has, in actual practice, turned out to be entirely workable, in spite of the difficulties inherent in the application of a financially self-supporting standard—basic to the concept of an authority—to a develop-

mental situation. As evidence of this, I am pleased to be able to point to the fact that the Atomic and Space Development Authority in 1964 repaid to the State of New York all of the funds that it had by then drawn down from the state to initiate its programs, an action that was made possible by the successful operation, not only of the Authority's Western New York Nuclear Service Center, but also of an aerospace development and test center also owned by the Authority at Ballston Spa, north of Schenectady.

In spite of New York State's leadership in the field of atomic power development, achieved through past actions by both the state and its utility industry, there have begun to evolve in recent months a number of signals suggesting that the state should begin to exercise a stronger lead over the direction of electric power development generally than it has in the past.

There has, for example, been the blackout. There also has been the conspicuously increasing difficulty—at least in the metropolitan areas of the state, and this inexorably must spread—of the utility industry to find sites for power generating facilities, whether atomic or not, that are acceptable from the standpoint of those who are responsibly concerned with health, safety, conservation and esthetics.

There has also recently developed an acute awareness among the public generally, as well as among responsible state and municipal officials, of the contribution to air pollution that electric power generation from coal and oil produces.

Beyond these immediate problems, there exists the increasingly widespread belief, totally accurate in my

opinion, that the principal hope of New York State, which is a high-cost power area, to bring its power costs into line with those prevailing generally throughout the nation, is through a major and deliberate commitment to atomic power, installed in large sizes and located where—taking into account all of the other public interest factors involved—such power can be most economically and efficiently utilized in a state-wide power grid, integrated into a northeastern power network.

New York State, along with New England, is a high-cost power area partly because it has no significant deposits of coal, oil and natural gas—which therefore must be imported into the state at considerable expense to supplement the state's finite hydro resources—and partly because, for the entirely understandable reason that it was one of the first utility systems to be developed in this country, much of the state's electric generating and distribution system is—and let me put it this way—not completely modern.

Being concerned by such matters, Governor Rockefeller early this year sought the views of the private utility industry, the State Power Authority and the State Atomic and Space Development Authority as to what might be done about them. With the benefit of these views, he synthesized a New York State power program for the future that was publicly disclosed last March 1st by, and with the agreement of, all of the parties involved.

The program was a comprehensive one involving an $8 billion doubling of the state's power generating and distribution capability—from about 18 to about 36 million kilowatts—over the next decade. The program would have been financed by the private utility industry, except for

expenditures by the State Power Authority for new hydro facilities and by the State Atomic and Space Devolpment Authority for participation in the public interest features of the atomic energy aspects of the program. Such expenditures by these authorities would have been financed through the issuance by them of revenue bonds.

Specifically, the program would have affected the Atomic and Space Development Authority, and therefore to a substantial degree the scope and rate of atomic power development within the state, in a number of important ways, including, in particular, authorization to the Authority to do the following things, all pursuant to further detailed agreement with the utility industry and all in cooperation with such other agencies of the state as would be responsibly involved:

First—to find, designate and as necessary acquire and own the sites, called in the program "atomic energy reservations," that will be needed to accommodate future atomic power growth within the state.

Second—to provide and own, as responsible opinion might from time to time suggest, those features of atomic power plants that have to do with such clearly identifiable aspects of the public interest as health, safety, conservation, esthetics and recreation.

Third—to provide and own, to the extent that the still-restive economics of atomic power might in the future suggest, the nuclear fuel that is utilized in atomic power stations, with the objective of thereby holding down power generating costs on a state-wide basis through application of the cost advantages of government ownership, as well as those of a wholesale operation.

And fourth—in addition to the Authority's existing

research and development powers, to build and own all or any portion of any future atomic plants undertaken within the state that demonstrate an advanced design concept, such as the first one that would incorporate the so-called breeding technique; that is, the technique that, because it produces more nuclear fuel than it consumes, holds the promise of bringing nuclear fuel cycle costs down to a level approaching zero.

Also under the program, the utilities of the state, through the Emipre State Atomic Development Associates, had agreed to expand their atomic research and development activities, particularly as these relate to the nuclear fuel cycle, in consultation and cooperation with the Atomic and Space Development Authority.

The principal effect of the program would have been to leave primarily in private hands—where it has always primarily been in New York State and generally throughout the nation—the production of electric power by thermal means, including from atomic energy. It would, however, have brought the state into those aspects of the atomic side of the thermal picture where the public interest is most clearly perceivable.

In this connection, because it apparently has not always been obvious to those who have reacted to the program, I would like to make clear that such facilities and fuels as would be owned by the Atomic and Space Development Authority under the program would not be included in the investment upon which the utilities' allowable return is based under the State Public Service Law.

I would also like to make clear that there was nothing in the new program to prevent the Atomic and Space De-

velopment Authority from participating with any municipal or rural electric cooperative systems within the state in the construction of developmental power reactors built for the purpose of demonstrating the feasibility of producing atomic power in the relatively small quantities that such systems in New York would require.

All in all, I think it is reasonable to contend, the proposed program constituted a significant step forward in the effort to find ways in which atomic power can be incorporated into the established economic system of this country without serious disruptive impact.

With respect to hydro power, an important effect of the program would have been to make it possible for the State Power Authority to market additional amounts of its hydroelectric production through the relinquishment or replacement by the private utilities of power now purchased by the utilities from the Authority, as well as the provision by the utilities of sufficient "firm-up" power to assure maximum production from the Authority's hydro facilities.

The Power Authority also, under the program, would have been authorized, in its upstate marketing areas, to undertake pump storage projects—a form of hydro power that makes possible the use of off-peak thermal power to pump water to a high place from which it is released in an energy-producing surge during periods of peak demand. There is a growing body of opinion among power experts that such pump storage facilities, when combined with steadily-operating atomic facilities, promise to provide the most efficient, reliable and clean source of energy that is currently available to mankind. There was furthermore nothing in the program that would have

prevented the Power Authority, when its hydro capacity became no longer sufficient to meet its customer's demands, to seek authorization at that time to engage in other means of power production, including, of course, atomic energy.

I regret to have to tell you that those parts of this New York State power program for the future, including its atomic features, that required statutory authorization are at present not underway. This is because the bills that would have granted the authorizations failed to be adopted by the 1967 session of the State Legislature. Although they passed one house of the Legislature—the Senate—they were not brought to a vote in the Assembly, and then died there in that body's Rules Committee.

The reason they died there is because the program became embroiled in the now-stereotyped though ceaselessly volatile national issue of government-versus-private power. Specifically, the program was attacked by government power advocates on grounds that it should have included authorization for the State Power Authority to engage, not only in the expanded hydro generation that the program envisioned, but also in the production of power from atomic energy.

Once this issue was raised, the legisation was set aside by the leadership of the Assembly. As a result, atomic development in New York State is not as dynamic currently as it might have been.

I hope, as you might expect, that the program will be revived again next year, and that it can be considered separately from the quite independent question of whether, when or to what extent the State Power Authority should be authorized to engage in the production

of power by any means other than the hydro means for which it was created. In the meantime, in anticipation of favorable reconsideration next year, I hope that at least some of the atomic development features of the program that do not require statutory authorization can be carried forward and we in the Atomic and Space Development Authority intend to do all that we can within our present authorizations and powers to bring this about.

In conclusion, I would like to make clear that atomic power development is going to continue to advance in New York State. Atomic power is not a national or state issue because it is unimportant, and I don't think anyone can say it isn't "where the action is." These are exciting times, and atomic energy is helping to make them so. And New York is an exciting and dynamic place in which to pursue an atomic-oriented career.

I hope that many of you will pursue such careers, and here in New York. I can assure you from personal experience that you will not regret it.

ATOMIC ENERGY DECISION

SPECIFICATIONS MUST MENTION BASIS FOR REJECTION OR CONTRACTOR ENTITLED TO COMPENSATION FOR REWORK

Appeal of Hansel Phelps Construction Company
Board of Contract Appeals
(May 1, 1967)

Where the weld requirements contained express provisions for the type of welds and express provisions for the rejection thereof, a rejection for a different basis amounted to a construction change and the contractor is entitled to compensate for any rework.

The contractor is also entitled to reimbursement if the Government agreed to pay the costs of an investigation which did not substantiate the alleged charges.

ATOMIC ENERGY FEDERAL LEGISLATION

DEPARTMENT OF INTERIOR AUTHORIZED TO PARTICIPATE IN CONSTRUCTION AND OPERATION OF DESALINATION PLANT

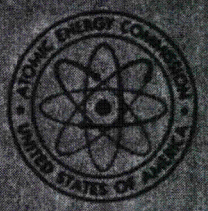
Introduced as S. 270 to authorize the Department of the Interior to participate in the construction and operation of the desalination plant to be built in California by the Metropolitan Water District of Southern California.

It was signed by the President on May 19, 1967, and became Public Law 90-18.

CIVILIAN NUCLEAR POWER

THE 1967 SUPPLEMENT TO THE 1962 REPORT TO THE PRESIDENT

February 1967



U.S. ATOMIC ENERGY COMMISSION

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price 40 cents. Copies of "Civilian Nuclear Power—A Report to the President—1962," U.S. Atomic Energy Commission, available from the Superintendent of Documents, price 45 cents; Appendices—35 cents.

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Introduction

In November 1962, the Atomic Energy Commission submitted to the President of the United States a report on the state of the civilian nuclear power program.[1] That review and assessment of the development program was prepared in response to a request by the President, in March 1962, that the Atomic Energy Commission undertake "a new and hard look at the role of nuclear power in our economy."

The review concentrated on basic policies. It included examinations of the need for nuclear power, the direction in which the central station nuclear power program should be headed, the rate at which the program should proceed and the nature and amount of Government participation necessary.

Emphasis was placed on the role of the Commission in exercising positive and vigorous leadership, both to achieve the technical goals and to assure growing participation by the equipment manufacturing and utility industries as nuclear power becomes economic in increasing areas of this country and the world at large. As stated in the 1962 Report:

> "The overall objective of the Commission's nuclear power program should be to foster and support the growing use of nuclear energy and, importantly, to guide the program in such directions as to make possible the exploitation of the vast energy resources latent in the fertile materials, uranium-238 and thorium.

[1] Civilian Nuclear Power—A Report to the President—1962, U.S. Atomic Energy Commission, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.

More specific objectives may be summarized as follows:

1. The demonstration of economic nuclear power by assuring the construction of plants incorporating the presently most competitive reactor types;
2. The early establishment of a self-sufficient and growing nuclear power industry that will assume an increasing share of the development costs;
3. The development of improved converter and, later, breeder reactors to convert the fertile isotopes to fissionable ones, thus making available the full potential of the nuclear fuels.
4. The maintenance of U.S. technological leadership in the world by means of a vigorous domestic nuclear power program and appropriate cooperation with, and assistance to, our friends abroad."

At the time the 1962 Report was prepared it was felt that light water [1] reactors were near the threshold of economic competitiveness with conventional power, at least in large installations in high fossil fuel cost areas of the country, and had prospects for later expansion on a more widespread geographic basis. In the context of that assessment, prospects for industry development were examined in relation to projections of electrical power need, to improving nuclear power economics and to the developing state of nuclear technology.

The interactions of these factors clearly suggested three phases of application for nuclear power. Light water reactors were in an advanced development stage, but such reactors, as developed for central station use, have limitations on their efficient use of resources. The need for growing amounts of power over the long term indicated a strong requirement for the development of breeder reactors, which produce more fissile material than they consume and thus can make effective use of the vast resources of fertile uranium-238 or thorium-232.

As an intermediate stage between these two phases, it was projected that there would be a period where converter reactors of an advanced design would be useful. Research and development efforts on such reactors showed promise of early improvement in the unit cost of power, as well as markedly higher conversion ratios. Some concepts could have important technical bearing on breeder systems, or offered potential for other applications such as process heat. The 1962 report accordingly recommended a continuation of work on technology and an augmentation of programs for development and demonstration of concepts in the areas of both breeders and converters of advanced design.

The 1962 Report also considered related problems of a general technical nature and of a legal and administrative nature, and suggested courses of action which would be consistent with the developing technology.

In the four years since the 1962 Report was issued, remarkable advances have taken place in the promise of nuclear power and in its acceptance by the U.S. utility industry as a new source of electrical energy. Continued operating experience with intial demonstration and experimental nuclear power plants and commitments to larger size demonstration plants have provided the necessary impetus for commitments by industry to large scale utility units. The Commis-

[1] Reference may be made to *"Nuclear Terms—A Brief Glossary,"* U.S. Atomic Energy Commission/Division of Technical Information, revised October 1966, for definition of terms used in nuclear science and its applications.

sion's power demonstration program, which had been modified in 1962 to encourage support of power reactors above 400 MWe, was expanded in 1963 and at present includes three new light water projects, the Connecticut Yankee, Malibu and San Onofre plants. In 1963 commitments for the Oyster Creek and Niagara Mohawk plants provided a clear indication that economic power was considered by the utility industry to be near. Numerous additional utility decisions have been made in 1965 and 1966 for installation of nuclear power.

As of January 1, 1967, there were 13 central station nuclear power plants in the U.S. and 36 committed or under construction. The industry, rather than being overcapitalized and under-used, as mentioned in the transmittal letter of the earlier study, appears to be approaching a state where presently available resources will be fully committed. These developments have come about through engineering advances, through experience with the earlier plants, through the manufacturing advantages of repeated orders, and, very importantly, through an even larger increase in the unit size of power plants than was anticipated in the earlier report.

The development work for power reactors subsequent to the 1962 Report has been programmed generally as proposed there. Over the years, the number of potential advanced converter candidates has thus far been narrowed to three general programs: the high temperature gas cooled reactor; the heavy water moderated reactor with emphasis on the organic cooled version; and the seed-blanket reactor, a system which is expected to be able to achieve breeding in the light water medium. Emphasis is being placed on high gain breeders as recommended in the 1962 Report. In particular, the program for development of the liquid metal-cooled fast breeder has been substantially augmented. Work is also being carried out on the molten salt thermal breeder concept, which uses the thorium fuel cycle.

During the intervening years, there has been a growing recognition of a matter crucial to the successful development of nuclear power plants, yet not specifically emphasized in the 1962 Report—the achievement of demonstrated reliability through strong engineering and through growing experience. Delays, increased costs, and in some cases cancellation of experimental and demonstration reactor projects have been at least partly due to inadequate depth in reactor design and engineering efforts. Such inadequacies can result in an inability to demonstrate the worth of the concept under study. Careful and high standards of design, construction, inspection, and operation of nuclear power plants are necessary to provide the reliability and safety needed for utility operation.

In a different engineering sense, it has become clear that the magnitude of the cumulative effort invested in a relatively well developed concept can seriously affect the ability of competing concepts to catch up with it, regardless of moderate variations in intrinsic merit. The most important case in point derives from the great resources that have gone into the light water reactors—starting with the naval propulsion program and the early civilian power experiments, going on through intensive civilian development effort, through demonstration projects, and culminating in the large engineering efforts directed to the design of numerous central station plants. The high state of development and production of the light water reactors clearly will make

the development of competing systems difficult. As fossil fuel was a moving target for the light water reactors, so now light water reactors, as well as fossil fuel, will be a moving target for the advanced reactors. Rising uranium prices will eventually give an advantage to reactors making better use of resources, but for utility acceptance they must compete on their total economics.

Although the program has proceeded essentially as projected in the 1962 Report, with marked success in some areas and with promise in others, it is prudent to look back after the passage of a number of years and to assess the course on which the Commission is proceeding in the light of developments and changes in circumstances. Suggestions have been received for a new examination of the program. In particular the Joint Committee on Atomic Energy in its report of May 1966 on the Fiscal Year 1967 Authorization Legislation, suggested:

> "The civilian nuclear power program is presently proceeding in accordance with guidelines expressed in the Atomic Energy Commission's November 1962 Report to the President. This report has provided the program with sound objectives for attainment of a virtually limitless supply of energy for this country. However, the committee believes that developments, particularly those in the past year, warrant a general updating of the program presented in this report. The committee urges this review because of the sharply increased rate of addition of nuclear generating capacity, changes in estimates of future growth of nuclear power, the more recent technical developments which have taken place in certain of the advanced reactor fields, and the latest information which has been developed concerning our uranium resources."

The present report has been prepared as an initial response to this suggestion and as a result of similar views within the Executive Department. It is intended to represent a view of the program and prospects as they appear at the start of 1967. It takes note in some detail of the changes that have taken place since 1962 in the technical, economic and resources picture and is intended to provide an updated background for further extensive studies.

The further specific studies, already under way, are intended to provide a new thorough analysis and assessment of civilian power program prospects and of the optimum course of action for the future. In setting up the studies, groups have been established to examine such topics as specific reactor concepts, systems analysis, fuel recycle, and utility outlook. The studies will consider in depth the technical prospects for the reactor concepts under consideration, will relate these to resource projections and to economic considerations, and will identify the decisions that must be made in the light of changing circumstances. It is expected that the individual studies will be completed at various times during 1967 and that they will provide the basis for a reduction in the number of concepts currently being pursued.

The present report is organized in three main sections: an updating of the factors affecting energy resources, requirements, and economics that lead to continuing understanding of the potential for growth in the nuclear power economy; a review of the development program as of the start of 1967; and, as in the earlier report, an updated section on legal and administrative matters.

Summary

The 1967 Supplement to the 1962 Report on the Civilian Nuclear Power Program sets forth the changes that have taken place in the intervening four years and considers the present AEC program in relation to the recommendations of the earlier report.

The substantial acceptance by the utility industry of light water reactors for electrical power generation provides the prospect of a large and fully committed nuclear industry and also has an impact on the basis for development of improved reactor concepts.

The earlier review suggested three phases of application for nuclear power, with related development effort. It was expected in 1962 that light water reactors would soon become economical in high power cost areas and in accordance with industry response to that prospect, the Commission's research and development programs on light water reactors have been limited in scope and size. Several advanced converters are being developed, in accordance with the 1962 Report recommendations, to provide better use of nuclear resources pending full development of breeders. Intensive development of the high gain breeder over the long term has been undertaken as recommended by the 1962 Report.

The objectives expressed in the 1962 Report are still regarded as valid. The Commission intends to continue to exercise positive and vigorous leadership in achieving the technical goals and in assuring growing participation by the nuclear industry as nuclear power becomes economic.

The Commission is conducting a series of comprehensive reviews and assessments of reactor concepts. They will lead to identification of decisions on future program balance and direction and to a reduction in the number of concepts under development. The present supplement to the 1962 Report is intended to provide an updated description of circumstances and programs as of January 1967 to serve as background for the more detailed studies.

Nuclear Power Growth

During the four years since the 1962 Report, the promise shown for nuclear power in the U.S. has developed beyond expectations. This development has warranted a review of the energy resources and requirements, nuclear power projections, and the associated economics.

Energy Resources and Requirements

No significant changes have been made in fossil fuel and nuclear fuel resource estimates since publication of the 1962 Report. Delivered prices of fossil fuels to steam-electric plants have decreased from an

average of 26.4 cents per million British Thermal Units (BTU) in 1962 to 25.2 cents in 1965. Local situations will, in the future, dictate delivered prices of fossil fuels, with location of plants, transportation economics, and use of strip mining as the dominant determining factors.

Known and estimated domestic resources of uranium are adequate to meet predicted light water reactor requirements for about the next 25 years pending the development of advanced converter and breeder reactors. When available commercially, the breeder reactors will provide a virtually unlimited source of energy with uranium costs constituting a very small fraction of the energy cost.

Total energy consumption is expected to increase by 50 percent between 1965 and 1980 and by 150 percent between 1965 and 2000. The current estimates are essentially unchanged from the 1962 Report estimates. The proportion of energy consumed in the form of electricity is currently about 20 percent; it is expected to increase to 30 percent in 1980 and to over 50 percent by the year 2000. Expectation of such large increases is predicated on the use of low cost electricity as a subetitute for many of the present industrial and transportation uses of fuel and on large increases in the per capita electricity consumption for residential and commercial use.

Nuclear Power Projections and Economics

Whereas less than 1 percent of the electrical generating capacity in 1965 was nuclear, it is estimated that 23 to 30 percent will be nuclear in 1980 and about 50 percent in 2000. The extent to which nuclear power will capture the utility market in the post-1980 period appears to depend largely on the technology and economics of advanced converters and breeder reactors, on developments in mining and transportation of fossil fuel, and on the extent and rate of discovery of low-cost uranium resources.

The decreasing cost of producing electricity has been due primarily to improved fossil fueled power plant thermal efficiency and to lower capital costs per kilowatt of installed generating capacity for fossil and nuclear fueled plants. The decreasing capital costs are attributable in part to the construction of larger sized generating units. Acceptance of nuclear power by the public utilities has mainly been due to improved economics. In 1962 the estimated cost of producing electricity from a 500 MWe base load nuclear plant was 6.2 mills/KWh, whereas the current estimate for large size investor financed base load nuclear plants is 3.5 to 4.2 mills/KWh, and for publicly financed plants 2.6 to 3.0 mills/KWh. These values correspond to a range of 17 to 25 cents per million BTU for delivered coal.

The current substantial backlog of nuclear plants on order, resulting in a stretchout of plant completion times, may have an effect on plant pricing. Warranted fuel costs, have been decreasing significantly, however, and have led to an over-all reduction in the anticipated cost of nuclear energy.

Development Program

The 1962 Report recommended emphasis on the development of advanced converters and breeder reactors. The need for improved raw material utilization to minimize increases in costs for uranium has become more important because of the success of the light water reactors. However, in view of the utility acceptance of the light water reactor, the advanced reactors, which can improve the raw material utilization, face a severe test in competing economically with the light water reactor.

In exercising the responsibility of developing the advanced converters and breeders, the Commission intends, in cooperation with industry, to emphasize the improvement of nuclear power plant engineering standards. This will help to ensure meaningful results from research and development programs and will promote nuclear power plant safety, economics, and the reliability and availability necessary for utility practice.

Light Water Reactors

The design, construction, and operation of U.S. demonstration plants, joint U.S.-Euratom plants, and other utility operated plants led to forerunners, Oyster Creek and Nine Mile Point, of the present large scale light water reactor commitments.

Extrapolation of the operating experience of the larger cooperative demonstration plants (San Onofre, Connecticut Yankee) will contribute significantly to design and operation of the new large utility plants. Current utility commitments will lead to experience in the operation of large size units, to statistical experience with large amounts of fuel at contemplated burnups and to experience with further improvements in safety. Technical progress has been encouraging and further Government assistance to the development of light water converter reactors under the demonstration program is not planned.

Current support will be continued for the U.S.-Euratom light water research and development and for plutonium recycle for thermal reactors to about 1970. Work will continue under current cooperative demonstration plant arrangements.

Advanced Converters and Light Water Breeder

The Commission effort to develop advanced converters now has been narrowed to three approaches: the heavy water moderated reactor with emphasis on the organic-cooled version, the high temperature gas-cooled concept and the seed-blanket light water breeder concept. Each of these concepts has promise of higher conversion ratios than current light water reactors. Studies underway are expected to lead to a further narrowing of focus.

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Heavy Water Moderated

The heavy water moderated systems using either the uranium or thorium cycle, particularly the uranium cycle, have a potential for lower cost power and a lower specific inventory than the current light water reactors. The research and development program has been directed toward providing a technological and engineering base and identifying specific technical limitations, particularly as these relate to the organic coolant concept.

High Temperature Gas Cooled

The initial development efforts on demonstration components and systems for large High Temperature Gas-cooled Reactor (HTGR) power plants will be provided by the Public Service of Colorado (PSC) cooperative demonstration project located at Fort St. Vrain, near Denver, Colorado. The developmental support to be afforded the PSC project will be dependent upon a technical and economic assessment to be made following full power operation of the Peach Bottom reactor.

Light Water Breeder

The seed-blanket Light Water Breeder Reactor (LWBR) fueled with thorium-uranium-233 has promise of a conversion ratio high enough to make available about 50 percent of the potential energy in the thorium fuel reserves. The LWBR would not require a significant departure from pressurized light water reactor technology. Major long-term problems may center on the economics of core fabrication and fuel cycle costs. The Commission plans to determine during Fiscal Year 1968 whether a breeding demonstration core should be built in the existing Shippingport PWR.

High Gain Breeders

When developed commercially, high gain breeders will increase fuel use to over 50 percent of the uranium or thorium reserves. Their application will be relatively insensitive to ore prices, and will thus make large fractions of high cost ores economically usable. They will also produce excess fissile material in a timely manner to fuel new reactors.

Fast Breeder

Interest in fast breeders is focused on the Liquid Metal-cooled Fast Breeder Reactor (LMFBR), which uses sodium as the coolant. Effort on the steam cooled and gas cooled alternates has been maintained at a low priority. The sodium cooled fast breeder choice is based on potential economics, industrial and world wide interest, technological experience, and its capability to conserve uranium resources.

Liquid Metal Cooled Fast Breeder

The past four years have been productive of information which enhances the promise of the LMFBR. The U.S. program has been

highlighted by the operation of the Experimental Breeder Reactor II (EBR–II), which now is being used as a test reactor to irradiate fuels and materials for the LMFBR program.

The fuels and materials program is now concentrated on developing plutonium bearing fuels for the Fast Flux Test Facility (FFTF) and the first demonstration plants. The development of fuels and cladding for advanced cores in these and later plants will use the capabilities of the FFTF. The construction of the FFTF, about 400 MWt, and its subsequent operation are necessary to provide adequate and flexible testing space for the many LMFBR fuels and materials which will be developed for the demonstration and commercial fast breeders. The successful achievement of high fuel burnup required for economic operation of the fast breeders will in a large measure be dependent on the FFTF. Full statistical confirmation of this development will be achieved in the demonstration plants. It is expected that test programs in the Southwest Experimental Fast Oxide Reactor (SEFOR), in the FFTF and in the first demonstration plants will provide confirmation of predicted characteristics of the various core configurations selected, and of core physics and associated safety aspects, plant components and systems, plant instrumentation, and the associated sodium technology.

Though the LMFBR program is placing immediate emphasis on the design and construction of the FFTF, plans are being developed for the introduction of a number of sodium cooled fast breeder demonstration plants to be built during the 1970s. Utility acceptance of the demonstration plants probably will be motivated by the incentive of cheaper electricity and will be contingent on developed technology, on the existence of a competitive and self-sustaining industry, and on a minimum investment of risk capital. It does not appear that a prudent commitment to build the first U.S. demonstration plant can be made prior to 1969, nor can the number of demonstration plants be predetermined.

Alternate Coolant Fast Breeders

Because sodium has disadvantages associated with its prolonged radioactivity after reactor shutdown, its chemical reaction with air and water, and its non-transparency, consideration is being given to steam and gas as coolants alternate to sodium. Though it is unlikely that comparisons will show significant advantages in the alternate coolant concepts to change the high priority assigned to the sodium-cooled fast breeder reactor, there is need to establish definitely the emphasis to be placed on alternate coolant fast breeders, and efforts to do so are underway. Advanced fast reactor systems with coolants other than sodium are attractive only if they offer significant advantages with respect to economics and efficient use of resources. Pending results of assessments currently in progress these programs will remain at about present levels.

Molten Salt Breeder

Preliminary studies show that the Molten Salt Breeder Reactor (MSBR) shows promise of efficiently using thorium resources. The

on-site reprocessing concept, by continuous removal of fission products and protactinum, contributes to a good neutron economy and to a low total inventory of fuel. Uncertainties include problems with materials, components, systems, plant maintenance, and effluent and waste management. Sustained operation of the Molten Salt Reactor Experiment, and out-of-pile analysis and experimentation are being performed as prerequisites for demonstrating the potential of the MSBR.

Desalting Program

Based on a favorable assessment of large scale desalting plants, the President in 1964 instructed the Department of the Interior, which is responsible for desalting technology and processes, to initiate, in cooperation with the Commission, an aggressive plan to develop large scale desalting of sea water. Planning studies are assessing the magnitude and details of the effort required to develop the technology needed for very large scale plant construction and operation, and for the coupling of nuclear power and desalting plants.

The Commission will continue to emphasize the development of reactor technology required for economic large-scale desalting. Based upon experience gained from study efforts and the Metropolitan Water District desalting project, the Commission will continue present development programs and will participate, as authorized, in other cooperative demonstration plant projects, probably involving larger and more advanced reactors and improved desalting systems.

Supporting Technical Programs

The Commission's general reactor technology programs, conducted in industrial, university and Commission laboratories, comprise those applied research and development activities needed to generate the technological base underlying the initiation and accomplishment of specific reactor programs, to resolve critical problems and to continually assess programs and projects.

The primary objective of the reactor safety program as stated in the 1962 Report is "to maximize the inherent safety reactor installations." The achievement of this objective requires the continued development of safety related technology, criteria, standards and codes and associated safety research and development facilities, and an integrated procedure by which the programmatic and regulatory interest can be coordinated. Engineered safety features specifically designed to prevent accidents or to minimize their consequences are being developed on a priority basis. Resolution of siting problems requires emphasis on providing reliable experience with advanced types of containment structures and other engineered safety features, experience in coping with all operating conditions, and provisions for designs with a high margin of safety.

Safe and economic management of radioactive waste, essential for an expanding nuclear power industry, has generally been successful at costs constituting a minor fraction of the fuel cycle. Radioactive concentrations in existing nuclear power plant effluents have ranged from one to three per cent of prescribed limits. The capacity and availability of suitable land burial facilities for solid low radioactivity

level wastes are more than sufficient for even the most optimistic growth projections. The long effective life of highly radioactive wastes and the comparatively short life of storage tanks require that the Commission pursue a program aimed at developing and demonstrating, on an engineering scale, systems for the conversion of high level liquid wastes to stable solids and their subsequent storage in dry geologic formations.

Waste management in the future will be more oriented to development of systems and equipment for advanced reactors and their associated chemical processing plants.

Discontinued Programs and Projects

Evaluations since the 1962 Report have shown that some of the concepts described in the report were only marginally superior to others whose success was nearer at hand and their development has been terminated. Other concepts have been discontinued because of especially difficult research or developmental engineering problems and the accompanying increased costs, delays, and difficulties associated with introducing the concept into the utility environment.

Legal and Administrative Matters

Policies Relating to Nuclear Materials

In 1964 the Private Ownership Act was passed to permit private ownership of special nuclear materials and to provide for toll enrichment. This act constituted an important element in the surge of orders for nuclear power plants in 1965 and 1966; it has significantly clarified the near-term outlook for the uranium mining and milling industry, and is expected to encourage use of nuclear power abroad. The Commission is also now studying the feasibility and desirability of transferring gaseous diffusion plants to private operation.

Price-Anderson Indemnity

The Price-Anderson provisions of the Atomic Energy Act of 1954 were amended in 1965 extending the provisions until August 1, 1977, and reducing the Government indemnity by the amount that the private insurance required exceeds $60 million. The Price-Anderson provisions were further amended in 1966 to provide for emergency assistance payments to claimants, and to authorize the Commission to require the waiver of certain defenses in its indemnity agreements and financial protection policies.

Finding of Practical Value

The Commission determined, in December 1965, that although light water reactor systems show economic promise as evidenced by utility orders, the degree of actual experience needed to confirm the status of these concepts has not yet been obtained; thus, a statutory finding of practical value as defined by the Atomic Energy Act of 1954 has not

been made. This determination was reaffirmed in December 1966. The Commission has also been studying the 1954 Act to determine if there is any continued need for the requirement of a formal finding of "practical value" and is giving consideration to recommending changes on this subject.

Regulatory

Steps have been taken, since the 1962 Report, to improve and expedite licensing procedures. These steps include improvements in the operations of the three-man atomic safety and licensing boards resulting from experience gained since 1962. The issuance of interim general design criteria for nuclear power plants and the development of specific design performance criteria for nuclear power plants will provide guidance and clarification to industry in the licensing process. Improved technical specifications being developed will focus on those reactor features vital to safety. Increasing numbers of preliminary informal reviews are also reducing subsequent licensing time.

Nuclear Power Growth

The 1962 Report examined the need for nuclear power in our civilization taking into account nuclear and fossil fuel resources and prospective energy needs. It was concluded that there is a clear need for supplementary sources of energy and that:

> "The development and exploitation of nuclear-electric power is clearly in the near- and long-term national interest and should be vigorously pursued."

During the four years since the 1962 Report, the promise shown then of a near-term place for nuclear power has developed beyond expectations. The trend in size of installed plants and industry confidence in its ability to construct plants expected to be economically competitive have led to a remarkable growth in orders for nuclear plants in 1965 and throughout 1966. The changing near-term circumstances provide an impetus for an updated review of the resources and demand for nuclear power as they interact with the economic factors.

Energy Resources

Fossil Fuels

No significant changes have been made in fossil fuel resource estimates since publication of the 1962 Report. The fossil fuel resource situation has been considered in two major studies [1] since 1962 which throw additional light on the problems but do not call for any major revision of the resource estimates in the 1962 Report. Another Government study, "Energy R&D and National Progress," [2] considers the resource situation but it does not reconcile differences between various estimates.

The 1962 Report recognized the probability of decreases in the delivered price of fossil fuels resulting from reductions in transportation costs and from the possibilities inherent in the trend to very large central station power plants which can in many instances be placed close to coal supplies. Delivered prices of fossil fuels for steam-electric plants in the U.S. decreased from an average of 26.4 cents per million British Thermal Units (BTU) in 1962 to 25.2 cents in 1965.[3] Price decreases have taken place in all three fuel types—coal, oil and natural gas. Fossil fuel costs can be minimized by increased strip mining, location of the power plant at the mine and by the use

[1] Geological Survey Circular 522, "Resources of Oil, Gas, and Natural Gas Liquids in the United States and the World" by T. A. Hendricks, (1965). "Resources in America's Future" by Landsberg, Fischman, and Fisher. Johns Hopkins Press for Resources for the Future, (1963).

[2] Prepared for the Interdepartmental Energy Study by the Energy Study Group, Published September 1966.

[3] Steam Electric Plant Factors/1965, Sixteenth Edition, October 1966, National Coal Association.

of unit trains. Fossil fuel prices may be increased by restrictions on sulfur content imposed as an air pollution control measure. Local situations will differ significantly from the average. In some areas, price increases have recently taken place.

Nuclear Fuels

DOMESTIC RESOURCES

With reactors of current technology, the known and estimated domestic resources of uranium at prices less than $10 per pound of uranium oxide (U_3O_8) are adequate to meet the requirements of the projected growth of nuclear electric plant capacity in the U.S. for about the next 25 years. Before the end of this period, new low cost domestic resources, low cost foreign uranium, or uranium priced at $10 to $15 per pound of uranium oxide would be used in order to maintain production rates to meet continued requirements.

The extent to which uranium prices may rise above the $10 per pound level and the timing of the potential rise are now difficult to predict since they will depend on the success of exploration, on the actual growth of nuclear power, and on the success of advanced reactors.

The degree of success that is attained with the advanced reactors under development has an important bearing on use of the resources. The advanced reactors should be able to make better use of low cost uranium, and they will be able to use more costly uranium, if necessary, while still producing low cost energy. The power economy should thus eventually approach a condition where the nuclear fuel resources provide a virtually unlimited source of energy. The breeder reactors are especially important in this regard since they will eventually be capable of providing most or all of the fissile material required to sustain the nuclear power system, at which time the cost of uranium becomes a very small fraction of the energy cost.

As a result of the decisions in 1964 and 1965 to reduce production of nuclear weapons material, it is now expected that by the end of 1970 the Government will have accumulated a substantial uranium inventory in excess of projected AEC needs. On the other hand, because of the recent spectacular growth in civilian nuclear power, which is already providing a substantial private uranium market, the AEC will probably be able to begin the sale of its surplus stocks during the 1970s without adversely affecting the domestic mining and milling industry. Commercial orders for several hundred tons of uranium were placed during 1965 and early 1966 at prices ranging from $4.00 to $5.00 per pound of U_3O_8. Prices of $6.00 to $7.00 per pound have been stipulated in recent contracts. Under the expanding market indicated by current projections of nuclear power growth, the price of uranium is expected to increase gradually.

The Commission attaches great importance to renewed uranium exploration activity. It is important that the tempo be increased to a level which will maintain reserves in balance with the indicated growth in requirements. Private exploration can be assisted by increased effort in support activities of the Government. For example, topographic and geologic mapping of the type carried out by the U.S. Geological Survey, if completed in favorable areas on a timely basis, will provide

a firm base for private exploration. This supporting activity, plus research on exploration methods sponsored by the AEC at universities and private institutions, can provide the uranium industry with improved exploration guides and tools and can help to increase the low-cost uranium resources available for nuclear power.

There has been little prospecting activity specifically for thorium because of the low demand, but estimated resources are large. The number of reactors based on the thorium fuel cycle will be limited for the near-term period, and only as the advanced converter and thermal breeder technology develops will estimates have clear meaning. A thorium-based reactor fuel cycle also of course requires natural uranium to furnish the uranium-235 needed to fuel the reactors initially.

FOREIGN RESOURCES

It is desirable to examine the world supply and demand situation since uranium, easily transportable at a very small cost per unit of energy, is rapidly becoming an international article of commerce in established world markets.

Table I summarizes AEC estimated availability of uranium resources, for the United States and the rest of the Free world.

TABLE 1.—NATURAL URANIUM RESOURCES [1]

(In Thousands of Tons U_3O_8)

	U.S.	Free World Excluding U.S.	Total Free World
Less than \$10/lb U_3O_8:			
Reasonably assured [2]	200	485	685
Estimated additional [3]	325	355	680
Total	525	840	1,365
Less than \$15/lb U_3O_8: [4]			
Reasonably assured	350	1,050	1,400
Estimated additional	525	655	1,180
Total	875	1,705	2,580

[1] AEC 1966 Projections.
[2] Demonstrated reserves.
[3] Based on geologic and exploration data.
[4] Includes less than \$10/lb U_3O_8.

Through 1980, U.S. uranium requirements for civilian power are estimated at about 170,000 tons U_3O_8, based on an estimated U.S. nuclear capacity of 95,000 MWe in 1980.[a] The requirements for the Free World, excluding the U.S. are about 240,000 tons (about 135,000 MWe capacity).

Table 2 compares, on a percentage basis, the requirements through 1980 with the availability data in Table 1. The U.S. requirements listed assume U.S. requirements are met from U.S. supplies. A similar assumption is made for the requirements of the Free World excluding U.S. and for the combined total.

[a] Uranium requirements are defined as those necessary to sustain the capacity through the stated date and not necessarily over the lifetime of the plant.

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TABLE 2.—CUMULATIVE NATURAL URANIUM REQUIREMENTS THROUGH 1980

	U.S.	Free World Excluding U.S.	Free World Including U.S.
Nuclear capacity in 1980 (1000 MWe)	[1] 95	135	230
Requirements (1000 tons of U_3O_8)	170	240	410
	Requirements as Percent of Indicated Resource Category		
Resources:			
Less than $10/lb:			
Reasonably assured	85	50	60
Reasonably assured, plus estimated additional	32	29	30
Less than $15/lb: [2]			
Reasonably assured	49	23	29
Reasonably assured, plus estimated additional	19	14	16

[1] AEC 1966 mean estimate.
[2] Including less than $10/lb.

Requirements as a percent of the "reasonably assured" category of resources are higher in the U.S. than on a Free World basis. Up to both the $10 and $15 per pound levels, requirements as a percent of reasonably assured resources in the U.S. are roughly twice as large as for the Free World excluding the U.S. Based on the "reasonably assured plus estimated additional" categories of resources, the supply to demand situation is generally similar for the U.S. and for the Free World excluding the U.S.

Most of the known less than $10 per pound resources outside the U.S. are divided nearly equally between Canada and South Africa, both of which are expected to remain exporters of uranium. South African production capacity, because it is tied to gold production, has limited potential for expansion; it may well be fully committed by early long-term contracts. The largest single source of uranium at $10 to $15 per pound is in Sweden. On the basis of present information, the shales of Sweden contain an estimated total of 400,000 tons of U_3O_8 that could be recovered in this price range.

Many areas of the world have geological environments similar to those in which uranium and thorium occur in Canada and the United States, and some should have undiscovered low-cost resources of comparable magnitude. Resources of low-cost thorium and of uranium in the price ranges above $15 per pound are widely distributed throughout the world and should be more than adequate to supply the world's requirements for advanced reactor types for the foreseeable future.

Because of greater existing production capacity, U.S. mining and milling producers may supply a portion of foreign requirements in the near term but in the longer term the U.S. could well be a net importer.

Total Energy Requirements

Since the Commission's analysis of energy growth for the 1962 Report, several changes have taken place which have caused revisions in the forecast of future total energy requirements. Specifically, the pattern of population growth is expected to be different and lower in the next two decades and the growth of per capita energy consumption is estimated to be slightly lower through the year 2000 than estimated in 1962. This is reflected in the over-all estimated energy growth shown in Table 3, which presents the current AEC estimates and the 1962 estimates.

TABLE 3.—U.S. ENERGY CONSUMPTION [1]

(In 10^{15} BTU per year)

Year	1962 Report	Current estimates		
		Low	Median	High
1965	54		54 (actual)	
1980	82	76	80	84
2000	135	120	130	140
2020	207	190	210	230

[1] AEC 1966 projections based on Bureau of Census population figures through 2015 and AEC extrapolation thereafter and on AEC projections of per capita consumption. The Bureau of Census population series B and C were used for the low and high population projections.

Electrical Energy Requirements

Estimates of the proportion of energy which the nation actually will use in the form of electricity are subject to progressive uncertainty as they are projected substantially into the future. Currently, electricity comprises about 20 percent of the U.S. total energy consumption and the percentage is increasing. There are substantial opportunities for growth since, technically, electricity can substitute for many of the present direct uses of fuel. The increasing standard of living, developments in transportation, the need to reduce pollution, and the potential for use of low-cost electricity in industry are considerations which will determine the extent to which the use of electricity will grow.

The Federal Power Commission (FPC) supplied the basic data for the electricity generation figures used in the 1962 Report. The FPC has provided new preliminary estimates, which are shown with previous estimates in Table 4. The FPC is presently engaged in updating its National Power Survey and has indicated that the preliminary estimates may be revised upward.

TABLE 4.—ANNUAL U.S. ELECTRIC UTILITY GENERATION

(Billions of Kilowatt-hours (KWh))

	1960	1965	1980	2000
Actual [1]	753	1,052		
Projected:				
Sporn (1959)			2,800	6,000
EEI (1959) [2]			2,800	6–10,000
AEC Report (1962) [1]		1,108	2,900	9,000
RFF (1963) [3]			2,100	4,500
AEC–Geneva (1964)				8,000
FPC (1966)			2,700	7,100

[1] FPC data.
[2] Edison Electric Institute.
[3] "Resources in America's Future," Landsberg, Fischman, and Fisher, Johns Hopkins Press, 1963.

For the purposes of further discussion of the possible market for nuclear power, low, median, and high estimates for electricity generation consistent with Table 4 are used in this report (Table 5).

TABLE 5.—PROJECTION OF ELECTRICITY GENERATION IN THE U.S.[1]

(Billions of KWh)

	Low	Median	High
1980	2,400	2,700	3,000
2000	6,000	8,000	10,000

[1] AEC 1966 Projections.

Electrical energy consumption in 1965 was slightly below values projected in the 1962 Report. Actual generation by utilities in 1965 is reported by FPC at 1,052 billion KWh. This compares with the projected value for 1965 of 1,108 billion KWh in the 1962 Report.

In selecting a figure of 2,700 billion KWh for the year 1980, this study has relied on the judgments of the FPC and of electric utilities, as expressed in the National Power Survey. This figure is essentially the same as independent estimates of the Edison Electric Institute (EEI).

The use of the 6,000–10,000 billion KWh range in this study for the year 2000, with a most likely value of 8,000 billion KWh as published in the 1964 AEC-Geneva paper, is based on the belief that: (1) the cost of electricity for applications that other fuels can serve will continue to decline relative to that of direct use of the other fuels; (2) there will be a widespread adoption of electric space heating and air conditioning both in residences and in commercial and industrial establishments, even in cases where the economics may not be favorable; (3) there is a trend toward better lighting in cities; (4) there are trends toward further electrification in industry; and (5) by the year 2000 there will be some significant penetration of the transportation sector by electricity both in mass transit uses and by means of electric automobiles. The low end of the range, 6,000 billion KWh, represents little more than a doubling in the 20-year period from 1980, much lower than the historical growth rates if the 1980 figure of 2,700 billion

KWh is correct, and does not appear to give adequate weight to the many areas that electricity is now beginning to penetrate.

The high side of the range, 10,000 billion KWh, would constitute a 64 percent penetration of the total energy market if an average heat rate of 8,500 BTU per KWh of electricity is assumed; almost complete electrification of the residential, commercial and industrial sectors would be required, along with substantial penetration into the transportation sector of the economy.

Nuclear Power Projections

Nuclear power projections have been made on the basis of installed generating capacity. Total electric generating capacity estimates supplied by FPC are shown in Table 6. The table also shows distribution by type of generation based on AEC estimates of nuclear capacity.

The 1962 Report foresaw a nuclear generating capacity in the United States of 5,000 MWe by 1970 and 40,000 MWe by 1980. In 1964, with improved prospects for nuclear power, it was predicted that by 1970 there would be 6,000 to 7,000 MWe of nuclear generating capacity in the United States. It also was considered likely that there would be between 60,000 and 90,000 MWe by 1980.

In view of the unexpected surge in 1965 of orders for nuclear power plants, the Commission further revised its projections of nuclear power and, in the spring of 1966, made a substantially higher new projection of over 10,000 MWe generating capacity by 1970–1971 and of 80,000 to 110,000 (mean 95,000) MWe by 1980. Subsequently, utility commitments for nuclear power plants have been made at an even faster rate than in 1965.*

Updated Commission forecasts of nuclear capacity up to 1980 and beyond are being developed.

TABLE 6.—U.S. ELECTRIC GENERATING CAPACITY PROJECTIONS [1]

(1000 MWe)

	1965 (Actual)	1980	2000
Steam:			
Fossil	185	311	572
Nuclear	2	[2] 95	[3] 734
Subtotal	187	406	1, 306
Other [4]	48	117	250
Total Capacity, 1000 MWe	235	523	1, 556
Energy Projection, billion KWh	1, 052	2, 700	8, 000

[1] Steam and other projections based on FPC data furnished in 1966.
[2] AEC 1966 mean estimate.
[3] AEC 1962 estimate.
[4] Hydro, pumped storage, internal combustion.

* A recent projection developed by the Edison Electric Institute for investor-financed utilities indicates that by 1980 there will be about 109,000 to 117,000 MWe of installed nuclear power generating capacity in the U.S. for that type of utility alone. The General Electric Company has recently estimated 125,000 MWe for total installed nuclear capacity for 1980, and the Westinghouse Electric Corporation has estimated 150,000 MWe for total installed nuclear capacity.

The extent to which nuclear power captures the utility market in the post-1980 period appears to depend largely upon the technology and economics of advanced reactors, as well as upon developments in the mining and transportation of fossil fuel, and upon the extent and rate of discovery of low-cost uranium resources. The growth of nuclear power in the post-1980 period also will depend upon the growth of total electricity requirements. If the low forecast of electricity consumption should be correct, the 1962 forecast of 734,000 MWe of nuclear capacity in the year 2000 would not be reached since essentially all steam capacity beyond that now existing or committed would have to be nuclear. If the high estimate of electricity consumption should be correct, the opportunities for nuclear power would be greater, and, on the basis of the assumptions of the 1962 Report, installed nuclear capacity would be well above 734,000 MWe. The validity of these estimates is being considered in the continuing assessments.

Nuclear Economics

The electric power industry is large enough that opportunity exists for considerable savings to the U.S. economy through reductions in the cost of producing electricity. About half of the delivered cost of electrical energy is attributable to the cost of production, the remainder being transmission and distribution.

Unlike almost all other elements of the cost of living, the cost of producing electricity has been declining steadily over the years. This decrease has been due primarily to improving thermal efficiency for the fossil fueled plants and to lower capital costs per kilowatt electrical generating capacity for fossil fuel and nuclear plants. The latter cost improvement is attributable in large part to the distinct trend towards the construction of larger sized generating units.

At the end of 1966, there were 21 steam-electric generating units of 780 to 1130 MWe under construction or committed (Table 7). Twelve, or about 60 percent of these are nuclear fueled. Prior to 1966, nuclear electric plants in service ranged up to 270 MWe (Figure 1), whereas the nuclear plants presently scheduled to enter service beyond 1966 range up to 1065 MWe. It is expected that the trend towards large sized units of generating capacity will continue.

The scheduling of nuclear capacity has proceeded at an unexpectedly high rate in the U.S. At the time that the Commission's 1962 Report on Civilian Nuclear Power was issued, the total amount of domestic nuclear electric power operational or contracted for was 1150 MWe with an average unit size of 72 MWe. As of the end of 1966, the nuclear electric power operational or contracted for had increased to 25,800 MWe. During 1965, 4900 MWe were contracted for, and in 1966 the total was 16,580 MWe. The average size of the nuclear generating units ordered in 1966 was 790 MWe. As of January 1, 1967 about 1800 MWe of nuclear electric plant capacity are operable and 24,000 MWe are under construction or contracted for. Table 8 lists those nuclear power plants which have been operated, are under construction or have been committed.

Until nuclear power comprises more than about one-third of an integrated utility systems capacity, there is an opportunity for the nuclear plants to operate as base-load units. Since nuclear power is not

TABLE 7.—ELECTRICAL GENERATING UNITS UNDER CONSTRUCTION OR COMMITTED

(750 MWe (net) or larger)

Unit	Size (MWe)	Scheduled for Operation	Type
Bull Run No. 1	900	1967	Coal
Keystone No. 1	900	1967	Coal
Keystone No. 2	900	1968	Coal
Big Sandy No. 2	800	1969	Coal
Indian Point No. 2	873	1969	Nuclear
Paradise No. 3	1,130	1969	Coal
Mitchell No. 1	800	1970	Coal
Conemaugh No. 1	839	1970	Coal
Browns Ferry No. 1	1,065	1970	Nuclear
Surry No. 1	783	1971	Nuclear
Mitchell No. 2	800	1971	Coal
Oconee No. 1	839	1971	Nuclear
Browns Ferry No. 2	1,065	1971	Nuclear
Peach Bottom No. 2	1,065	1971	Nuclear
Burlington	993	1971	Nuclear
Conemaugh No. 2	900	1971	Coal
Surry No. 2	783	1972	Nuclear
Oconee No. 2	839	1972	Nuclear
Diablo Canyon	1,060	1972	Nuclear
Metropolitan Edison	840	1972	Nuclear
Peach Bottom No. 3	1,065	1973	Nuclear

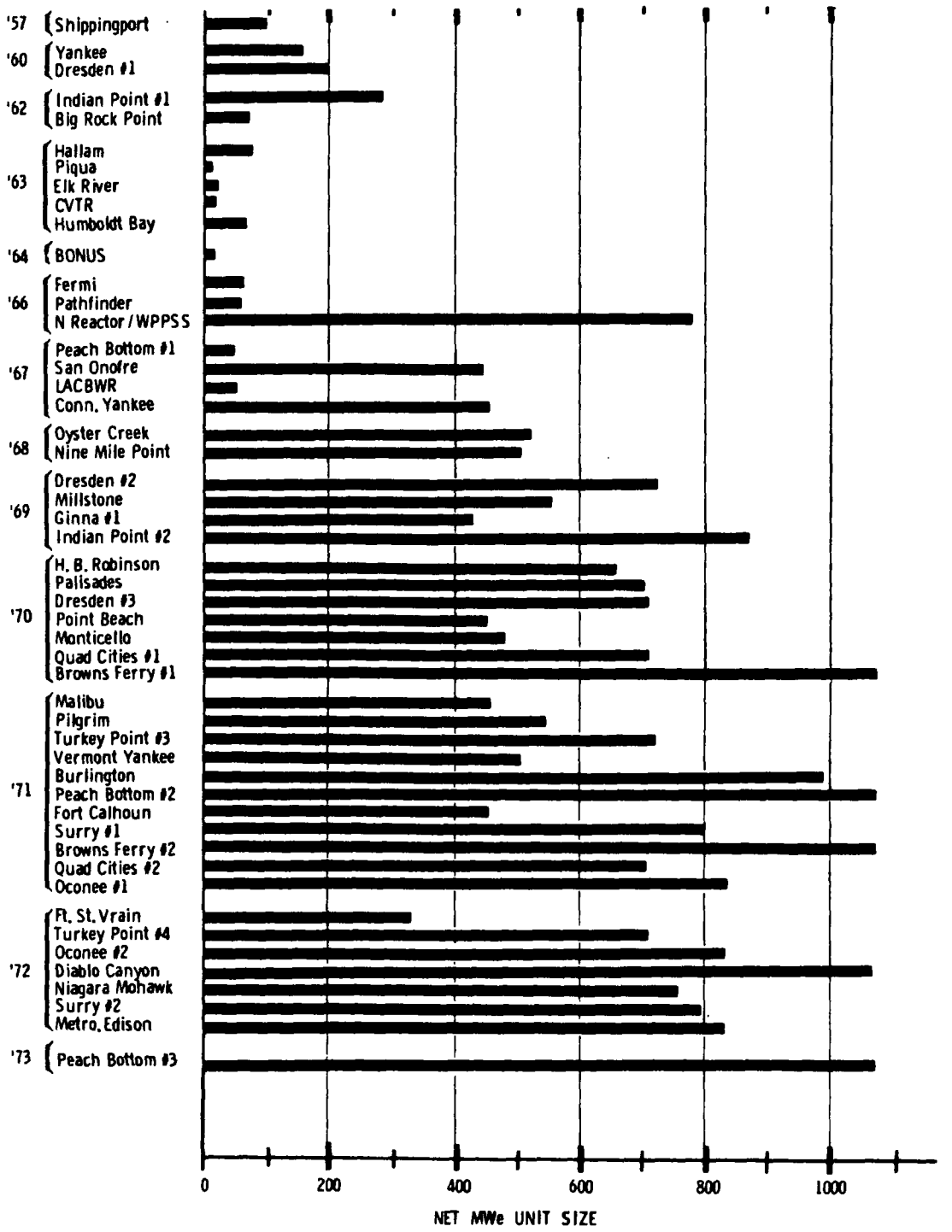
expected to reach that level before the post-1980 period, nuclear plants now being ordered probably will operate at high capacity factors during most of their life. Gradually, as nuclear power becomes a larger fraction of the total installed generating capacity of utility systems, the nuclear units may be considered on the basis of predicted lower capacity factor operation. Hence, the fixed costs associated with new capacity additions may become more important than they are at the present stage of nuclear growth and may set an economic limit on the proportion of the capacity that is nuclear.

In 1962 the estimated cost of producing electricity from a base load 500 MWe nuclear plant was 6.2 mills/KWh. The current estimate for a 500 MWe unit is about 4.4 mills/KWh. Current estimates (1970–1971 start-up) of the expected economic performance of light water nuclear electric plants in larger sizes and with investor financing are in the range of 3.5 to 4.2 mills/KWh for base-load operation. For those which are publicly financed, the range is 2.6 to 3.0 mills/KWh. Generally speaking, these current estimates compare with the cost of electricity from a similar large coal burning plant with delivered fuel priced at 17 to 25 cents per million BTU. The 1965 U.S. delivered price of coal ranged from 18.9 to 33.4 cents per million BTU for the seven FPC regions in which coal supplies over 10 percent of the energy used to produce electricity, with an average delivered price of 24.4 cents per million BTU. The average delivered price of all fossil fuels was 25.2 cents per million BTU.[1]

[1] Steam Electric Plant Factors/1965, Sixteenth Edition, October 1966, National Coal Association.

CENTRAL STATION NUCLEAR POWER REACTORS CONTRACTED FOR

Showing Size & Actual or Scheduled Year of Operation



As of Dec. 31, 1966

TABLE 8.—CENTRAL STATION NUCLEAR POWER REACTORS

NAME	REACTOR OWNER	OPERATOR	CAPACITY, KWE NET	TYPE OF REACTOR
Part I Reactors Operated by end of 1962				
Shippingport Atomic Power Station	AEC	Duquesne Light Company	90,000	Pressurized Water
Yankee Nuclear Power Station	Yankee Atomic Electric Company		175,000	Pressurized Water
Dresden Nuclear Power Station, Unit #1	Commonwealth Edison Company		200,000	Boiling Water
Indian Point Nuclear Power Station, Unit #1	Consolidated Edison Company of New York		270,000	Pressurized Water
Big Rock Point Nuclear Plant	Consumers Power Company of Michigan		70,400	Boiling Water
Hallam Nuclear Power Facility*	AEC	Consumers Public Power Dist. of Neb.	75,000	Sodium Cooled, Graphite Moderated
Part II Additional Reactors Operated by end of 1966				
Piqua Nuclear Power Facility	AEC	City of Piqua, Ohio	11,400	Organic Moderated and Cooled
Elk River Nuclear Plant	AEC	Rural Cooperative Power Association	22,000	Boiling Water
Carolinas-Virginia Tube Reactor (CVTR)	Carolinas-Virginia Nuclear Power Associates		17,000	Heavy Water Moderated and Cooled
Humboldt Bay Power Plant, Unit #3	Pacific Gas and Electric Company		68,500	Boiling Water
Boiling Nuclear Superheat Pwr. Station (BONUS)	AEC	Puerto Rico Water Resources Authority	16,500	Boiling Water with Nuclear Superheat
Enrico Fermi Atomic Power Plant	Power Reactor Development Company		60,900	Sodium Cooled, Fast
Pathfinder Atomic Power Plant	Northern States Power Company		58,500	Boiling Water with Nuclear Superheat
N-Reactor/WPPSS	AEC	Washington Public Power Supply System (WPPSS)	786,000	Graphite Moderated, Pressurized Water Cooled
Part III Reactors Scheduled for Completion by end of 1967				
Peach Bottom Atomic Power Station, Unit #1	Philadelphia Electric Company		40,000	Helium Cooled, Graphite Moderated
San Onofre Nuclear Generating Station	Southern California Edison Co. & San Diego Gas & Electric Company		410,000	Pressurized Water
LaCrosse Boiling Water Reactor (LACBWR)	AEC	Dairyland Power Cooperative	50,000	Boiling Water
Connecticut Yankee Atomic Power Plant	Connecticut Yankee Atomic Power Company		462,000	Pressurized Water
Part IV Reactors Contracted for Completion after 1967				
Oyster Creek Nuclear Power Plant	Jersey Central Power & Light Company		515,000	Boiling Water
Nine Mile Point Nuclear Station	Niagara Mohawk Power Corporation		500,000	Boiling Water
Dresden Nuclear Power Station, Unit #2	Commonwealth Edison Company		715,000	Boiling Water
Millstone Nuclear Power Station	The Millstone Point Company		549,700	Boiling Water
Robert Emmett Ginna Nuclear Pwr. Plant Unit #1	Rochester Gas & Electric Company		420,000	Pressurized Water
Indian Point Nuclear Power Station, Unit #2	Consolidated Edison Company of New York		873,000	Pressurized Water
H. B. Robinson	Carolina Power and Light Company		665,000	Pressurized Water
Palisades Nuclear Power Station	Consumers Power Company of Michigan		700,000	Pressurized Water
Dresden Nuclear Power Station, Unit #3	Commonwealth Edison Company		715,000	Boiling Water
Point Beach Nuclear Plant	Wisconsin-Michigan Power Company		454,600	Pressurized Water
Monticello Nuclear Generating Plant	Northern States Power Company		671,700	Boiling Water
Quad Cities Station, Unit #1	Commonwealth Edison Co. and Iowa-Illinois Gas & Electric Company		715,000	Boiling Water
Browns Ferry Nuclear Power Plant, Unit #1	Tennessee Valley Authority		1,064,500	Boiling Water
Malibu Nuclear Plant	Los Angeles Department of Water & Power		462,000	Pressurized Water
Pilgrim Station	Boston Edison Company		549,000	Boiling Water
Turkey Point Station, Unit #3	Florida Power & Light Company		721,500	Pressurized Water
Vermont Yankee Generating Station	Vermont Yankee Nuclear Power Corporation		511,900	Boiling Water
Burlington Nuclear Generating Station	Public Service Electric & Gas Co. and others		993,000	Pressurized Water
Peach Bottom Atomic Power Station, Unit #2	Philadelphia Electric Co. and others		1,065,000	Boiling Water
Fort Calhoun Plant	Omaha Public Power District		450,000	Pressurized Water
Surry Power Station, Unit #1	Virginia Electric & Power Company		783,000	Pressurized Water
Browns Ferry Nuclear Power Plant, Unit #2	Tennessee Valley Authority		1,064,500	Boiling Water
Quad Cities Station, Unit #2	Commonwealth Edison Co. and Iowa-Illinois Gas & Electric Company		715,000	Boiling Water
Oconee Nuclear Station, Unit #1	Duke Power Company		839,000	Pressurized Water
Fort St. Vrain Power Station	Public Service Company of Colorado		330,000	Helium Cooled, Graphite Moderated
Turkey Point Station, Unit #4	Florida Power and Light Company		721,500	Pressurized Water
Oconee Nuclear Station, Unit #2	Duke Power Company		839,000	Pressurized Water
Diablo Canyon Plant	Pacific Gas & Electric Company		1,060,000	Pressurized Water
Niagara Mohawk Power Corporation - Unnamed	Niagara Mohawk Power Corporation		755,000	Boiling Water
Surry Power Station, Unit #2	Virginia Electric & Power Company		783,000	Pressurized Water
Metropolitan Edison Company - Unnamed	Metropolitan Edison Company		840,000	Pressurized Water
Peach Bottom Atomic Power Station, Unit #3	Philadelphia Electric Company and others		1,065,000	Boiling Water

* Hallam achieved criticality in August 1962 and operated until September 1964 when it was shut down.

December 31, 1966

The recent commitments have included a considerable number of repeat orders by utilities for nuclear power units, and the size of the power-producing units has been increasing. Capital costs per kilowatt of electrical generating capacity have recently remained fairly constant for a given size of power producing unit or have increased slightly. Design innovations of a product improvement nature continue to be incorporated in succeeding plants, and it probably will be a few years before plant pricing stabilizes, though there has already been a move to standard sizes. Currently, there is a substantial backlog of plants on order. This is stretching out delivery times and presumably has an effect on plant pricing. However, warranted fuel cycle costs have decreased significantly, leading to an over-all reduction in the anticipated cost of nuclear energy.

Several large light water nuclear power units soon will begin operation. The operational experience to be demonstrated in these plants, particularly on fuel performance, plant maintenance and plant reliability, will be of great assistance in better defining the economic expectations of nuclear power plants.

Development Program

In making recommendations for the development program, the 1962 Report took note of the fact that light water reactors were relatively well developed and appeared to be on the verge of being competitive with conventional systems in high fuel cost areas of the country, with possible later extension to other areas as nuclear economics improved. The report recommended a shift in emphasis toward development of converter reactors of improved design and toward development of breeders for application in the long term to make available the full potential of the nuclear fuel resources.

The Commission has strengthened its program on breeders and they now represent the largest civilian power development area. The chief emphasis is being placed on fast breeders, in particular on the Liquid Metal Cooled Fast Breeder (LMFBR).

The continuing program on advanced converters is based on the rationale set forth in the 1962 Report. This class of reactors shows promise of economic improvement, and the effective use of resources could be substantially improved over the current light water reactors in both fuel inventory and in the requirements for burnup. Success of one or more of these concepts can provide an alleviation of resource requirements during a period before high gain breeders are fully developed. This may be particularly important if technical problems or economic limitations of the high gain breeders develop in such a way as to delay their progress into widespread utility application.

To some extent, the utility acceptance of the light water reactors has provided a new context for the advanced reactor projects. One of the promising features of the more advanced concepts has been the prospect that they can compete economically with the light water reactors; but in present circumstances they will face a more severe test in this regard than could have been predicted. On the other hand, the need for improved raw material utilization in order to forestall increases in cost for uranium has become more important because of the success of the light water reactors. Uncertainties in resource availability over the next few decades arise from the lack of intensive uranium prospecting in the U.S. in recent years. To the extent that renewed exploration may make available additional low cost resources, the need for higher conversion ratios than can be provided by the light water reactors will be reduced; if additional low cost resources should be more limited than expected, there will be greater need for improved converters, pending the development and commercial acceptance of breeders.

Although this report is essentially an updating to January 1967 of the circumstances and status of the Civilian Nuclear Power Program within the general context of the plan laid out in the 1962 Report, and does not reflect new conclusions or fundamental changes in direction,

brief descriptions are included under the individual concepts on the prospects for the future as seen in relation to the planned development of each particular concept viewed at this time. The series of analyses and assessments of current development programs now being made may lead to changes in the apparent promise of the concepts and to resultant changes in emphasis or direction of the program as a whole. Some of the development programs are approaching a very critical stage, and meaningful and important information will be available within the year 1967. It is anticipated that this information will provide a basis for reducing the number of concepts now being pursued.

Such changes as may result from the studies will be carried out consistent with the conclusion in the 1962 Report that:

> "Thus, the proper role of Government is to take the lead in developing and demonstrating the technology in such ways that natural economic forces will promote industrial applications and lead to a self-sustaining and growing nuclear power industry; the program should be guided in such directions that those economic forces will work toward ends in the public interest, including the long-range conservation of both our fossil and our nuclear fuel resources."

In going forward in further fulfillment of this responsibility, the Commission intends to proceed under arrangements similar to those made in the past. The Commission will, generally speaking, participate in the development of technology directly, working through its own laboratories and with industrial contractors. Cooperative programs will be used, if possible, for demonstration reactors, bringing to bear both the developing industrial capability and the utility interest through direct participation and sharing of the required investment and associated risks.

In exercising the role of positive and vigorous leadership recommended in the earlier report, the Commission intends to place particular emphasis, in cooperation with industry, on the development and application of a continually improving standard of design, construction and operating practice. Such upgrading—applied to the Commission's own programs and experimental facilities, to cooperative programs, and throughout the industry—should become an important factor in insuring meaningful results from experimental and demonstration programs, in improving the economics, in providing the high degree of reliability and availability necessary for utility application and in continuing with increasing assurance the nuclear industry's excellent record of safety.

Light Water Reactors (LWR)

The Commission's Power Demonstration Reactor Program has provided assistance for a number of light water nuclear power plants: Shippingport, Yankee, Elk River, Pathfinder, BONUS, Big Rock Point, San Onofre, LaCrosse Boiling Water Reactor (LACBWR), Connecticut Yankee, and the proposed Malibu plant. These plants have exhibited various levels of technical and economic success, and are expected to continue to make contributions to water reactor development and demonstration.

Manufacturers now are able to shop-fabricate pressure vessels and other components for nuclear power plants up to at least a 1500 MWe

rating, an important factor in the trend to the larger, more economic plants. Improvements in plant components and reactor control have resulted in increased reactor power density, leading to reductions in pressure vessel dimensions and in plant cost for a given power level. Safety features, including engineered safeguards systems, have been improved. Though fuel burnup averaged over entire cores has been in the range of 12,000–15,000 megawatt days per ton (MWD/T) of fuel, limited quantities of Zircaloy clad uranium oxide fuel have reached a burnup in excess of 30,000 MWD/T in light water reactors.

Despite the status and projected advances in light water reactors, there remain some reservations about the state of the technology. No plants have operated in the sizes which are being committed. There is no statistical experience with large amounts of fuel at exposures which are being contemplated for the new commercial plants. There is continuing concern for safety. The impact of regulatory requirements on the economics of committed projects cannot be fully known until after they have gone through the regulatory process and been put into operation. While it is not felt that these reservations reflect on the basic promise of the water reactor systems, the Commission has held that it is not now in a position to make a statutory finding of practical value within the meaning of the Atomic Energy Act of 1954.

Continued improvement of the pressurized and boiling light water reactors is being undertaken by industrial suppliers and by the electric utilities. Commission support of development will be limited to activities in the main related to plant safety, including participation in the development of engineering standards, practices and procedures, and to the support of improvement of fuel resource utilization in light water reactors. Further Government assistance to the development of light water converter reactors under the demonstration program is not planned.

Current commitments to support the U.S.-Euratom light water research and development program will be continued until mid-1969.

It is intended that support of Shippingport reactor operations will be continued. Much of the research and development support involving the Shippingport operation will be reoriented to the seed-blanket light water breeder concept which is directed toward demonstrating the potential for breeding in pressurized light water plants.

The AEC support for plutonium recycle work for thermal reactors is being decreased with the expectation that the industry will increase its research and development programs to make plutonium recycle an effective part of the nuclear power system. Phase-out of the Commission recycle program is planned about 1970.

Current cooperative arrangements will be continued relating to the participation in examination of fuel from the Yankee reactor and operational analysis and support for the cooperative demonstration plants such as Elk River, LaCrosse, Pathfinder, and Big Rock Point. Support for the thermal reactor superheat program is being limited to the BONUS and Pathfinder plant cooperative demonstration program commitments.

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Advanced Converters and Light Water Breeder

In 1962 a number of converters of advanced design were under development because of their promise of better economics and higher conversion ratios than the pressurized or boiling light water reactors. Included were the organic-cooled and moderated reactor, heavy water moderated reactors, the "spectral-shift" reactor combining light and heavy water in the moderator, the sodium-cooled graphite-moderated reactor, high temperature gas-cooled reactors moderated by graphite or beryllium, and the seed-blanket light water concept.

The Commission effort to develop advanced converters now has been narrowed to three approaches: the heavy water moderated reactor with emphasis on the organic-cooled version, the high temperature gas-cooled concept and the seed-blanket light water breeder concept. Current studies are excepted to lead to a further narrowing of focus.

Heavy Water Moderated Reactor Program

Heavy water moderated reactor systems in the 1000 MWe range and above, in addition to the potential for lower cost power and higher conversion ratios, require less natural uranium to provide the slightly enriched inventory than do present light water reactors. Very large unit size reactors can be accommodated by the modular pressure tube design of the heavy water moderated reactor. These sizes may be advantageous for dual purpose electrical and desalting plants. The pressure tube concept also permits refueling while at power to achieve high plant availability.

The heavy water moderated reactors have the flexibility to accept different fuels and coolants. Although the thorium fuel cycle results in a higher conversion ratio and consequently better utilization of fertile fuel resources, the cost of electricity using that cycle in a heavy water moderated reactor designed for power production is estimated to be somewhat higher than that of a uranium fuel cycle. The uranium cycle has therefore been assigned a higher priority. The reference cycle uses slightly enriched uranium, which has been shown to have economic advantages in the U.S., but detailed evaluations of cycles using natural uranium fuels are under way.

Coolants considered for the heavy water moderated systems have included organics, boiling light water, and heavy water. In proceeding with the present program it has been concluded that the most desirable avenue to follow from the point of view of potential power generation costs and fuel utilization is one which avoids pressurized heavy water coolant and the attendant possibility for costly losses. From a power cost and fuel utilization standpoint, the organics and boiling light water coolants as alternates can match heavy water and they have the potential for providing lower power costs. There have not been sufficient resources available to pursue both programs; industrial interest and experience and a lesser need for new or modified experimental facilities were important factors in the decision to emphasize the organic route for the present research and development program.

The heavy water organic cooled reactor (HWOCR) 1000 MWe reference design incorporates a low pressure organic coolant and is moderated by heavy water at low pressure and temperature. Organic coolant flows through pressure tubes made of sintered aluminum powder (SAP) or zirconium alloy. The slightly enriched uranium carbide fuel elements contained in the tubes are clad with SAP. Design features may include refueling while at power, carbon steel primary systems and provisions for coolant purification.

The research and development program is directed toward providing the technological and engineering base for an HWOCR demonstration plant and toward identifying specific technical limitations, particularly as these relate to the organic coolant concept. In-pile tests at HWOCR conditions indicate that organic coolant decomposition rates are predictable; however, operation of the rebuilt organic cooled and moderated Piqua reactor is necessary to demonstrate that organic film formation on the fuel elements can be adequately predicted and that the buildup of coke[1] will not occur. Additional experimental verification that organic film formation on fuel elements can be controlled within acceptable limits needs to be established; it is intended that allowance will be made in the fuel element design to accommodate the predicted organic film formation. Effort is being directed to identify the limits of this problem and the economic incentives or penalties for variation from reference conditions. The program also includes the determination of uranium carbide fuel growth characteristics under HWOCR conditions and application of results to fuel element and core design. It is intended that coolant purification systems will be operated to demonstrate control of organic purity within specified limits. A series of in-pile experiments is being performed to verify the predicted performance of SAP and zirconium alloy pressure tubes, including their ease of replacement. Experiments and analyses will also be conducted on physics and reactor control, and on interrelated safety considerations associated with a positive temperature coefficient of reactivity.

The technology for many of the heavy water subsystems and components is embodied in reactor experiments and nuclear power plants in this country and elsewhere that have used pressure tubes, and heavy water or organic cooling; additionally, the large light water reactor plants being constructed contribute significantly to the development and manufacture of such components and instrumentation.

A valuable source of additional technology for the heavy water program is made available through technical exchange arrangements with Atomic Energy of Canada Limited (AECL). Use of organic cooled irradiation facilities in the National Reactor Universal (NRU) at Chalk River and the Whiteshell Reactor (WR-1) contribute to the U.S. HWOCR program. The Canadian program on the light water cooled heavy water moderated reactor concept is also providing information of use to the U.S. in its assessment of that concept.

Another technical information exchange agreement is being negotiated with Euratom to obtain information on the HWOCR type ORGanique-EauLourde (ORGEL) reactor. The exchange will also include the Euratom sponsored ESSai ORgel (ESSOR), a heavy water moderated and organic cooled reactor rated at about 20 MWt,

[1] Coke—porous solid organic coolant decomposition products.

with a pressure tube arrangement much like the WR-1, which is expected to begin operation in 1967.

High Temperature Gas Cooled Reactor

The High Temperature Gas Cooled Reactor (HTGR) system is a helium cooled graphite moderated concept with a potential for lower power costs and higher conversion ratios than present light water reactors. Large HTGR plant designs use the thorium fuel cycle; the initial fuel loadings will use uranium-235, but after about seven years the core loadings will be primarily recycle uranium-233, with only small additions of uranium-235.

During the period since the 1962 Report, fundamental advances have been made in the technology of the fuel for the High Temperature Gas Cooled Reactor concept. The present fuel consists of coated particles—small thorium-uranium carbide spheres coated with high density (pyrolytic) carbon—mixed homogeneously with a substantial amount of graphite. This fuel has much greater proven capacity for fission product retention than fuels previously under consideration and should favorably affect reactor design, operation and maintenance. During the past four years a greater understanding of the problems involved in using graphite as a high temperature reactor material has been reached. Analytical methods developed for the reactor physics of high temperature graphite cores have been confirmed through the initial criticality operation of the Peach Bottom reactor and additional physics tests are planned after power operation is attained. The advent of the prestressed concrete technology for large reactor vessels provides new possibilities for this concept.

Operation of the 40 MWe Peach Bottom reactor, and to a less direct extent of the 3 MWt Ultra High Temperature Reactor Experiment (UHTREX), located at Los Alamos, and of the 20 MWt Dragon reactor, located in the United Kingdom, will provide information important to the development of the HTGR concept. The Peach Bottom reactor is cooled with helium at 300 pounds per square inch (psi). Graphite is used for the moderator, cladding, core structure and reflector. The vented thorium-uranium carbide fuel in Peach Bottom provides for a three year core life and the plant is designed to produce steam at 1450 psi and 1000° F. Several problems arose during the construction of Peach Bottom, which started in early 1962. They resulted in delays for this first-of-a-kind plant with its unique components, systems and instrumentation. Initial criticality was achieved in March 1966 and full power operation is scheduled in 1967.

Plant components for large HTGRs will differ substantially from those used in Peach Bottom. The important plant and component design changes are dictated by the use of a prestressed concrete reactor vessel, increased component size requirements, different safety and containment concepts, and the required high degree of plant performance, reliability and maintainability. The new components require development and testing. Leakages of helium, lubricating fluids and steam will require careful control, and systems and special instruments to achieve this control will be developed.

The initial development efforts on demonstration components and systems for large HTGR power plants will be provided by the Public

Service of Colorado (PSC) cooperative demonstration project—a 330 MWe HTGR to be located at Fort St. Vrain, near Denver, Colorado. The PSC reactor will use the improved thorium-uranium coated particles. The reactor will be cooled with 700 psia helium and will be designed to produce steam at 2400 psi and 1000° F. with a 40 percent net plant thermal efficiency. A prestressed concrete reactor vessel will house the entire primary system, including the core, and the steam driven axial-flow helium circulators and the steam generators, which are located under the core. Research and development and design were initiated in July 1965. Commercial operation of the plant should be attained by 1972.

The support to be afforded the PSC project will be dependent upon a technical and economic assessment to be made following full power operation of the Peach Bottom reactor. Support of the over-all HTGR program will depend upon successful and timely operation of the Peach Bottom reactor, the rate of progress in the design of the 330 MWe PSC plant and the development of critical HTGR components.

Two designs of a 1000 MWe HTGR reactor are being prepared for assessment. The reference design will incorporate potential improvements in the HTGR concept beyond that of the PSC plant. Refueling while at power, for example, would increase plant availability and lower the cost of power produced. A backup design will embody essentially the features being developed for PSC.

Research and development efforts will continue on nuclear safety analysis, fuel development, prestressed concrete pressure vessels, containment and related safety features, and on component development, including turbine-driven circulators, control rod drives, steam generators and fuel handling machines. Fuel recycle studies will include fuel reprocessing, fabrication, handling and related safety implications.

Light Water Breeder

The thorium-uranium-223 fueled seed-blanket Light Water Breeder Reactor (LWBR) concept has an expected conversion or breeding ratio high enough to increase the fuel utilization significantly beyond that of either present types of light water reactors or advanced converters currently in the AEC program. Successful development of the LWBR would make available for power production about 50 percent of the potential energy in the thorium fuel resources.

The breeding gain expected in the LWBR concept is not as great as that potentially obtainable using plutonium fast breeder systems, and the system would not produce the excess of fissile material over that consumed which would make possible the fueling of additional reactor capacity from bred fissile material. On the other hand, the LWBR is based on proven pressurized light water reactor technology and, except for changes in the reactor core, does not require a significance departure from the technology on which the growth of the U.S. nuclear utility industry is at present dependent. The seed-blanket breeder therefore has few engineering development uncertainties in the plant and can provide a system of proved practicality and comparable reliability along with its substantial improvement in fuel utilization over present types of light water reactors With the

engineering status in a relatively favorable condition, the major long-term problems on seed-blanket light water breeder acceptance may center on the economics of core fabrication and fuel cycle costs.

As an initial step, it appears feasible to design a reactor core which could actually demonstrate breeding using the thorium seed-blanket concept in an existing pressurized water reactor plant. Successful completion of such a breeding demonstration would show that it is technically feasible to install breeder cores in existing and future pressurized light water reactor plants.

The Commission is presently proceeding with a program of research and development including large scale physics critical experiments using uranium-233 and thorium, reactor component development and engineering tests, and extensive fuel element development, irradiation testing, and analysis. The Commission plans to determine during Fiscal Year 1968 whether a breeding demonstration core should be built for an existing pressurized water reactor plant such as the Commission owned reactor at Shippingport, Pennsylvania. No major changes would be required to the plant except those associated with the changes in the core design.

High Gain Breeders

As stated in the 1962 Report:

> ". . . our supplies of uranium and thorium contain almost unlimited amounts of latent energy that can be tapped, provided 'breeder' reactors are developed . . . successfully done, this will render relatively unimportant the cost of nuclear raw materials so that even very low-grade sources will become economically acceptable."

The development of high gain breeders will increase fuel utilization from the few percent potentially usable in present day reactors to over 50 percent. The energy that can be extracted from the low cost ores will thereby be extended by factors of 10 to 30. The relative insensitivity of high gain breeders to ore prices will also make usable the large amounts of uranium available from higher cost ores. High gain breeders will also produce an excess of fissile material over that initially present, which can be used to fuel new reactors in an expanding power system.

Fast Breeder

The fast breeder, with a potential for a doubling time of 8 to 10 years, can most efficiently use the fertile uranium-238 in depleted and natural uranium.

The fast breeders of major interest are divided into three categories—sodium cooled, gas cooled and steam cooled. The sodium cooled fast breeder has been established as the priority program on the basis of potential economy, reactor manufacturer interest, and technological experience gained in the U.S. and abroad. Worldwide interest is concentrated on the sodium cooled breeder. The sodium cooled and gas cooled breeder have a better economic potential and capability for conserving uranium resources than the steam cooled fast breeder. Though sodium possesses certain technical advantages, use of alternate coolants, gas or steam, would reduce the complexity of

coolant servicing, and of component and system maintenance. Though it is not expected that comparisons will show advantages in the alternate coolant concepts sufficient to change the high priority assigned to the sodium-cooled fast breeder reactor, there is a need to establish definitely the emphasis to be placed on alternate coolant fast breeders, and such efforts are underway.

LIQUID METAL FAST BREEDER REACTOR (LMFBR)

The Liquid Metal-Cooled Fast Breeder Reactor (LMFBR), using sodium as the coolant, has an extensive background dating from 1945. Sodium was chosen as the coolant primarily because it has a combination of advantageous characteristics; good nuclear characteristics which help in attaining high breeding ratios, with potential doubling times of 8 to 10 years; a high boiling point which allows for high temperature and low pressure operation, with resultant high plant thermal efficiency and thin primary wall structures; excellent capability for transferring heat; a large heat capacity, which allows for timely action in the event of a power transient or loss of coolant flow; low pumping power; and relative freedom from corrosion in the absence of air and water. Sodium as a coolant has disadvantages—associated with its prolonged radioactivity after reactor shutdown, its chemical reaction with air and water, and its nontransparency—which make maintenance difficult. The chronology of the world's existing sodium cooled fast breeder program is shown in Table 9. All of the fast breeder plants in operation, committed or planned are cooled with sodium except Dounreay, cooled by a sodium-potassium alloy, and one steam cooled plant (250 MWe) under consideration in Germany.

TABLE 9.—CHRONOLOGY OF FAST REACTORS

	Achieved		Design Power	
	Criticality	Electrical power	KWe	KWt
U.S.:				
Clementine [1]	Nov. 1946	[2]		25
EBR-I [1]	Aug. 1951	Dec. 1951	250	1,200
LAMPRE I [1]	1961	[2]		1,000
Fermi	Aug. 1963	Aug. 1965	67,000	200,000
EBR-II	Nov. 1963	Mar. 1965	20,000	62,500
Foreign:				
UKAEA Dounreay	Nov. 1959	Aug. 1962	15,000	60,000
USSR BR-1 [1]	1955	[2]		
BR-2 [1]	1965	[2]		100
BR-5	1958	[2]		5,000
CEA Rapsodie	Early 1967	[2]		20,000
Total Existing			102,250	349,825

[1] Projects now terminated.
[2] Produced No Electric Power.

Demonstration and prototype fast reactor plants have been committed in the U.K. and U.S.S.R. to a total of 600 MWe and have been planned in France and Germany to a total of 550 to 850 MWe. Dem-

onstration plants probably larger than 300 MWe are planned for the U.S. development program.

The past four years have been productive of information which enhances the promise of the sodium cooled fast breeder reactor. The U.S. program has been highlighted by the operation of the Experimental Breeder Reactor II (EBR–II) and the Fermi reactor. Successful maintenance of components in a sodium environment has been demonstrated. The EBR–II, designed for 62.5 MWt, achieved criticality in 1963 and now is being operated at 45 MWt as the only available fast neutron flux fuels and materials irradiation facility. The reactor is irradiating on a continuous basis about 235 core length LMFBR experimental capsules containing samples of plutonium bearing fuels and of structural materials.

The Fermi reactor, designed for 200 MWt, first operated in 1963 and achieved 100 MWt in 1965. Plans for further operation were interrupted by a major fuel failure in October 1966. Future plans for Fermi will depend on determining the cause of fuel failure and the extent of damage. It appears that fuel has melted in one or more fuel subassemblies,[1] in total equivalent to about one subassembly. It will take some months of effort to remove the subassemblies in question, analyze the failure and determine an appropriate course of action.

Fast reactor operating and irradiation information has been provided by the United Kingdom as a result of the successful operation of the Dounreay Fast Reactor (DFR). The DFR 60 MWt reactor has been in operation since the summer of 1963 as a fuels and materials irradiation facility. Plutonium-uranium oxide fuel in experimental subassemblies has achieved a burnup in excess of 90,000 MWD/T. The DFR is presently irradiating about 300 fuel element experiments, about half of which are for the U.K. fast breeder program.

Concurrently with the EBR–II and DFR operation, reactor physics experiments have been conducted by the U.S., and U.K. and the Euratom community which have demonstrated that fast reactors fueled with plutonium-uranium oxide using a slightly softened neutron energy spectrum can probably be provided with an inherent Doppler effect that will satisfactorily stabilize power excursions. Further detailed and confirming information on the Doppler effect will be provided by the 20 MWt Southwest Experimental Fast Oxide Reactor (SEFOR) experiment which is scheduled to operate in 1968. The capital cost of this reactor is being financed jointly by the Southwest Atomic Energy Associates, Euratom, and the German Gesellschaft für Kernforschung (GFK). The AEC is providing about half of the total of capital, operating and research funds, with its support devoted to research and development and operation of the reactor.

Further manifestations of the confidence of other nations of the world in the success of fast reactor development include the series of critical and subcritical test facilities initiated by Euratom in 1964; the construction of the French Rapsodie, a 20 MWt experimental fast breeder reactor; the initiation of construction at Dounreay of the 250 MWe Prototype Fast Reactor (PFR) in 1966; the initiation of construction of the 350 MWe equivalent power and desalting BN–350 fast breeder in the Soviet Union; the U.S. initiation in 1965 of the con-

[1] Fuel subassembly—A collection of fuel elements forming a unit structure which can be inserted, or removed, from a reactor core.

ceptual design for the Fast Flux Test Facility (FFTF) of about 400 MWt; and the expression of interest by U.S. industry in participating in research and development and in building demonstration plants.

The Commission is continuing to strengthen its research and development activities in the LMFBR program. The total program effort will identify the key research and development problems; provide conceptual plant designs; determine the role of demonstration plants in the research and development program; select methods for developing engineering capability in an industrial complex; determine the amount and allocation of resources required; and determine the priorities and schedules for each segment of the program necessary to develop commercial plants.

Intensive and comprehensive reviews are being made in each technical area of the LMFBR program to assess its status and to determine the major needs of the program. Initial reviews have been completed on fuels and materials, physics, and associated facilities.

The fuels and materials program is concentrated on the plutonium-uranium oxides, carbides and alloys, with the objective of developing fuel for the FFTF and the first demonstration plants. Sufficient development to select and verify the fuel and cladding for the Fast Flux Test Facility (FFTF) and for the initial loadings of the first demonstration plants can be performed in existing thermal reactor irradiation facilities and in EBR-II.

The development of fuels and cladding for advanced cores in these and later plants will use the capabilities of the Fast Flux Test Facility. The construction of the FFTF and its subsequent operation are necessary to provide adequate and flexible testing space for the many LMFBR fuels and materials which will be developed for the demonstration and commercial fast breeders. Its power level of about 400 MWt will provide a fast neutron flux, temperature and coolant environment similar to that of a commercial breeder. The successful achievement of high fuel burnup required for economic operation of the fast breeders will, in a large measure, be dependent on the FFTF. Full statistical confirmation of high fuel burnup will be achieved in the demonstration plants.

Research and development on physics pertinent to the LMFBR is being concentrated on acquiring accurate measurements for core criticality and safety studies and for economic analyses of reactor cores. Understanding and demonstration of the LMFBR behavior will require accurate prediction of reactivity coefficients. Major additional facilities, such as the Oak Ridge Linear Electron Accelerator and the Fast Neutron Generator at Argonne National Laboratory scheduled for 1968–69 operation, will provide cross section measurements needed to establish reactivity coefficients. It is expected that test programs in the Southwest Experimental Fast Oxide Reactor (SEFOR), in the FFTF and in the first demonstration plants will provide confirmation of predicted characteristics of the various core configurations selected and of the core physics and associated safety aspects of the LMFBR.

Several significant factors must be considered in establishing the safety of the LMFBR: the short neutron lifetime; the small delayed neutron fraction associated with plutonium; the hypothetically possible critical reassembly of the fuel in the event of core meltdown; the possibility of increased reactivity from void formation in the sodium; and the possibility of chemical reactions of sodium with air and water.

The Commission's safety program is being oriented to provide the research and to develop the components and systems necessary to resolve the many problems associated with these factors.

The LMFBR program includes operation of fuel, components, systems and instruments in sodium at temperatures up to 1200° F., in the gas over the sodium, which is saturated with sodium vapor, and in the presence of impurities in the sodium and sodium vapor. Sodium components will be developed and tested to perform in the LMFBR environment in a safe and reliable fashion. The role of impurities in the sodium is being investigated in relation to sodium heat transfer; fluid dynamics; chemistry; analysis, monitoring, and purification of sodium; and the effects and control of sodium-air and sodium-water reactions. Analytical procedures, purification methods, and detection systems are being developed based on these investigations.

Although the LMFBR program is placing immediate emphasis on the design and construction of the FFTF, plans are being developed for the introduction of a number of sodium cooled fast breeder demonstration plants to be built during the 1970s. A series of large commercial fast breeder design studies initiated by the Commission is being undertaken by several industrial firms. These will provide a basis for the design of demonstration plants which will be essential in validating the results of the over-all research and development program, in strengthening the industrial base and in obtaining acceptance of the plant types by utilities. The first utility demonstration plants to be included in the over-all LMFBR plan probably will have a capacity greater than 300 MWe, and will demonstrate or prototype as many features as possible of 1000 MWe, or larger, plants.

The commitments to build the demonstration plants will depend upon an assessment of the technological and engineering uncertainties; the economics; the financial risks; and the willingness of reactor manufacturers, utilities and the Commission to participate in and accept the projects and the risks involved. Utility acceptance probably will be motivated by the incentive of cheaper electricity. The acceptance will be contingent on developed technology, on the existence of a competitive and self-sustaining industry, and on a minimum investment of risk capital. It does not appear that a prudent commitment to build the first U.S. demonstration plant can be made prior to 1969, nor can the number of demonstration plants be predetermined. It is foreseeable that over a period of perhaps 10 years, as many as 3 to 5 demonstration plants of different designs and sizes could be built and operated.

ALTERNATE COOLANTS FOR FAST BREEDER REACTORS

Steam and helium are being considered as coolants alternate to sodium for fast breeder reactors. Fast reactor systems with coolants other than sodium are attractive only if they offer significant advantages with respect to economics, efficient use of resources, safety and timing. An assessment currently in progress on reactor systems using the alternate coolants will continue and will include a determination of the economic and technical potential of each concept; the research and development program required to achieve the objectives of each con-

cept; the resources required for development of potential demonstration and commercial plants and the timing of the plants.

Pending the results of these assessments, the alternate coolant fast breeder programs will remain at about present funding levels, concentrating primarily on key development areas, such as fuel, physics and design concepts.

Gas Cooled Fast Breeder Reactor (GCFBR)

The gas (helium) cooled fast breeder has a combination of advantageous characteristics which make it an attractive alternate to the LMFBR. It has good neutron economy, with doubling times approaching those of the LMFBR, and high temperature operation with high plant efficiency. Maintenance is facilitated by low coolant radioactivity and by the fact that the coolant is transparent and chemically inert. Coolant void reactivity and materials compatibility problems are minimal with helium. Its disadvantages include difficulty of emergency cooling, stringent limitations on steam and helium leaks, use of relatively high pressure, and high pumping power.

The GCFBR differs from the High Temperature Gas Cooled Reactor primarily in that no moderator is required and the fuel element consists of metal clad small diameter ceramic fuel pins. Both oxide and carbide fuels are of interest. The requirements and provisions for the emergency cooling system in the event of a loss of coolant accident are significantly more stringent than for the HTGR, because of the lower overall heat capacity of the system.

In a typical GCFBR the reactor and steam generators are contained in a prestressed concrete reactor vessel which also serves as the biological shield. Electricity is generated from a high pressure steam cycle with a net plant thermal efficiency of about 40 percent. The steam generators are supplied with 1000 psi high temperature helium from the reactor.

Conceptual design work was undertaken by the Commission in 1963. More recently, industry has completed conceptual design studies to establish the practicality of a 1000 MWe plant. Assessments of this concept are continuing, and projections based on these assessments will be used to determine the degree of emphasis to be placed on the program.

Steam Cooled Fast Breeder Reactor (SCFBR)

The steam cooled fast breeder has advantages associated with a large industrial capability base of useful technology from light water reactors, the possible use of a direct cycle, and high temperature operation with high plant thermal efficiency. The fact that the coolant is transparent and does not react chemically with air facilitates maintenance. There are uncertainties affecting feasibility and economic attractiveness of the SCFBR. These include the magnitude and effect of steam density and Doppler coefficients; the breeding ratio; control and safety; corrosion and radiation damage of fuel cladding; and fission product carry-over from the reactor to other parts of the system in a direct cycle.

Although study efforts have been carried out in the U. S. and abroad on the steam concept, with consideration given to both supercritical

and lower pressure steam conditions, there is little information presently available upon which to base an economic evaluation. Analysis and assessments are now in progress on lower pressure steam sytems to determine the effort to be placed on the SCFBR.

Molten Salt Breeder Reactor (MSBR)

The near-term objectives of the MSBR program are the development and demonstration, to the extent required for an assessment of its potential as a commercial power plant, of an experimental breeder reactor system based on the thorium cycle. Preliminary studies show that the MSBR promises a low fissile inventory, which, when combined with a potential breeding ratio of about 1.05, may result in a relatively short doubling time. The MSBR uses a stable molten fluoride salt fuel which permits the use of nickel base structural materials. The fuel has an ionic structure that resists radiation damage. It has a low vapor pressure and is relatively inert in air, which ameliorates safety problems. Uncertainties with the molten salt breeder concept include problems with materials, components and systems needed to contain the fluid fuel and fission products, and plant maintenance.

The concept of reprocessing continually at the reactor site achieves removal of fission products and protactinum, and thus contributes to a good neutron economy and to the low total inventory of fuel. Such processing requires control of effluent and waste management appropriate to a reprocessing plant at each reactor site.

The Molten Salt Reactor Experiment (MSRE) incorporates a single region, nonbreeding circulating molten fluoride salt fuel, a graphite moderator and an air-cooled radiator for heat dissipation. The reactor attained criticality in June 1965 and since that date has served to provide information pertinent to the development of molten salt breeder reactors. It operated 30 percent of the time during 1966 at power levels up to 7.5 MWt.

The MSBR, a two-region system which has been proposed at the next step in development of the molten salt reactor concept, incorporates two separate molten salt regions, one for the core and one for the blanket. Sustained operation of the MSRE, and out-of-pile analysis and experimentation are being performed as prerequisities for demonstrating the potential of the MSBR.

The operation of MSRE and other research and development will be directed to the development of technology for a large breeder reactor. The near-term research and development efforts will include the development of graphite suitable for use as fuel tubes, the improvement of Hastelloy-N structural material, the investigation of fission product transfer, deposition and decontamination, and the design of components and instrumentation.

Desalting Program and Other Process Applications

The Commission's investigations into the potential of nuclear energy for process applications have identified large scale desalting of sea

water as a most promising process. A study by the President's Office of Science and Technology in 1963–64 concluded that large scale desalting plants using nuclear energy could produce fresh water from the sea at costs which could be economic for industrial and municipal use. Based on this favorable assessment, the President in 1964 instructed the Department of the Interior, which is responsible for desalting technology and processes, to initiate, in cooperation with the Commission, an aggressive plan to develop large scale desalting of sea water.

Intermediate and large scale dual purpose desalting plants which also produce electricity appear to offer the most favorable near-term approach to desalting water economically. A dual purpose plant with a single large size reactor, producing electricity and fresh water, has inherent economic advantages over multiple single purpose plants. The Commission's present effort in support of the desalting program depends on the use of light water reactor systems. Assessments have been made on other reactor concepts, and studies and concept design are continuing to explore the use of large scale reactors including the heavy water moderated types.

Planning studies are assessing the magnitude and nature of the effort required to develop the technology for very large scale plant construction and operation (up to 10,000 MWt), and for the coupling of nuclear power and desalting plants. Other important considerations include the determination of optimum timing, sizing and location of large dual purpose plants to meet growing water and power market demands.

A large scale dual purpose nuclear desalting project is being undertaken by the Metropolitan Water District (MWD) of Southern California, in cooperation with local power utilities and the Federal Government (Department of Interior and the AEC). It is expected that the project will be located on an artificial island off Bolsa Chica State Beach south of Los Angeles, and will consist of two light water reactors and a desalting plant. It will have a capacity of 1,800 gross MWe and ultimately will provide 150 million gallons of water per day. At design conditions, water is estimated to cost approximately 22 cents per 1,000 gallons at the plant for power costs estimated to be equal to or lower than the costs of power now being produced in the Los Angeles area.

Results of a cooperative Israel-U.S. study have indicated that a light water reactor producing in the range of 200 MWe and 100 million gallons of water per day could contribute to a solution to Israel's power and water needs. Other cooperative studies are underway with Greece to assess the potential of nuclear desalting for Athens, and with Mexico under the auspices of the IAEA to study development of the arid regions of northern Mexico and the southwestern portion of the United States.

The Commission will continue to emphasize the development of reactor technology required for economic large scale desalting. Based upon experience gained from study efforts and the MWD desalting project, the Commission will continue present development programs and will participate, as authorized, in other cooperative demonstration plant projects, probably involving larger and more advanced reactors and improved desalting systems.

The production of chemicals and metals is also being studied under the Nuclear Desalting and Other Process Applications Program. These studies will include processes requiring large quantities of low-cost process heat and electricity.

Processes which have been considered include the production of hydrogen by electrolysis of water for use in ammonia synthesis for fertilizers, the production of aluminum from alumina ore by electrolysis, the reduction of iron ore in an electric furnace, and the production of magnesium from sea water by electrolysis. Large-scale desalting, by increasing the concentration of elements and compounds in the effluent brine, may indirectly benefit the production of these products for industrial use.

The Commission will continue to assess the potential of other applications for nuclear power, such as high temperature process heat and fissio-chemical processes,[1] and the use of power reactors to provide isotopes for power, radiation sources, and other uses.

Supporting Technical Programs

The 1962 Report described the supporting technical programs in general reactor technology, reactor safety, and waste management as "essential to success and to development of improved systems in the future."

These activities provide the research, exploratory development, and advanced technology necessary for accomplishing specific reactor programs, for assuring the safety of reactor installations and for providing safe and efficient methods of handling the fission products and other radioactive waste products resulting from reactor operations. The success of these supporting technical programs continues to be a vital factor in the growth and acceptance of nuclear power.

General Reactor Technology

The Commission's general reactor technology programs, conducted in industrial, university, and Commission laboratories, comprise those applied research and development activities needed to generate the technological base underlying the initiation and accomplishment of specific reactor programs and projects, to resolve critical problems and to continually assess programs and projects.

General reactor technology programs are needed to open up new areas of technology upon which future advances may be based, such as development of reactor fuels and materials capable of operating at very high temperatures; and invention of new devices and techniques, including fluid control devices and ultrasonic techniques for reactor instrumentation. Development of engineering information is necessary for the design of gas or liquid metal lubricated bearings in rotating machinery, including gas circulators or liquid metal reactor coolant pumps. Proof-of-principle experiments must be conducted to verify the performance of engineering configurations.

Fast breeder reactor fuels now foreseen will operate at higher temperatures and sustain higher burnups than light water reactor fuels.

[1] Fissio-chemical processes—Chemical processes in which the reactions are initiated by fission fragments.

Similarly, the cladding and other structural materials used in fast breeder reactors will receive neutron dosages much greater than those sustained in the light water reactors; thus, potentially they will be subject to greater neutron damage. General reactor technology programs have identified problems such as fuel swelling and possible loss of strength and ductility of fast reactor materials, and will provide an understanding of these problems and a basis for their solution.

The satisfactory status of calculational techniques achieved for thermal reactors must now be attained for fast reactors and advanced converters.

Aqueous fuel processing research and development is directed toward providing technology for application to advanced thermal reactor and fast reactor fuels. Volatility processing research and development is being conducted on fluoride processes to demonstrate economic potential for the recovery of power reactor fuels. Partial decontamination pyrochemical methods are under development for longer range application to provide economic fast breeder reactor fuel recycle systems.

Reactor Safety

The primary objective of the reactor safety program as stated in the 1962 Report is "to maximize the inherent safety of reactor installations." The achievement of this objective requires the development of safety related technology, criteria, standards and codes and associated safety research and development facilities, and an integrated procedure by which the programmatic and regulatory interest can be coordinated.

The results of the present light water reactor safety program, involving the studies of reactor behavior under major power excursions without loss of coolant and reactor behavior with loss of coolant, are being applied to the design of light water reactors. The results of containment experiments now underway will make possible more efficient containment vessel designs which will maximize safety and minimize costs.

Engineered safety features specifically designed to prevent accidents or to minimize their consequences, will be developed on a priority basis. Examples of engineered safety features now being developed are: methods of scavenging radioactivity in containment buildings to reduce leakage effects; detection of incipient cracking in reactor piping and vessel materials; emergency core cooling (sprays, flooding) to prevent fuel meltdown; methods of estimating and reducing reactor containment building leakage; surface coatings that absorb radioactive fission product iodine; tests to determine plant component and instrumentation reliability during operation; improved blast shields to contain explosion effects; and methods for safely venting fission products from fuel elements. Development work will include field tests of engineered safety systems. Other engineered safety features will be developed as plant operating experience and continuing safety experiments indicate their needs; these include means for minimizing effects of potential seismic disturbances.

The question of location of large central station nuclear power plants is complex. The advent of reactors in the 1000 MWe range and

the incentive on the part of utilities to locate such plants closer to load centers have introduced additional important siting questions. Resolution of siting problems requires emphasis on providing reliable experience with advanced types of containment structures and other engineered safety features, experience in coping with all operating conditions, and provisions for designs with a high margin of safety.

Work in the safety program is being oriented to the advanced reactors. Emphasis will be placed on research which will provide the knowledge necessary for determining the safety problems associated with these reactors and will provide the base for the developments which may be necessary to resolve the problems. Developments will include, where necessary, the demonstration of the course and consequences of abnormal conditions, and the development of countermeasures for these conditions.

Radioactive Wastes

Safe and economic management of radioactive waste from an expanding nuclear power industry, and the development of methods for this management are essential. The waste management problem for the nuclear industry may be considered in two parts (1) the handling, treatment, and disposal at nuclear power plants of liquid, solid, and gaseous wastes with very low levels of radioactivity, and (2) the processing and disposal of much smaller volumes of highly radioactive wastes from commercial fuel reprocessing plants.

NUCLEAR POWER PLANT WASTES

The management of radioactive wastes at nuclear power plants is not expected to impede the development of the nuclear industry. Waste systems for power reactors have been constructed which provide double containment of pipes and tanks in the event of leakage, and adequate capacity and flexibility for the future.

Waste treatment and storage systems which concentrate and contain or dilute and disperse the radioactive wastes have been developed for the light water reactors. In many cases, liquid waste radioactivity is allowed to decay in storage, and released without further treatment when the activity is reduced below prescribed limits. The waste volumes handled at power reactor facilities (up to 50,000 gallons per day for 300 MWe plants) are quite small in comparison with industrial wastes from many other industries. Radioactivity concentrations in existing nuclear power plant effluents, with no environmental dilution, have ranged from one to three per cent of amounts allowed by AEC radiation protection standards, with are compatible with internationally accepted standards.

Solid wastes are baled and sealed in containers. Liquid non-combustible wastes are fixed in concrete in standard 55-gallon drums. The waste containers are disposed of in approved commercial burial grounds. Solid waste volumes for a nuclear plant such as Dresden and Yankee amount to several thousand cubic feet per year. Commercial land burial costs at locations in the States of New York, Kentucky, Nevada and Washington range from $0.65 to $1.50 per cubic foot.

The capacity and availability of suitable land burial facilities are more than sufficient for even the most optimistic growth projections.

Radioactive gases are normally produced in water-cooled and moderated reactors through irradiation and radiolytic decomposition of reactor water, its impurities, and any traces of air in the water. Defects in fuel element cladding may also permit small amounts of the fission gases present in the fuel to be released into the reactor coolant water. Radioactive particulate matter, present in waste gases after hold-up for decay, is generally passed through high efficiency filters which remove 99.9 percent of the particles 0.3 micron in size or larger, before discharge to the atmosphere. Radioactive gaseous effluents are continuously monitored on site. Off-site monitoring is provided by both State and Federal agencies. Nuclear power plant records indicate gaseous discharges only one-tenth of one percent of permissible limits. On-site waste management processes for light water reactors developed over many years have been proven adequate for adaptation to the large plants now under commitment. The increasing emphasis on breeder reactors and plutonium and uranium-233 fuels requires a continuing development of waste treatment and disposal technology.

Waste management systems at the reactor power plant are estimated to account for about 2 percent of the total reactor facility cost, and operation and maintenance ranges from 5 to 10 percent of the over-all plant operation and maintenance costs.

FUEL REPROCESSING PLANT WASTES

Chemical reprocessing of irradiated reactor fuel produces highly radioactive wastes which must be contained and isolated for hundreds of years. In chemical reprocessing operations on production reactor fuels, over 65 million gallons of such high activity wastes have been satisfactorily handled to date.

The growth of nuclear power now is leading to increasing amounts of reprocessing plant wastes. However, improvements in fuels and in the reprocessing of fuels have served to reduce markedly the volume of wastes generated per unit of nuclear heat produced. Present estimates indicate an accumulated volume of wastes from the reprocessing of nuclear power fuels by 1980 of less than 4 million gallons and 40 million gallons (180 ft. cube) by the year 2000.

While more than 20 years' experience with storage of liquid high activity wastes in tanks has shown it to be a safe and practical means of interim waste handling, the long effective life of the wastes and the comparatively short life of storage tanks require that the Commission pursue a program aimed at developing and demonstrating, on an engineering scale, systems for the conversion of high level liquid wastes to stable solids and their subsequent storage in a dry geologic formation such as salt. The resultant volume, about a 60 foot cube by the year 2000, indicates a possible reduction by a factor of 27 below that for liquid storage.

Solidification and disposal technology for high-activity waste has reached the pilot plant and field demonstration phase. Results of these research and development programs will be made available to industry during 1967–69 for use in the commercial reprocessing of spent reactor fuel.

Further technical progress in waste management has been the engineering development of hydraulic fracturing—a method for injecting certain types of intermediate level liquid wastes into specific geologic formations. Research and development on this method at Oak Ridge has proceeded to the point where it is now being used operationally. The possible use of this technique in other areas will be investigated during 1967–68.

Methods for removal of the fission product krypton–85, from gaseous effluent streams, and from fuel reprocessing operations, are to be studied during 1967–69. These techniques could be used to prevent a long term buildup of this radionuclide in the atmosphere above prescribed limits.

Waste management research, during 1967–72, will emphasize the development of systems and equipment for advanced reactors and their associated chemical processing plants, which will prevent the release of hazardous concentrations of radioactive effluents produced from these operations.

High activity waste treatment and ultimate storage have been estimated to cost between 0.02 to 0.03 mills/KWh. This represents about one to two percent of the total fuel cycle cost and substantially less than two percent of the cost of nuclear power in a 4 mills/KWh economy. Waste management costs will be a minor fraction of nuclear power costs and should not deter the development of safe and economical nuclear power.

Discontinued Programs and Projects

The 1962 Report stated of the advanced converters:

> "The Commission must continue to evaluate these systems carefully against the criteria described. Some should be carried to the stage of building operating prototypes during the next several years, but only when significant advantages seem reasonably assured."

Evaluations since the 1962 Report have shown that some of the concepts described in the report were only maginally superior to others whose success was nearer at hand, and their development has been terminated. Other concepts have been discontinued because of especially difficult research or developmental engineering problems and the accompanying increased costs, delays, and difficulties associated with introducing the concept into the utility environment.

The advanced converter reactor development program described in the 1962 Report was assessed during 1964 in an evaluation of five promising reactors. The concepts considered were the High Temperature Gas Cooled Reactor (HTGR), the Heavy Water Moderated Reactor, which included organic and water cooled versions, the Light Water Seed-Blanket Reactor (LSBR), the Sodium Graphite Reactor (SGR), and the Spectral Shift Reactor (SSR). The HTGR, the Heavy Water Moderated Reactor—organic cooled version (HWOCR), and the LSBR were selected for continued support.

The Sodium Graphite Reactor (SGR) program, initiated in Fiscal Year 1957, was directed toward the development of a sodium cooled and graphite moderated reactor. The concept included the design, construction and operation of the Sodium Reactor Experiment (SRE) and the Hallam Nuclear Power Facility (HNPF). A principal con-

sideration influencing the decision to discontinue the SGR concept in 1964 was uncertainty regarding the economic competitiveness of the concept. This uncertainty, combined with serious technical problems with the Hallam nuclear reactor core requiring costly modifications, resulted in the termination in August 1965 of Commission support for the HNPF. The SRE was terminated in December 1966, because its support for the SGR was no longer needed and its use in the LMFBR program was not of sufficient priority to warrant additional expenditures for conversion and operation of this facility.

The Spectral Shift Reactor (SSR) using a thorium fuel cycle concept and a varying mixture of heavy and light water as moderator and coolant, was given serious consideration as a means for providing good fuel use and economic nuclear power. Congress, in 1963, authorized $30 million for the development, design, construction and operation of a demonstration plant, and in February 1964 the AEC invited proposals for the construction of a 150 MWe Spectral Shift Reactor. However, the 1964 evaluation resulted in a decision not to support the concept or to construct a demonstration plant, because the reactor did not offer significantly better economic potential than the light water reactors.

The Heavy Water Component Test Reactor (HWCTR), placed in operation in 1962, was used to investigate fuel element designs and to provide other data pertinent to pressurized heavy water reactors. Analysis of heavy water moderated systems indicated lower capital and fuel cycle costs, and a lower heavy water inventory in a system cooled with either an organic fluid or light water than could be obtained in a system cooled by heavy water. This analysis formed the basis for concentrating research and development on the Heavy Water Moderated Organic Cooled Reactor (HWOCR). The HWCTR was shut down in December 1964 and placed in a standby status.

The Experimental Gas-cooled Reactor (EGCR) project, started in 1957, was terminated in January 1966 before construction was completed. Construction of the EGCR was begun in 1959 with completion initially scheduled for 1962. Important factors contributing to the decision to terminate were continuing design and engineering difficulties with corresponding delays and rising costs, the diminishing potential of timely and significant contribution of the EGCR project to commercial development of high temperature gas-cooled reactor technology, and competing demands for limited funds.

Commission support of the general development of the thermal reactor superheat program was terminated in 1966, except for cooperative commitments to Bonus and Pathfinder. This decision was a consequence of the development of the current light water reactors which produce saturated steam, and of the technical status of the superheat program. At the time of the decision to terminate support of the program, commercial vendors were not willing to offer nuclear superheat reactor plants until additional irradiation experience on nuclear superheat fuel was obtained. The thermal reactor superheat concept was designed to produce high temperature steam resulting in a high overall nuclear power plant thermal efficiency. Uncertainties included the design complexity of the reactor, problems associated with the fuel element materials, and the risk of radioactive contamination of the steam circuit in a direct cycle reactor.

The Experimental Beryllium Oxide Reactor (EBOR) project, started in 1958, was terminated in December 1966. Major contributing factors to this decision were continuing serious technical problems with some components, the associated risks of schedule delays and increased costs, and the low priority requirement for beryllium oxide irradiation data in view of the favorable progress in the development of graphite as the reference moderator for high temperature gas reactors.

The Los Alamos Molten Plutonium Program (LAMPP), started in 1957, was discontinued in mid-1966, and construction of the Fast Reactor Core Test Facility (FRCTR) was terminated. The Los Alamos Scientific Laboratory research and development effort in the field of fast reactors is being focused on plutonium bearing ceramic fuels and on sodium technology, which are areas of technology closer to the LMFBR effort.

International Programs

Advances in development of the U.S. nuclear power programs have drawn to a substantial extent on interchanges of information with foreign programs. A brief review of the status and prospects for the major Free World reactor programs, other than the U.S., is thus appropriate.

Belgium

Belgium is substantially involved in many phases of nuclear development. Two small power reactor projects have been undertaken; Vulcain, a 30 to 50 MWt spectral shift reactor at University of Liege, and BR-3 at Mol, a 10.5 MWe PWR. Two 600 MWe nuclear units are planned for the early 1970s.

Canada

The near-term Canadian power reactor development program is based on the heavy water moderated and cooled pressure tube reactor (CANDU) which has the potential for low fuel cycle costs. The heavy water moderated-boiling light water cooled reactor (HWBLW), is being developed on a long-term basis as an evolution of the CANDU concept. Plans have been announced for construction of a 250 MWe HWBLW prototype, to be located in Quebec, and completed in 1971. Interest is continuing in the organic cooled heavy water moderated reactor on a low priority basis. This program is linked to the U.S. HWOCR effort.

The heavy water moderated and cooled commercial nuclear power plants include the 200 MWe Douglas Point nuclear power plant which became operational in 1966, and two 500 MWe units under construction at Pickering, near Toronto, which are expected to be in service in 1970 and 1971. Pickering is being planned to accommodate 4000 MWe in nuclear capacity by the year 1980.

Euratom

The Euratom Community, consisting of Belgium, France, Italy, West Germany, the Netherlands, and Luxembourg, is responsible for a considerable portion of the research and development for the civilian nuclear power programs in the Community.

A light water reactor program, initiated in 1959, has had as its objective an industrial complex capable of developing designs based upon U.S. light water reactor concepts. The Euratom program has included the development of advanced converters such as heavy water moderated organic cooled ORGEL reactors using natural or slightly enriched uranium and high temperature gas reactors using enriched uranium or thorium fuel. Euratom participates in the development of the West Germany Arbeitsgemeinschaft Versuche Reactor (AVR). The AVR, a 15 MWe pebble bed reactor located at Juelich, is helium cooled and graphite moderated and uses enriched uranium or thorium fuel.

The Euratom fast reactor program, predicated on the introduction of large fast breeder reactors about 1980, has its main efforts located in France and Germany. Euratom has arranged for the irradiation of several fast reactor subassemblies in the Dounreay reactor. Irradiations are also planned in the Fermi reactor assuming resolution of the Fermi fuel failure.

A joint civilian nuclear power program was initiated by the European Atomic Energy Community (Euratom) and the United States in 1958. The joint effort has been aimed primarily at improving the performance of light water reactor systems as represented by the three power reactors now operating in the Community under the U.S.-Euratom joint power reactor program.

The three reactors included under the joint power reactor program are the 150 MWe plant of the Garigliano Nuclear Power Station (SENN), operating at Punta Fiume, Italy, the 266 MWe reactor of the Socíeté d'Energie Nucleaire Franco-Belge des Ardennes (SENA) at Chooz, France, and the 237 MWe power plant of the Kernkraftwerk RWE-Bayernwerk (KRB), at Gundremmingen, West Germany.

EUROPEAN NUCLEAR ENERGY AGENCY (ENEA)

The ENEA sponsors Dragon, a 20 MWt high temperature helium cooled graphite moderated advanced converter reactor, built at Winfrith Heath in the U.K. This reactor attained criticality in August 1964, reached full power operation in April 1966, was shut down on schedule at the end of August 1966 for refueling and placed back in power operation in January 1967. ENEA plans to operate Dragon until the end of 1967. A three year extension of the program beyond this date is under consideration. Dragon, built as an international demonstration plant, has concentrated on the development of fuels for large HTGR type reactors.

The ENEA also sponsors Halden, a heavy water moderated boiling heavy water cooled reactor located in Norway. The reactor power level for the third core is 25 MWt. Future work (1967–1969) will concentrate on experiments with high fuel heat ratings, thorium fuel, physics of thorium fueled reactors, in-core instruments, on-line computer control, and fuel irradiations.

France

The French Commissariat a l'Energie Atomique (CEA) development effort has been concentrated on natural uranium fueled, graphite moderated, carbon dioxide cooled reactors similar in design to the UKAEA Magnox reactors. The magnesium alloy clad metal fuel has performed well and will be used in plants under construction. Improvements such as prestressed concrete pressure vessels and an internally and externally cooled annular (INCA) fuel element with inner and outer fins, are being introduced for the later large-sized INCA reactors.

The CEA interest in advanced converters centers on an 80 MWe heavy water moderated, carbon dioxide cooled reactor now being constructed for intended use with a natural uranium fuel cycle. The CEA has placed in operation a 25-ton per year heavy water pilot plant as a first step in its heavy water production program.

The CEA fast breeder program has concentrated on the development of a sodium cooled concept. Consideration is being given to committing construction of a 250 MWe demonstration plant in 1969. Studies related to fast reactors are carried out in the framework of an association between Euratom and the French CEA and include the 20 MWe sodium cooled Rapsodie reactor and the Harmonie and Masurca air-cooled critical assemblies.

Germany

Germany will rely on light water reactors to supply most of its anticipated nuclear power capacity (about 10,000 MWe by 1980) until fast breeder reactors are developed. The 237 MWe BWR based on U.S. designs at Gundremmingen, (KRB), built under the Euratom-U.S. joint program, was completed in 1966.

A 100 MWe heavy water moderated gas-cooled reactor demonstration plant scheduled for 1969 operation will provide experience in the use of natural uranium as a fuel.

The German research and development effort is concentrated on fast breeder reactors, with the effort directed toward achieving the information necessary to commit the construction of demonstration plants for one or both of the two fast breeder types under consideration, sodium or steam cooled. The Netherlands and Belgium will participate in this program.

Greece

An April 1966 joint agreement with the U.S. included provision for studies of water desalting and nuclear power needs. A preliminary study was completed in December 1966.

India

The development of commercial nuclear power in India to date has been based on the purchase of the American BWR and the Canadian heavy water moderated and cooled (HWR) reactor types. The selection of the second Canadian HWR reactor reflects India's interest

in the possible use of its thorium resources in this type of reactor. Two 190 MWe BWR reactors are being built at Tarapur for 1968–69 operation, and two 200 MWe HWR reactors are under construction at the Rajasthan Atomic Power Plant (RAPP) for 1970–71 operation. Two 200 MWe HWR reactors, planned for the Madras Atomic Power Plant (MAPP), are scheduled for operation in 1971–72.

A technical exchange program has been initiated between India and the United States which includes thermal and fast reactor technology.

Israel

A cooperative Israel-U.S. study concluded that a dual purpose light water reactor desalting plant could contribute to a solution of Israel's power and water needs. Israel is determining the feasibility of proceeding with such a project.

Italy

The commercial development of nuclear power in Italy has to date been based on the purchase of U.K. and U.S. reactors. Italy has three operating nuclear power plants: a 210 MWe U.K. Magnox type plant (Latina); a 169 MWe American BWR (Garigliano), built under the Euratom-U.S. joint program and a 300 MWe American PWR (Fermi Trino). Plans include seven 600 MWe nuclear plants to be added in the 1970–75 period.

Italy has under consideration the development of dual purpose desalting-nuclear power plants for its arid regions.

Japan

Japan is relying primarily on technical exchanges with United States and United Kingdom reactor and fuel fabricators for the development of domestic manufacturing capabilities. Efforts are being made to establish a domestic nuclear industry based on light water technology obtained from the United States.

The Japanese are developing a heavy water moderated boiling water cooled advanced converter. Japanese nationals are also being assigned to participate in fast breeder projects in other countries.

Japan has in operation two nuclear power plants, an 11.7 MWe BWR, and a 169 MWe Magnox type plant. A 310 MWe BWR is being built and plans include an additional 12 nuclear power units for operation in the 1971–74 period with a capacity of about 4000 MFe.

Mexico

A joint International Atomic Energy Agency (IAEA)-Mexico-U.S. agreement in 1965 provided for studies of dual purpose desalting-nuclear power plants, now being conducted by a joint team of specialists. Mexico is also determining the feasibility of supplying fresh water to Mexico City by desalting using nuclear energy.

Norway

Plans are underway to operate a nuclear power plant in Norway by 1975. Projections indicate 4,500 MWe of nuclear power by 1980. Norway has a substantial investment in research and development for nuclear power.

Pakistan

A 132 MWe Canadian heavy water nuclear power plant is being built at Karachi. Studies of dual purpose desalting-nuclear power plants are underway.

Portugal

Feasibility studies and discussions are underway between Spain and Portugal to undertake a 500 MWe nuclear power plant (HUELVA).

South America

Argentina and Brazil are the only two countries in South America which are considering the development of nuclear power, probably in the 1970s, but have reached no decisions to date.

Spain

Spain has two U.S. light water nuclear power plants under construction: a 153 MWe PWR (Zorita) and a 460 MWe BWR (Nuclenor) scheduled for completion in 1968 and 1970, respectively. Spain is also planning the construction of a 30 MWe HWOCR reactor (DON) and is undertaking a joint venture with France for a 500 MWe natural uranium gas cooled nuclear plant (Cataluna) near Vandellos for operation in 1971.

Two other nuclear plants of comparable capacity, but of undefined type, are being considered for construction, one the Castellon plant near Peniscola and the other a joint project with Portugal in the province of Huelva near Ayamonte.

Sweden

Sweden's primary interest in nuclear power has been the development of heavy water reactors. In 1963, Sweden placed in operation a 10 MWe natural uranium heavy water reactor plant (Agesta), and currently is building a 200 MWe slightly enriched, boiling heavy water plant (Marviken) for operation in 1969. The interests of the Swedish electric utilities in the U.S. light water reactors have also resulted in a decision to build a 400 MWe BWR (Simpevarp) near Oskarsham which is scheduled for operation in 1970.

Switzerland

Switzerland has selected two heavy water moderated reactors for prototype development, one light water cooled, and the other gas cooled. However, the commercial plants currently planned for operation utilize the U.S. light water reactor designs. A 350 MWe PWR (NOK) located at Beznow, is under construction for operation in 1969. In addition a 250 MWe BWR (BKW), located at Berne, and a 500 MWe PWR or BWR, located in Zurich, are planned for operation in 1971 and 1972–73, respectively.

United Arab Republic (UAR)

The UAR has under consideration a 150 MWe 5 million gallons of water per day dual purpose desalting-nuclear power plant at Borg el-Arab.

United Kingdom (U.K.)

The United Kingdom (U.K.) nuclear power plant capacity consists primarily of 3000 MWe of graphite moderated, carbon dioxide cooled Magnox type plants. These plants use natural uranium metal fuel elements clad with magnesium alloy. The experimental Dounreay Fast Reactor (DFR) also provides a small electrical output (15 MWe). The U.K. has no light water moderated and cooled nuclear power plants and has indicated no programmatic interest in this type of reactor.

The Magnox reactors, using on-line refueling, are designed for high plant availabilities. The 590 MWe Wylfa plant, scheduled for operation in 1968, uses a pre-stressed concrete pressure vessel containing the entire primary system. Once-through steam generators are designed to produce steam at about 750 psia and 750°F. The thermal efficiency is expected to be 31.4 percent, and burnups of 3000–4000 MWD/T are estimated for the magnesium alloy clad uranium metal fuels.

The present U. K. program is based upon a transition from the Magnox to the Advanced Gas Reactor (AGR) plants. Improved performance over the Magnox plants is attained by operating at higher fuel clad temperatures and coolant pressure (maximum 1472° F., 450 psia) than found in the Magnox plants (842° F., 400 psia). Average burnup of 18,000 MWD/T is predicted for the stainless clad UO_2 fuel. High steam pressure and temperature (2315 psia, 1050° F.) for the 600 MWe Dungeness B plant, the first unit in the AGR program, results in a 41.5 percent thermal efficiency as contrasted to 31.4 percent for the Wylfa plant.

Two 600 MWe units, Dungeness B-1 and B-2, are being built for 1970 operation. By 1975 the expected 5,000 MWe capacity from the Magnox plants will be increased by 8,000 MWe from the AGR plants.

In its future development program, the U. K. has placed the highest priority on the liquid metal cooled fast breeder program begun in 1951, and since 1959 it has used the 15 MWe DFR, fueled with a uranium-molybdemum alloy, for irradiating prototype ceramic fuel

for the Prototype Fast Reactor (PFR). Construction of the 250 MWe PFR was begun at Dounreay early in 1966 with operation scheduled for 1971. The PFR is the demonstration plant for the large (about 1000 MWe) fast reactor nuclear power plants which the UKAEA believes will prove economical for the national grid after 1975. The demonstration plant will be fueled with plutonium-uranium oxide and will have its primary components (reactor, pumps, heat exchangers) in a large tank, similar to EBR-II.

The U.K. also is building a 93 MWe steam generating (boiling water cooled) heavy water moderated reactor (SGHWR) scheduled for operation in 1967. The SGHWR utilizes Zircaloy pressure tubes and slightly enriched UO_2 (about 1.42 percent). This concept, with its low capital cost, low fuel enrichment and refueling flexibility, is visualized by the U.K. as a low cost alternative for medium-sized nuclear plants.

Other

Many of the remaining countries of the Free World such as Australia, Denmark, Finland, Korea, and the Philippines, are now planning for the development of nuclear power in the 1970s.

Legal and Administrative Matters

Policies Relating to Nuclear Materials

In the 1962 Report, the Commission indicated that it favored legislation to permit private ownership of special nuclear materials. The Private Ownership Act was passed in 1964 and may be considered an important element in the 1965 and 1966 surge of orders for nuclear power plants.

A key element of the Private Ownership Act was the provision for a transition period to private ownership. AEC may continue to distribute special nuclear materials by lease for power reactor use until January 1, 1971, and lessees may retain materials on lease until July 1, 1973. It is expected that reactor inventories gradually will be transferred to private ownership through toll enriching during the transition period, although a specific provision has been made for installment payments on cash purchases of such inventories sold before July 1, 1973. The transition also is being smoothed by a provision that guarantees a purchase price for plutonium or uranium-233 (if produced through the use of special nuclear material leased or sold by AEC) delivered through December 31, 1970. The guaranteed market for uranium-233, but not plutonium, may be extended by the AEC beyond 1970. These prices have been set at the estimated fuel value of $10 per gram of fissile plutonium and $14 per gram of uranium-233. The uranium-233 price is subject to discount for uranium-232 content, which complicates fuel handling because of radioactive daughter products, and for uranium-238 content. Prices for both materials are subject to adjustment in proportion to the AEC's charge for enriched uranium.

The new law also authorized the AEC to provide toll enrichment services whereby raw materials normally will be purchased on the open market, rather than from the Government, and will then be processed to uranium hexafluoride in privately-owned plants, enriched in the Government-owned gaseous diffusion plants, and further processed into fuel elements under private auspices. Private commitments for purchase of uranium concentrate for use as feed under the terms of this enrichment service, which will start after December 31, 1968, have improved the near-term outlook for the uranium mining and milling industry, as evidenced by firming prices and the signing of contracts for the delivery of feed in 1968 and later years. The availability of the enriching service also is expected to encourage the use of nuclear power abroad and the foreign sale of U.S.-designed reactor systems using enriched uranium.

Under Section 161v of the Atomic Energy Act, the AEC on December 23, 1966, established criteria under which the uranium enrichment services will be provided. The criteria provide that the AEC will offer to contract to supply separative work for periods up to 30

years, at a unit charge to be announced, but subject to a ceiling. The ceiling will be $30 per unit of separative work [1] plus escalation for power and labor costs beyond July 1, 1965.

In addition to the toll enriching criteria, a number of related AEC policies with respect to sale and lease of enriched uranium during the transition period have been announced in order to help the nuclear industry estimate the relative economics of sale, lease and toll enriching. In order to encourage the emergence of a viable domestic uranium market, the AEC will continue to base its enriched uranium sale or lease charge schedule on $8 per pound of U_3O_8 through June 30, 1973. Ownership of leased inventories of enriched uranium may be acquired after December 31, 1970, by a transaction equivalent to toll enriching (customer delivers uranium feed and dollars to AEC and acquires ownership of a corresponding amount of the leased inventory). This process is referred to as "in situ" toll enriching.

Contracts offered by the AEC to implement the enrichment services criteria may be signed at any time, but the services may not commence before January 1, 1969. The contracts contain a provision permitting termination by the Government if comparable commercial uranium enriching services become available from another domestic source on reasonable terms and at reasonable prices within the AEC ceiling charge. This will permit the Government to be relieved, as may be judged appropriate, of strictly commercial commitments extending over the life of these contracts.

One possible source of a commercial enriching service could be the disposition of one or more of the three AEC gaseous diffusion plants to a privately or publicly financed corporation. The AEC is conducting an internal study on the feasibility and desirability of transfer of gaseous diffusion plants to private operation. The Commission is also discussing with the Atomic Industrial Forum the scope and ground rules for a proposed Forum study of such transfer.

Price-Anderson Indemnity

The Price-Anderson provisions of the Atomic Energy Act of 1954, as amended, afford protection to the public and to AEC licensees and contractors from the risks associated with atomic energy by providing for a program of private insurance and governmental indemnity amounting to a maximum of $560 million to cover damages that conceivably could arise from a nuclear incident. The statute provides for a limitation of liability of all persons indemnified in the event of a nuclear incident resulting in claims which exceed the total amount of private insurance and governmental indemnity. By amendment in 1965 (Public Law 89-210), this indemnity program was extended until August 1, 1977, and the amount of Government indemnity ($500 million for licensed reactors) was reduced by the amount that the private insurance required exceeds $60 million. The present capacity of the nuclear energy liability pools, and the amount of private insurance required for large power reactors, is $74 million.

In 1966, the Price-Anderson provisions were further amended (Public Law 89-645) to provide authority for the Commission and

[1] Separative work—A measure of energy required to enrich uranium.

insurers to make emergency assistance payments available to claimants immediately following a nuclear incident without requiring claimants to sign a general release. Also, the Commission may require parties to indemnity agreements or financial protection policies to waive certain issues or defenses.

Finding of Practical Value

A distinction between developmental and commercial licenses is contained in the Atomic Energy Act of 1954. Section 102 states that whenever the Commission finds that any type of production or utilization facility has been sufficiently developed to be of practical value for industrial or commercial purposes, the Commission may thereafter issue licenses for such type of facility only pursuant to Section 103 of the Act. Until the time of the finding of practical value, the Commission is to continue its policy of issuing licenses for production and utilization facilities pursuant to Section 104 of the Act, the developmental section. The original intent of this provision of the Act was to provide the Commission with discretionary authority over commercial reactor plant construction, based upon determining that there was sufficient availability of nuclear fuel.

In 1964, the National Coal Policy Conference, the National Coal Association and the United Mine Workers of America petitioned the Commission to make a finding of practical value for pressurized and boiling water reactors.

On December 29, 1965, the Commission said, in denying the petition from the coal groups, that although the economic prospects for nuclear power in the United States are very favorable, a statutory finding of practical value for light water reactors within the meaning of Section 102 of the Atomic Energy Act must await an adequate appraisal of the economics, based on demonstration of the technology and performance of large nuclear plants now under construction.

On August 29, 1966, the Commission advised the Joint Committee of its belief that there is no continued need for the requirement of a formal finding of "practical value" as embodied in Section 102, or for the statutory distinction between licenses issued for production and utilization facilities under Section 103 (commercial licenses) and Section 104b (research and development licenses), and that the Commission is giving consideration to preparing legislation on this subject.

On October 18, 1966, the National Coal Policy Conference, the National Coal Association and the United Mine Workers of America again petitioned the Commission to make a finding of practical value for light water reactors. The petitioners cited the large number of firm commitments made by utilities during 1966 for nuclear electric plants, and noted the order by TVA for a nuclear plant in an area where coal is cheap. On December 23, 1966, the Commission, in denying the petition, stated:

> "The Commission believes that the basis for its Determination of December 29, 1965, is equally valid today and that the matters set forth in the new petition filed on October 18, 1966, do not provide sufficient grounds to warrant a change in its position. The developments since December 29, 1965, cited by the petitioners, are further strong indications that economic competitiveness will be achieved. The Commission continues to believe, however, that it should await a reliable estimate of the economics based

upon a demonstration of the technology and plant performance. Pending the completion of scaled-up plants, and the information to be obtained from their operation, the Commission remains of the view that there has not yet been sufficient demonstration of the cost of construction and operation of light water, nuclear electric plants to warrant making a statutory finding that any types of such facilities have been sufficiently developed to be of practical value within the meaning of section 102 of the Act."

Licensing and Regulation

To accommodate the electric power industry's rapidly increasing plans for nuclear power plants, several major steps have been taken since 1962 to improve and simplify the facility licensing process. Three-man atomic safety and licensing boards have been established and mandatory public hearings have been limited to the construction permit stages.

Progress is being made in developing reactor safety standards. General design criteria for nuclear power plant construction permits are being developed. These criteria, which have evolved from AEC licensing experience, will be used as a guide for reactor design and performance. Concurrently, the AEC is working with industry organizations to develop supplementary specific design performance criteria for components and systems of the light water reactors.

An improved technical specifications system for reactors was recently issued for comment and interim guidance. The changes in this system will focus attention of both licensee management and the AEC on those reactor features which are vital to safety. The proposed regulation changes also give guidance to applicants on the types of information needed by the AEC at the construction permit stage and at the operating license stage.

A guide on the preparation of safety analysis reports has been issued, specifying more clearly the information needed by the AEC for its safety evaluation. It is expected that this guide will further assist applicants and help expedite review of licensing cases.

An increasing number of prospective applicants are meeting with the AEC staff in advance of filing applications to obtain informal views on siting questions, safety features of projected reactors, and information on licensing procedures. The regulatory staff also has offered the opportunity to manufacturers to conduct prelicensing reviews of the reactor systems and components to reduce subsequent licensing time.

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THE ROLE OF POWER IN ECONOMIC DEVELOPMENT †

By NEAL L. MOYLAN*

Electric power is the essential ingredient of our industrial civilization — the sine qua non of the highly productive, richly rewarding, American economy. Electric power is a basic controlling factor in the economic growth of any area.

Electrical energy can be transported, transmitted, and transformed. It can be packaged — it can be produced by any number of mechanical and chemical means — it can be — and has been — turned to an infinite number of uses.

Our future, as well as our recent history, is based on the continuing expansion of sources of electrical energy and the continuing sophisticated application to thousands of new devices, products and services — some not yet on the drawing board.

I ask you to try to conceive of this world of ours without the present high state of development of the generation, transmission and packaging of electrical energy.

I ask you to imagine communications without elec-

* Commissioner, New York State Department of Commerce.

† Paper presented at the Inter-Board Symposium on Power Generation and Water Resources, Ithaca College, Ithaca, New York, on Friday, October 25, 1968.

tronics — of automated mass production without electrical energy for motive power and control — of transportation and of the home without electric power.

Picture instead huge industrial complexes powered by coal and oil alone, belching pollutants at a rate which would make today's air pollution problems insignificant. We would perhaps still be signalling by semaphore or heliograph — and depending for lighting on some inefficient consumption of fossil fuels.

Without electrical energy in its present state of development we could never have achieved our present standard and mode of living — we would not now have our present leisure — we would, in fact, be economically somewhere in the limbo of the 1850's.

Despite the many new and revolutionary developments in science and technology, this is still the "Electric Age" — and is likely to continue to be so far into the foreseeable future, as we continue to improve our techniques for its application, transmission and packaging with increasing innovation, particulary in miniaturization.

The development of electronics is a spin-off of electricity — a new dimension of this all-important power source.

The development of atomic power — not possible without electric power — has been turned to the service of electrical generation — and is almost completely dependent upon its application.

The accomplishments of space — both in direct exploration and through its byproducts — are inextricably intertwined with electrical energy.

But what is immediately and basically important

to us here today – to all of us here in New York State – is the direct relationship between our capacity to provide electrical energy and our capacity for economic growth. This is, perhaps, the most critical equation governing our future growth and prosperity. We must, therefore, look closely and carefully at this relationship and make some highly important decisions concerning the future of electrical energy generation – and, by the same token, the future of our economy.

The power picture in New York State, at first glance – its status today – and next year is not bad, and I say this advisedly, because our situation is not ideal.

But tomorrow it could be extremely critical – and it could constitute a strong threat to the upward movement of our economy.

New York State is now experiencing phenomenal growth:

- Our population, which was 16.5 million in 1958, is now over 18 million. It will reach nearly 19 million by 1970 and nearly 21 million by 1980. By 1990, our electric power capacity will have to serve a minimum of 23.4 million people.

- Business Activity in the State is up 42 per cent from 1958, with the trend moving steadily upward.

- Nonagricultural jobs increased by one million, from six to seven million, between 1958 and 1968. It is expected to grow to about 7.6 million by 1975.

- Between January 1958 and August 1968, we have received reports of more than 6,200 major new plants and expansions. Among the fastest growing of our

manufacturing industries are major consumers of electric power.

• Total personal income in our State rose from $41.8 billion to $68.9 billion from 1958 to 1967. In the same period, our per capita personal income rose from $2,518 to $3,759. The implications here are of a higher standard of living and greater consumption of electrical energy.

In addition, there are certain other factors which must be taken into consideration in assessing future electric power needs:

• The number of households in the State will increase at a faster rate than the population.

• Current and anticipated technological developments should sharply expand electric power requirements of households, businesses and the public sector.

• There will be shifts in population density, with the fastest rate of growth in the Nassau-Suffolk and Mid-Hudson regions. Although New York City's population is expected to increase somewhat, its share of the State's total population will fall sharply.

It is obvious, therefore, that not only must our generating capacity be drastically increased, but new generating methods and locations, as well as new distribution patterns must be anticipated.

Today, 12 investor-owned electric power companies, the State Power Authority, 45 municipal systems, a federal agency and five rural electric cooperatives serve

State's consumers through interconnected systems. Seven of the major investor-owned utilities with 81 per cent of total generating capability, plus the State Power Authority with 17.5 per cent, produce the power to serve 98 per cent of these consumers. The Authority's facilities at Niagara and St. Lawrence provide almost 79 per cent of the State's hydro capability.

The total capability of the State at this time consists of over 14,000 megawatts generated by thermal energy and over 4,000 megawatts generated by hydro sources. This capability is connected with Ontario and Quebec, New England and the Pennsylvania-New Jersey-Maryland group.

But reliable forecasts by the Federal Power Commission highlight the following needs in New York State:

- 22,000 megawatts by 1975.
- 48,000 megawatts by 1990.

Other projections indicate that, to meet its needs, New York State must double its present power output by 1980.

But whatever the projections — from whatever source — it becomes plainly apparent that to meet future growth, New York State must move quickly and surely to expand its electric power generating capability. Delay could be disastrous to our economy and to all our people.

How can this be done — what are the sources available to us?

- Hydro-generated power capacity in our State is severely limited. To all intents and purposes there are

no new major hydro sources available. Application of hydro generation through pumped storage offers a method of meeting peak-load demands – but creates no new net electrical energy sources.

• Thermal generating plants employing fossil fuels are a source of air pollution and are giving way economically to atomic generated power – particularly in view of trends in the power industry toward large-size units. Improvements to reduce the cost of fossil fuel generation are to be expected, but not to the point that such new plants can be expected again to take a competitive lead over atomic generation.

• Atomic power generation is generally indicated for the future. Already, the cost of nuclear generation in plants being constructed or planned in New York State is calculated to be lower than the cost of equivalent generation by fossil fuels – and it is anticipated that this cost differential will widen with continuing research and technological improvement – including the application of breeder reactor technology to commercial production of electrical power. The public has largely accepted the operation of atomic power plants to be without hazard – the need for large coal piles is eliminated – it creates no air pollution. Its advantages over conventional thermal generation are extensive – and as such the nuclear power plant has been recommended by Governor Rockefeller's Electric Power Committee as the basis for expanding the State's generating capacity to meet tomorrow's needs for economic growth.

Closely related to the whole picture of power sourc

in New York State is the need for pure waters – waters for domestic and industrial consumption, with the demand rising constantly – waters for recreation, with more people with more leisure time using them for recreation and relaxation.

Water, of course, is essential to electric power generation – hydro as well as thermal – fossil fuel or nuclear. Water used in hydro-electric power plants is not polluted or changed, of course. But water used for thermal plants – fossil fuel or atomic – is changed when returned. It is much warmer and this change has led to the term "thermal pollution," which, incidentally, has caught on in popularity.

Now, whether or not the higher temperature warrants the pollution tag is a question of semantics and I'm not going to get involved with word definitions. It isn't necessary. What is necessary, though, is to recognize the fact that it is alleged that this thermal pollution may cause damage. In short, not enough is known at this time to make an accurate prediction.

This uncertainty has, in some quarters, developed into a conflict between the needs of economic growth and conservation. I have heard it stated as a "choice between fish and people."

I disagree. There is no choice involved – there is no basic conflict. What is involved is a solution of this problem. What is needed is, first, mutual effort to understand the vital nature of public needs, and, secondly, time to investigate the thermal effect fully – to assess its true impact on fresh and salt water marine life – to research and develop means of eradicating or mitigating any deleterious effects.

There is no basic conflict between the economic need for power and the economic need for conservation. The highly successful efforts of Governor Rockefeller to solve our air and water pollution problems without imposing excessive costs and restrictions on industrial growth is a dramatic and successful illustration of this. We in New York State have made outstanding progress in cleaning our air and cleaning our water under these programs — while, at the same time, our Governor has initiated a far-reaching program for expanding our recreational facilities and opportunities. The latter could not be successful without the others.

The State of New York has a unique mechanism to help accomplish this. This is the regional water resources planning board mechanism and, today, we are meeting here with three of these boards in an effort to provide for the future well-being as well as the economic development of this area. The boards provide the means for meeting these complex problems and providing alternative or different ways for meeting their future needs. This is important because we must be prepared for the needs before they are upon us. We must, for example, buy drought insurance against dry times.

In the late summer of 1965, Governor Rockefeller directed the Water Resources Commission, of which I am a member, to devise a program that would accelerate planning and development of the State's water resources. The first step of this Accelerated Water Resources Program was taken with the completion of the reconnaissance studies. The regional boards are continuing this endeavor, taking the planning to the local people.

I think that by our very presence at this symposium

we all agree that imaginative planning is essential to intelligent development.

In fact, our New York State Power Authority has demonstrated how to combine power generation with conservation and recreation. One has only to look at the St. Lawrence and Niagara power projects to see how beauty, conservation and recreational activities can be made an integral part of a power facility, whether public or private. Our private electric generating companies are also taking advantage of the sites associated with nuclear power reactors to provide information centers of educational value and to incorporate recreational features where possible.

I have seen only basic plans for the Power Authority's Gilboa-Blenheim pumped-storage facility — but this shapes up to be potentially one of the best recreational sites in this State. Over two million dollars will be devoted to provide a beach, camping, picnic areas and beautiful waterfall for this area.

The site development requirements of the atomic power plant differ from those of hydro installations and do not require extensive redevelopment. I would anticipate that these new and needed atomic plants would make their contribution to conservation in other, but no less substantial ways:

- First, the alleviation of air pollution.
- Second, by providing the power for economic growth, a higher standard of living and a greater interest and opportunity for support and participation in conservation projects.

There is, however, the need to resolve through research and development the problem of thermal effects

— I am convinced that we can and will make substantial steps in this direction shortly. In the meantime, however, it is equally important that we keep in mind the long-range objective of producing sufficient power for business and domestic use at a competitive price.

Our growing population requires new jobs — and without enough power at attractive rates we cannot hope to compete with subsidized power in other states. Without sufficient power at competitive prices, we run the risk of losing expansions of existing firms — and there is always the possibility of losing an entire industry.

This is a risk we cannot afford to take. Whatever jeopardizes our economy, jeopardizes the benefits our economy has enabled us to enjoy, including the ability to support and enhance our recreational facilities and to conserve the resources of nature. Our path is clear — we must meet our commitments to our people — we must meet the needs of industry. We must, in short, meet the obvious needs for electrical generating capacity by the most economical means necessary.

But, at the same time, we must take into account the commitment of Governor Rockefeller not only to meet this power need — but the commitment as well to curb air and water pollution and foster the cause of conservation and recreation. With your help, with the help of business and industry, we can and will achieve each and all of these objectives — and in the end, we will achieve a stronger and more vital economy as a means toward a better life for all the people of New York State.

I am confident that under the leadership of the Rockefeller administration, apparent conflicts can be resolved and we can accomplish all of our goals.

UNITED STATES OF AMERICA, Plaintiff-Appellee-Cross-Appellant, v. CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., Defendant-Appellant-Cross-Appellee

Docket No. 77-6168, No. 672 - September Term, 1977

UNITED STATES COURT OF APPEALS FOR THE SECOND CIRCUIT

580 F.2d 1122; 1978 U.S. App. LEXIS 10488

March 10, 1978, Argued
June 26, 1978, Decided

PRIOR HISTORY: [**1] Appeal from a judgment of the United States District Court for the Southern District of New York, Lawrence W. Pierce, Judge, awarding $1,576,595 in damages on theories of contract, quasi-contract, and equitable estoppel.

DISPOSITION: Affirmed as modified.

COUNSEL: Werner L. Polak, New York, New York (Thomas M. Geisler, Jr., and Shearman & Sterling, New York, New York, of counsel), for Appellant.

Gary G. Cooper, Assistant United States Attorney (Robert B. Fiske, Jr., United States Attorney for the Southern District of New York, Louis G. Corsi, Assistant United States Attorney, of counsel), for Appellee.

JUDGES: Waterman and Oakes, Circuit Judges, and Wyzanski, * District Judge.

* Of the District of Massachusetts, sitting by designation.

OPINION BY: OAKES

OPINION

[*1123] OAKES, Circuit Judge:

This is an appeal by Consolidated Edison Co. of New York, Inc. (appellant or Con Edison), and a cross-appeal by the United States (appellee or Government), from a September 20, 1977, judgment of the United States District Court for the Southern District of New York, Lawrence W. Pierce, *Judge*, awarding damages to the United States in a contract action. After a two-week bench trial, the [**2] court found that Con Edison was estopped from denying the existence of a contract to reimburse the Government for costs which the Atomic Energy Commission (AEC) incurred when it made available 200 megawatts (MW) of electric power to Con Edison during a serious Con Edison power shortage in the summer of 1970. The district court further premised liability on two-quasi-contractual theories - the "emergency assistance" doctrine and a theory of unjust enrichment resulting from the AEC's conferral of a benefit on Con Edison. Damages were awarded in the sum of $1,576,595, all three theories of liability producing the same ultimate result. Because we are satisfied both that liability is properly imposed under the emergency assistance doctrine and that the AEC would achieve its maximum damages award under that theory, we affirm the district court's imposition of liability without deciding the correctness of its equitable estoppel or unjust enrichment theories or its dismissal of the Government's contract claim on statute of frauds grounds. However, we find the district judge's treatment of the

damages issue improper in one respect and accordingly modify the damages award.

I. Facts

In the [**3] spring of 1970, the Government was rightfully concerned that the nation's public utilities might be unable to satisfy peak public demands for electrical power during the coming summer. An interagency task force established by the Executive Office of the President, therefore, adopted a plan of emergency power assistance (May 5 plan) in which the AEC was to play a major role. After studying the problem and considering the impact of a reduction in power consumption on the operations of the AEC's gaseous diffusion plants, [1] that agency [*1124] determined that it could reduce consumption of power at these plants by up to 450 MW if there were critical shortages of electricity in the commercial sector. In late June, 1970, the AEC executed modifications of its requirements contracts then in force with the three utilities which supplied electricity to these plants to reduce the AEC's overall power consumption by 450 MW for the duration of the summer. Thereafter, in early June, 1970, the released power was wheeled from the supplying utilities to utilities facing anticipated shortages in Chicago and other areas in the Midwest and East.

1 The plants were located in Oak Ridge, Tennessee, Portsmouth, Ohio, and Paducah, Kentucky. In 1970 these plants were being used primarily to enrich uranium for use in commercial nuclear power plants. The gaseous diffusion plants convert natural uranium into a gaseous state. The gas is then passed through hundreds of processing stages or "cascades" to increase the concentration of isotope U-235. Since each stage effects only a slight increase in the concentration of U-235, large quantities of electrical power are required to achieve any amount of enrichment. The unit measure of the amount of enrichment or "separation" work performed is called a "separative work unit," or "SWU." By thus enriching uranium for future power use the electricity utilized as one step in the enrichment process is in a real sense "stored." Thus at the outset the case is different from the usual situation of one electric utility supplying another with emergency power in that unless the supplier finds an outlet for its power the power is forever lost since energy in the general sense cannot be saved. Here the supplier (AEC, via its supplying utilities) is in the business of utilizing power for storage purposes; it is a manufacturer who uses the energy for manufacturing purposes. The release of some of that energy increases the cost per unit not only of the electricity utilized in the manufacturing process but of the manufactured product itself.

[**4] On July 21, 1970, Con Edison suffered a major power crisis with the outage of its Ravenswood Plant ("Big Allis") resulting in a loss of 1,000 MW. [2] Charles Luce, Con Edison's chairman and chief executive officer, and his staff immediately began the search for new sources of electrical power.

2 Previously on May 20, 1970, Con Edison lost its smaller **Indian Point** unit, a nuclear power plant generating 260 MW. **Indian Point** and Big Allis together accounted for approximately 14% of Con Edison's electrical generating capacity.

Concurrently, the gravity of the New York situation had come to the attention of government officials as well. On July 22, David Freeman of the Office of Emergency Preparedness (OEP) in Washington, D.C., telephoned Con Edison and indicated that the Government might be of assistance. On July 23, 1970, Luce himself called Freeman who explained that although the AEC had already made one power reduction, he believed that a further power release to Con Edison might still be possible. Luce indicated [**5] that Con Edison wanted the power; Freeman directed Luce to get in touch with George Quinn, then assistant general manager in charge of production at the AEC, in order to "work out the details." *452 F. Supp. 638 (S.D.N.Y. 1977)*. The district judge specifically found that the Luce/Freeman conversation constituted "only preliminary discussions."

Luce also telephoned Fred Chambers, a Tennessee Valley Authority (TVA) official, to inquire about the availability of power from TVA and to determine what TVA knew of the AEC's ability further to reduce its power from TVA. Chambers was uncertain. After the phone call, Chambers conferred with his staff to determine whether TVA could assist; he called the manager of the AEC's gaseous diffusion plant at Oak Ridge, who later told Chambers that a further power reduction would cause the AEC severe efficiency losses - which could be estimated in the neighborhood of three to seven mills per kilowatt hour (PKH). Chambers then

called back Luce, informing him that the TVA could not assist and that if the AEC ultimately determined that it could release additional power, the cost would be quite high. He specified that actual costs of the power [**6] itself and the efficiency loss surcharge would likely be in the twelve to fourteen mills PKH range, although a final determination of the price would have to attend AEC calculations. [3]

3 In the meantime, Quinn had informed OEP that AEC intended to impose a surcharge upon the Con Edison power release. The OEP apparently did not object and then issued the following press release:

> The President announced today that the Atomic Energy Commission will take immediate action to make available several hundred megawatts of power to the Consolidated Edison Company serving New York City.
>
> This action is being taken to help relieve the critical power shortage in New York City created by the failure of its largest generating unit on July 21.
>
> The release of this power is pursuant to the contingency plans previously developed and announced by the Office of Emergency Preparedness on May 5.
>
> The power would be available by reducing the use of electricity at the AEC's gaseous diffusion plants. The Consolidated Edison Company is proceeding with the necessary arrangements with the other utility companies involved and the AEC.
>
> It is expected that the power will be transmitted to New York over the interconnected grid system of the utilities in the Eastern United States.

The district court found that this release did not constitute an agreement of the parties but was simply a press release.

[**7] [*1125] On July 24, 1977, Quinn spoke with Luce on the telephone:

> Quinn stated that he wanted to discuss the terms and conditions of the release and that the AEC was now in the position to offer 200 MW to Con Edison. Quinn informed Luce that AEC had made a previous reduction of some 450 MW, and that while AEC would prefer not to make a further reduction, they were willing to do so. It is undisputed that Quinn informed Luce that in the event the release was effected, the AEC would look to Con Edison for reimbursement of its additional costs. Luce stated that Con Edison was still studying their end of the transmission problem and that he was not yet in a position to request the power. Apparently unconcerned with the possibility of a surcharge, Luce stated that Con Edison would be willing to pay whatever surcharge had been paid by the recipients of the previous 450 MW reduction. Quinn did not inform Luce that the recipients of the 450 MW had not been asked to pay any surcharge.
>
> Quinn stated that the amount of the surcharge was under study and that he could not fix a price at that time. However, Quinn did give Luce examples of the type of costs the AEC would incur, such [**8] as the shut down of certain equipment. Luce testified that Quinn referred to efficiency losses. On cross-examination . . . and in response to questions by the Court . . ., Charles Luce stated that Quinn had explained to him that the 200 MW reduction would result in higher costs to AEC than did the 450 MW reduction, since the incremental losses were greater when the plants were required to reduce consumption to as low as 1,350 MW. The conversation ended [4] with Quinn's advice to Luce that if Con Edison wished to

> receive the power it should make arrangements with AEC's supplier utilities, TVA and OVEC.

452 F. Supp. at 645 (citations omitted). This telephone conversation was the last direct AEC/Con Edison contact before the 200 MW of released power began to flow on Monday, July 27, 1970.

> 4 Luce testified that before the conversation with Quinn ended he reiterated that it would not be appropriate for Con Edison to pay a different surcharge from that paid by the 450 MW utilities. While Luce's testimony is not explicitly discounted by the judge, he apparently chose not to credit it.
>
> What is important is that Luce understood enough of the AEC's situation to know that the power release would cost the AEC additionally in its SWU production.

[**9] By Tuesday, July 28, 1970, the controller's office of the AEC calculated a surcharge of 5.41 mills, or.0541 cents PKH on the power released to Con Edison. Quinn reviewed this calculation and discussed it with his supervisor who approved it. On July 29, 1970, Quinn directed officials at the Oak Ridge diffusion facility to initiate contract modification discussions with the AEC's supplier utilities. On August 3, 1970, the AEC executed formal contract modifications with its supplier utilities by which the AEC released its rights to 200 MW of power for the remainder of the summer. These agreements provided for the utilities to collect the 5.41 mills PKH surcharge from Con Edison through the billing chain. Con Edison was not specifically informed of the terms of the modifications.

Con Edison first learned of the magnitude of the surcharge on August 6, 1970. Luce immediately objected and directed Louis Roddis, president of Con Edison, to ascertain the amount of the surcharge paid by the recipients of the 450 MW reduction. Roddis learned that the 450 MW utilities had paid no surcharge at all. Roddis telephoned Quinn to inquire whether the surcharge had the support of the AEC Commissioners [**10] and to suggest that the surcharge might cause political embarrassment for the AEC and the White House. The district court found that Roddis at no point suggested that Con Edison might terminate its receipt of AEC released power.

On August 10, 1970, Bertram Schwartz, then a Con Edison vice president, met with [*1126] Quinn and among other things asked why the AEC had imposed no surcharge upon the recipients of the prior reduction. Quinn told him that it was an oversight and that the AEC was seeking to renegotiate the agreements with the 450 MW recipients to include a surcharge. The negotiations to reopen the written contracts ultimately proved fruitless.

In the meantime, Con Edison continued to assert that the only payment it would make was a surcharge equivalent to what the recipients of the 450 MW power release had paid. This position was reiterated in a meeting between Quinn and Luce on September 1, 1970. Despite Con Edison's protestations throughout the summer at having to pay a surcharge different from what had been imposed on the 450 MW utilities, no Con Edison official ever intimated that it preferred not to take the power.

By letter dated September 30, 1970, after compromise [**11] attempts had failed, Luce informed the AEC that Con Edison would not pay the surcharge. On the next day, October 1, 1970, Con Edison released the 200 MW of power back to the TVA for return to the AEC. The district court found:

> Defendant never advised the AEC that it would refuse to pay a surcharge altogether [until September 30, 1970,] nor did Con Edison ever state that it would stop accepting the power. It is clear from the record that during this period Con Edison knew that AEC was demanding compensation for its increased costs; indeed, it knew as early as August 6, 1970, only ten days after the power had begun to flow, the magnitude of the surcharge sought by AEC.

452 F. Supp. at 650.

The district judge then went on to find that "the July 24, 1970 [oral] conversation between Luce and Quinn was sufficiently definite to form an agreement," but that it was unenforceable by virtue of the statute of frauds. Accordingly, he dismissed the Government's contract claim. [5] Nevertheless, he upheld the Government's equitable estoppel and quasi-contract theories. [6]

> 5 If there were an enforceable agreement arising out of the July 14, 1970, Quinn/Luce telephone

conversation, it would have to have been on the terms claimed by the Government. The AEC offered to make available to Con Edison 200 MW of power and expected Con Edison to pay AEC's costs. Luce's reply that Con Edison would pay the same surcharge as the utilities purchasing the first 450 MW may be treated as a counter-offer. If the conversation had stopped here, the contract would have been formed, if at all, on the terms that Con Edison urges. However, Quinn went on to inform Luce that the surcharge to Con Edison would be *different* from that of the other utilities because the 200 MW's which Con Edison would receive were more expensive to the AEC than the 450 MW it had already relinquished. Accordingly, whether the surcharge to the other utilities was zero or two mills or four mills would be irrelevant.

[**12]

6 In reviewing the district court's decision, we are of course bound by its findings of fact unless they are clearly erroneous. *Fed. R. Civ. P. 52(a)*; *see Zenith Radio Corp. v. Hazeltine Research, Inc., 395 U.S. 100, 123, 23 L. Ed. 2d 129, 89 S. Ct. 1562 (1969)*; *Rolf v. Blyth, Eastman Dillon & Co., 570 F.2d 38*, slip op. at 889, 896 (2d Cir. 1978); *Van Alen v. Dominick & Dominick, Inc., 560 F.2d 547, 550 (2d Cir. 1977)*.

II. Liability

We agree with Judge Pierce that Con Edison is liable for the AEC's costs under the emergency assistance doctrine. Recovery on this theory affords the Government the greatest amount of damages to which it could rightfully lay claim under any of the theories that it advances. [7] Accordingly, [*1127] we see no reason to decide these other interesting, but unnecessary, issues which have been presented, and therefore confine our discussion to Con Edison's liability under the emergency assistance doctrine.

7 If there were a valid enforceable contract, the most that the AEC could claim as damages would be its efficiency-loss costs since that is what the AEC bargained for during, for example, the July 24, Quinn/Luce telephone call. A similar result would obtain on the Government's equitable estoppel claim: to recover on such a claim, the Government must show reasonable induced reliance resulting in a detriment to it. Under any conceivable measure of damages, the AEC's greatest detriment would be its efficiency-loss costs. *But see* note 20 *infra*. Finally under one of the Government's two quasi-contractual theories - that of unjust enrichment - it is hard to see what type of uncompensated-for benefit Con Edison has retained which it might disgorge: it has utilized the power furnished; that power is no more. Unjust enrichment in the ordinary sense does not appear to us to be a satisfactory rubric of analysis for this case.

[**13]

The emergency assistance doctrine is a form of quasi-contractual relief. As recognized in several cases, including a recent case of this circuit, [8] the doctrine is embodied in *Section 115 of the Restatement of Restitution*:

> A person who has performed the duty of another by supplying things or services, although acting without the other's knowledge or consent, is entitled to restitution from the other if
>
> (a) he acted unofficiously and with intent to charge therefor, and
>
> (b) the things or services supplied were immediately necessary to satisfy the requirements of public decency, health, or safety.

The basis for recovery in this case is that the AEC performed Con Edison's duty to acquire and maintain adequate supplies of electrical power under emergency conditions with the clear intent that it be reimbursed for its costs. [9] *See Peninsular & Oriental Steam Navigation Co. v. Overseas Oil Carriers, Inc., 553 F.2d 830* (2d Cir.) (liability under *Section* [**14] *114 of Restatement of Restitution*, the *private* assistance analogue of *Section 115*'s *public* assistance statement), *cert. denied, 434 U.S.*

859, 98 S. Ct. 183, 54 L. Ed. 2d 131, 46 U.S.L.W. 3218 (1977).

8 *Peninsular & Oriental Steam Navigation Co. v. Overseas Oil Carriers, Inc., 553 F.2d 830* (2d Cir.), *cert. denied, 434 U.S. 859, 98 S. Ct. 183, 54 L. Ed. 2d 131, 46 U.S.L.W. 3218 (1977).*

9 *Peninsular & Oriental* did not require that the party rendering assistance act "without the other's knowledge or consent." *See Restatement of Restitution §§ 114, 115.* Apparently the court read this language as impliedly permitting recovery of costs *even when* the aided party either had no knowledge or had not consented to the assistance. Here, of course, Con Edison knew of the assistance and consented to it. Indeed, they eagerly sought it. *See post* at p. 1129. Perhaps a closer analytical basis for the imposition of liability in *Peninsular & Oriental*, where a benefit was conferred upon request, but without a bargain being struck, is the theory set forth in *Restatement of Restitution § 107(2)* and Restatement of Contracts §§ 226-36 and 245-49, but for our purposes it is sufficient that *Peninsular & Oriental* follows the emergency assistance doctrine.

[**15] Con Edison challenges recovery under this doctrine on a number of grounds. It asserts that Con Edison had no absolute duty to supply electricity to its New York area customers; it challenges the scope of the doctrine and whether a true emergency in the *Section 115* sense existed; and it attempts to distinguish the leading Second Circuit authority, *Peninsular & Oriental, supra*, by limiting that case not only to its admiralty context but also to its precise facts. We are unpersuaded by Con Edison's contentions.

Con Edison's claim that it has no absolute duty to supply electricity to New York area customers misconceives both the nature of the duty which must be implicated to fall within the purview of *Section 115* and the nature of the duty which the AEC performed in this case. Con Edison asserts in this regard that it is liable for damages to its customers only from intentional wrongful cutoffs or accidental cutoffs when it has acted with gross negligence. [10] However, *Section 115 of the Restatement* certainly does not require either by its terms or under the case law interpreting [**16] it, that a duty must be absolute to fall within its parameters. Duty is a flexible concept. Its existence depends on calibrating legal obligations to factual contexts. One may have only a duty to avoid gross negligence, but [*1128] that is a duty nonetheless and one potentially cognizable by the emergency assistance doctrine.

10 Under New York law, Con Edison is not liable for damages resulting from ordinary negligence. In July, 1970, the New York State Public Service Commission approved as part of Con Edison's rate schedule an exemption for ordinary negligence in the valid exercise of Con Edison's powers and also for interruption of services from causes beyond Con Edison's control. This exculpation has been upheld by several New York courts. *E.g., Newman v. Consolidated Edison Co., 79 Misc. 2d 153, 360 N.Y.S.2d 141 (Sup. Ct. 1973); Devers v. Long Island Lighting Co., 79 Misc. 2d 165, 359 N.Y.S.2d 940 (Sup. Ct. 1974). But see Danna v. Consolidated Edison Co., 71 Misc. 2d 1029, 337 N.Y.S.2d 722 (Civ. Ct. 1972).*

[**17] *Peninsular & Oriental* is a good illustration of a situation where less than an absolute duty was held governable by the emergency assistance doctrine. In that case, a sailor on the Overseas Progress was stricken with a heart attack. The Overseas Progress did not have a doctor or the necessary facilities to give the sailor proper medical attention and therefore sent a radio message seeking assistance from other ships in the vicinity. The S.S. Canberra responded, changing course to intercept the Overseas Progress. The rescuing ship, which had an on-board hospital, took the heart attack victim on board and increased its speed and thus its fuel consumption as it plied toward New York. [11] This court found that when the seaman took ill the Overseas Progress "became obligated to make reasonable efforts to provide him with swift medical care. . . . On vessels that do not carry a surgical staff, the ship's master has a duty, in the sound exercise of his judgment and depending on the circumstances, to have the seaman taken speedily to a hospital or the nearest port where surgical care may be obtained. [**18] " *Id. at 834.* While the Overseas Progress did not have an absolute duty to provide the sailor with medical attention, it had a "manifest duty" to do so. *Id. at 835.*

11 The sailor ultimately recovered. To effect the rescue, the S.S. Canberra not only increased its

fuel consumption by increasing speed, but it also went some 232 miles out of its way. The court awarded the rescuing ship its increased fuel costs as damages. *See Peninsular & Oriental, supra, 553 F.2d at 836-37* & n.7.

Similarly, Con Edison had, if not an absolute, at least a manifest, duty to provide its customers with electricity. *See, e.g., Park Abbott Realty Co. v. Iroquois Natural Gas Co., 102 Misc. 266, 168 N.Y.S. 673 (Sup. Ct. 1918)* (utility must use best efforts), *aff'd, 187 App. Div. 922, 174 N.Y.S. 914* (4th Dep't 1919). And as the district court found, based on the testimony of Con Edison's [**19] own officials, Con Edison has a general responsibility to provide electricity, one founded in its monopoly and the public service nature of its business. *See Wolff Packing Co. v. Industrial Court, 262 U.S. 522, 535-36, 67 L. Ed. 1103, 43 S. Ct. 630 (1923)*; *Munn v. Illinois, 94 U.S. 113, 124-30, 24 L. Ed. 77 (1876)*. Moreover, under the statutory law of New York Con Edison has a duty to "furnish and provide such service, instrumentalities and facilities as shall be safe and adequate and in all respects just and reasonable. . . ." *N.Y. Pub. Serv. Law § 65(1)* (McKinney 1955). Distinguishing its general duty to provide service from an absolute legal duty to pay damages to individual customers in particular circumstances would be hypertechnical and would ignore Con Edison's overriding responsibilities to the public. *See People ex rel. Cayuga Power Corp. v. Public Service Commission, 226 N.Y. 527, 532, 124 N.E. 105, 106 (1919)* (Cardozo, J.) (emphasizing that "the duty to serve the public goes hand in hand with the privilege of exercising a special [**20] franchise. . . ."). Since Con Edison was willing to pay a surcharge of the magnitude ultimately imposed by the district judge if the other utilities had paid an identical surcharge, it is clear that Con Edison itself believed that incurring such costs was well within the parameters of its manifest duty to provide electrical power to its customers.

The nature of Con Edison's duty to its customers aside, Con Edison also misperceives the nature of the duty which the AEC actually performed in this case. Con Edison improperly focuses exclusively on the Con Edison-customer relationship rather than on the Con Edison-AEC relationship. While Con Edison may be liable to its customers for damages from wrongful intentional cutoffs or accidental cutoffs when it has acted with gross negligence, that limitation on Con Edison's duty relates solely to damage claims between Con Edison and its customers for failure to supply electricity; it does not foreclose liability arising from a relationship between Con Edison and its supplier of electricity. The generalized duty to furnish electricity that flows from Con [**21] Edison's status as a government-regulated [*1129] public service company imposes upon it the additional duty to make reasonable efforts to acquire additional electricity in time of need. This duty of acquisition, even if the ultimate object were to fulfill the separate duty of supplying its individual customers, is an independent obligation of Con Edison.

Con Edison's actions, moreover, belie its claim of no duty. Company officials went to significant (and we may say commendable) efforts to secure additional power. Luce and Chambers testified that Con Edison actively explored reactivation of an obsolete, expensive TVA steam generation system. The district court found: "In three days of frenzied activity by its highest officers, Con Edison sought out all possible sources of power and accepted 200 MW from the federal government in the face of AEC's clear indication that the AEC would seek recovery of its costs." *452 F. Supp. at 656.*

In sum, then, we conclude that *Section 115*, with the gloss of *Peninsular & Oriental*, is not limited to cases of absolute duty, that in any event the proper focus here is on the Con Edison-AEC relationship rather than the Con Edison-customer [**22] relationship and that Con Edison had a manifest duty to acquire electrical power. We, therefore, reject Con Edison's contention that the AEC did not perform Con Edison's duty. [12]

12 It is also clear that the AEC sought to perform Con Edison's duty with intent to be reimbursed for its costs. Con Edison emphasizes of course that no one from the AEC mentioned a surcharge until the Luce/Quinn telephone call of July 24. However, Con Edison officials could not have been so disingenuous to believe that there would not be at least some surcharge, given the industry practice of 10 to 20% surcharges for emergency power supplied by other members of a power pool. Moreover, Chambers of the TVA told Luce in a July 23 conversation that power released by the AEC would be "pretty expensive . . . because the AEC does have an efficiency factor," and "this can turn out to cost you 12 or 14 mills a kilowatt

> hour." In addition, Quinn specifically told Luce in their July 24 conversation that the AEC expected to be paid a surcharge measured by its lost efficiency. This conversation raising the surcharge issue formally occurred less than 72 hours after the crisis began and more than 48 hours before the power actually began to flow to Con Edison. In other words, at about midpoint in the development of the crisis, the surcharge question was formally placed on the bargaining table. Furthermore, the AEC never wavered from its position that it expected reimbursement, even in the face of Con Edison's political blustering. *Ante* at pp. 1125-1126. It is undeniable therefore that the AEC acted with intent to be paid its costs. *See* note 9 *supra*.

[**23] Con Edison's second principal objection to the Government's recovery under the emergency assistance doctrine is that recovery here improperly widens the concept of emergency. The thrust of Con Edison's contention is that while Con Edison confronted a very serious problem, it was not a problem of emergency dimensions within the contemplation of *Section 115*.

Specifically, Con Edison points out that *Section 115* requires that the lack of electricity pose a threat to "public decency, health, or safety." Con Edison faced just such a threat during the summer of 1970. Even though Con Edison received 200 MW of AEC-released power which, as the district court found, constituted three per cent of Con Edison's peak load requirements, there were still "fourteen separate days during the summer of 1970" when "Con Edison reduced voltage by between three and five per cent." Bertram Schwartz testified in this regard that "when a voltage reduction goes as far as eight per cent, Con Edison's contingency plan is to begin load shedding." [13] On "six separate days between July 27, 1970 and September 28, 1970, Con Edison's reserve capacity was well under 200 MW. Indeed even with the 200 MW Con Edison was [**24] compelled to engage in eight per cent voltage reductions on three different days, and on September 22, 1970, Con Edison did in fact shed load." An eight per cent voltage reduction is no light matter. Load shedding is the equivalent of designated area blackouts.

> 13 Load shedding is the process of disconnecting certain customers to ease the strain on the entire electrical system and to prevent a system-wide outage such as occurred most recently in the summer of 1977.

[*1130] Charles Luce testified that the situation confronting Con Edison was the most serious in his ten years with the company. The district judge stated:

> Indeed, . . . if the situation were not an emergency, then Con Edison simply could have disconnected customers. Instead, in three days of frenzied activity by its highest officers, Con Edison sought out all possible sources of power. . . . Had the matter not been a true emergency to public welfare and safety, Con Edison could have simply "shed load." Thus, the Court finds the arguments [**25] presented on behalf of defendant to be at odds with the actions of its officers during the time at issue.

452 F. Supp. at 656. It is easy with the aid of hindsight to say that nothing serious happened. But this ignores the fact that Con Edison operated with 200 MW of AEC released power. When the decision to accept that power was made all officials concerned recognized that the situation was grave indeed. Con Edison's argument is a little like saying that, because the seaman in *Peninsular & Oriental* did not die of his heart attack, there was no need for emergency assistance at the time the request for aid was made. We therefore conclude that Con Edison faced an emergency within the meaning of *Section 115*. [14]

> 14 Con Edison's attempted limitation of the emergency assistance doctrine to burial of the dead, repair of public roads, and quarantine of the insane and contagiously ill takes too myopic a view. To be sure, these are examples appearing in *comment b to § 115 of the Restatement of Restitution*. But those examples are explanatory, not delimiting. Con Edison's situation was certainly more grave and potentially dangerous to the public welfare than when a fallen tree blocks a road or when "a dead whale [is] stranded on the shore close to a town." *Restatement of Restitution § 115, comment c* at 483 (1937).

[**26] Con Edison's attempt to limit the *Peninsular & Oriental* rationale to maritime situations and to its facts is similarly unpersuasive. As Chief Judge Kaufman's

opinion made clear in that case, it was not applying some peculiarly maritime rule. On the contrary, the court took a more general equitable doctrine and applied it to a maritime context, using the opportunity to overrule specifically the outdated admiralty rule of "pure life" salvage.

Distinction of *Peninsular & Oriental* on a number of other technical grounds in an attempt to limit the holding of that case to its facts is also unavailing. Con Edison asserts that in *Peninsular & Oriental* the defendant's vessel had requested assistance from the plaintiff's vessel and had discussed the matter of reimbursement from the beginning, 558 F.2d at 833, whereas in this case, according to Con Edison, the White House made the offer of power pursuant to its May 5 plan without any mention of a surcharge. The matter, however, is not as simple as Con Edison would suggest.

First, it is not made clear why the chronology of who asked whom makes any difference. Indeed, were a rescuer to come upon a stricken victim, it [**27] is anomalous to suggest that the rescuer may be reimbursed for his costs if the victim speaks first, but not if the rescuer speaks first or presumably acts without either party speaking. True, Con Edison has seized upon a factual difference between *Peninsular & Oriental* and this case, but it is one that makes no legal difference.

Nor, for several reasons, do we find it significant that the question of a surcharge for Con Edison's efficiency-loss costs was not mentioned by a Government official to a Con Edison official prior to the Quinn/Luce telephone call of July 24. It was mentioned at about midpoint in the developing crisis; considering the rapidity with which events were unfolding and the magnitude of the problem, it is hardly surprising that the surcharge was not specifically mentioned until 2 1/2 days after Big Allis broke down. Con Edison was formally told of the surcharge that it would be expected to pay more than two days before the power began to flow to Con Edison. Moreover, prior to the Quinn/Luce telephone call, Luce was informally told by a TVA official - Chambers - that the AEC would look to Con Edison for its efficiency-loss costs, and he indicated what he thought [**28] [*1131] they might be. The Con Edison officials cannot be considered as naive as they would now have us believe. If their purpose is to undercut the AEC's demonstrated intent to be reimbursed for its costs, that effort must fail, for it is clear from the record, and the district judge unequivocally so found, that the AEC intended to be reimbursed for its costs and made that intent unmistakably clear to Con Edison. *See* note 12 *supra*. Accordingly, we conclude that liability was properly imposed pursuant to the emergency assistance doctrine. [15]

15 Con Edison's other contentions on liability merit only minimal discussion. Its equal protection claim is frivolous. Asserting that the different treatment between the 450 MW recipients and Con Edison constitutes unconstitutional invidious discrimination, Con Edison invokes traditional equal protection analysis in its effort to defeat the Government's surcharge claim. *But see City of New Orleans v. Dukes, 427 U.S. 297, 303, 49 L. Ed. 2d 511, 96 S. Ct. 2513 (1976)*; *Dandridge v. Williams, 397 U.S. 471, 486-87, 25 L. Ed. 2d 491, 90 S. Ct. 1153 (1970)*; *Williamson v. Lee Optical, Inc., 348 U.S. 483, 488-89, 99 L. Ed. 563, 75 S. Ct. 461 (1955)*; *Image Carrier Corp. v. Beame, 567 F.2d 1197, 1203 (2d Cir. 1977), petition for cert. filed,* 46 U.S.L.W. 3723 (U.S. May 23, 1978). Con Edison argues that the AEC had no rational basis for imposing a surcharge on it but not on the 450 MW utilities. One rational basis for the AEC's distinction between Con Edison and the 450 MW utilities is that the relinquishment of the initial 450 MW was not so costly to the AEC that the need to seek reimbursement was of obvious importance. When 200 additional MW were relinquished, the proportionate increase in the burden was substantially higher so that the AEC realized that the efficiency-loss costs were getting out of hand; it also sought "to renegotiate the agreements with the recipients of the prior reduction to include a surcharge." *452 F. Supp. at 649*. Finally, we note that Con Edison's reliance on *Morey v. Doud, 354 U.S. 457, 1 L. Ed. 2d 1485, 77 S. Ct. 1344 (1957)*, the only case in the last 50 years to invalidate an economic regulation on equal protection grounds, is totally misplaced; *Morey* was expressly overruled in *City of New Orleans v. Dukes, supra, 427 U.S. at 306. See Image Carrier Corp. v. Beame, supra, 567 F.2d at 1202-03.*

Con Edison's unclean hands and estoppel arguments are also without merit. Both

arguments fail because the district court specifically found that the Government communicated its surcharge demand to Con Edison in advance of the power release. That Con Edison was not specifically informed that the 450 MW utilities were not paying a surcharge does not matter since the district court also found that Con Edison was informed that it would be paying a different surcharge anyway. Thus whether the surcharge imposed on the 450 MW utilities was two mills, four mills, or zero mills is irrelevant for purposes of determining the level of Con Edison's surcharge once it has been determined that Con Edison knew it was expected to pay a different surcharge.

[**29] III. Damages

The proper measure of AEC's damages is the costs it incurred in assisting Con Edison. [16] We further conclude that these costs are fairly embodied in Plaintiff's Exhibit 41 (PX 41) as modified herein. [17] The purpose of PX 41 [18] is to measure the increased production cost per SWU which accrued as a result of the power reduction at the AEC's gaseous diffusion centers. The incremental cost per SWU was computed to be $1.9163. Since 822,833 SWU's were produced during the power reduction period, the total costs incurred as a result of the reduction were $1,576,795.

16 *Peninsular & Oriental* makes it clear that in emergency assistance situations, the proper measure of damages is the assisting party's costs. *See 553 F.2d at 836-37* & n.7. In quasi-contract, it is appropriate to look to measures of damages other than the amount by which the defendant is benefited where that amount is not susceptible of proof. *See Campbell v. Tennessee Valley Authority, 421 F.2d 293, 296 (5th Cir. 1969).*

17 PX 41 is reproduced in part in the appendix.

18 PX 41 was admissible under *Rule 1006 of the Federal Rules of Evidence* as a summary of voluminous writings. Con Edison argues that Rule 803(6), however, precludes admissibility of PX 41. Purportedly, the business records exception to the hearsay rule prevents the AEC's introduction into evidence of the business records of the independent contractors who were operating the AEC's gaseous diffusion centers. There is no basis for limiting Rule 803(6)'s operation to introduction of one's own business records. And nothing in the record suggests that the independent contractors' business records could not qualify under Rule 803(6). *See 56 F.R.D. 293, 307-11 (1973).*

[**30] The district court found that "despite hours devoted to cross-examination of plaintiff's witnesses on PX-41, the defendant did not seriously challenge any of the [*1132] factual bases of PX-41." We agree with the district court's findings of fact. However, we consider that one component of this calculus leads to overcompensation of the Government and thus is not warranted by law. *See Peninsular & Oriental, supra, 553 F.2d at 836-37* & n.7; J. Calamari & J. Perillo, *Contracts* § 15-4, at 475.

PX 41 includes the AEC's own "fixed operating" and "added factor" costs [19] (as distinguished from the costs relating to the operation of the three specific gaseous diffusion centers) in calculating the SWU production cost actually incurred during the power reduction period and the cost had there been no power reduction for the benefit of Con Edison. Because AEC's fixed operating and added factor costs would have been incurred to the same extent whether or not the power release to Con Edison had occurred and since there is no direct relationship between these costs and the power release, they should not have been included in the calculation. There is obviously a direct [**31] relationship, however, between the incremental cost of SWU production and the overhead costs at the three plants since the per SWU cost at each center was directly affected by the power release. Accordingly, the incremental cost per SWU should be reduced by recomputing both the actual costs incurred during the relevant period and the costs that would have been incurred absent a power release but without taking into account the AEC's own fixed operating and added factor costs that appear as Part D of Table I in the appendix. [20] The Government's damages therefore are reduced to $1,467,018.00. [21]

19 These costs are in the nature of overhead expense.

20 The calculation is made by reducing the actual cost of SWU production ($20,938,492) as well as the hypothetical cost of separative work if no power reduction had been made ($22,321,164) by the amount of $828,369, representing the AEC's fixed operating and added factor costs.

An alternative measure, or perhaps even an additional amount to make the AEC fully whole, might be the replacement cost of the 125,772 SWU's which were not produced at all during the power reduction. The replacement cost at the time would have been at the rate of approximately $23.53 per SWU, or a total of more than $2,950,000. The amount would be offset by the benefit which the AEC enjoyed as a result of the power reduction. *See* J. Calamari & J. Perillo, *Contracts* § 15-4, at 574 (2d ed. 1977). Because of the reduction, the AEC spent $1,382,672 less on power than it would have and has therefore had the use of this money. Accordingly, an offset of the income from this amount at the legal interest rate from the date of the power reduction to the date of judgment would be appropriate if that measure were adopted. However, since the Government has never apparently sought to replace the nonproduced SWU's and has not here sought additional compensation for them, the Government's measure of damages is limited to the incremental cost per SWU actually produced.

[**32]

21 We find Con Edison's various other defenses unpersuasive. First, Con Edison raises a "passing-on" defense. Relying on dictum in *Hanover Shoe, Inc. v. United Shoe Machinery, 392 U.S. 481, 494, 20 L. Ed. 2d 1231, 88 S. Ct. 2224 (1968)* (rejecting passing on defense), "that there might be situations - for instance, when an overcharged buyer has a pre-existing 'cost-plus' contract, thus making it easy to prove that he has not been damaged. . . .," Con Edison analogizes the AEC's situation to that in the *Hanover Shoe* dictum. However, there is nothing in the record to show that Con Edison had *pre-existing* cost-plus contracts which guaranteed demand. Nor has Con Edison showed that the AEC sales did not suffer as a result of its increased costs. In short, the record does not show the precise effect that the losses resulting from the reduction had upon the demand for the AEC's services (here SWU's), *see Illinois Brick Co. v. Illinois, 431 U.S. 720, 736, 52 L. Ed. 2d 707, 97 S. Ct. 2061 (1977)*, notwithstanding a statute which requires the AEC at some point to recover its costs. *See 42 U.S.C. § 2201(v)(B)*. In addition, Con Edison's position would put the AEC in the difficult situation of never being able to recover contract or tort damages since those uncompensated costs might ultimately be passed on to its customers. Such a result would remove any incentive for private parties to adhere to contracts made with government entities which pass along costs to its customers. Con Edison's reliance on *Plimpton Mfg. Co. v. United States, 15 Ct. Cl. 14 (1879)*, another form of the passing on defense, is unpersuasive for the same reasons.

Con Edison's contention that the AEC has not been damaged because it includes a 15% contingency factor in the price charged for its uranium enrichment service must also be rejected. First, Con Edison overlooks the fact that the Government has incurred real economic loss by virtue of its power release to Con Edison. The 15% contingency factor argument is merely a warmed-over version of the passing-on defense which we find inapposite. And second, the district court found that the 15% contingency factor was not intended to "cover the *extraordinary* type of losses which occurred here." *452 F. Supp. at 651* (emphasis added). While it might cover minor production interruptions, the court concluded that it was not supposed to cover a substantial and sustained interruption of the type at issue here.

[**33] [*1133] Con Edison has proffered five alternative measures of damages. We find each of them unacceptable. Con Edison first puts forth as its measure of the AEC's costs what it calls *power* efficiency losses. This method, presented by Con Edison's expert witness, Dr. Leonard Geller, was defined as "a surcharge that would be applicable to recover [a] loss of efficiency effect in the use of the electricity," on the basis that power costs increase as a power load decreases by virtue of less efficient use of the energy involved. Thus, the method purports to measure costs relating to incremental power efficiency loss from the power release. Dr. Geller's calculations indicate a power efficiency decrease of $0.1520 per SWU. This amount would then be multiplied by the 822,833 SWU's actually produced during the power reduction period for total damages of $125,070. The weakness in the theory, and the reason we reject it, is that it focuses solely on the AEC's incremental power efficiency loss and not on its other incremental SWU costs incurred by the enrichment plants which directly resulted from the power release program. To make the

AEC whole the increased cost of SWU production [**34] must be compensated; to pay only the power component of that increment would understate the Government's damages.

Dr. Geller's second theory suggests a power, rather than a monetary, surcharge. That is, Con Edison would pay a surcharge of between 10 and 20% of the raw power cost - the typical surcharge in the industry for emergency power releases. This approach however overlooks the sui generis nature of the release here in question. Presumably, in most power release situations, a 10-20% surcharge will compensate a releasing utility for special costs that it incurs in releasing and transmitting power. But it is precisely because the AEC was Con Edison's only possible power source during this crisis that makes the industry-wide practice an inapposite measure of damages. *See Peninsular & Oriental, supra, 553 F.2d at 836.* The AEC incurred costs which the typical utility, which is not in the business of enriching uranium, would not incur. It is, as we have said, analogous to a manufacturer rather than an electric utility although its manufactured product happens to be stored energy for future generating purposes. *See* note 1 *supra.*

Next, Con Edison puts forth [**35] a "threshold method" of calculating a surcharge. The underlying theory of this method is to measure the AEC's damages by the excess of the cost of the 200 MW reduction over the estimated cost of the 450 MW reduction. Thus, if the 200 MW reduction would cost an additional five mills PKH and the 450 MW reduction would cost four mills PKH, Con Edison would pay only the difference of one mill PKH. Presumably this method would take account of Con Edison's insistence on equal treatment with the 450 MW utilities, but recognize that the AEC's efficiency loss was greater for the 200 MW reduction than for the 450 MW reduction. Thus because the 450 MW utilities did not pay their four mills surcharge, Con Edison need not pay the first four mills of its five mill surcharge. This is a clever formulation by Con Edison, but it distorts the obvious implications of the district judge's finding that Con Edison would be expected to pay a *different* surcharge from that paid by the other utilities. *Ante* at p. 1125. [22] Thus, even if there were an enforceable contract, the contract terms would not justify the "threshold" measure of damages since the fact that the 450 MW utilities paid no surcharge [**36] would be legally irrelevant. Moreover, the "threshold" method overlooks the theory of liability on which we base our [*1134] opinion - the emergency assistance doctrine which obligates Con Edison to pay costs. Thus, the threshold method is really an attempt to premise damages on a contract theory; as such its application would distort the district judge's findings of fact.

22 The import of the district judge's finding is to eviscerate Con Edison's claim that it was only obligated to pay a surcharge equal to that paid by the 450 MW utilities.

Con Edison's fourth damages formulation is termed a "price planning data approach," which attempts to give effect to the "time" impact upon the losses claimed by the Government. Con Edison purports to adopt the AEC's own ten-year pricing methodology whereby the agency projected costs, SWU production and sales for the ten-year planning period - fiscal years 1971-1980. The AEC then discounts to an end-of-fiscal-year-1970 "present worth" all of the projected cumulative [**37] costs, revenues, SWU sales and so forth. Con Edison employs a similar "discount" to measure the net economic impact of the 200 MW reduction expressed in terms of the 1970 net worth. There are, however, several problems with this approach which lead us to reject it.

First it borrows a planning and pricing economic model for the purpose of measuring damages incurred. While that might be a valid approach in some instances, it seems highly speculative to us especially since the *actual* cost data from the precise period involved are available. And, second, the figures on which Dr. Geller based his projections have not withstood the test of time, as the district court found. *452 F. Supp. at 652.* Con Edison would have us ignore what has transpired since 1970 in terms of astronomical cost increases in SWU production [23] and measure damages based on hypothetical figures from the vantage of year end 1970. This approach would grossly distort the true impact of the power release on the AEC's gaseous diffusion centers.

23 Per SWU costs have increased from approximately $23.53 in 1970 to over $60 today.

[**38] Finally, Con Edison suggests a fifth alternative measure of damages - an "average" surcharge approach. Thus, Con Edison would pay a surcharge in which total efficiency-loss costs from both the 450 MW and the 200 MW reduction would be blended; since the efficiency losses from the first reduction were less than those of the second, the effect of this approach is to lower

Con Edison's damages and to put Con Edison in the position it would have been if the AEC had agreed that Con Edison would pay the same costs as the 450 MW utilities and if those utilities had indeed obligated themselves to pay a surcharge or found themselves in an emergency situation similar to that facing Con Edison. Again, we are unable to accept this approach. The acceptance of emergency assistance obligated Con Edison to reimburse the Government for incurred costs. Those are the costs which flow from the emergency assistance; any other costs are extraneous to the incurrence of those emergency assistance costs.

Accordingly, we find none of Con Edison's approaches to the damages issue acceptable. We therefore affirm the district court's finding of liability and modify its damages award as set forth above.

Affirmed [**39] as modified.

[*1135] APPENDIX

PX 41

Increased Cost Due to Relinquishment By The AEC of Its Contract Rights to 200 MW Of Power To Benefit Consolidated Edison Company of New York, Inc. 7/26/70 - 10/1/70

	Cost	Units of Separative Work	Unit Cost of Separative Work
Actual Unit Cost of Separative Work During Period of Reduced Power for Consolidated Edison (Pgs. 2 & 4)	$20,938,492	822,833	$25.4468
Unit Cost of Separative Work Assuming No Reduction Of Power to Benefit Consolidated Edison (Pgs. 3 & 6)	22,321,164	948,605	23.5305
Increased Unit Cost at Reduced Power			$ 1.9163
Separative Work Units Produced at Reduced Power			822,883
Increased Total Cost ($1.9163 X 822,833)			$1,576,795

TABLE I - COSTS

1. Actual Costs Incurred During Period of Power Reduction To Benefit Consolidated Edison

	1970				
	July	August	September	October	Total
A. ORGDP					
Power Cost	$ 201,837	1,246,510	1,389,836	10,900	2,849,083
Fixed Operating					
Cost	170,004	1,074,238	1,277,969	8,550	2,530,761
Added Factor Cost	95,055	611,445	598,603	3,685	1,308,788
Total ORGDP	466,896	2,932,193	3,266,408	23,135	6,688,632
B. Paducah					
Power Cost	326,213	1,867,448	2,848,899	* 41,759	* 5,076,870
Fixed Operating					
Cost	154,998	940,679	1,153,627	12,720	2,262,024
Added Factor Cost	10,256	55,050	59,867	751	125,924
Total Paducah	491,467	2,863,177	4,062,393	54,939	7,471,976
C. Portsmouth					
Power Cost	199,239	1,057,088	1,027,559	16,025	* 2,295,547
Fixed Operating Cost	235,861	1,520,765	1,558,976	24,513	3,340,115
Added Factor Cost	28,493	145,423	133,279	2,294	309,489
Total Portsmouth	463,593	2,723,276	2,719,814	42,832	5,949,515
D. AEC					
Fixed Operating Cost	3,200	34,524	22,713	255	60,692

Added Factor Cost	57,493	336,062	369,989	4,133	767,677
Total AEC	60,693	370,586	392,702	4,388	828,369
Total Costs	$1,482,649	8,889,232	10,441,317	125,294	20,938,492

[**40] * Sic.

[*1136] NOTE: The above are actual cost incurred by the AEC in the Uranium Enrichment Activity and are exclusive of cost related to other non-uranium enrichment AEC activities. . . .

2. Cost Assuming No Power Reduction to Benefit Consolidation Edison

	1970				
	July	August	September	October	Total
A. ORGDP					
Power Cost	$ 229,492	$1,423,212	$ 1,562,637	$ 11,495	$ 3,226,836
Fixed Operating Cost	170,004	1,074,238	1,277,969	8,550	2,530,761
Added Factor Cost	95,055	611,445	598,603	3,685	1,308,788
Total ORGDP	494,551	3,108,895	3,439,209	23,730	7,066,385
B. Paducah					
Power Cost	377,841	2,190,375	3,165,502	43,633	5,777,351
Fixed Operating Cost	154,998	940,679	1,153,627	12,720	2,262,024
Added Factor Cost	10,256	55,050	59,867	751	125,924
Total Paducah	543,095	3,186,104	4,378,996	57,104	8,165,299
C. Portsmouth					
Power Cost	226,521	1,212,281	1,179,686	17,019	2,635,507
Fixed Operating Cost	235,861	1,520,765	1,558,976	24,513	3,340,115
Added Factor Cost	28,493	145,423	133,279	2,294	309,489

Total Portsmouth	490,875	2,878,469	2,871,941	43,826	6,285,111
D. AEC					
Fixed Operating Cost	3,200	34,524	22,713	255	60,692
Added Factor Cost	57,493	336,062	369,989	4,133	767,677
Total AEC	60,693	370,586	392,702	4,388	828,369
	$1,589,214	$9,544,054	$11,082,848	$129,048	22,345,164
Less Added Maintenance *					24,000
Total Cost (Page 1)					$22,321,164

[**41]

* Extraordinary maintenance cost resulting from power changes of this magnitude have been determined to be $80 per MW change. Total MW change, both reduction and restoration, was 300 (300 X $80 = $24,000).

UNITED STATES of America, Plaintiff, v. CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., Defendant

No. 74 Civ. 3121

UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF NEW YORK

452 F. Supp. 638; 1977 U.S. Dist. LEXIS 14921

July 19, 1977

COUNSEL: [**1] Robert B. Fiske, Jr., U.S. Atty., S.D.N.Y. by Charles Franklin Richter, Gary G. Cooper, Asst. U.S. Attys., New York, New York, for Plaintiff.

Werner L. Polak, Thomas M. Geisler, Jr., Shearman & Sterling, New York, New York, for Defendant.

JUDGES: Pierce, District Judge.

OPINION BY: PIERCE

OPINION

[*641] OPINION AND ORDER

PIERCE, District Judge.

This is an action commenced by the United States as plaintiff pursuant to *28 U.S.C. § 1345*. Plaintiff alleges that the defendant, Consolidated Edison Company of New York, Inc. ("Con Edison") entered into an oral agreement with the plaintiff to reimburse the Atomic Energy Commission ("AEC") for costs incurred in the summer of 1970 by reason of a release of 200 megawatts of electrical power. The power was released to Con Edison by the AEC in the midst of a New York City area power crisis resulting from the July 21, 1970 failure of Con Edison's Ravenswood electrical generating facility, commonly known as "Big Allis". Plaintiff's complaint asserts four causes of action. Count One sought to recover on an oral contract; that claim was dismissed at the close of plaintiff's case on the ground that the agreement was barred by the Statute of Frauds. Count [**2] Two was abandoned by the plaintiff and dismissed by summary judgment prior to trial. Count Three alleges contract by estoppel, and Count Four seeks recovery in quasi-contract. Count Four also asserted an alternative claim, contract implied in fact; this was dismissed by summary judgment on August 2, 1976.

The matter was tried before the Court without a jury for ten days in April and May, 1977. Having heard all the evidence, and having fully considered the matter, the Court concludes that judgment should be entered for the plaintiff on each of its claims asserted in Counts Three and Four. The following shall constitute the Court's findings of fact and conclusions of law pursuant to *Rule 52(a) Fed.R.Civ.P.*

Findings of Fact

In the spring of 1970, certain officers of the federal government became concerned that unless adequate contingency plans were developed, the private power industry might be unable to provide sufficient electrical power to meet the nation's energy needs in the upcoming summer. Upon the conclusion that this was a problem

deserving of national attention, the Executive Office of the President established an interagency task force, under the auspices of the Office [**3] of Emergency Preparedness ("OEP"), to consider means by which the various federal agencies could assist in identifying potential power crises and taking action to prevent power failures or "brownouts". It became apparent as early as April 1970 that a key component of the plan would be a procedure whereby the AEC would reduce its massive power consumption at its gaseous diffusion uranium enrichment plants. The AEC participated in the development of this procedure, and on [*642] May 5, 1970, the OEP released to the public the government's emergency power assistance program, referred to hereinafter as the "May 5 Plan". The Plan contained the following provision concerning the AEC:

> "The AEC will make arrangements to curtail production this summer at the AEC gaseous diffusion plants, which use large amounts of electricity. This could release coal supplies and generating capacity which could be used to assist in meeting fuel shortages and peak loads of the consuming public in parts of the inter-connected system. The diffusion plants are being used, in part, to produce enriched uranium for future use in nuclear power plants." (PX-2).

The May 5 Plan made no reference to the [**4] possibility that in the event the AEC were to reduce its power consumption for the benefit of private industry, it might seek to impose upon the release of that power a surcharge to cover its increased costs. However, it is apparent from the evidence that the document constituting the May 5 Plan did not at all attempt to set forth all of the terms and conditions under which power would be released; the Plan as revealed in PX-2 was in the nature of a press release. It was not, as defendant seems to suggest, a commitment binding the United States to undertake emergency assistance without the ability to seek reimbursement for its costs.

The nature of the costs incurred by the AEC as a result of the emergency assistance rendered to Con Edison is best understood through a discussion of the function of the gaseous diffusion plants. The AEC plants were located at Oak Ridge, Tennessee, Paducah, Kentucky, and Portsmouth, Ohio. Originally constructed for the production of special nuclear materials to be employed in national defense, these plants in 1970 were being used primarily to enrich uranium for use in commercial nuclear power plants. The plants convert natural uranium into a gaseous [**5] state; the gas is then passed through hundreds of processing stages or "cascades" to increase the concentration of the isotope U-235. Since each stage works only a slight increase in the concentration of U-235, large amounts of electrical power are required to achieve any amount of enrichment. In the early summer of 1970, the three AEC plants were consuming 2,000 megawatts ("MW") of power supplied under requirements contracts in effect with three utilities, the Tennessee Valley Authority ("TVA"), the Ohio Valley Electric Corporation ("OVEC") and Electric Energy, Inc. ("EEI"). The magnitude of the AEC's power requirements is illustrated by a comparison to Con Edison's peak load requirements in the same period; AEC consumed 2,000 MW to operate three plants and Con Edison transmitted 7,000 MW to supply the metropolitan New York City area and portions of Westchester County.

Shortly after the implementation of the May 5 Plan, the AEC received a request from EEI for permission to cut back on the full 235 MW it was supplying to one of the three uranium enrichment plants. Shortly thereafter TVA and OVEC made similar requests for reductions. George Quinn, then an AEC Assistant General Manager, [**6] testified that the AEC was reluctant to grant a substantial reduction, so Quinn sent an inquiry to the Federal Power Commission to determine whether there was in fact the likelihood of a power shortage in the area serviced by these three utilities. Upon confirmation that power reductions would be appropriate, AEC in late June 1970 entered into contract modifications with TVA, OVEC and EEI whereby AEC agreed to reduce its power consumption by 450 MW for the duration of the summer (PX-6 through PX-9). These contract modifications concerning the 450 MW reduction contained no mention of any surcharge to be imposed as a result of the release of the power. [1]

> 1 Prior to the development of the May 5 Plan, the AEC in January of 1970 imposed upon TVA a 10.4% premium on a release of power; however, the evidence concerning this premium is scant and there is no reason to conclude that the January reduction was comparable to the reduction at issue here.

[*643] The evidence indicates that it was not until after this [**7] first power reduction that officers of the AEC fully realized the increased costs which AEC would incur through the loss of power. [2] The product of the diffusion plants is measured in separate work units ("SWUs"); the SWUs are calculated by measurements of the assay levels of enriched uranium at various stages in the cascade process. The diffusion plants incur substantial fixed costs regardless of the number of SWUs produced; thus the AEC experienced substantial efficiency losses by operating its plants at levels below the 2,000 MW capacity. Both plaintiff's and defendant's expert witnesses agreed that such efficiency losses result from substantial power reductions. Upon becoming aware of the extent of its increased costs, the AEC in early July 1970 began considering whether it should impose a surcharge upon any further power reductions.

2 George Quinn conceded on cross-examination that the AEC was aware during the 1960's that power reductions resulted in efficiency losses; however, there is no persuasive evidence that AEC knew prior to June of 1970 the extent of such losses.

[**8] By July of 1970, Con Edison was already experiencing problems with its power needs. On May 20, 1970, Con Edison's nuclear plant at **Indian Point** went out of service, resulting in a loss of 260 MW of generating capacity. On July 21, 1970, Con Edison suffered a major power crisis with the outage of Big Allis, its 1,000 MW plant at Ravenswood.

Charles Luce, Con Edison's Chairman and Chief Executive Officer, testified that the failure of Big Allis constituted the most severe emergency faced by Con Edison during his ten years with the utility. Luce immediately met with his production and purchasing personnel to begin a search for additional electrical power. At the time, Con Edison was a party to a "pool" agreement with several other New York State utilities whereby any member of the pool could purchase from other members three different types of power (DX-B-8).

The first type, known as "economy power" involved purchases on an hour-to-hour basis from the most efficient generating plant available within the system. This power was priced according to the costs incurred in generation. Next, "supplemental power" was available to pool members at a fixed rate when the purchasing utility did [**9] not have sufficient capacity to meet its load. Finally, "emergency" power could be purchased during true crisis situations; such power usually carried a ten percent surcharge and was available only for short periods of time. Despite the existence of these emergency pooling arrangements, and notwithstanding the existence of similar agreements between the New York State power pool and other such pools in neighboring states, the Big Allis power shortage was so severe that Con Edison immediately looked elsewhere for a long-term purchase of back-up power.

The magnitude of Con Edison's July 21st power crisis had not gone unnoticed by the Executive Office of the President. On July 22, 1970, a representative of the OEP telephoned the offices of Con Edison to state that the government could perhaps come to Con Edison's assistance pursuant to the provisions of the May 5 Plan. On July 23, 1970, Charles Luce called David Freeman of the OEP, who explained that the AEC gaseous diffusion plants had already made one power reduction, but that there might still be room for a further power release to Con Edison. Luce stated that Con Edison wanted the power, subject only to confirmation that it could [**10] be transmitted to the New York area. Freeman then informed Luce that he should call George Quinn at the AEC to work out the details. There was no mention in this first conversation of any surcharge; however, it is clear that these talks with the OEP were only preliminary discussions.

On July 23, 1970, a series of significant conversations were had between the parties and with others. George Quinn at AEC was informed by the OEP of the New York power crisis and of the fact that Con Edison would be calling Quinn regarding the possibility of a further power reduction in order [*644] to assist Con Edison. Quinn reported the situation to E. H. Bloch, AEC Acting General Manager, and informed him that it was the opinion of the AEC staff that a surcharge should be imposed upon any release of power to Con Edison. Quinn did not discuss with Bloch the amount of the surcharge or how it could be imposed.

The same day Charles Luce of Con Edison telephoned Fred Chambers, an officer of TVA, to inquire about the availability of power from TVA and to ask Chambers what he knew about the possibility of an AEC power reduction. Luce also was interested in whether TVA could assist in the transmission [**11] of power to New York. Chambers stated that TVA had no surplus

power in its system, and in response to a specific inquiry by Luce, informed Luce that TVA could start up an old inefficient steam generating plant at Watts Bar, but that it would take as long as three weeks to wind the plant up to its full 200 MW capacity. Chambers also told Luce that starting up Watts Bar would be quite expensive.

The evidence indicates that at the time of this discussion Luce was more concerned with getting power quickly than he was with the cost to Con Edison. Luce asked TVA's Chambers about the availability of power from the AEC, but Chambers stated that he could not speak for the government. The conversation ended on this note and Chambers thereafter telephoned S. R. Sapire, operations manager at the AEC Oak Ridge plant.

Chambers asked Sapire about the possibility of a further AEC reduction; Sapire at first stated that the AEC could not possibly make a further reduction. However, shortly thereafter Sapire called Chambers to inform him that the AEC could make a further reduction but that it would be rather expensive. According to Chambers, Sapire estimated the additional cost at between 3 and 7 mills [**12] per kilowatt hour (Tr. at 324). Chambers then called Luce to pass this information on to Con Edison.

In the course of this second conversation between Chambers and Luce on July 23, 1970, Chambers stated that AEC had already made one reduction and that a further reduction would be "pretty expensive" because AEC was incurring substantial efficiency costs. Luce stated that it was no time to be discussing costs. Chambers then informed Luce that AEC power could cost Con Edison as much as twelve to fourteen mills per kilowatt hour; however, Chambers cautioned that the price could not be determined until the completion of calculations by the AEC. [3] Later that same day Chambers spoke with Arthur Hauspurg of Con Edison to confirm that TVA could assist in the transmission of AEC power to New York.

> 3 Luce's recollection of the conversations differs. According to Luce, Chambers' comment concerning high costs to AEC was made in response to an inquiry Luce made in the first conversation as to whether AEC might agree to shut down its plants altogether for Con Edison's benefit. Since the record is otherwise devoid of any suggestion that anyone contemplated a complete shutdown of the enrichment plants, the Court concludes that Chambers, a relatively disinterested witness, had a more accurate recollection of the conversations.

[**13] The next contact between the parties occurred between Louis Roddis, Con Edison's President, and George Quinn at the AEC. Roddis had previously been informed by David Freeman of OEP that Con Edison might be able to obtain between 250 and 300 MW from the AEC. Following preliminary confirmation that this power could be transmitted to New York, Roddis called Quinn to inform him that Con Edison was interested in the availability of the power. Quinn stated that AEC had to work out appropriate arrangements with its supplier utilities and that he would call Roddis back. Again, there was no mention of a surcharge; however, the Court finds that this conversation was yet another preliminary discussion. As the record indicates, Con Edison was primarily concerned with the availability of the power and with insuring that it could be transmitted to the New York area.

On July 23, 1970, representatives of the Executive Office of the President called Quinn to inform him that the White House [*645] intended to issue a press release that afternoon concerning the release of the power. Quinn testified at trial that he informed both David Freeman of the OEP and one Mr. Kriegsman, a staff assistant [**14] to the President, that the AEC intended to impose a surcharge upon the release of power to Con Edison. Mr. Kriegsman informed Quinn that the President had directed that the power be made available to Con Edison. There is no indication that anyone at the White House objected to the imposition of a surcharge. [4] The White House press release, issued shortly thereafter, read as follows:

> "The President announced today that the Atomic Energy Commission will make available several hundred megawatts of power to the Consolidated Edison Company serving New York City.
>
> "This action is being taken to help relieve the critical power shortage in New York City created by the failure of its largest generating unit on July 21.
>
> "The release of this power is pursuant to the contingency plans previously developed and announced by the Office of

Emergency Preparedness on May 5.

> "The power would be made available by reducing the use of electricity at the AEC's gaseous diffusion plants. The Consolidated Edison Company is proceeding with the necessary arrangements with the other utility companies involved and the AEC.
>
> "It is expected that the power will be transmitted to New York over the interconnected [**15] grid system of the utilities in the eastern United States." (DX-R-3 at 2.)

4 In his November 21, 1974 deposition, Quinn stated that he recalled no discussion with Freeman on July 23, 1970 concerning the surcharge; however, Quinn testified at trial that his recollection had since been refreshed; the Court accordingly finds that the White House was informed of the intent to seek a surcharge prior to the issuance of the press release.

Defendant notes that this press release made no mention of a surcharge; however, the Court finds that this document was no more than it purported to be - a press release. The document contained no information about price; indeed, it did not even set forth the quantity of the power to be released. It did not constitute an agreement between the plaintiff and Con Edison.

Nevertheless, the White House announcement did constitute the first statement by either party that the release to Con Edison would in fact take place. Louis Roddis, Con Edison's President, first saw the press [**16] release while he was being interviewed on an evening news program concerning the power crisis. George Quinn communicated the substance of the press release to S. R. Sapire, operations manager of the Oak Ridge plant, and informed Sapire that the decision to release the power had been taken from AEC's hands by the White House announcement. Nevertheless, as the Court has found, the AEC had made it clear to both the White House and to the OEP that it intended to impose a surcharge on Con Edison; the following day Quinn also informed a staff member of the Joint Congressional Committee on Atomic Energy that AEC would seek a surcharge.

On the morning of July 24, 1970, Quinn again spoke to Sapire to confirm that the power could be transmitted to New York; the AEC officers also spoke concerning whether there might be surplus power available in the American Electric Power system. The details of this discussion were passed along to AEC Acting General Manager Bloch.

Quinn then placed a call to Louis Roddis, and spoke to Charles Luce in Roddis' absence. Quinn stated that he wanted to discuss the terms and conditions of the release and that the AEC was now in the position to offer 200 MW to Con [**17] Edison. Quinn informed Luce that AEC had made a previous reduction of some 450 MW, and that while AEC would prefer not to make a further reduction, they were willing to do so. It is undisputed that Quinn informed Luce that in the event the release was effected, the AEC would look to Con Edison for reimbursement of its additional costs. Luce stated that Con Edison was still studying their end of the transmission problem [*646] and that he was not yet in a position to request the power. Apparently unconcerned with the possibility of a surcharge, Luce stated that Con Edison would be willing to pay whatever surcharge had been paid by the recipients of the previous 450 MW reduction. Quinn did not inform Luce that the recipients of the 450 MW had not been asked to pay any surcharge.

Quinn stated that the amount of the surcharge was under study and that he could not fix a price at that time. However, Quinn did give Luce examples of the type of costs the AEC would incur, such as the shut down of certain equipment. Luce testified that Quinn referred to efficiency losses. On cross-examination (Tr. 808) and in response to questions by the Court (Tr. 821), Charles Luce stated that Quinn [**18] had explained to him that the 200 MW reduction would result in higher costs to AEC than did the 450 MW reduction, since the incremental losses were greater when the plants were required to reduce consumption to as low as 1,350 MW. The conversation ended with Quinn's advice to Luce that if Con Edison wished to receive the power, it should make arrangements with AEC's supplier utilities, TVA and OVEC.

On the same day, July 24, 1970, AEC Acting General Manager Bloch sent a memorandum to AEC Chairman Seaborg and the Commissioners of the AEC. The memo reads in part as follows:

> "The Oak Ridge Operations Office has been authorized to proceed to make available up to 200 MW as it may be needed by Consolidated Edison and as arrangements can be made with our power suppliers and the interconnected utilities for transmission of this power to the New York area. In agreements effecting such reductions, provisions will be included to recover from the utilities involved AEC costs and losses which result from the reductions." (DX-T-3)

As the language of this memorandum indicates, the AEC intended to recover the surcharge through the billing chain between itself and Con Edison. As Quinn [**19] had informed Luce, because of the nature of AEC's contracts with its suppliers, Con Edison would have to purchase the power from TVA and OVEC. The AEC sought to include the surcharge in its contract modifications with the suppliers, and those suppliers in turn passed the added charge along the transmission chain to Con Edison. Defendant would have the Court draw the inference that AEC's failure to inform Con Edison directly of the amount of the surcharge, and its attempt to collect the same through the billing chain, indicate some underhanded dealing, or at the least ungentlemanly behavior. The Court can draw no such inference. The Court finds that the AEC, and in particular George Quinn, did not directly in from Con Edison of the surcharge amount because he saw no need to do so. He had informed Luce that Con Edison would be expected to pay AEC costs and that Con Edison should obtain the power through the supplier utilities. He had informed Luce that AEC was still in the process of calculating the surcharge. The surcharge was to be collected through the billing chain.

The evidence also indicates that Con Edison did not again contact AEC to determine the amount of the surcharge. Rather, [**20] Con Edison and the AEC began on July 24, 1970 to deal with each other through the supplier utilities, particularly TVA. Late in the day on July 24, 1970, AEC began making preparations to reduce its power consumption by July 27, 1970, the following Monday.

At midnight on July 27, 1970, the AEC plants began the gradual reduction of their power consumption. By seven o'clock in the morning on the same day, the diffusion plants had reduced consumption by the full 200 MW. The power was transferred from system to system across the eastern United States and into New York State. Now assured of adequate reserves to meet the energy needs of the metropolitan New York area, Con Edison had weathered the crisis.

The testimony of Bertram Schwartz, then a Con Edison assistant vice-president and now senior vice-president, illustrates how vital this additional 200 MW was to Con Edison's operations. While seeking to minimize [*647] the extent of the benefit to Con Edison, Schwartz conceded on cross-examination the following facts concerning Con Edison's capacity and load requirements in the summer of 1970.

The 200 MW supplied by AEC constituted three percent of Con Edison's peak load requirements. [**21] Despite the availability of this additional power, on fourteen separate days during the summer of 1970, Con Edison reduced voltage by between three and five percent. Schwartz testified that when a voltage reduction goes as far as eight percent, Con Edison's contingency plan is to begin disconnecting customers. This procedure is referred to as "load shedding". The utility must shed load rather than reduce voltage beyond eight percent since such a reduction poses a risk of damage to electrical equipment. As Table V to defendant's additional answers to plaintiff's 24th interrogatory illustrates, on six separate days between July 27, 1970 and September 28, 1970, Con Edison's reserve capacity was well under 200 MW (PX-48B). Thus, if not for the 200 MW purchased from AEC, there would probably have been several days in the summer of 1970 when Con Edison would have been without any reserve capacity. As Table VI to the same answer indicates (PX-48B), Con Edison made voltage reductions of five percent on eighteen different occasions during the period. Had Con Edison been without the AEC's 200 MW, it is likely that at least some of those eighteen reductions would have approached or exceeded eight [**22] percent, with concomitant load shedding. Indeed, even with the 200 MW Con Edison was compelled to engage in eight percent voltage reductions on three different days, and on September 22, 1970, Con Edison did in fact shed load. As Mr. Schwartz stated, Con Edison certainly needed the 200 MW; even with that additional power, the utility was not able to supply uninterrupted service. Charles Luce's testimony was to the same effect. [5] Although Con Edison maintains that it

is not legally obligated to supply electricity to the public, Schwartz did concede that Con Edison has a duty to supply electricity. Luce testified that "we are held responsible for supplying energy to New York City." (Tr. 798)

5 Luce also testified that the availability of the 200 MW had a beneficial effect upon the company's goodwill and at least an indirect beneficial effect for Con Edison shareholders.

The price paid by Con Edison to the supplier utilities for the AEC power was comparable to Con Edison's own cost of generating power. Con Edison [**23] paid TVA and OVEC 7.85 mills per kilowatt hour, including transmission charges. The cost of the power itself was 5.20 mills or $1,648,275.51. The cost of transmission was $837,046.26 (PX-48A at 15). The cost to Con Edison during the summer of 1970 to produce its own electrical power ranged from 7.70 to 8.96 mills per kilowatt hour (see PX-48B at 20). Con Edison paid a total of $2,485,321.77, or 7.85 mills, for the AEC power received between July and October 1970. As noted, this cost was comparable to that which Con Edison would have incurred had it generated the power itself. However since Con Edison was compelled to use the 200 MW on a twenty-four hour basis, the 200 MW cost Con Edison more than certain other power which it could have made use of during off-peak hours. [6] The evidence concerning whether Con Edison made a "profit" or a "loss" on the resale of the 200 MW is equivocal, to say the least. [7]

6 As noted previously, Con Edison could often purchase "economy power" from the New York State power pool. Con Edison's Arthur Hauspurg testified that while Con Edison needed "firm", i.e., readily available, power from the AEC, it would have preferred to use the power only when it needed it. However, the gaseous diffusion plants could not repeatedly increase and then decrease power consumption to suit Con Edison's needs; thus, Con Edison was required to use the 200 MW during periods when it could have turned to cheaper power.

[**24]

7 Hauspurg testified that since the customer pays only an "average" cost for Con Edison power, Con Edison had a "gain" to the extent that the 200 MW cost less than Con Edison's average power costs on any given day and a "loss" to the extent that the 200 MW cost more than the average cost for power (Tr. 898). Bertram Schwartz stated that Con Edison was paid by customers $631,000 less for the 200 MW than Con Edison paid for the power; however, Schwartz stated that this "loss" was offset by $595,000 in increased revenues from the ability to sell the additional power in the first place (Tr. 933-35). The matter is best summed up by defendant's answer to plaintiff's 15th interrogatory: "whether the 200 MW . . . was sold to Con Edison's customers at a 'profit' or a 'loss' and the magnitude of such 'profit' or 'loss' cannot be determined." (PX-48B at 18). The Court is not persuaded by Schwartz' attempt to distinguish between "engineering" costs and "accounting" costs.

[*648] Contrary to the state of the record on the question of Con Edison's "profit" or "loss" resulting from the receipt of the [**25] AEC 200 MW, it is clear to this Court that the plaintiff did incur a loss as the result of the release of the 200 MW. The detriment to the plaintiff is best understood through an examination of its increased unit costs of production. At the time of trial, plaintiff presented evidence concerning what those costs actually amounted to (see PX-41). However, in July of 1970, the AEC was able only to develop an estimate of its costs.

On July 28 and 29, 1970, officials at the AEC had calculated a surcharge based upon an estimate of AEC additional costs incurred by reason of the 200 MW reduction. As George Quinn testified, the concept behind the surcharge was to develop a charge per kilowatt hour which would insure that the unit cost of producing one SWU after the reduction would be the same as the unit cost without the reduction (Tr. 28). Put another way, the surcharge was designed simply to compensate the AEC for its increased unit costs incurred by reason of the substantial efficiency losses flowing from operating the diffusion plants without the 200 MW.

The AEC's preliminary calculations came to a surcharge of 5.41 mills per kilowatt hour. This amounted to approximately 104% of the cost [**26] of the raw power, and 67% of the total 7.85 mills price paid by Con Edison. The figure was calculated upon an estimation of the increased production costs incurred by reducing the power consumption at the diffusion plants from 1,550 MW (the level of operation following the prior 450 MW reduction) to 1,350 MW (see PX-13). [8]

8 This data base was later recalculated. See note 11 *infra*.

George Quinn discussed this surcharge with the AEC Acting General Manager on July 29, 1970. Quinn stated that there was no discussion concerning whether AEC should seek to impose an averaged surcharge, i.e., one which would take into account the fact that the AEC plants had already reduced their consumption by 450 MW and which would have averaged AEC's total increased costs between Con Edison and the recipients of the previous power reduction. Quinn testified that S. R. Sapire, the Oak Ridge operations officer, had suggested a 3.00 mill surcharge prior to July 29, 1970; however, Quinn never saw any data basis for that suggestion. [**27] Quinn also testified that there was no consideration given to whether the amount of the surcharge should be cleared with the White House. On the same day Quinn sent a telex to the Oak Ridge office authorizing Sapire to initiate contract modifications with AEC's suppliers (PX-14). On August 3, 1970, AEC entered into contract modifications with TVA and OVEC whereby the AEC released its right to the 200 MW for the duration of the summer. The agreements (PX-15 through PX-17) also provided that the utilities would arrange through the billing chain to collect the 5.41 mills surcharge from Con Edison. The payment of this amount was to be credited against TVA and OVEC's monthly bills to AEC. Con Edison was not informed of the terms of these contract modifications.

According to the testimony of Louis Roddis, Con Edison first learned of the 5.41 surcharge on August 6, 1970, when it was informed that Philadelphia Electric Power had billed the first New York state utility in the chain, Niagara Mohawk, a five mill surcharge. Upon being informed of the size of the charge, Charles Luce objected and directed Roddis to determine what amount of surcharge had been paid by the [*649] recipients [**28] of the prior 450 MW reduction. [9] Roddis quickly learned that the recipients of the prior reduction had not paid any surcharge to the AEC. He then telephoned Quinn to ask whether this 5.41 mills surcharge had the backing of the AEC Commissioners. Roddis also suggested that such a surcharge might cause political embarrassment to the AEC and to the White House. However, Roddis, did not state that Con Edison was going to refuse to take any more AEC power. On August 10, 1970, Con Edison sent to TVA and to the American Electric Power Company two identical telegrams which read as follows:

> "Loss of production surcharges proposed by Atomic Energy Commission in connection with power you are furnishing to us are to be subject of discussions between us and AEC. We request that you do not accept any such inefficiency surcharge without our consent and that you refer them to us for advice." (DX-H-4)

9 Three of Con Edison's officers, Luce, Hauspurg, and Schwartz, each testified that on July 24, 1970 an officer of the American Electric Power Company had informed Con Edison that the recipients of the 450 MW reduction had paid to the AEC a 20% surcharge, approximately 1 mill per kilowatt hour. However, the record contains no explanation of the source of this apparently inaccurate information and it is uncontroverted that Con Edison never verified this figure with the AEC.

[**29] Following this telegram, a series of telephone calls, letters, and meetings ensued between the parties. Con Edison sought to make a political issue of the surcharge by bringing it to the attention of the White House. However, the AEC apparently perceived no political implications with respect to the surcharge, and continued to insist upon its payment. On August 10, 1970, Bertram Schwartz of Con Edison met with George Quinn to discuss the calculations which formed the data base for the 5.41 mill surcharge. Schwartz suggested different means of calculating the surcharge, [10] and stated Con Edison's concern that the charge, in its present form, would not allow the utility to pass the added costs along to its customers. When Schwartz asked why AEC had imposed no surcharge upon the recipients of the 450 MW reduction, Quinn answered that the AEC had "goofed" and that they were seeking to renegotiate the agreements with the recipients of the prior reduction to include a surcharge. By telex dated August 11, 1970, the AEC instructed its Oak Ridge office to begin renegotiations for such a surcharge. However, the telex recognized "that it may be impractical for the premium to be made retroactive" [**30] (PX-19). The attempts to impose a surcharge upon the recipients of the prior reduction

proved fruitless.

10 Schwartz indicated to Quinn that PX-13 was based upon the incorrect assumption that the 200 MW reduction would continue through October; in fact, the 200 MW was restored to AEC on October 1, 1970. The calculations in PX-13 were accordingly modified prior to the September 1, 1970 meeting between the parties.

Throughout this period Con Edison asserted that it would pay only what the recipients of the 450 MW had paid. At a meeting between Quinn and Luce on September 1, 1970, Luce stressed that this was what he had stated in the July 24, 1970 telephone conversation. However, Luce confirmed that Con Edison had requested the power from the AEC and he did not state that Con Edison intended to discontinue its receipt of the power, even when Quinn informed him that Con Edison was under no obligation to continue receiving the 200 MW. At the September 1, 1970 meeting the AEC agreed to consider the concept of an averaged [**31] surcharge; [11] however, Quinn could not recall at trial whether Luce stated that Con Edison would pay such a surcharge or if he stated that Con Edison would pay only if the other utilities also paid. In any event, since the AEC had been unsuccessful in imposing any surcharge upon the 450 MW reduction, Con [*650] Edison's position did not leave much room for negotiation. Following the September 1, 1970 meeting, the AEC did make certain recalculations and offers to compromise the matter; however, Con Edison adhered to its intransigent position and needless to say the parties failed to come to any agreement.

11 Quinn testified that the AEC surcharge had been recalculated prior to the meeting to reflect the return to AEC of 350 of the 450 MW reduction as of August 30, 1970. The surcharge was also recalculated to reflect the actual period of the 200 MW reduction. See note 10, *supra.*

Con Edison continued to receive the 200 MW until October 1, 1970. [12] Defendant never advised the AEC that it would refuse [**32] to pay a surcharge altogether, nor did Con Edison ever state that it would stop accepting the power. It is clear from the record that during this period Con Edison knew that AEC was demanding compensation for its increased costs; indeed, it knew as early as August 6, 1970 - only ten days after the power had begun to flow - the magnitude of the surcharge sought by AEC.

12 During the restoration of the 200 MW, TVA requested that it be allowed to retain 100 MW instead of fully restoring the power to AEC. The AEC agreed to this procedure in return for a 14% premium on the cost of the 100 MW. Quinn testified that this 14% premium is not comparable to the 200 MW surcharge, and there is no evidence to the contrary.

At trial, Charles Luce testified that he was primarily disturbed by the fact that the AEC had released power gratuitously to the recipients of the 450 MW and that it thereafter sought to impose a substantial surcharge upon Con Edison. Luce stated that had the others paid, Con Edison would have been willing [**33] to pay an equal amount. Indeed, said Luce, he would have agreed to a surcharge of ten mills, twice that sought by the plaintiff, if the recipients of the prior reduction had paid such a charge (Tr. 793).

Nearly five trial days were devoted to the question of what were the AEC's actual losses, if any, which resulted from the 200 MW reduction. It is uncontroverted that by reason of the power reduction, the diffusion plants produced 126,000 fewer separative work units of enriched uranium than would have been produced had the plants not experienced this reduction. (PX-41. See Tr. 1160).

In preparation for the trial of this action, plaintiff developed a calculation of what it maintains were its actual costs resulting from the 200 MW reduction. This calculation, PX-41, is based upon a unit cost approach. The method of its calculation is the same as the AEC (now the Energy Research and Development Administration, or "ERDA") employs in the calculation of the present surcharge which it routinely imposes whenever there is a power reduction at the diffusion plants for the purpose of meeting the needs of a utility.

ERDA's present surcharge is a flat fee, recalculated on a semi-annual basis, [**34] which does not change depending upon the size of the power reduction (Tr. 556-58). ERDA, and its predecessor agency the AEC, have since 1972 employed the same method of calculating its losses in determining the appropriate amount of the surcharge. Since the present surcharge is calculated on a prospective basis, it is based primarily on estimates.

By comparison, the surcharge calculation contained in PX-41 is based primarily on actual data. Earl Sullivan, Chief of the Power Branch at ERDA's Oak Ridge diffusion plant, testified that PX-41 is based 93% on actual data and 7% on estimated or extrapolated data (Tr. 580). In Sullivan's opinion, PX-41 is accurate to within one percent of reality (Tr. 519).

PX-41 is a thirteen-page document; to explain it fully would require as many pages here. Suffice it to say that PX-41's ultimate conclusion here is that by reason of the 200 MW drop, the AEC produced 126,000 fewer SWUs, yet the SWUs which it did produce cost it $1.9163 more per SWU to produce. Multiplying the increased unit cost per SWU by 822,833, the number of SWUs actually produced, PX-41 reveals that the AEC's total increased cost was $1,576,795. This figure translates into a charge [**35] of approximately 4.79 mills per kilowatt hour, somewhat lower than the 5.41 figure contained in PX-13.

Tables One and Two to PX-41 reveal that although the AEC power costs in the relevant period were substantially lower than would have been the case if AEC had [*651] received and paid for the 200 MW (see Table I), the plants produced so many fewer SWUs that the cost per SWU produced increased. As plaintiff's witnesses testified, the fixed operating costs of the diffusion plants remained the same regardless of the level of production and power consumption. Similarly, the AEC incurred the same added factor costs despite the decreased production.

Among the fixed operating costs are expenses relating to cascade operations, testing programs, uranium scrap recovery, and power distribution. Since the enriched uranium is transported from one plant to another, there are also transportation costs and security guard expenses. These fixed costs are set forth in Appendix 2 to PX-41.

Among the added factor costs are items such as expenses relating to start-up, shutdown and stand-by of the enrichment process. There were also warehousing costs, costs relating to analysis of the enrichment [**36] product, as well as administrative and other costs. See Appendix 3 to PX-41.

As Eugene Schmidt, an ERDA auditor testified, PX-41 reflects economies of scale. By producing more SWUs, the unit cost is decreased. The incremental increased power costs are outweighed by the increased SWU production.

Despite hours devoted to the cross-examination of plaintiff's witnesses on PX-41, the defendant did not seriously challenge any of the factual bases of PX-41. Rather, the defendant advanced a series of alternative methods to calculate the AEC costs, and through its expert witness took issue with certain of the underlying principles contained in PX-41.

Defendant first argues that the AEC has sustained no loss at all. By statute, the uranium enrichment program is required to recover its costs. *42 U.S.C. § 2201(v)(B).* Thus, the SWUs sold by the AEC and now ERDA are priced with an eye to complete recovery of the government's expenses. In August of 1973, the AEC adjusted the price of its SWUs upwards to reflect the increased costs incurred by reason of the 200 MW reduction. ERDA has designated the period between 1971 and 1980 as a "campaign period" in which it will recover the added costs incurred. [**37] (Tr. 651-52). Plaintiff's witnesses testified that in the event there is a recovery in this action, the ERDA will pass the benefit along to its customers through adjustments in the price per SWU (Tr. 676-77). Con Edison argues that since the AEC passed along the increased cost, it has no loss. This is a legal argument which the Court will address *infra.*

Con Edison next argues that the plaintiff can suffer no actual loss until the year comes when ERDA cannot meet actual demand for enriched uranium and accordingly experiences the actual loss of the 126,000 SWUs. Con Edison notes that for many years the production of enriched uranium by the government has exceeded demand. Thus, argues Con Edison, since ERDA has extra SWUs in inventory, it can suffer no loss from the lack of 126,000 SWUs. The Court rejects this argument as frivolous. It is apparent that ERDA's inventory is an asset of its operations; further, defendant's own expert witness testified that demand is increasing for enriched uranium. It is farfetched to suggest that the government must wait until it exhausts its supply of enriched uranium before it can prove a loss flowing from the lower SWU production.

Con Edison's [**38] expert Dr. Leonard Geller stated that in his opinion any increased cost to the government would be covered by a 15% contingency factor included in ERDA's SWU pricing. However, George Quinn testified that this contingency factor does not cover the extraordinary type of losses which occurred

here; the Court finds Quinn's testimony on this point more authoritative and more persuasive.

Defendant's expert did not challenge the factual basis of PX-41, but rather employed the same data in developing assorted alternative means of calculating a loss to the plaintiff. In his first alternative, Doctor Geller posited that "efficiency losses" should include only those costs directly associated with the less efficient use of electrical power by the plants. He excluded from this calculation any fixed operating costs or [*652] added factor costs which would be applied against the cost of SWUs (Tr. 1185-87). Under this concededly narrow definition of "efficiency losses" Geller concluded that the AEC lost $125,000 (DX-U-9).

Doctor Geller's second approach was to calculate a surcharge in a manner similar to that which the ERDA now employs to calculate its flat fee surcharge. Based on data from [**39] PX-41, Geller calculated the total increased costs to the AEC as the result of both the 450 MW reduction and the 200 MW reduction. He then calculated an averaged surcharge of $1,300,000, which would have been the charge for the 200 MW reduction (DX-X-9; see Tr. 1112-17).

Doctor Geller described his third alternative calculation as a "threshold method". This method proceeds on the assumption that Con Edison would be required to compensate plaintiff only for those losses flowing from the 200 MW reduction which exceeded comparable losses incurred by the prior 450 MW reduction. Using the costs set forth in PX-41, Doctor Geller took plaintiff's calculation that the 200 MW drop caused it a loss of 4.79 mills per kilowatt hour. He then calculated that the 450 MW drop, under the same approach, cost the AEC 4.71 mills. The difference, 0.8 mills, would be the cost to Con Edison (see DX-Y-9). This amounts to $254,000. As Doctor Geller conceded on cross-examination, this method proceeds from the assumption that the 450 MW reduction was "free".

The final calculation presented by Con Edison, DX-W-9, looked to AEC price planning data compiled in 1971 and modified that pricing plan to include costs [**40] incurred by reason of the 200 MW reduction. Spreading the increased cost over the ten year "campaign period" in which AEC has sought to recover its extra costs, and taking into account inventory levels throughout that ten-year period, Doctor Geller concluded that the increased cost to AEC totalled $793,000 (Tr. 1155). However, on cross-examination, Geller stated that this calculation was based upon estimates developed in 1971; he further stated that he was not surprised to learn that the actual costs in the ten-year period have thus far been greatly in excess of the 1971 estimates.

Accordingly, the plaintiff has presented a calculation which sets forth its loss at $1,576,795. Con Edison has put forth theories setting forth AEC's loss as zero, $125,000; $254,000; $793,000; and $1,300,000, depending upon which theory one selects. However, the Court finds most significant the fact that defendant has not effectively challenged the data basis of PX-41 and the fact that Doctor Geller conceded that even if the plaintiff was today awarded 1.4 or 1.5 million dollars, that amount of money would be inadequate to produce today the 126,000 SWUs which the AEC lost by reason of the 200 MW reduction [**41] (Tr. 1194). This testimony lends more weight to plaintiff's calculation than to any of those presented by the defendant.

Conclusions of Law

The Court has jurisdiction over this action pursuant to *28 U.S.C. § 1345*. In the claims which remain, plaintiff asserts contract by estoppel and quasi-contract or unjust enrichment. Plaintiff has also asserted a claim for reimbursement of costs under the doctrine of emergency assistance.

While no contract law claims remain in the action at this point, certain of the equitable principles discussed within require that reference be made to the alleged contract. Accordingly, based upon the factual findings set forth above, the Court finds that the July 24, 1970 conversation between Quinn and Luce was sufficiently definite to constitute an agreement. The parties are known - Con Edison and the AEC. The amount of the power was fixed - 200 MW. The parties agreed that Con Edison would reimburse the AEC for its costs. It was understood that the costs would be determined by AEC. Indeed, by reason of his prior conversations with Fred Chambers of TVA, Con Edison's Charles Luce had a general awareness of the possible extent of those costs.

The Court [**42] rejects defendant's contention that the May 5 Plan constituted an obligation on the part of the plaintiff to render [*653] emergency assistance to Con Edison without the ability to seek reimbursement for its costs. The May 5 Plan was too indefinite to constitute a contract. Further, the Court does not find that David

Freeman offered Con Edison power free of charge in his conversation with Luce on July 23, 1970. Nor did the July 23, 1970 press release constitute an agreement between Con Edison and the White House whereby the government agreed to furnish the power free of surcharge. The Court finds that all these contracts between the parties were but preliminary discussions; they clearly were too indefinite to form the basis for an agreement.

However, the July 24, 1970 oral conversation between Luce and Quinn was sufficiently definite to form an agreement. Plaintiff has thus proved that an oral agreement was made; it has proven the terms of that agreement, and it has proven that Con Edison has refused to make payment in accordance with that agreement. Thus, if not for the fact that the oral agreement is rendered unenforceable by reason of the Statute of Frauds, plaintiff would [**43] prevail on its contract claim.

Contract by Estoppel

In its third cause of action, plaintiff asserts that the defendant "breached its contract with AEC for the costs incurred by AEC in relinquishing 200 MW of power to TVA and OVEC and by its actions and inactions is estopped from denying the existence of said contract." (Para. 41). In order to prevail on this claim, plaintiff must demonstrate that Con Edison, through its words or conduct, led the plaintiff to change its position in reliance upon the oral agreement. The plaintiff must further prove that its reliance resulted in detriment to it. See *Dickerson v. Colgrove, 100 U.S. 578, 580-81, 25 L. Ed. 618 (1880)*; *The Savage Is Loose Co. v. United Artists Theatre Circuit, Inc., 413 F. Supp. 555, 559 (S.D.N.Y. 1976)*; 3 Williston, Contracts, Section 692 (3d ed. 1972).

Con Edison first argues that the plaintiff must prove fraudulent representations by the defendant in order to overcome the bar of the Statute of Frauds; absent such fraud, argues defendant, it can continue to invoke the Statute as a defense to the contract. See *Centennial Estates, Inc. v. Filor, 33 A.D.2d 1042, 308 N.Y.S.2d 732 (2d Dept. 1970)*. The Court [**44] rejects the notion that plaintiff must prove actual fraud in order to rely upon the doctrine of estoppel; it is sufficient if the defendant's representations led the plaintiff to rely upon Con Edison's promise that it would pay AEC costs. Here Con Edison promised to reimburse the AEC for its costs; upon learning the extent of those costs, Con Edison altered its position and stated that it would pay only if the recipients of the 450 MW paid. It is apparent that in the course of the July 24, 1970 conversation Luce expected that Con Edison would have to make some payment to the AEC. Defendant's change of position ignores that agreement to reimburse plaintiff. Thus, although Con Edison's representations were not fraudulent in the classic sense, its conduct was such that it is now estopped from raising the bar of the Statute of Frauds. *Oxley v. Ralston Purina Co., 349 F.2d 328, 336 (6th Cir. 1965)*.

Second, Con Edison argues that there can be no estoppel since it never represented to the AEC that it would pay AEC costs as assessed by the AEC. It is settled that an unequivocal representation is a vital aspect of equitable estoppel. *Kearns Coal Corp. v. U.S. Fidelity & Guaranty Co* [**45] ., *118 F.2d 33, 35-36* (2d Cir.), *cert. denied, 313 U.S. 579, 61 S. Ct. 1099, 85 L. Ed. 1536 (1941)*. However, the evidence shows that Con Edison did agree to pay costs as assessed by the AEC. In the July 24, 1970 conversation, Quinn informed Luce that the AEC was in the process of calculating the surcharge amount. Although Con Edison was under the mistaken impression that the recipients of the 450 MW had paid a twenty percent charge, Con Edison never confirmed that figure with the AEC. Indeed, the Court rejects the notion that Luce and Quinn agreed that Con Edison would pay only what the prior recipients paid, since in [*654] the July 24 conversation Quinn explained to Luce that the 200 MW reduction would be more expensive than was the 450 MW reduction. Since Luce was told that the AEC was calculating the surcharge, he was on notice that the amount could turn out to be different from any previous charge to others. Con Edison's acceptance of the power under these circumstances, without taking any steps to discuss or to confirm the amount of costs, constituted a representation to the plaintiff that Con Edison would indeed pay those costs as calculated by the AEC.

These actions [**46] by the defendant led to plaintiff's release of the 200 MW. As the factual discussion indicates, it was reasonable for the plaintiff to proceed with the release of power in reliance upon the July 24 oral agreement. The power crisis was very real and time was of the essence. Each of the contacts between the parties indicated to the AEC that Con Edison was primarily concerned with obtaining the power and transmitting it to New York. The AEC had informed Con Edison that it would incur costs by making a further reduction of consumption at the gaseous diffusion plants.

Thus, plaintiff's reliance upon defendant's representations was reasonable under the emergency conditions which prevailed. See *Twentieth-Century Fox Film Corp. v. National Publishers, Inc., 294 F. Supp. 10, 12 (S.D.N.Y.1968).*

Nor was plaintiff's reliance rendered unreasonable by its failure to terminate the power flow upon Con Edison's objection to the 5.41 mills surcharge. Con Edison lodged its objection as early as August 10, 1970; both parties knew that Con Edison needed the power for the remainder of the summer. Con Edison never stated that it would refuse to pay altogether; nor did it ever seek to return the power. [**47] Indeed, at the September 1, 1970 meeting, George Quinn reminded Luce that Con Edison was free to return the power. Con Edison elected to go forward. Thus the Court rejects defendant's argument that the plaintiff is estopped from suit on this claim; rather, it is apparent that the AEC continued to permit the power reduction in reasonable reliance upon Con Edison's conduct.

As the factual discussion indicates, plaintiff relied thereon to its detriment. Even defendant's own expert witness conceded that the 200 MW reduction resulted in some loss to the AEC; it is uncontroverted that the AEC was unable to produce 126,000 SWUs by reason of the power reduction. Thus, detrimental reliance is present. See *Freedman v. The Concordia Star, 250 F.2d 867 (2d Cir. 1958).*

Quasi-Contract

In order to prevail on its fourth claim for relief, plaintiff must demonstrate that it rendered a service to the defendant under circumstances where the defendant had reason to understand that the service was for Con Edison's benefit and that it was not rendered gratuitously. Plaintiff must also show that the defendant was unjustly enriched by reason of plaintiff's services. See *Bloomgarden v. Coyer* [**48] , *156 U.S.App.D.C. 109, 116-119, 479 F.2d 201, 208-11 (1973); Bradkin v. Leverton, 26 N.Y.2d 192, 309 N.Y.S.2d 192, 257 N.E.2d 643 (1970).*

The evidence is clear that Con Edison had reason to understand that the AEC was not acting gratuitously. As found by the Court above, there was no gratuitous offer by the White House or by any other agency of the plaintiff. The July 24, 1970 conversation between Luce and Quinn placed Con Edison on notice that the AEC was concerned about its costs and that it would look to Con Edison for reimbursement.

Defendant first argues that there can be no contract implied in law since the plaintiff allegedly continued its performance in the face of Con Edison's repudiation. See Restatement of Contracts, Section 352. However, the law is clear that a party cannot assert that it has repudiated the contract while continuing to accept its benefits. See *Tibbetts Contracting Corp. v. O & E Contracting Co., 15 N.Y.2d 324, 338, 258 N.Y.S.2d 400, 206 N.E.2d 340 (1965).* Here the defendant continued to accept the 200 MW even after the AEC made clear [*655] that it could return the power at any time. Further, the Court finds that Section 352 of the Restatement [**49] is inapplicable here since Con Edison never clearly repudiated the agreement.

Defendant had devoted much effort in attempting to prove that it was not unjustly enriched by the receipt of the 200 MW. Con Edison asserts that it paid the fair market value for the power, and further that it made no profit on the resale of the 200 MW.

The court rejects these arguments as constituting a remarkably narrow view of the events which transpired in the summer of 1970. Charles Luce's testimony makes clear that Con Edison regarded the Ravenswood crisis as a most serious emergency. He testified that the 200 MW had a beneficial impact upon Con Edison's goodwill and upon the value of its securities. There can be little doubt that the actions of the plaintiff saved Con Edison from a major power disaster. That Con Edison might not have made money on the resale of the power does not mean that it did not benefit by the release. The Court also rejects Con Edison's argument that it paid the fair market value for the 200 MW. The evidence makes abundantly clear that Con Edison could find no other source to provide the 200 MW. As this Court observed in its decision denying summary judgment, the cost of production [**50] and transmission can hardly be equated to the fair market value of 200 MW in a market where there are no such amounts of electricity available for long-term purchase. Thus, although the enrichment here is not of the type usually presented, the Court concludes without difficulty that Con Edison was benefitted by the release of the 200 MW.

Emergency Assistance

In reliance upon the recent decision of the Circuit

Court in *Peninsular & Oriental Steam Navigation Co. v. Overseas Oil Carriers, Inc., 553 F.2d 830 (2d Cir. 1977)*, plaintiff asserts that Con Edison is liable for the AEC's costs because the AEC fulfilled Con Edison's duty to provide the New York area with electricity under emergency conditions and with the clear intent that it be reimbursed. [13] The Court agrees.

> 13 Plaintiff's claim based upon the emergency assistance doctrine is a cause which sounds in quasi-contract; as such it is within the scope of Count Four.

Under the doctrine of emergency assistance, plaintiff must establish that the defendant [**51] had a duty to provide electricity; that the plaintiff took that duty upon itself with intent to charge therefor; and that the services supplied were immediately necessary to satisfy the requirements of public decency, health, or safety. *Restatement of Restitution, Section 115*; see *Wyandotte Transportation Co. v. United States, 389 U.S. 191, 204, 88 S. Ct. 379, 19 L. Ed. 2d 407 (1967).*

In *Peninsular & Oriental, supra*, a seaman on board the S.T. OVERSEAS PROGRESS fell ill with what appeared to be a heart attack; the vessel had no doctor aboard. Following a second apparent heart attack, the vessel radioed for assistance. The S.S. CANBERRA answered the call and diverted its course. Since the CANBERRA was equipped with a hospital and since it was a much faster vessel, the parties agreed that the CANBERRA would take the ill seaman aboard and transport him to New York. In the course of its diversion, the CANBERRA's captain radioed to the OVERSEAS PROGRESS that his ship's owners "may look" to the owner of the OVERSEAS PROGRESS for "reimbursement of diversion costs, medical and out of pocket expenses." *553 F.2d at 833.* When the owners of the OVERSEAS PROGRESS thereafter refused to pay, [**52] the CANBERRA's owners filed suit.

The district court granted summary judgment to the defendant shipowner on the ground that the law of admiralty barred recovery for "pure life salvage". The Circuit reversed, applying principles of quasi-contract and the doctrine of emergency assistance. Judge Kaufman's opinion made clear that the court was applying a landbased principle of equity to a maritime situation. [*656] *Id. 553 F.2d at 835.* Since the OVERSEAS PROGRESS had requested assistance, the court concluded that it was liable for reimbursement of the CANBERRA's costs, "regardless of the value of the benefit actually conferred." *Id. at 836.* The court directed that judgment be entered for the plaintiff in the full amount of its expenses, but the decision made no provision for interest.

Plaintiff makes a persuasive argument that the principles set forth in *Peninsular & Oriental* are controlling here. The evidence at trial demonstrates that Con Edison had a duty to provide electricity; the government undertook to provide electricity in a true emergency situation with a clear intent to be compensated for its costs; and the service supplied were necessary for public health [**53] and safety.

Con Edison argues that the doctrine of emergency assistance does not apply since it had no legal duty to provide electricity and since the power crisis was not the type of emergency required by the emergency assistance doctrine. The court finds to the contrary. Charles Luce testified that Con Edison is held responsible for providing electricity to New York; Bertram Schwartz, while refusing to admit of a legal duty, conceded that Con Edison was under a duty to make best efforts to provide power.

Con Edison, without citation of any direct authority on the question, seeks to distinguish between a "legal" duty and the type of duty which it concedes in this case. The Court finds no such distinction applicable here. Nor can the Court agree with defendant that the power crisis was not the type of emergency covered by the equitable principle recited above. Indeed, if Con Edison had no duty to its customers, and if the situation were not an emergency, then Con Edison simply could have disconnected customers. Instead, in three days of frenzied activity by its highest officers, Con Edison sought out all possible sources of power and accepted 200 MW from the federal government in [**54] the face of the AEC's clear indication that the AEC would seek recovery of its costs. Had the matter not been a true emergency to public welfare and safety, Con Edison could have simply "shed load". Thus, the Court finds the arguments presented on behalf of defendant to be at odds with the actions of its officers during the time at issue.

The Court also rejects defendant's argument that the *Peninsular & Oriental* decision was one limited to the "highly specialized field of admiralty." (Deft.Memo at 6). While Judge Kaufman's opinion opens on a maritime note, it is clear that the Circuit Court was applying a

land-based equitable principle to a maritime context in the face of an ancient maritime doctrine which barred recovery for "life salvage". Finally, defendant argues that the plaintiff, rather than Con Edison, initiated the plan to deliver the power to defendant. Again, the evidence is to the contrary; Con Edison requested the power from the AEC in the face of Quinn's statement that the AEC would seek to recover its costs. Indeed, Luce conceded at the September 1, 1970 meeting that Con Edison had requested the power.

In sum, the Court concludes that principles of equity run in [**55] plaintiff's favor. The fact that the recipients of the 450 MW paid no surcharge does not alter this result. A person who once renders assistance gratuitously is not forever barred from seeking compensation for its costs when it again renders assistance. By reason of the actions of the federal government, Con Edison was able to fulfill its admitted obligation to furnish electrical power to New York. It was not through the fault of the plaintiff that Con Edison's largest generator failed; nevertheless, Con Edison has sought to pass the expense of that failure on to the federal government and to the customers of the government's uranium enrichment program. As Charles Luce testified, the availability of the 200 MW had a beneficial impact upon Con Edison's valuable corporate goodwill and upon the financial holdings of its stockholders. Since the plaintiff offered assistance with the clear intent to be reimbursed, the Court concludes [*657] that equitable principles of quasi-contract require that the plaintiff be made whole. Accordingly, the Court finds that defendant Con Edison is liable to the plaintiff in damages on each of plaintiff's three theories of relief.

Damages

The [**56] Court has already discussed at length the various damages theories presented by the parties. Nevertheless, defendant Con Edison argues that since the plaintiff has passed its increased costs along to its customers, there can be no damage. Con Edison relies primarily upon an eighty-year-old decision in the Court of Claims, *Plimpton Manufacturing Co. v. United States, 15 Ct.Cl. 14 (1897)*. In that case the U.S. Postal Service had counterclaimed against the plaintiff manufacturer for breach of a contract to supply stamped envelopes and newspaper wrappers. As the result of the breach, the government claimed, it was required to purchase similar goods at a higher price. Observing that federal law required the Postal Service to purchase letter and newspaper envelopes and resell them at cost, the court concluded that the United States suffered no damage by reason of the manufacturer's alleged breach. *15 Ct.Cl. at 21*.

Like the Postal Service in the *Plimpton* case, the plaintiff's uranium enrichment program is required by statute to recover its costs. *42 U.S.C. § 2201(v)(B)*. However, it is apparent that the government can sue and be sued on contract claims arising out of its uranium [**57] enrichment program. See *Industrial Uranium Co. v. United States, 376 F.2d 868, 180 Ct.Cl. 50 (1967)*; *Gay v. United States, 356 F.2d 516, 174 Ct.Cl. 420, cert. denied, 385 U.S. 898, 87 S. Ct. 202, 17 L. Ed. 2d 130 (1966)*; *Moran Brothers, Inc. v. United States, 346 F.2d 590, 171 Ct.Cl. 245 (1965)*. Under *28 U.S.C. § 1345*, which grants this court jurisdiction to try this action, the government is to be treated as any other business entity. See *United States v. City National Bank & Trust Co., 491 F.2d 851, 854 (8th Cir. 1974)*. Certainly the fact that the defendant Con Edison is able to pass certain costs along to its electricity customers would not foreclose it from bringing a lawsuit to recover on a breach of contract. As noted by counsel for the government, if the uranium enrichment program could not bring suit upon its contracts, those contracts would be meaningless. Further, a recovery here will not constitute a windfall; rather, the evidence is clear that in the event of a recovery, the government will be required under statute to pass such monies on to the customers of its enrichment program, by adjusting the price charged.

While a defendant on a contract claim [**58] is normally entitled to take advantage of any events, such as resale, which have mitigated plaintiff's losses, here the government is standing in the shoes of its uranium enrichment customers. Under *42 U.S.C. § 2201*, a recovery in this action will accrue to their benefit. Indeed, the plaintiff here is in a position comparable to that of a subrogor who brings a lawsuit in its own name notwithstanding the fact that it has been compensated by its insurance carrier. Thus, the Court rejects the notion that the plaintiff has not suffered any legal loss.

Turning to the amount of damages, defendant argues that since it received no tangible benefit there can be no finding of the amount of damages. The Court rejects this argument. Where the benefit to the defendant is not capable of exact valuation, the courts have commonly

measured plaintiff's damages by reference to the value of the services rendered, or by measurement of the plaintiff's costs incurred. See *Peninsular & Oriental, supra; Campbell v. Tennessee Valley Authority, 421 F.2d 293 (5th Cir. 1969).*

Further, when a plaintiff prevails on an equitable contract claim, the courts have made reference to the alleged contract to assess [**59] damages. Here the promise was to pay the AEC's costs; reference to Con Edison's promise may be made for measuring damages under both contract by estoppel and quasi-contract. See *United States v. Brotherton, 106 F. Supp. 353 (S.D.N.Y.* [*658] *1952)*; Williston, *supra*, §§ 1458, 1459. Accordingly, the Court concludes that the appropriate measure of damages here is plaintiff's actual costs.

For the reasons stated in the prior section, the Court concludes that PX-41 represents plaintiff's actual costs. The loss of 126,000 SWUs is uncontroverted. The evidence does not support defendant's claim that plaintiff can suffer no loss until it runs out of SWUs; the claim that the loss suffered here is covered by the plaintiff's contingency pricing system is also unsupported by competent evidence.

Doctor Geller's "efficiency loss" calculation (DX-U-9) is rejected since Con Edison agreed to pay more than the costs incurred by the less efficient use of electrical power. Rather, as stated above, Con Edison agreed to pay the surcharge as calculated by the AEC. The averaged surcharge method (DX-X-9) is inadequate to reflect the AEC's actual costs since it calculates an averaged charge rather [**60] than actual costs resulting from the reduction from 1,550 MW to 1,350 MW. Quinn made it quite clear to Luce in the July 24 conversation that the drop to the lower megawatt level would be more expensive.

The "threshold method" (DX-Y-9) is rejected since the evidence does not support the conclusion that either the AEC or Con Edison expected the surcharge to be based on some incremental cost above and beyond the comparable cost to the AEC by reason of the 450 MW reduction; it is clear that the AEC was not offering gratuitous assistance in any respect. Doctor Geller's final calculation (DX-W-9) is faulty since it is based upon 1971 estimates which have not survived the test of time.

Particularly because the defendant did not effectively challenge the data basis of PX-41, and in light of the conceded fact that even 1.5 million dollars would not now make up the loss of 126,000 separative work units of enriched uranium, the Court concludes that damages should be assessed at the amount set forth in plaintiff's unit cost calculation, PX-41. Accordingly, defendant Con Edison is liable to the plaintiff for $1,576,795.00 in damages on each of the three theories of relief alleged.

Interest

[**61] Plaintiff seeks pre-judgment interest on the ground that the amount sought was sufficiently definite to place Con Edison on notice of the sum. Plaintiff relies upon the comments to *Section 156(b) of the Restatement of Restitution*, which provide as follows:

> "Ordinarily if the sum due is sufficiently definite so that the transferee would have reason to know the amount he should pay, it would be unjust not to allow interest from the time when it should have been paid. . . ."

The Court cannot agree that the amount of damages awarded here was sufficiently definite to put Con Edison on notice thereof. Plaintiff originally sought a surcharge of 5.41 mills (PX-13). Following meetings on August 10, 1970 and September 1, 1970, the AEC made recalculations of PX-13 to correct clear errors in the surcharge computation. Later the AEC considered the imposition of an averaged surcharge. When plaintiff filed its complaint herein, it again sought a 5.41 mills surcharge. Plaintiff's evidence at trial has demonstrated that its actual losses were more in the area of a 4.79 mills surcharge. This sequence indicates that Con Edison cannot be said to have been on notice of the exact amount sought.

[**62] Particularly where the recovery is based upon equitable principles, the court has broad discretion in fashioning an award of interest if any. As stated by the Supreme Court in *Royal Indemnity Co. v. United States, 313 U.S. 289, 61 S. Ct. 995, 85 L. Ed. 1361 (1941)*,

> "the rule governing the interest to be recovered as damages for delayed payment of a contractual obligation to the United States is not controlled by state statute or local common law. In the absence of an applicable federal statute, it

> is for the federal courts to determine, according to their own criteria, the appropriate measure of damage, expressed in [*659] terms of interest, for non-payment of the amount found to be due." (*Id. at 296, 61 S. Ct. at 997*; see *United States v. Seaboard Surety Co., 339 F.2d 1 (2d Cir. 1964).*

The recent decision of the Circuit Court in *Peninsular & Oriental, supra*, indicates that interest is not routinely awarded on quasi-contract claims. As in this case, in *Peninsular & Oriental* the defendant raised substantial legal defenses to the lawsuit. Here the amount of AEC losses was not proven until trial; indeed, PX-41 was not developed by the plaintiff [**63] until 1977. Further, plaintiff's long delay in filing this action militates against any award of interest. See *Redfield v. Ystalyfera Iron Co., 110 U.S. 174, 3 S. Ct. 570, 28 L. Ed. 109 (1884).* The fact that the evidence is equivocal with respect to whether Con Edison made money on the resale of the 200 MW also militates against an interest award. See *United States v. Sanborn, 135 U.S. 271, 10 S. Ct. 812, 34 L. Ed. 112 (1890).* Finally, it cannot be said that defendant's resistance to this lawsuit was in bad faith.

Accordingly, due to the factual circumstances presented in the underlying transaction, and in light of plaintiff's delay in prosecution, the Court concludes that the principles of equity do not justify an award of interest in this action. Accordingly, plaintiff's application for pre-judgment interest is denied.

For the foregoing reasons, judgment should be entered for the plaintiff United States of America for damages against defendant Consolidated Edison Company of New York, Inc., in the amount of $1,576,795.00, without interest. Plaintiff shall also recover its costs. Counsel for the plaintiff is directed to submit an appropriate order of judgment, on five days [**64] notice, in accordance with the decision of the Court.

SO ORDERED.

95th Congress
2d Session

COMMITTEE PRINT

EXECUTIVE ENERGY DOCUMENTS

PRINTED AT THE REQUEST OF

HENRY M. JACKSON, *Chairman*

COMMITTEE ON ENERGY AND
NATURAL RESOURCES
UNITED STATES SENATE

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MEMORANDUM OF THE CHAIRMAN

To Members of the Senate Committee on Energy and Natural Resources:

Over the past 8 years, Presidential speeches and messages on energy issues have documented the evolution of energy policy in three administrations.

The first Presidential energy message to Congress in 1971 stressed the development of domestic energy resources, with particular emphasis on the development of the fast breeder reactor. Subsequent messages, from both Presidents Nixon and Ford, continued the theme of developing domestic energy resources while proposing various measures to reduce U.S. dependence on oil imports.

President Carter's energy messages have emphasized the importance of conservation. The national energy program he submitted to Congress in April, 1977 was designed to achieve conservation through such means as crude oil taxes and reform of utility rate structures.

This collection of Presidential energy messages and statements brings up to date similar compilations prepared in 1973 and 1975. I have asked that it be published for the use of the committee as a significant record of the development of Federal energy policy.

HENRY M. JACKSON, *Chairman.*

CONTENTS

MESSAGE TO THE CONGRESS

ON

A PROGRAM TO INSURE AN ADEQUATE SUPPLY OF CLEAN ENERGY IN THE FUTURE

JUNE 4, 1971

To the Congress of the United States:

For most of our history, a plentiful supply of energy is something the American people have taken very much for granted. In the past twenty years alone, we have been able to double our consumption of energy without exhausting the supply. But the assumption that sufficient energy will always be readily available has been brought sharply into question within the last year. The brownouts that have affected some areas of our country, the possible shortages of fuel that were threatened last fall, the sharp increases in certain fuel prices and our growing awareness of the environmental consequences of energy production have all demonstrated that we cannot take our energy supply for granted any longer.

A sufficient supply of clean energy is essential if we are to sustain healthy economic growth and improve the quality of our national life. I am therefore announcing today a broad range of actions to ensure an adequate supply of clean energy for the years ahead. Private industry, of course, will still pay the major role in providing our energy, but Government can do a great deal to help in meeting this challenge.

My program includes the following elements:

To Facilitate Research and Development for Clean Energy:

—A commitment to complete the successful demonstration of the liquid metal fast breeder reactor by 1980.

—More than twice as much Federal support for sulfur oxide control demonstration projects in Fiscal Year 1972.

—An expanded program to convert coal into a clean gaseous fuel.

—Support for a variety of other energy research projects in fields such as fusion power, magnetohydrodynamic power cycles, and underground electric transmission.

To Make Available the Energy Resources on Federal Lands:

—Acceleration of oil and gas lease sales on the Outer Continental Shelf, along with stringent controls to protect the environment.

—A leasing program to develop our vast oil shale resources, pro-

vided that environmental questions can be satisfactorily resolved.
—Development of a geothermal leasing program beginning this fall.

To Assure a Timely Supply of Nuclear Fuels:

—Begin work to modernize and expand our uranium enrichment capacity.

To Use Our Energy More Wisely:

—A New Federal Housing Administration standard requiring additional insulation in new federally insured homes.
—Development and publication of additional information on how consumers can use energy more efficiently.
—Other efforts to encourage energy conservation.

To Balance Environmental and Energy Needs:

—A system of long-range open planning of electric power plant sites and transmission line routes with approval by a State or regional agency before construction.
—An incentive charge to reduce sulfur oxide emissions and to support further research.

To Organize Federal Efforts More Effectively:

—A single structure within the Department of Natural Resources uniting all important energy resource development programs.

The Nature of the Current Problem

A major cause of our recent energy problems has been the sharp increase in demand that began about 1967. For decades, energy consumption had generally grown at a slower rate than the national output of goods and services. But in the last four years it has been growing at a faster pace and forecasts of energy demand a decade from now have been undergoing significant upward revisions.

This accelerated growth in demand results partly from the fact that energy has been relatively inexpensive in this country. During the last decade, the prices of oil, coal, natural gas and electricity have increased at a much slower rate than consumer prices as a whole. Energy has been an attractive bargian in this country—and demand has responded accordingly.

In the years ahead, the needs of a growing economy will further stimulate this demand. And the new emphasis on environmental protection means that the demand for cleaner fuels will be especially acute. The primary cause of air pollution, for example, is the burning of fossil fuels in homes, in cars, in factories and in power plants. If we are to meet our new national air quality standards, it will be essential for us to use stack gas cleaning systems in our large power and other industrial plants and to use cleaner fuels in virtually all of our new residential, commercial and industrial facilities, and in some of our older facilities as well.

Together, these two factors—growing demand for energy and growing emphasis on cleaner fuels—will create an extraordinary pressure on our fuel supplies.

The task of providing sufficient clean energy is made especially difficult by the long lead times required to increase energy supply. To move from geological exploration to oil and gas well production now takes

from 3 to 7 years. New coal mines typically require 3 to 5 years to reach the production stage and it takes 5 to 7 years to complete a large steam power plant. The development of the new technology required to minimize environmental damage can further delay the provision of additional energy. If we are to take full advantage of our enormous coal resources, for example, we will need mining systems that do not impair the health and safety of miners or degrade the landscape and combustion systems that do not emit harmful quantities of sulfur oxides, other noxious gases, and particulates into the atmosphere. But such systems may take several years to reach satisfactory performance. That is why our efforts to expand the supply of clean energy in America must immediately be stepped up.

1. RESEARCH AND DEVELOPMENT GOALS FOR CLEAN ENERGY

Our past research in this critical field has produced many promising leads. Now we must move quickly to demonstrate the best of these new concepts on a commercial scale. Industry should play the major role in this area, but government can help by providing technical leadership and by sharing a portion of the risk for costly demonstration plants. The time has now come for government and industry to commit themselves to a joint effort to achieve commercial scale demonstrations in the most crucial and most promising clean energy development areas—the fast breeder reactor, sulfur oxide control technology and coal gasification.

a. Sulfur Oxide Control Technology

A major bottleneck in our clean energy program is the fact that we cannot now burn coal or oil without discharging its sulfur content into the air. We need new technology which will make it possible to remove the sulfur before it is emitted to the air.

Working together, industry and government have developed a variety of approaches to this problem. However, the new air quality standards promulgated under the Clean Air Amendments of 1970 require an even more rapid development of a suitable range of stack gas cleaning techniques for removing sulfur oxides. I have therefore requested funds in my 1972 budget to permit the Environmental Protection Agency to devote an additional $15 million to this area, more than doubling the level of our previous efforts. This expansion means that a total of six different techniques can be demonstrated in partnership with industry during the next three or four years.

b. Nuclear Breeder Reactor

Our best hope today for meeting the Nation's growing demand for economical clean energy lies with the fast breeder reactor. Because of its highly efficient use of nuclear fuel, the breeder reactor could extend the life of our natural uranium fuel supply from decades to centuries, with far less impact on the environment than the power plants which are operating today.

For several years, the Atomic Energy Commission has placed the highest priority on developing the liquid metal fast breeder. Now this project is ready to move out of the laboratory and into the demonstration phase with a commercial size plant. But there still are major technical and financial obstacles to the construction of a demonstration

plant of some 300 to 500 megawatts. I am therefore requesting an additional $27 million in Fiscal Year 1972 for the Atomic Energy Commission's liquid metal fast breeder reactor program—and for related technological and safety programs—so that the necessary engineering groundwork for demonstration plants can soon be laid.

What about the environmental impact of such plants? It is reassuring to know that the releases of radioactivity from current nuclear reactors are well within the national safety standards. Nevertheless, we will make every effort to see that these new breeder reactors emit even less radioactivity to the environment than the commercial light water reactors which are now in use.

I am therefore directing the Atomic Energy Commission to ensure that the new breeder plants be designed in a way which inherently prevents discharge to the environment from the plant's radioactive effluent systems. The Atomic Energy Commission should also take advantage of the increased efficiency of these breeder plants, designing them to minimize waste heat discharges. Thermal pollution from nuclear power plants can be materially reduced in the more efficient breeder reactors.

We have very high hopes that the breeder reactor will soon become a key element in the national fight against air and water pollution. In order further to inform the interested agencies and the public about the opportunities in this area, I have requested the early preparation and review by all appropriate agencies of a draft environmental impact statement for the breeder demonstration plant in accordance with Section 102 of the National Environmental Policy Act. This procedure will ensure compliance with all environmental quality standards before plant construction begins.

In a related area, it is also pertinent to observe that the safety record of civilian power reactors in this country is extraordinary in the history of technological advances. For more than a quarter century—since the first nuclear chain reaction took place—no member of the public has been injured by the failure of a reactor or by an accidental release of radioactivity. I am confident that this record can be maintained. The Atomic Energy Commission is giving top priority to safety considerations in the basic design of the breeder reactor and this design will also be subject to a thorough review by the independent Advisory Committee on Reactor Safeguards, which will publish the results of its investigation.

I believe it important to the Nation that the commercial demonstration of a breeder reactor be completed by 1980. To help achieve that goal, I am requesting an additional $50 million in Federal funds for the demonstration plant. We expect industry—the utilities and manufacturers—to contribute the major share of the plant's total cost, since they have a large and obvious stake in this new technology. But we also recognize that only if government and industry work closely together can we maximize our progress in this vital field and thus introduce a new era in the production of energy for the people of our land.

c. Coal Gasification

As we carry on our search for cleaner fuels, we think immediately of the cleanest fossil fuel—natural gas. But our reserves of natural gas are quite limited in comparison with our reserves of coal.

Fortunately, however, it is technically feasible to convert coal into a clean gas which can be transported through pipelines. The Department of the Interior has been working with the natural gas and coal industries on research to advance our coal gasification efforts and a number of possible methods for accomplishing this conversion are under development. A few, in fact, are now in the pilot plant stage.

We are determined to bring greater focus and urgency to this effort. We have therefore initiated a cooperative program with industry to expand the number of pilot plants, making it possible to test new methods more expeditiously so that the appropriate technology can soon be selected for a large-scale demonstration plant.

The Federal expenditure for this cooperative program will be expanded to $20 million a year. Industry has agreed to provide $10 million a year for this effort. In general, we expect that the Government will continue to finance the larger share of pilot plants and that industry will finance the larger share of the demonstration plants. But again, the important point is that both the Government and industry are now strongly committed to move ahead together as promply as possible to make coal gasification a commercial reality.

d. Other Research and Development Efforts

The fast breeder reactor, sulfur oxide controls and coal gasification represent our highest priority research and development projects in the clean energy field. But they are not our only efforts. Other ongoing projects include:

Coal Mine Health and Safety Research.—In response to a growing concern for the health and safety of the men who mine the Nation's coal and in accordance with the Federal Coal Mine Health and Safety Act of 1969, the Bureau of Mines research effort has been increased from a level of $2 million in Fiscal Year 1969 to $30 million in Fiscal Year 1972.

Controlled Thermonuclear Fusion Research.—For nearly two decades the Government has been funding a sizable research effort designed to harness the almost limitless energy of nuclear fusion for peaceful purposes. Recent progress suggests that the scientific feasibility of such projects may be demonstrated in the 1970s and we have therefore requested an additional $2 million to supplement the budget in this field for Fiscal Year 1972. We hope that work in this promising area will continue to be expanded as scientific progress justifies larger scale programs.

Coal Liquefaction.—In addition to its coal gasification work, the Department of the Interior has underway a major pilot plant program directed toward converting coal into cleaner liquid fuels.

Magnetohydrodynamic Power Cycles.—MHD is a new and more efficient method of converting coal and other fossil fuels into electric energy by burning the fuel and passing the combustion products through a magnetic field at very high temperatures. In partnership with the electric power industry, we have been working to develop this new system of electric power generation.

Underground Electric Transmission.—Objections have been growing to the overhead placement of high voltage power lines, especially in areas scenic beauty or near centers of population. Again in cooperation with industry, the Government is funding a research pro-

gram to develop new and less expensive techniques for burying high voltage electric transmission lines.

Nuclear Reactor Safety and Supporting Technology.—The general research and development work for todays' commercial nuclear reactors were completed several years ago, but we must continue to fund safety-related efforts in order to ensure the continuance of the excellent safety record in this field. An additional $3 million has recently been requested for this purpose to supplement the budget in Fiscal Year 1972.

Advanced Reactor Concepts.—The liquid metal fast breeder is the priority breeder reactor concept under development, but the Atomic Energy Commission is also supporting limited alternate reactor programs involving gas cooled reactors, molten salt reactors and light water breeders.

Solar Energy.—The sun offers an almost unlimited supply of energy if we can learn to use it economically. The National Aeronautics and Space Administration and the National Science Foundation are currently re-examining their efforts in this area and we expect to give greater attention to solar energy in the future.

The key to meeting our twin goals of supplying adequate energy and protecting the environment in the decades ahead will be a balanced and imaginative research and development program. I have therefore asked my Science Adviser, with the cooperation of the Council on Environmental Quality and the interested agencies, to make a detailed assessment of all of the technological opportunities in this area and to recommend additional projects which should receive priority attention.

2. MAKING AVAILABLE THE ENERGY RESOURCES OF FEDERAL LANDS

Over half our Nation's remaining oil and gas resources, about 40 percent of our coal and uranium, 80 percent of our oil shale, and some 60 percent of our geothermal energy sources are now located on Federal lands. Programs to make these resource available to meet the growing energy requirements of the Nation are therefore essential if shortages are to be averted. Through appropriate leasing programs, the Government should be able to recover the fair market value of these resources, while requiring developers to comply with requirements that will adequately protect the environment.

To supplement the efforts already underway to develop the fuel resources of the lower 48 States and Alaska, I am announcing today the following new programs:

a. Leasing on the Outer Continental Shelf—An Accelerated Program

The Outer Continental Shelf has proved to be a prolific source of oil and gas, but it has also been the source of troublesome oil spills in recent years. Our ability to tap the great potential of offshore areas has been seriously hampered by these environmental problems.

The Department of the Interior has significantly strengthened the environmental protection requirements controlling offshore drilling and we will continue to enforce these requirements very strictly. As a prerequisite to Federal lease sales, environmental assessments will be made in accordance with Section 102 of the National Environmental Policy Act of 1969.

Within these clear limits, we will accelerate our efforts to utilize this rich source of fuel. In order to expand productive possibilities as rapidly as possible, the accelerated program should include the sale of new leases not only in the highly productive Gulf of Mexico, but also some other promising areas. I am therefore directing the Secretary of the Interior to increase the offerings of oil and gas leases and to publish a schedule for lease offerings on the Outer Continental Shelf during the next five years, beginning with a general lease sale and a drainage sale this year.

b. Oil Shale—A Program for Orderly Development

At a time when we are facing possible energy shortages, it is reassuring to know that there exists in the United States an untapped shale oil resource containing some 600 billion barrels in high grade deposits. At current consumption rates, this resource represents 150 years supply. About 80 billion barrels of this shale oil are particularly rich and well situated for early development. This huge resource of very low sulfur oil is located in the Rocky Mountain area, primarily on Federal land.

At present there is no commercial production of shale oil. A mixture of problems—environmental, technical and economic—have combined to thwart past efforts at development.

I believe the time has come to begin the orderly formulation of a shale oil policy—not by any head-long rush toward development but rather by a well considered program in which both environmental protection and the recovery of a fair return to the Government are cardinal principles under which any leasing takes place. I am therefore requesting the Secretary of the Interior to expedite the development of an oil shale leasing program including the preparation of an environmental impact statement. If after reviewing this statement and comments he finds that environmental concerns can be satisfied, he shall then proceed with the detailed planning. This work would also involve the States of Wyoming, Colorado and Utah and the first test lease would be scheduled for next year.

c. Geothermal Energy

There is a vast quantity of heat stored in the earth itself. Where this energy source is close to the surface, as it is in the Western States, it can readily be tapped to generate electricity, to heat homes, and to meet other energy requirements. Again, this resource is located primarily on Federal lands.

Legislation enacted in recent months permits the Federal government, for the first time, to prepare for a leasing program in the field of geothermal energy. Classification of the lands involved is already underway in the Department of the Interior. I am requesting the Secretary of the Interior to expedite a final decision on whether the first competitive lease sale should be scheduled for this fall—taking into account, of course, his evaluation of the environmental impact statement.

3. NATURAL GAS SUPPLY

For the past 25 years, natural gas has supplied much of the increase in the energy supply of the United States. Now this relatively clean form of energy is in even greater demand to help satisfy air quality standards. Our present supply of natural gas is limited, however, and

we are beginning to face shortages which could intensify as we move to implement the air quality standards. Additional supplies of gas will therefore be one of our most urgent energy needs in the next few years.

Federal efforts to augment the available supplies of natural gas include:

—Accelerated leasing on Federal lands to speed discovery and development of new natural gas fields.

—Moving ahead with a demonstration project to gasify coal.

—Recent actions by the Federal Power Commission providing greater incentives for industry to increase its search for new sources of natural gas and to commit its discoveries to the interstate market.

—Facilitating imports of both natural and liquefied gas from Canada and from other nations.

—Progress in nuclear stimulation experiments which seek to produce natural gas from tight geologic formations which cannot presently be utilized in ways which are economically and environmentally acceptable.

This administration is keenly aware of the need to take every reasonable action to enlarge the supply of clean gaseous fuels. We intend to take such action and we expect to get good results.

4. IMPORTS FROM CANADA

Over the years, the United States and Canada have steadily increased their trade in energy. The United States exports some coal to Canada, but the major items of trade are oil and gas which are surplus to Canadian needs but which find a ready market in the United States.

The time has come to develop further this mutually advantageous trading relationship. The United States is therefore prepared to move promptly to permit Canadian crude oil to enter this country, free of any quantitative restraints, upon agreement as to measures needed to prevent citizens of both our countries from being subjected to oil shortages, or threats of shortages. We are ready to proceed with negotiations and we look to an early conclusion.

5. TIMELY SUPPLIES OF NUCLEAR FUELS

The Nation's nuclear fuel supply is in a state of transition. Military needs are now relatively small but civilian needs are growing rapidly and will be our dominant need for nuclear fuel in the future. With the exception of uranium enrichment, the nuclear energy industry is now in private hands.

I expect that private enterprise will eventually assume the responsibility for uranium enrichment as well, but in the meantime the Government must carry out its responsibility to ensure that our enrichment capacity expands at a rate consistent with expected demands.

There is currently no shortage of enriched uranium or enriching capacity. In fact, the Atomic Energy Commission has substantial stocks of enriched uranium which have already been produced for later use. However, plant expansions are required so that we can meet the growing demands for nuclear fuel in the late 1970s—both in

the United States and in other nations for which this country is now the principal supplier.

The most economical means presently available for expanding our capacity in this field appears to be the modernization of existing gaseous diffusion plants at Oak Ridge, Tennessee; Portsmouth, Ohio; and Paducah, Kentucky—through a Cascade Improvement Program. This program will take a number of years to complete and we therefore believe that it is prudent to initiate the program at this time rather than run the risk of shortages at a later date. I am therefore releasing $16 million to start the Cascade Improvement Program in Fiscal Year 1972. The pace of the improvement program will be tailored to fit the demands for enriched uranium in the United States and in other countries.

6. USING OUR ENERGY MORE WISELY

We need new sources of energy in this country, but we also need to use existing energy as efficiently as possible. I believe we can achieve the ends we desire—homes warm in winter and cool in summer, rapid transportation, plentiful energy for industrial production and home appliances—and still place less of a strain on our overtaxed resources.

Historically, we have converted fuels into electricity and have used other sources of energy with ever increasing efficiency. Recent data suggest, however, that this trend may be reversing—thus adding to the drain on available resources. We must get back on the road of increasing efficiency—both at the point of production and at the point of consumption, where the consumer himself can do a great deal to achieve considerable savings in his energy bills.

We believe that part of the answer lies in pricing energy on the basis of its full costs to society. One reason we use energy so lavishly today is that the price of energy does not include all of the social costs of producing it. The costs incurred in protecting the environment and the health and safety of workers, for example, are part of the real cost of producing energy—but they are not now all included in the price of the product. If they were added to that price, we could expect that some of the waste in the use of energy would be eliminated. At the same time, by expanding clean fuel supplies, we will be working to keep the overall cost of energy as low as possible.

It is also important that the individual consumer be fully aware of what his energy will cost if he buys a particular home or appliance. The efficiency of home heating or cooling systems and of other energy intensive equipment are determined by builders and manufacturers who may be concerned more with the initial cost of the equipment than with the operating costs which will come afterward. For example, better thermal insulation in a home or office building may save the consumer large sums in the long run—and conserve energy as well—but for the builder it merely represents an added expense.

To help meet one manifestation of this problem, I am directing the Secretary of Housing and Urban Development to issue revised standards for insulation applied in new federally insured homes. The new Federal Housing Administration standards will require sufficient insulation to reduce the maximum permissible heat loss by about one-third for a typical 1200 square foot home—and by even more for

larger homes. It is estimated that the fuel savings which will result each year from the application of these new standards will, in an average climate, equal the cost of the additional insulation required.

While the Federal Government can take some actions to conserve energy through such regulations, the consumer who seeks the most for his energy dollar in the marketplace is the one who can have the most profound influence. I am therefore asking my Special Assistant for Consumer Affairs—in cooperation with industry and appropriate Government agencies—to gather and publish additional information in this field to help consumers focus on the operating costs as well as the initial cost of energy intensive equipment.

In addition, I would note that the Joint Board on Fuel Supply and Fuel Transport chaired by the Director of the Office of Emergency Preparedness is developing energy conservation measures for industry, government, and the general public to help reduce energy use in times of particular shortage and during pollution crisis.

7. POWER PLANT SITING

If we are to meet growing demands for electricity in the years ahead, we cannot ignore the need for many new power plants. These plants and their associated transmission lines must be located and built so as to avoid major damage to the environment, but they must also be completed on time so as to avoid power shortages. These demands are difficult to reconcile—and often they are not reconciled well. In my judgment the lesson of the recent power shortages and of the continuing disputes over power pant siting and transmission line routes is that the existing institutions for making decisions in this area are not adequate for the job. In my Special Message to the Congress on the Environment last February, I proposed legislation which would help to alleviate these problems through longer range planning by the utilities and through the establishment of State or regional agencies to license new bulk power facilities prior to their construction.

Hearings are now being held by the Interstate and Foreign Commerce Committee of the House of Representatives concerning these proposals and other measures which would provide an open planning and decision-making capacity for dealing with these matters. Under the administration bill, long-range expansion plans would be presented by the utilities ten years before construction was scheduled to begin, individual alternative power plants sites would be identified five years ahead, and detailed design and location of specific plants and transmission lines would be considered two years in advance of construction. Public hearings would be held far enough ahead of construction so that they could influence the siting decision, helping to avoid enviromental problems without causing undue construction delays. I urge the Congress to take prompt and favorable action on this important legislative proposal. At the same time steps will be taken to ensure that Federal licenses and permits are handled as expeditiously as possible.

8. THE ROLE OF THE SULFUR OXIDES EMISSIONS CHARGE

In my environmental message last February I also proposed the establishment of a sulfur oxides emissions charge. The emissions

charge would have the effect of building the cost of sulfur oxide pollution into the price of energy. It would also provide a strong economic incentive for achieving the necessary performance to meet sulfur oxide standards.

The funds generated by the emissions charge would be used by the Federal Government to expand its programs to improve environmental quality, with special emphasis on the development of adequate supplies of clean energy.

9. GOVERNMENT REORGANIZATION—AN ENERGY ADMINISTRATION

But new programs alone will not be enough. We must also consider how we can make these programs do what we intend them to do. One important way of fostering effective performance is to place responsibility for energy questions in a single agency which can execute and modify policies in a comprehensive and unified manner.

The Nation has been without an integrated energy policy in the past. One reason for this situation is that energy responsibilities are fragmented among several agencies. Often authority is divided according to types and uses of energy. Coal, for example, is handled in one place, nuclear energy in another—but responsibility for considering the impact of one on the other is not assigned to any single authority. Nor is there any single agency responsible for developing new energy sources such as solar energy or new conversion systems such as the fuel cell. New concerns—such as conserving our fossil fuels for nonfuel uses—cannot receive the thorough and thoughtful attention they deserve under present arrangements.

The reason for all these deficiencies is that each existing program was set up to meet a specific problem of the past. As a result, our present structure is not equipped to handle the relationships between these problems and the emergence of new concerns.

The need to remedy these problems becomes more pressing every day. For example, the energy industries presently account for some 20 percent of our investment in new plant and equipment. This means that inefficiencies resulting from uncoordinated government programs can be very costly to our economy. It is also true that energy sources are becoming increasingly interchangeable. Coal can be converted to gas, for example, and even to synthetic crude oil. If the Government is to perform adequately in the energy field, then it must act through an agency which has sufficient strength and breadth of responsibility.

Accordingly, I have proposed that all of our important Federal energy resource development programs be consolidated within the new Department of Natural Resources.

The single energy authority which would thus be created would be better able to clarify, express, and execute Federal energy policy than any unit in our present structure. The establishment of this new entity would provide a focal point where energy policy in the executive branch could be harmonized and rationalized.

One of the major advantages of consolidating energy responsibilities would be the broader scope and greater balance this would give to research and development work in the energy field. The Atomic Energy Commission, for instance, has been successful in its mission of advancing civilian nuclear power, but this field is now intimately in-

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terrelated with coal, oil and gas, and Federal electric power programs with which the Atomic Energy Commission now has very little to do. We believe that the planning and funding of civilian nuclear energy activities should now be consolidated with other energy efforts in an agency charged with the mission of insuring that the total energy resources of the nation are effectively utilized. The Atomic Energy Commission would still remain intact, in order to execute the nuclear programs and any related energy research which may be appropriate as part of the overall energy program of the Department of Natural Resources.

Until such time as this new Department comes into being, I will continue to look to the Energy Subcommittee of the Domestic Council for leadership in analyzing and coordinating overall energy policy questions for the executive branch.

Conclusion

The program I have set forth today provides the basic ingredients for a new effort to meet our clean energy needs in the years ahead.

The success of this effort will require the cooperation of the Congress and of the State and local governments. It will also depend on the willingness of industry to meet its responsibilities in serving customers and in making necessary capital investments to meet anticipated growth. Consumers, too, will have a key role to play as they learn to conserve energy and as they come to understand that the cost of environmental protection must, to a major extent, be reflected in consumer prices.

I am confident that the various elements of our society will be able to work together to meet our clean energy needs. And I am confident that we can therefore continue to know the blessings of both a high-energy civilization and a beautiful and healthy environment.

Richard Nixon.

The White House, *June 4, 1971.*

MESSAGE TO THE CONGRESS

APRIL 18, 1973

To the Congress of the United States:

At home and abroad, America is in a time of transition. Old problems are yielding to new initiatives, but in their place new problems are arising which once again challenge our ingenuity and require vigorous action. Nowhere is this more clearly true than in the field of energy.

As America has become more prosperous and more heavily industrialized, our demands for energy have soared. Today, with 6 percent of the world's population, we consume almost a third of all the energy used in the world. Our energy demands have grown so rapidly that they now outstrip our available supplies, and at our present rate of growth, our energy needs a dozen years from now will be nearly double what they were in 1970.

In the years immediately ahead, we must face up to the possibility of occasional energy shortages and some increase in energy prices.

Clearly, we are facing a vitally important energy challenge. If present trends continue unchecked, we could face a genuine energy crisis. But that crisis can and should be averted, for we have the capacity and the resources to meet our energy needs if only we take the proper steps—and take them now.

More than half the world's total reserves of coal are located within the United States. This resource alone would be enough the provide for our energy needs for well over a century. We have potential resources of billions of barrels of recoverable oil, similar quantities of shale oil and more than 2,000 trillion cubic feet of natural gas. Properly managed, and with more attention on the part of consumers to the conservation of energy, these supplies can last for as long as our economy depends on conventional fuels.

In addition to natural fuels, we can draw upon hydroelectric plants and increasing numbers of nuclear powered facilities. Moreover, long before our present energy sources are exhausted, America's vast capabilities in research and development can provide us with new, clean and virtually unlimited sources of power.

Thus we should not be misled into pessimistic predictions of an energy disaster. But neither should we be lulled into a false sense of security. We must examine our circumstances realistically, carefully weigh the alternatives—and then move forward decisively.

WEIGHING THE ALTERNATIVES

Over 90 percent of the energy we consume today in the United States comes from three sources: natural gas, coal and petroleum. Each source presents us with a different set of problems.

Natural gas is our cleanest fuel and is most preferred in order to protect our environment, but ill-considered regulations of natural gas prices by the Federal Government have produced a serious and increasing scarcity of this fuel.

We have vast quantities of coal, but the extraction and use of coal have presented such persistent environmental problems that, today, less than 20 percent of our energy needs are met by coal and the health of the entire coal industry is seriously threatened.

Our third conventional resource is oil, but domestic production of available oil is no longer able to keep pace with demands.

In determining how we should expand and develop these resources, along with others such as nuclear power, we must take into account not only our economic goals, but also our environmental goals and our national security goals. Each of these areas is profoundly affected by our decisions concerning energy.

If we are to maintain the vigor of our economy, the health of our environment, and the security of our energy resources, it is essential that we strike the right balance among these priorities.

The choices are difficult, but we cannot refuse to act because of this. We cannot stand still simply because it is difficult to go forward. That is the one choice Americans must never make.

The energy challenge is one of the great opportunities of our time. We have already begun to meet that challenge, and realize its opportunities.

National Energy Policy

In 1971, I sent to the Congress the first message on energy policies ever submitted by an American President. In that message I proposed a number of specific steps to meet our projected needs by increasing our supply of clean energy in America.

Those steps included expanded research and development to obtain more clean energy, increased availability of energy resources located on Federal lands, increased efforts in the development of nuclear power, and a new Federal organization to plan and manage our energy programs.

In the twenty-two months since I submitted that message, America's energy research and development efforts have been expanded by 50 percent.

In order to increase domestic production of conventional fuels, sales of oil and gas leases on the Outer Continental Shelf have been increased. Federal and State standards to protect the marine environment in which these leases are located are being tightened. We have developed a more rigorous surveillance capability and an improved ability to prevent and clean up oil spills.

We are planning to proceed with the development of oil shale and geothermal energy sources on Federal lands, so long as an evaluation now underway shows that our environment can be adequately protected.

We have also taken new steps to expand our uranium enrichment capacity for the production of fuels for nuclear power plants, to standardize nuclear power plant designs, and to ensure the continuation of an already enviable safety record.

We have issued new standards and guidelines, and have taken other actions to increase and encourage better conservation of energy.

In short, we have made a strong beginning in our effort to ensure that America will always have the power needed to fuel its prosperity. But what we have accomplished is only a beginning.

Now we must build on our increased knowledge, and on the accomplishments of the past twenty-two months, to develop a more comprehensive, integrated national energy policy. To carry out this policy we must:

—increase domestic production of all forms of energy;
—act to conserve energy more effectively;
—strive to meet our energy needs at the lowest cost consistent with the protection of both our national security and our natural environment;
—reduce excessive regulatory and administrative impediments which have delayed or prevented construction of energy-producing facilities;
—act in concert with other nations to conduct research in the energy field and to find ways to prevent serious shortages; and
—apply our vast scientific and technological capacities—both public and private—so we can utilize our current energy resources more wisely and develop new sources and new forms of energy.

The actions I am announcing today and the proposals I am submitting to the Congress are designed to achieve these objectives. They reflect the fact that we are in a period of transition, in which we must work to avoid or at least minimize short-term supply shortages, while we act to expand and develop our domestic supplies in order to meet long-term energy needs.

We should not suppose this transition period will be easy. The task ahead will require the concerted and cooperative efforts of consumers, industry, and government.

Developing Our Domestic Energy Resources

The effort to increase domestic energy production in a manner consistent with our economic, environmental and security interests should focus on the following areas:

Natural Gas

Natural gas is America's premium fuel. It is clean-burning and thus has the least detrimental effect on our environment.

Since 1966, our consumption of natural gas has increased by over one-third, so that today natural gas comprises 32 percent of the total energy we consume from all sources. During this same period, our proven and available reserves of natural gas have decreased by a fifth. Unless we act responsibly, we will soon encounter increasing shortages of this vital fuel.

Yet the problem of shortages results less from inadequate resources than from ill-conceived regulation. Natural gas is the fuel most heavily regulated by the Federal Government—through the Federal Power Commission. Not only are the operations of interstate natural gas pipelines regulated, as was originally and properly intended by the Congress, but the price of the natural gas supplied to these pipelines by thousands of independent producers has also been regulated.

For more than a decade the prices of natural gas supplied to pipelines under this extended regulation have been kept artificially low.

As a result, demand has been artificially stimulated, but the exploration and development required to provide new supplies to satisfy this increasing demand have been allowed to wither. This form of government regulation has contributed heavily to the shortages we have experienced, and to the greater scarcity we now anticipate.

As a result of its low regulated price, more than 50 percent of our natural gas is consumed by industrial users and utilities, many of which might otherwise be using coal or oil. While homeowners are being forced to turn away from natural gas and toward more expensive fuels, unnecessarily large quantities of natural gas are being used by industry.

Furthermore, because prices within producing States are often higher than the interstate prices established by the Federal Power Commission, most newly discovered and newly produced natural gas does not enter interstate pipelines. Potential consumers in non-producing States thus suffer the worst shortages. While the Federal Power Commission has tried to alleviate these problems, the regulatory framework and attendant judicial constraints inhibit the ability of the Commission to respond adequately.

It is clear that the price paid to producers for natural gas in interstate trade must increase if there is to be the needed incentive for increasing supply and reducing inefficient usage. Some have suggested additional regulation to provide new incentives, but we have already seen the pitfalls in this approach. We must regulate less, not more. At the same time, we cannot remove all natural gas regulations without greatly inflating the price of gas currently in production and generating windfall profits.

To resolve this issue, I am proposing that gas from new wells, gas newly-dedicated to interstate markets, and the continuing production of natural gas from expired contracts should no longer be subject to price regulation at the wellhead. Enactment of this legislation should stimulate new exploration and development. At the same time, because increased prices on new unregulated gas would be averaged in with the prices for gas that is still regulated, the consumer should be protected against precipitous cost increases.

To add further consumer protection against unjustified price increases, I propose that the Secretary of the Interior be given authority to impose a ceiling on the price of new natural gas when circumstances warrant. Before exercising this power, the Secretary would consider the cost of alternative domestic fuels, taking into account the superiority of natural gas from an environmental standpoint. He would also consider the importance of encouraging production and more efficient use of natural gas.

Outer Continental Shelf

Approximately half of the oil and gas resources in this country are located on public lands, primarily on the Outer Continental Shelf (OCS). The speed at which we can increase our domestic energy production will depend in large measure on how rapidly these resources can be developed.

Since 1954, the Department of the Interior has leased to private developers almost 8 million acres on the Outer Continental Shelf. But this is only a small percentage of these potentially productive areas. At a time when we are being forced to obtain almost 30 percent

of our oil from foreign sources, this level of development is not adequate.

I am therefore directing the Secretary of the Interior to take steps which would triple the annual acreage leased on the Outer Continental Shelf by 1979, beginning with expanded sales in 1974 in the Gulf of Mexico and including areas beyond 200 meters in depth under conditions consistent with my oceans policy statement of May, 1970. By 1985, this accelerated leasing rate could increase annual energy production by an estimated 1.5 billion barrels of oil (approximately 16 percent of our projected oil requirements in that year), and 5 trillion cubic feet of natural gas (approximately 20 percent of expected demand for natural gas that year).

In the past, a central concern in bringing these particular resources into production has been the threat of environmental damage. Today, new techniques, new regulations and standards, and new surveillance capabilities enable us to reduce and control environmental dangers substantially. We should now take advantage of this progress. The resources under the Shelf, and on all our public lands, belong to all Americans, and the critical needs of all Americans for new energy supplies require that we develop them.

If at any time it is determined that exploration and development of a specific shelf area can only proceed with inadequate protection of the environment, we will not commence or continue operations. This policy was reflected in the suspension of 35 leases in the Santa Barbara Channel in 1971. We are continuing the Santa Barbara suspensions, and I again request that the Congress pass legislation that would provide for appropriate settlement for those who are forced to relinquish their leases in the area.

At the same time, I am directing the Secretary of the Interior to proceed with leasing the Outer Continental Shelf beyond the Channel Islands of California if the reviews now underway show that the environmental risks are acceptable.

I am also asking the Chairman of the Council on Environmental Quality to work with the Environmental Protection Agency, in consultation with the National Academy of Sciences and appropriate Federal agencies, to study the environmental impact of oil and gas production on the Atlantic Outer Continental Shelf and in the Gulf of Alaska. No drilling will be undertaken in these areas until its environmental impact is determined. Governors, legislators and citizens of these areas will be consulted in the process.

Finally, I am asking the Secretary of the Interior to develop a long-term leasing program for all energy resources on public lands, based on a thorough analysis of the Nation's energy, environmental, and economic objectives.

Alaskan Pipeline

Another important source of domestic oil exists on the North Slope of Alaska. Although private industry stands ready to develop these reserves and the Federal Government has spent large sums on environmental analyses, this project is still being delayed. This delay is not related to any adverse judicial findings concerning environmental impact, but rather to an outmoded legal restriction regarding the width of the right of way for the proposed pipeline.

At a time when we are importing growing quantities of oil at great detriment to our balance of payments, and at a time when we are also experiencing significant oil shortages, we clearly need the two million barrels a day which the North Slope could provide—a supply equal to fully one-third of our present import levels.

In recent weeks I have proposed legislation to the Congress which would remove the present restriction on the pipeline. I appeal to the Congress to act swiftly on this matter so that we can begin construction of the pipeline with all possible speed.

I oppose any further delay in order to restudy the advisability of building the pipeline through Canada. Our interest in rapidly increasing our supply of oil is best served by an Alaskan pipeline. It could be completed much more quickly than a Canadian pipeline; its entire capacity would be used to carry domestically owned oil to American markets where it is needed; and construction of an Alaskan pipeline would create a significant number of American jobs both in Alaska and in the maritime industry.

Shale Oil

Recoverable deposits of shale oil in the continental United States are estimated at some 600 billion barrels, 80 billion of which are considered easily accessible.

At the time of my Energy Message of 1971, I requested the Secretary of the Interior to develop an oil shale leasing program on a pilot basis and to provide me with a thorough evaluation of the environmental impact of such a program. The Secretary has prepared this pilot project and expects to have a final environmental impact statement soon. If the environmental risks are acceptable, we will proceed with the program.

To date there has been no commercial production of shale oil in the United States. Our pilot program will provide us with valuable experience in using various operational techniques and acting under various environmental conditions. Under the proposed program, the costs both of development and environmental protection would be borne by the private lessee.

Geothermal Leases

At the time of my earlier Energy Message, I also directed the Department of the Interior to prepare a leasing program for the development of geothermal energy on Federal lands. The regulations and final environmental analysis for such a program should be completed by late spring of this year.

If the analysis indicates that we can proceed in an environmentally acceptable manner, I expect leasing of geothermal fields on Federal lands to begin soon thereafter.

The use of geothermal energy could be of significant importance to many of our western areas, and by supplying a part of the western energy demand, could release other energy resources that would otherwise have to be used. Today, for instance, power from the Geysers geothermal field in California furnishes about one-third of the electric power of the city of San Francisco.

New technologies in locating and producing geothermal energy are now under development. During the coming fiscal year, the National

Science Foundation and the Geological Survey will intensify their research and development efforts in this field.

Coal

Coal is our most abundant and least costly domestic source of energy. Nevertheless, at a time when energy shortages loom on the horizon, coal provides less than 20 percent of our energy demands, and there is serious danger that its use will be reduced even further. If this reduction occurs, we would have to increase our oil imports rapidly, with all the trade and security problems this would entail.

Production of coal has been limited not only by competition from natural gas—a competition which has been artificially induced by Federal price regulation—but also by emerging environmental concerns and mine health and safety requirements. In order to meet environmental standards, utilities have shifted to natural gas and imported low-sulphur fuel oil. The problem is compounded by the fact that some low-sulphur coal resources are not being developed because of uncertainty about Federal and State mining regulations.

I urge that highest national priority be given to expanded development and utilization of our coal resources. Present and potential users who are able to choose among energy sources should consider the national interest as they make their choice. Each decision against coal increases petroleum or gas consumption, compromising our national self-sufficiency and raising the cost of meeting our energy needs.

In my State of the Union Message on Natural Resources and the Environment earlier this year, I called for strong legislation to protect the environment from abuse caused by mining. I now repeat that call. Until the coal industry knows the mining rules under which it will have to operate, our vast reserves of low-sulphur coal will not be developed as rapidly as they should be and the under-utilization of such coal will persist.

The Clean Air Act of 1970, as amended, requires that primary air quality standards—those related to health—must be met by 1975, while more stringent secondary standards—those related to the "general welfare"—must be met within a reasonable period. The States are moving very effectively to meet primary standards established by the Clean Air Act, and I am encouraged by their efforts.

At the same time, our concern for the "general welfare" or national interest should take into account considerations of national security and economic prosperity, as well as our environment.

If we insisted upon meeting both primary and secondary clean air standards by 1975, we could prevent the use of up to 155 million tons of coal per year. This would force an increase in demand for oil of 1.6 million barrels per day. This oil would have to be imported, with an adverse effect on our balance of payments of some $1.5 billion or more a year. Such a development would also threaten the loss of an estimated 26,000 coal mining jobs.

If, on the other hand, we carry out the provisions of the Clean Air Act in a judicious manner, carefully meeting the primary, health-related standards, but not moving in a precipitous way toward meeting the secondary standards, then we should be able to use virtually all of the coal which would otherwise go unused.

The Environmental Protection Agency has indicated that the reasonable time allowed by the Clean Air Act for meeting secondary standards could extend beyond 1975. Last year, the Administrator of the Environmental Protection Agency sent to all State governors a letter explaining that during the current period of shortages in low-sulphur fuel, the States should not require the burning of such fuels except where necessary to meet the primary standards for the protection of health. This action by the States should permit the desirable substitution of coal for low-sulphur fuel in many instances. I strongly support this policy.

Many State regulatory commissions permit their State utilities to pass on increased fuel costs to the consumer in the form of higher rates, but there are sometimes lags in allowing the costs of environmental control equipment to be passed on in a similar way. Such lags discourage the use of environmental control technology and encourage the use of low-sulphur fuels, most of which are imported.

To increase the incentive for using new environmental technology, I urge all State utility commissions to ensure that utilities receive a rapid and fair return on pollution control equipment, including stack gas cleaning devices and coal gasification processes.

As an additional measure to increase the production and use of coal, I am directing that a new reporting system on national coal production be instituted within the Department of the Interior, and I am asking the Federal Power Commission for regular reports on the use of coal by utilities.

I am also stepping up our spending for research and development in coal, with special emphasis on technology for sulphur removal and the development of low-cost, clean-burning forms of coal.

Nuclear Energy

Although our greatest dependence for energy until now has been on fossil fuels such as coal and oil, we must not and we need not continue this heavy reliance in the future. The major alternative to fossil fuel energy for the remainder of this century is nuclear energy.

Our well-established nuclear technology already represents an indispensable source of energy for meeting present needs. At present there are 30 nuclear power plants in operation in the United States; of the new electrical generator capacity contracted for during 1972, 70 percent will be nuclear powered. By 1980, the amount of electricity generated by nuclear reactors will be equivalent to 1.25 billion barrels of oil, or 8 trillion cubic feet of gas. It is estimated that nuclear power will provide more than one-quarter of this country's electrical production by 1985, and over half by the year 2000.

Most nuclear power plants now in operation utilize light water reactors. In the near future, some will use high temperature gas-cooled reactors. These techniques will be supplemented during the next decade by the fast breeder reactors, which will bring about a 30-fold increase in the efficiency with which we utilize our domestic uranium resources. At present, development of the liquid metal fast breeder reactor is our highest priority target for nuclear research and development.

Nuclear power generation has an extraordinary safety record. There has never been a nuclear-related fatality in our civilian atomic energy

program. We intend to maintain that record by increasing research and development in reactor safety.

The process of determining the safety and environmental acceptability of nuclear power plants is more vigorous and more open to public participation than for any comparable industrial enterprise. Every effort must be made by the Government and industry to protect public health and safety and to provide satisfactory answers to those with honest concerns about this source of power.

At the same time, we must seek to avoid unreasonable delays in developing nuclear power. They serve only to impose unnecessary costs and aggravate our energy shortages. It is discouraging to know that nuclear facilities capable of generating 27,000 megawatts of electric power which were expected to be operational by 1972 were not completed. To replace that generating capacity we would have to use the equivalent of one-third of the natural gas the country used for generating electricity in 1972. This situation must not continue.

In my first Energy Special Message in 1971, I proposed that utilities prepare and publish long-range plans for the siting of nuclear power plants and transmission lines. This legislation would provide a Federal-State framework for licensing individual plants on the basis of a full and balanced consideration of both environmental and energy needs. The Congress has not acted on that proposal. I am resubmitting that legislation this year with a number of new provisions to simplify licensing, including one to require that the Government act on all completed license applications within 18 months after they are received.

I would also emphasize that the private sector's role in future nuclear development must continue to grow. The Atomic Energy Commission is presently taking steps to provide greater amounts of enriched uranium fuel for the Nation's nuclear power plants. However, this expansion will not fully meet our needs in the 1980's; the Government now looks to private industry to provide the additional capacity that will be required.

Our nuclear technology is a national asset of inestimable value. It is essential that we press forward with its development.

The increasing occurrence of unnecessary delays in the development of energy facilities must be ended if we are to meet our energy needs. To be sure, reasonable safeguards must be vigorously maintained for protection of the public and of our environment. Full public participation and questioning must also be allowed as we decide where new energy facilities are to be built. We need to streamline our governmental procedures for licensing and inspections, reduce overlapping jurisdictions and eliminate confusion generally by the government.

To achieve these ends I am taking several steps. During the coming year we will examine various possibilities to assure that all public and private interests are impartially and expeditiously weighed in all government proceedings for permits, licensing and inspections.

I am again proposing siting legislation to the Congress for electric facilities and for the first time, for deepwater ports. All of my new siting legislation includes provisions for simplified licensing at both Federal and State levels. It is vital that the Congress take prompt and favorable action on these proposals.

Encouraging Domestic Exploration

Our tax system now provides needed incentives for mineral exploration in the form of percentage depletion allowances and deductions for certain drilling expenses. These provisions do not, however, distinguish between exploration for new reserves and development of existing reserves.

In order to encourage increased exploration, I ask the Congress to extend the investment credit provisions of our present tax law so that a credit will be provided for all exploratory drilling for new oil and gas fields. Under this proposal, a somewhat higher credit would apply for successful exploratory wells than for unsuccessful ones, in order to put an additional premium on results.

The investment credit has proven itself a powerful stimulus to industrial activity. I expect it to be equally effective in the search for new reserves.

Importing To Meet Our Energy Needs

Oil Imports

In order to avert a short-term fuel shortage and to keep fuel costs as low as possible, it will be necessary for us to increase fuel imports. At the same time, in order to reduce our long-term reliance on imports, we must encourage the exploration and development of our domestic oil and the construction of refineries to process it.

The present quota system for oil imports—the Mandatory Oil Import Program—was established at a time when we could produce more oil at home than we were using. By imposing quantitative restrictions on imports, the quota system restricted imports of foreign oil. It also encouraged the development of our domestic petroleum industry in the interest of national security.

Today, however, we are not producing as much oil as we are using, and we must import ever larger amounts to meet our needs.

As a result, the current Mandatory Oil Import Program is of virtually no benefit any longer. Instead, it has the very real potential of aggravating our supply problems, and it denies us the flexibility we need to deal quickly and efficiently with our import requirements. General dissatisfaction with the program and the apparent need for change has led to uncertainty. Under these conditions, there can be little long-range investment planning for new drilling and refinery construction.

Effective today, I am removing by proclamation all existing tariffs on imported crude oil and products. Holders of import licenses will be able to import petroleum duty free. This action will help hold down the cost of energy to the American consumer.

Effective today, I am also suspending direct control over the quantity of crude oil and refined products which can be imported. In place of these controls, I am substituting a license-fee quota system.

Under the new system, present holders of import licenses may import petroleum exempt from fees up to the level of their 1973 quota allocations. For imports in excess of the 1973 level, a fee must be paid by the importer.

This system should achieve several objectives.

First, it should help to meet our immediate energy needs by encouraging importation of foreign oil at the lowest cost to consumers, while also providing incentives for exploration and development of our domestic resources to meet our long-term needs. There will be little paid in fees this year, although all exemptions from fees will be phased out over several years. By gradually increasing fees over the next two and one-half years to a maximum level of one-half cent per gallon for crude oil and one and one-half cents per gallon for all refined products, we should continue to meet our energy needs while encouraging industry to increase its domestic production.

Second, this system should encourage refinery construction in the United States, because the fees are higher for refined products than for crude oil. As an added incentive, crude oil in amounts up to three-fourths of new refining capacity may be imported without being subject to any fees. This special allowance will be available to an oil company during the first five years after it builds or expands its refining capacity.

Third, this system should provide the flexibility we must have to meet short and long-term needs efficiently. We will review the fee level periodically to ensure that we are imposing the lowest fees consistent with our intention to increase domestic production while keeping costs to the consumer at the lowest possible level. We will also make full use of the Oil Import Appeals Board to ensure that the needs of all elements of the petroleum industry are met, particularly those of independent operators who help to maintain market competition.

Fourth, the new system should contribute to our national security. Increased domestic production will leave us less dependent on foreign supplies. At the same time, we will adjust the fees in a manner designed to encourge, to the extent possible, the security of our foreign supplies. Finally, I am directing the Oil Policy Committee to examine incentives aimed at increasing our domestic storage capacity or shut-in production. In this way we will provide buffer stocks to insulate ourselves against a temporary loss of foreign supplies.

Deepwater Ports

It is clear that in the foreseeable future, we will have to import oil in large quantities. We should do this as cheaply as we can with minimal damage to the environment. Unfortunately, our present capabilities are inadequate for these purposes.

The answer to this problem lies in deepwater ports which can accommodate those larger ships, providing important economic advantages while reducing the risks of collision and grounding. Recent studies by the Council on Environmental Quality demonstrate that we can expect considerably less pollution if we use fewer but larger tankers and deepwater facilities, as opposed to the many small tankers and conventional facilities which we would otherwise need.

If we do not enlarge our deepwater port capacity, it is clear that both American and foreign companies will expand oil transshipment terminals in the Bahamas and the Canadian Maritime Provinces. From these terminals, oil will be brought to our conventional ports by growing numbers of small and medium size transshipment vessels, thereby increasing the risks of pollution from shipping operations and

accidents. At the same time, the United States will lose the jobs and capital that those foreign facilities provide.

Given these considerations, I believe we must move forward with an ambitious program to creative new deepwater ports for receiving petroleum imports.

The development of ports has usually been a responsibility of State and local governments and the private sector. However, States cannot issue licenses beyond the three-mile limit. I am therefore proposing legislation to permit the Department of the Interior to issue such licenses. Licensing would be contingent upon full and proper evaluation of environmental impact, and would provide for strict navigation and safety, as well as proper land use requirements. The proposed legislation specifically provides for Federal cooperation with State and local authorities.

Conserving Energy

The abundance of America's natural resources has been one of our greatest advantages in the past. But if this abundance encourages us to take our resources for granted, then it may well be a detriment to our future.

Common sense clearly dictates that as we expand the types and sources of energy available to us for the future, we must direct equal attention to conserving the energy available to us today, and we must explore means to limit future growth in energy demand.

We as a nation must develop a national energy conservation ethic. Industry can help by designing products which conserve energy and by using energy more efficiently. All workers and consumers can help by continually saving energy in their day-to-day activities: by turning out lights, tuning up automobiles, reducing the use of air conditioning and heating, and purchasing products which use energy efficiently.

Government at all levels also has an important role to play, both by conserving energy directly, and by providing leadership in energy conservation efforts.

I am directing today that an Office of Energy Conservation be established in the Department of the Interior to coordinate the energy conservation programs which are presently scattered throughout the Federal establishment. This office will conduct research and work with consumer and environmental groups in their efforts to educate consumers on ways to get the greatest return on their energy dollar.

To provide consumers with further information, I am directing the Department of Commerce, working with the Council on Environmental Quality and the Environmental Protection Agency, to develop a voluntary system of energy efficiency labels for major home appliances. These labels should provide data on energy use as well as a rating comparing the product's efficiency to other similar products. In addition, the Environmental Protection Agency will soon release the results of its tests of fuel efficiency in automobiles.

There are other ways, too, in which government can exercise leadership in this field. I urge again, for example, that we allow local officials to use money from Highway Trust Fund for mass transit purposes. Greater reliance on mass transit can do a great deal to help us conserve gasoline.

The Federal Government can also lead by example. The General Services Administration, for instance, is constructing a new Federal

office building using advanced energy conservation techniques, with a goal of reducing energy use by 20 percent over typical buildings of the same size. At the same time, the National Bureau of Standards is evaluating energy use in a full-size house within its laboratories. When this evaluation is complete, analytical techniques will be available to help predict energy use for new dwellings. This information, together with the experience gained in the construction and operation of the demonstration Federal building, will assist architects and contractors to design and construct energy-efficient buildings.

Significant steps to upgrade insulation standards on single and multi-family dwellings were taken at my direction in 1971 and 1972, helping to reduce heat loss and otherwise conserve energy in the residential sector. As soon as the results of these important demonstration projects are available, I will direct the Federal Housing Administration to update its insulation standards in light of what we have learned and to consider their possible extension to mobile homes.

Finally, we should recognize that the single most effective means of encouraging energy conservation is to ensure that energy prices reflect their true costs. By eliminating regulations such as the current ceiling on natural gas prices and by ensuring that the costs of adequate environmental controls are equitably allocated, we can move toward more efficient distribution of our resources.

Energy conservation is a national necessity, but I believe that it can be undertaken most effectively on a voluntary basis. If the challenge is ignored, the result will be a danger of increased shortages, increased prices, damage to the environment and the increased possibility that conservation will have to be undertaken by compulsory means in the future. There should be no need for a nation which has always been rich in energy to have to turn to energy rationing. This is a part of the energy challenge which every American can help to meet, and I call upon every American to do his or her part.

Research and Development

If we are to be certain that the forward thrust of our economy will not be hampered by insufficient energy supplies or by energy supplies that are prohibitively expensive, then we must not continue to be dependent on conventional forms of energy. We must instead make every useful effort through research and development to provide both alternative sources of energy and new technologies for producing and utilizing this energy.

For the short-term future, our research and development strategy will provide technologies to extract and utilize our existing fossil fuels in a manner most compatible with a healthy environment.

In the longer run, from 1985 to the beginning of the next century, we will have more sophisticated development of our fossil fuel resources and on the full development of the Liquid Metal Fast Breeder Reactor. Our efforts for the distant future center on the development of technologies—such as nuclear fusion and solar power—that can provide us with a virtually limitless supply of clean energy.

In my 1971 Energy Special Message to the Congress I outlined a broadly based research and development program. I proposed the expansion of cooperative Government-industry efforts to develop the Liquid Metal Fast Breeder Reactor, coal gasification, and stack gas clean-

ing systems at the demonstration level. These programs are all progressing well.

My budget for fiscal year 1974 provides for an increase in energy research and development funding of 20 percent over the level of 1973.

My 1974 budget provides for creation of a new central energy fund in the Interior Department to provide additional money for nonnuclear research and development, with the greatest part designated for coal research. This central fund is designed to give us the flexibility we need for rapid exploitation of new, especially promising energy technologies with near-term payoffs.

One of the most promising programs that will be receiving increased funding in fiscal year 1974 is the solvent refined coal process which will produce low-ash, low-sulphur fuels from coal. Altogether, coal research and development and proposed funding is increased by 27 percent.

In addition to increased funding for the Liquid Metal Fast Breeder Reactor, I am asking for greater research and development on reactor safety and radioactive waste disposal, and the production of nuclear fuel.

The waters of the world contain potential fuel—in the form of a special isotope of hydrogen—sufficient to power fusion reactors for thousands of years. Scientists at the Atomic Energy Commission now predict with increasing confidence that we can demonstrate laboratory feasibility of controlled thermonuclear fusion by magnetic confinement in the near future. We have also advanced to the point where some scientists believe the feasibility of laser fusion could be demonstrated within the next several years. I have proposed in my 1974 budget a 35 percent increase in funding for our total fusion research and development effort to accelerate experimental programs and to initiate preliminary reactor design studies.

While we look to breeder reactors to meet our mid-term energy needs, today's commercial power reactors will continue to provide most of our nuclear generating capacity for the balance of this century. Although nuclear reactors have had a remarkable safety record my 1974 budget provides additional funds to assure that our rapidly growing reliance on nuclear power will not compromise public health and safety. This includes work on systems for safe storage of the radioactive waste which nuclear reactors produce. The Atomic Energy Commission is working on additional improvements in surface storage and will continue to explore the possibility of underground burial for long-term containment of these wastes.

Solar energy holds great promise as a potentially limitless source of clean energy. My new budget triples our solar energy research and development effort to a level of $12 million. A major portion of these funds would be devoted to accelerating the development of commercial systems for heating and cooling buildings.

Research and development funds relating to environmental control technologies would be increased 24 percent in my 1974 budget. This research includes a variety of projects related to stack gas cleaning and includes the construction of a demonstration sulphur dioxide removal plant. In addition, the Atomic Energy Commission and the Environmental Protection Agency will continue to conduct research on the thermal effects of power plants.

While the Federal Government is significantly increasing its commitment to energy research and development, a large share of such research is and should be conducted by the private sector.

I am especially pleased that the electric utilities have recognized the importance of research in meeting the rapidly escalating demand for electrical energy. The recent establishment of the Electric Power Research Institute, which will have a budget in 1971 in excess of $100 million, can help develop technology to meet both load demands and environmental regulations currently challenging the industry.

Historically the electric power industry has allocated a smaller portion of its revenues to research than have most other technology-dependent industries. This pattern has been partly attributable to the reluctance of some State utility commissions to include increased research and development expenditures in utility rate bases. Recently the Federal Power Commission instituted a national rule to allow the recovery of research and development expenditures in rates. State regulatory agencies have followed the FPC's lead and are liberalizing their treatment of research and development expenditures consistent with our changing national energy demands.

I am hopeful that this trend will continue and I urge all State utility commissions to review their regulations regarding research and development expenditures to ensure that the electric utility industry can fully cooperate in a national energy research and development effort.

It is foolish and self-defeating to allocate funds more rapidly than they can be effectively spent. At the same time, we must carefully monitor our progress and our needs to ensure that our funding is adequate. When additional funds are found to be essential, I shall do everything I can to see that they are provided.

International Cooperation

The energy challenge confronts every nation. Where there is such a community of interest, there is both a cause and a basis for cooperative action.

Today, the United States is involved in a number of cooperative, international efforts. We have joined with the other 22 member-nations of the Organization for Economic Cooperation and Development to produce a comprehensive report on long-term problems and to develop an agreement for sharing oil in times of acute shortages. The European Economic Community has already discussed the need for cooperative efforts and is preparing recommendations for a Community energy policy. We have expressed a desire to work together with them in this effort.

We have also agreed with the Soviet Union to pursue joint research in magnetohydrodynamics (MHD), a highly efficient process for generating electricity, and to exchange information on fusion, fission, the generation of electricity, transmission and pollution control technology. These efforts should be a model for joint research efforts with other countries. Additionally, American companies are looking into the possibility of joint projects with the Soviet Union to develop natural resources for the benefit of both nations.

I have also instructed the Department of State, in coordination with the Atomic Energy Commission, other appropriate Government

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agencies, and the Congress to move rapidly in developing a program of international cooperation in research and development on new forms of energy and in developing international mechanisms for dealing with energy questions in times of critical shortages.

I believe the energy challenge provides an important opportunity for nations to pursue vital objectives through peaceful cooperation. No chance should be lost to strengthen the structure of peace we are seeking to build in the world, and few issues provide us with as good an opportunity to demonstrate that there is more to be gained in pursuing our national interests through mutual cooperation than through destructive competition or dangerous confrontation.

Federal Energy Organization

If we are to meet the energy challenge, the current fragmented organization of energy-related activities in the executive branch of the Government must be overhauled.

In 1971, I proposed legislation to consolidate Federal energy-related activities within a new Department of Natural Resources. The 92d Congress did not act on this proposal. In the interim I have created a new post of Counsellor to the President on Natural Resources to assist in the policy coordination in the natural resources field.

Today I am taking executive action specifically to improve the Federal organization of energy activities.

I have directed the Secretary of the Interior to strengthen his Department's organization of energy activities in several ways—

—The responsibilities of the new Assistant Secretary for Energy and Minerals will be expanded to incorporate all departmental energy activities;

—The Department is to develop a capacity for gathering and analysis of energy data;

—An Office of Energy Conservation is being created to seek means for reducing demands for energy;

—The Department of the Interior has also strengthened its capabilities for overseeing and coordinating a broader range of energy research and development.

By Executive order, I have placed authority in the Department of the Treasury for directing the Oil Policy Committee. That Committee coordinates the oil import program and makes recommendations to me for changes in that program. The Deputy Secretary of the Treasury has been designated Chairman of that Committee.

Through a second Executive order, effective today, I am strengthening the capabilities of the Executive Office of the President to deal with top level energy policy matters by establishing a special energy committee composed of three of my principal advisors. The order also reaffirms the appointment of a Special Consultant, who heads an energy staff in the Office of the President.

Additionally, a new division of Energy and Science is being established within the Office of Management and Budget.

While these executive actions will help, more fundamental reorganization is needed. To meet this need, I shall propose legislation to establish a Department of Energy and Natural Resources (DENR) build-

ing on the legislation I submitted in 1971, with heightened emphasis on energy programs.

This new Department would provide leadership across the entire range of national energy. It would, in short, be responsible for administering the national energy policy derailed in this message.

Conclusion

Nations succeed only as they are able to respond to challenge, and to change when circumstances and opportunities require change.

When the first settlers came to America, they found a land of untold natural wealth, and this became the cornerstone of the most prosperous nation in the world. As we have grown in population, in prosperity, in industrial capacity, in all those indices that reflect the constant upward thrust in the American standard of living, the demands on our natural resources have also grown.

Today, the energy resources which have fueled so much of our national growth are not sufficiently developed to meet the constantly increasing demands which have been placed upon them. The time has come to change the way we meet these demands. The challenge facing us represents one of the great opportunities of our time—an opportunity to create an even stronger domestic economy, a cleaner environment, and a better life for all our people.

The proposals I am submitting and the actions I will take can give us the tools to do this important job.

The need for action is urgent. I hope the Congress will act with dispatch on the proposals I am submitting. But in the final analysis, the ultimate responsibility does not rest merely with the Congress or with this Administration. It rests with all of us—with government, with industry and with the individual citizen.

Whenever we have been confronted with great national challenges in the past, the American people have done their duty. I am confident we shall do so now.

Richard Nixon.

The White House, *April 18, 1973.*

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Summary Outline—Fact Sheet

April 18, 1971

Background

The President has forwarded to the Congress his second Energy Message. This message presents a comprehensive program to provide for the Nation's current and future energy needs. The President's program provides for increased domestic production of fuels to minimize risks to the national security of supply interruptions. The program balances these national security considerations with concern for

continued protection of the environment and for providing adequate supplies of energy at reasonable prices.

The energy picture has changed significantly in the past several years. Domestic production of fossil fuels—crude oil, natural gas and coal—has peaked. The United States no longer has excess shut-in crude production capacity. Environmental concerns have resulted in delays in siting of energy facilities and greatly increased the need for scarce low sulphur fuels, displacing high sulphur fuels, including coal. Unless the demand for energy is artificially restricted, significantly greater quantities of foreign crude oil must be imported in the next few years. There may also be temporary shortages of fuels under localized conditions.

In the mid-term, there will be increased domestic production of clean fuels; in the longer term, the development of new technologies for providing essentially pollution-free energy will be available.

The President has instituted a number of changes and recommended legislation to provide for increased domestic supplies in a manner compatible with the environment. The President has already forwarded several energy-related legislative proposals to the Congress this year—the Electric Facilities Siting Act and the Mined Areas Protection Act. He has also already submitted legislative proposals to remedy the current right-of-way difficulties with the Alaska pipeline (Mineral Leasing Act amendments and Bureau of Land Management organic legislation). Today, three additional legislative proposals were forwarded to the Congress. The Natural Gas Supply Act will enable increased supplies of natural gas to be produced because of competitive pricing of new production of natural gas and new dedications of natural gas to interstate commerce. The Deepwater Port Facilities Act will enable more environmentally acceptable and more economical shipment of oil imports to this country through appropriately sited and operated deepwater ports. The third bill resubmits a proposal made to the 92nd Congress to have the Federal Government repurchase the thirty-five oil leases in the Santa Barbara Channel. In addition, the President will soon forward a proposal for the creation of a Department of Energy and Natural Resources (DENR), in order to better focus and direct the Federal programs. This is a modification of his previous proposal for the Department of Natural Resources (DNR), placing a greater emphasis on the need for a comprehensive organizational focus on energy.

Besides these legislative proposals, the President has also undertaken a number of executive actions, including among others, major changes to the Mandatory Oil Import Program and accelerated leasing of the Outer Continental Shelf.

The President's revised oil import program provides for increasing the incentive for future domestic production of crude oil and refining capacity through phased imposition of license fees on imports of crude oil and products above the 1973 levels. Drilling of new wells, opening of new mines and development of domestic refining capacity will require three to five years. In an effort to minimize the impact on the consumer during this period, the President has eliminated current tariffs on crude oil and products. Thus, imports at the 1973 level will enter the country duty-free; however, these duty-free import rights will be phased out over seven years, and an increasing license fee imposed.

The President's program covers virtually all energy policy areas. Specific information regarding the various components are presented in succeeding sections of this fact sheet.

Basic U.S. Energy Demand and Supply

Over the years, U.S. gross energy consumption has increased steadily at a rate slightly less than the growth of our economy. From 1947 to the early 1960's, energy demand grew at an average annual rate of about 3%. During the period 1965–1971, our total energy demand has accelerated rapidly to an average annual rate of 4.8%. In 1972, consumption by major consuming sectors was fairly evenly divided as follows: industrial, 28.8%; electricity generation, 25.6%; transportation, 25.0%; and household and commercial, 20.6%.

Fossil fuels have historically supplied the vast majority of our energy in the United States. Until 1947, coal supplied more than half the fuels consumed. But for the last decade, petroleum and natural gas have increased to around 75% of total gross energy consumption. Although nuclear power currently supplies only 1% of current energy, it is expected to provide a very large share of future energy growth—up to 60% of electricity generation and 30% of the total energy by the end of the century.

The major sources of domestic energy during 1972 were:

Petroleum (including natural gas liquids):	
Million barrels	5,960
Trillion Btu	32,812
Percent	46
Natural gas:	
Billion cubic feet	22,607
Trillion Btu	23,308
Percent	32
Coal (bituminous, anthracite and lignite):	
Thousands short tons	517,053
Trillion Btu	12,428
Percent	17
Hydropower:	
Billion kilowatt-hours	280.2
Trillion Btu	2,937
Percent	4
Nuclear power:	
Billion kilowatt-hours	56.9
Trillion Btu	606
Percent	1
Total gross energy: Trillion Btu	72,091

Domestic production of fossil fuels has remained relatively constant for several years and has not expanded adequately to meet rising demand.

New discoveries of natural gas have decreased during the past several years, but increased slightly in 1972 probably due in large part to efforts by the Federal Power Commission to provide higher production prices and to optimism about future changes in regulation. However, since 1966 proven reserves have decreased 21%, while consumption has increased 37%. We are now producing and consuming about twice as much natural gas each year as we are finding and adding to proved reserves.

Production of domestic crude oil and natural gas liquids peaked in November, 1970 and decreased in 1972 to an average of 11.6 million barrels per day, down approximately 5% from the peak. Continued delay of the Alaska pipeline will result in denial of additional U.S. production of up to 2.0 million barrels per day.

In 1972 total U.S. bituminous coal and lignite production is estimated at 590 million tons, down from 603 million tons in 1970. The use of coal has been greatly hampered by competition from lower cost and less polluting alternative fuels, primarily imported residual fuel oil in the mid-60's and low priced, regulated natural gas. Production is currently being restricted due to actual and anticipated constraints on the production and consumption of coal.

In 1967 imports to the United States exceeded reserve capacity, thus the U.S. was no longer self-sufficient. In 1972, the U.S. reached essentially 100% production (no reserve or shut-in capacity) and foreign petroleum imports totaled 4.7 million barrels per day, accounting for 29% of the total oil supply.

The projections are for large increases in imported crude oil and products, particularly during the next three to five years, primarily from the Middle East. In 1972, only about 1.4 million barrels per day, or about 30% of total oil imports came from the Eastern Hemisphere. This amounted to only 8% of the total oil supply. By 1985, if present trends were allowed to continue, the U.S. would have to import from 50 to 60% of its total oil supply and 30 to 40% of this may have to be from Eastern Hemisphere sources. The President's energy initiatives can greatly reduce future foreign imports.

Competitive Pricing of Natural Gas

The President announced today that he will submit legislation to amend the Natural Gas Act so that prices paid by interstate pipelines to producers for new supplies of domestic natural gas will be determined by the competitive forces of the market system rather than by the Federal Power Commission. This proposal would stimulate new exploration and development of domestic gas resources while maintaining current prices on present interstate supplies and eliminating any possibility of unfair gains at the expense of the consumer. The legislation includes provisions for the Secretary of the Interior to monitor the price of new supplies of natural gas, and impose a ceiling if circumstances should demand such action.

The Natural Gas Act of 1938 was passed in order to allow the Federal Power Commission to regulate the transportation and sales for resale of natural gas by the interstate pipelines. The Act specifically precludes Federal regulation of the local distribution and production or gathering of natural gas. However, in 1954, the Supreme Court held in the *Phillips* case that the Natural Gas Act also applied to sales by producers in interstate commerce. The Congress twice passed legislation to effectively deregulate natural gas, once in 1950 and again in 1956, which were vetoed by both President Truman and President Eisenhower.

After unsuccessful attempts to regulate producer prices on a case-by-case basis, in 1960 the Federal Power Commission decided to establish ceiling prices for natural gas on an area-wide basis. The

first area rate proceeding for the Permian Basin area was begun in 1961, completed in 1965, and affirmed by the Supreme Court in 1968. This proceeding and all subsequent proceedings, was based primarily on the rate base and cost of service approach to regulation, which had been developed over the past half century for rate regulation of monopolistic, low-risk public utilities, such as gas pipelines and electrical power companies.

Consumption of natural gas in 1973 is estimated to be 37% higher than in 1966. Low regulated prices have discouraged development of a corresponding amount of new reserves, so that proven reserves have fallen by 21% since 1966. As a result, the ratio of reserves to production has fallen by 44%.

	(trillion cubic feet)	(trillion cubic feet)	Ratio
1966	16.9	286	16.4:1
1972	23.8	238	10.0:1
1973 (estimate)	[1] 23.0	[2] 227	[3] 9.2:1

[1] Plus 37 percent.
[2] Minus 21 percent.
[3] Minus 44 percent.

Note: Estimated total potential reserves, 850 to 2,100 trillion cubic feet.

During the past year, 15 of the nation's largest interstate pipelines were forced to curtail their sales of natural gas in an amount equal to about 7% of their total sales. In many communities today, owners of new homes and apartments are deprived access to this clean burning and efficient fuel because of inadequate supplies. Moreover, an increasingly larger share of new natural gas supplies is being purchased within the intrastate market, which is not regulated by the Federal Power Commission, because interstate pipelines are unable to offer competitive prices for new supplies. Well-head prices in the intrastate market are up to twice as high as in the FPC regulated interstate market. In many markets today, natural gas, the most desirable fossil fuel, is selling for less per comparable heating unit than do alternative and less desirable fuels. At the same time, costs have increased significantly. It costs approximately ten times as much to drill a well in Alaska and six times as much to drill a well offshore as compared to onshore historical costs.

The increased field price of natural gas will result in very modest increase at the home for the average consumer. Because the pipelines and local distributors will remain regulated and because the new supplies of natural gas will be only a small percentage of the total supplies of the interstate pipelines for several years into the future. At the current time, the price paid to the producer for gas supplies is approximately 10–20% of the ultimate price paid by the homeowner in most areas.

The President's proposed legislation provides that the FPC be granted rate jurisdiction over the direct industrial sales of pipelines. This action will allow the Federal Power Commission to assure that industrial customers, who use natural gas, are paying a fair and equitable share of the costs of obtaining this premium fuel. However, the President's action today does not alter state and local authority over intrastate pipelines and natural gas distributors.

The President's proposed legislation will allow the competitive forces of the market system, through arms length negotiations between producers and pipelines, to determine the price of new supplies of natural gas. It will also allow the interstate pipelines to compete with the intrastate pipelines for new gas supplies and lead to a more desirable distribution and usage of this premium fuel. On balance, the action taken by the President today is expected to provide consumers more supplies of natural gas at a lower cost than any other alternative.

Outer Continental Shelf

The President announced today that he has directed the Secretary of the Interior to take steps to triple the acreage leased on the Outer Continental Shelf for drilling for oil and gas by 1979.

He also announced that leasing would begin in new frontier areas including beyond the 200 meter isobath, and beyond the Channel Islands in the Pacific if the environmental impact statements indicate it can be done safely. He directed the Council on Environmental Quality, in cooperation with the National Academy of Sciences and other government agencies, to complete studies within one year on the environmental suitability of drilling on the Atlantic OCS and the Gulf of Alaska. By 1985, this accelerated OCS leasing schedule could increase annual production by approximately 1.5 billion barrels of oil (approximately 16% of our projected requirements) above what would be expected if the current lease schedule were maintained.

The offshore areas of the United States are estimated to contain 186 billion barrels of crude oil and over 844 trillion cubic feet of natural gas resources, which are recoverable with existing technology. These amounts represent approximately 40% of the nation's total undiscovered oil and gas reserves and offer promising opportunities since most onshore areas have already been explored and developed.

The Federal Government has leased OCS lands since 1954. Currently, leases in the OCS are producing over 400 million barrels of oil and about 3 trillion cubic feet of natural gas annually.

In 1969 regulations of the Department of the Interior governing leasing and operations by lessees on the Outer Continental Shelf (OCS) were extensively revised and strengthened after the problem in the Santa Barbara Channel. Since then, improvement of these standards for safety and pollution control has been a continuing effort covering a wide range of operations including drilling procedures, well abandonments, well completion procedures, pollution and waste disposal, and procedures for the installation and operations of platforms and pipelines.

Inspection procedures have been standardized and a statistical basis for inspection strategy has been developed. The OCS field inspection staff has been tripled since 1969. Six full-time helicopters are in use and a radio communication system has been installed. The revisions and strengthening of OCS operating standards and the increase in surveillance personnel has resulted in a marked improvement in OCS operations with regard to oil spills. There were no major oil spills in 1972. Minor oil spills in 1972 were reduced by 45 percent from 1971.

The President has resubmitted legislation which would authorize the Secretary of the Interior to buy back 35 leases in the Santa Barbara Channel where the Administration suspended drilling.

Alaska Pipeline

The discovery of oil in Alaska was announced in February of 1968. Current estimates are that there are 10 billion barrels of proven reserves on Alaska's North Slope. Once construction begins, 2½ to 3 years will be required before delivery of new production. Initial production will be 600,000 barrels per day, rising to 2 million barrels per day in five years.

After the initial discovery, the Interior Department established a task force to study the situation in April of 1969. A pipeline application was received by the Secretary of the Interior in June 1969. After a series of public hearings and the issuance of preliminary and final environmental statements, the Secretary of the Interior announced that he intended to issue a permit for pipeline construction in May of 1972. A series of court actions resulted in Supreme Court refusal to review an earlier Court of Appeals decision, which enjoined construction because of an outmoded legal restriction regarding rights-of-way.

The Administration has submitted two bills to Congress relating to this issue: S. 1040 which amends the mineral leasing laws and S. 1041 which provides new organic legislation for the Bureau of Land Management. Both of these bills incorporate provisions which allow the Secretary of the Interior to provide for adequate rights-of-way for all pipelines over Federal lands to ensure protection of the environment.

The alternative of a pipeline through Canada was thoroughly studied prior to the Secretary's decision to authoribe construction of the Trans-Alaska Pipeline (TAPS). The TAPS can be built much more quickly, creating U.S. jobs and utilized entirely for U.S. needs. Much more needs to be done prior to construction of a Trans-Canada line; detailed engineering and environmental studies would be required, hearings would be required, and permits prepared. At least three to five years delay would be involved for a Trans-Canada route which would probably cause greater environmental damage because of increased distance and the greater number of river crossings.

Shale Oil

President Nixon's June 4, 1971 Energy Message directed the initiation of a leasing program including preparation of an environmental impact statement. On June 29, 1971 the Secretary of the Interior issued a draft environmental impact statement for a proposed prototype oil shale leasing program which would include the offering of six leases under competitive bidding of 5,120 acres each, two each in Colorado, Utah and Wyoming.

The six leases discussed will support a combined production level of no more than 250,000 barrels per day. A final environmental impact statement on the proposed program is nearing completion. If a decision is reached to proceed with the proposed program based on the environmental analysis, lease sales can be held during the summer of 1973. Stringent environmental regulations will be incorporated into any such program, including provisions to monitor changes in the existing environment. Additional oil shale leasing will not be considered until the environmental impact of prototype development has been fully evaluated.

Oil shale is the most significant energy resource known to exist in the world, with possible resources exceeding 2 trillion barrels of hydrocarbons contained in the sedimentary formations of the Rocky Mountain States, in Colorado, Utah, and Wyoming. An estimated 600 billion barrels of oil could be commercially produced from oil shale under technological development already achieved, of which 80 billion barrels are easily accessible.

Of the 11 million acres of land containing oil shale deposits considered to be potentially of commercial value, some 8.3 million acres (about 72%) are owned by the Federal Government. These are primarily "public lands" managed for multiple-use purposes by the Department of the Interior.

Of the two options to producing oil shale, only surface and subsurface mining with retort processing are believed to have been advanced to the point where it may be possible to scale up to commercial production in this decade. *In situ* (or in place) processing is in the experimental phase and commercial application of this technique cannot be expected prior to 1980.

By the mid-1980's, oil shale could contribute approximately one million barrels of oil per day to help meet the nation's growing demands for energy. The ultimate potential has not yet geen established, but could exceed several million barrels per day.

Coal

The President discussed several factors related to national coal production and use in the Energy Message, including the Clean Air Act, mining legislation, and coal research.

In 1972, production of bituminous coal and lignite is estimated at 590 million tons, compared with 603 million tons in 1970. Of the 1972 production, about 57 million tons were exported and about 88 million tons were used for metallurgical purposes, leaving about 445 million tons for use as steam coal in domestic boilers. About four-fifths of this domestic steam coal is burned in power plants.

The President is committed to maintaining a strong industry to produce our most abundant domestic fossil fuel. At present rates of consumption, known reserves could supply the nation's energy needs for at least 300 years, and yet coal presently supplies less than 20% of our energy demands. Production has remained relatively level over the past several years despite rapidly increasing energy requirements. This stagnation has been attributed to some degree to health and safety standards, environmental restrictions on the sulphur content of coal, possible restrictions on strip mining, and until recently, price controls.

Current coal production is split roughly evenly between surface mined and deep mined coal. As of 1972, 4 million acres of land had been disturbed by surface mining, over half of which was unreclaimed. Coal mining may also result in serious damages to water, land, and property due to acid mine drainage.

The President earlier discussed his proposed Mined Area Protection Act in the Natural Resources and Environment Message on February 15, 1973. That bill would establish Federal requirements and guidelines to regulate the environmental consequences of surface and under-

ground mining. The bill calls for stringent standards for mining and reclamation and encourages reworking and reclamation of previously mined areas. In any state that does not enact the necessary regulations or enforce them, the Federal Government would be authorized to do so.

The Clean Air Act affects coal production and utilization because of Federal and state standards on emissions of sulphur oxides. Under the Act, EPA set ambient air quality standards to limit sulphur oxides as well as other pollutants in the air. Primary standards are set to eliminate health damages from air pollution and must be met generally by mid-1975. Secondary standards are set to eliminate welfare damages to plants, materials, and property and must be met within a reasonable time.

The states in complying with the Clean Air Act set regulations on the sulphur oxide emissions from fuel combustion sources to meet air quality standards. Each state has different regulations and in about half the states, regulations vary from region to region. In many cases the state plans were designed to meet both primary and secondary air quality standards simultaneously in 1975, although the Act allows for a reasonable time to meet secondary standards. Many states set stringent sulphur oxide emission limitations in areas already meeting both primary and secondary ambient air quality standards.

If all state regulations were put into effect by 1975, roughly one-third of our present steam coal production could not be burned without sulphur removal equipment. If all of this coal were to be displaced, about 26,000 miners would be out of work.

Utilities have several alternatives for compliance with the state regulations, the most significant of which are burning low sulfur fuels and installation of stack gas cleaning equipment. Increased low sulfur coal production can be attained from accelerated production from existing mines or by opening new mines. The regions where such low sulfur fuel would be mined include Appalachia where most current production of low sulphur coal exists, and in the states west of the Mississippi which have vast, largely untapped reserves.

Stack gas cleaning technology is being rapidly developed. Two stack gas cleaning installations in Japan have shown high efficiency of sulphur oxide removal and very little lost operating time. These units were developed by U.S. manufacturers. Nine U.S. stack gas cleaning units have been installed in this country, and these are in various stages of solving operating problems. Nineteen additional installations are currently planned or under construction. This technology should begin to become available in relatively small quantities to help meet clean fuel needs in 1975.

The President has urged the states to adopt the policy of the EPA Administrator announced last December to delay implementation of state secondary sulfur oxide regulations beyond 1975 where stringent controls are not needed to meet primary standards. Roughly 40% of current coal consumption occurs in areas already meeting both the primary and secondary standards. This action will insure that limited supplies of clean fuels and sulfur removal technology will be utilized first in areas which need them to meet health protective standards. It should also allow continued use of existing high sulfur coal supplies to meet energy needs until sulphur removal equipment is available in greater quantities.

Geothermal Energy

Geothermal energy is the natural heat of the earth. Water and steam serve to transfer the heat to the earth's surface. These areas of heat concentration may be tapped and utilized as a source of energy.

The present uses of geothermal resources include power generation, space heating and industrial processing. There are a few facilities in operation worldwide which utilize geothermal steam for electric energy, particularly in Europe. In the United States, the Geysers area in California presently has a 298 megawatt (MW) electric generation facility supplying about one-third of the electric power needs of San Francisco and plans are being developed for additional facilities of 404 MW and 510 MW.

About 1.8 million acres of land in our western states have now been classified as being within Known Geothermal Resources Areas (KGRA's), according to the U.S. Geological Survey. An additional 96 million acres are listed as having prospective value for geothermal resources.

Geothermal energy could contribute significantly to our future power needs at the local level. Nationally, geothermal energy will be less significant because our resources are located only in the western states.

It is anticipated that about 4,000 MW of geothermal electrical capacity will be available by the year 1985, less than 0.1% of our total energy needs. By the year 2000, geothermal energy is expected to contribute as much as 1.5% of our total energy needs. Technological breakthroughs may increase the contribution of geothermal energy to our total power supply.

The Geothermal Steam Act of 1970 was signed by the President on December 24, 1970. This Act provides for the leasing of public lands for geothermal resource development under the management of the Department of the Interior. The Administration's program, as emphasized in the President's Energy Message of June 4, 1971, is intended to provide for the utilization of geothermal resources under environmentally safe conditions and sound resource management practices.

It is expected that the leasing of geothermal resources on public lands will stimulate development of this resource. The Department of the Interior is making progress in the preparation of the environmental statement for the geothermal leasing program and the proposed geothermal development and operating regulations. It is anticipated that the final environmental statement will be issued in the near future. If it is decided to proceed with the program, competitive leases incorporating environmentally safe operating and development practices may be offered within a few months after publication of the final environmental statement.

Nuclear Power

The world's first nuclear reactor achieved initial operation in Chicago on December 2, 1942, launching a new technology. The Atomic Energy Commission, organized in 1946 to direct the nation's nuclear programs, proceeded with reactor development and in 1951 an experimental unit produced for the first time a small amount of electric power. Three years later, the AEC formally inaugurated a developmental effort looking toward commercial power reactors. In 1957 the

Shippingport (Pa.) plant began operation as the first reactor producing power for commercial consumption.

In the 1950's several utilities began building reactors in the 200,000 kilowatt (KW) size range. The next scale up, to 400,000 to 500,000 KW, came in the early 1960's and by the late 1960's reactors on order had advanced to the 1,000,000 KW size as utilities took advantage of improvements in the economics of larger plants.

At present, 30 nuclear power plants are in operation, 60 are under construction, and 75 others have been ordered.

With 150 reactor years of operating experience in the United States, the safety of nuclear power has been clearly proved.

Nuclear power, now providing about 4% of the nation's electricity, will account for up to 25% by 1985, and up to 60% by the end of the century. Thus, the current nuclear capacity of about 14,700,000 KW is expected to grow to 1,200,000,000 KW by the year 2000.

The AEC has major developmental programs underway in the energy field—the fast breeder reactor, which holds the promise of making reserves of uranium fuel last for centuries, and controlled thermonuclear fusion which, if harnessed in a reactor, would use the virtually limitless supplies of deuterium in seawater as fuel.

Mandatory Oil Import Program

A voluntary oil import program was begun in 1957. The Mandatory Oil Import Program was initiated in 1959 on the basis of a national security finding to limit low priced imports, thus providing protection for development of higher cost U.S. production and refining capacity. It was clear that, without regulation, market forces would encourage U.S. integrated oil companies to exploit cheaper foreign reserves of crude oil despite the risk of disruption to supply. This, in turn, could jeopardize the viability of the U.S. domestic oil industry. In the 1960's, the program did serve a useful purpose, maintaining a healthy domestic petroleum industry which could not have survived in direct competition with low cost Middle Eastern imports.

Within the industry, the independent refiners, terminal operators, jobbers and marketers have historically all received the great majority of their supplies (crude or products) from the major oil companies, not other independents. Sale of import licenses (tickets) is prohibited under the program. Exchanges of tickets, however, have been common. Exchanges of tickets were attractive to both parties, i.e., inland independent refiners used domestic crude produced by the major oil companies and the major oil companies imported and refined the foreign crude using the inland refiners' tickets.

In 1972, prorationing reached the 100% level; U.S. production capacity had peaked and began declining. Between 1969 and 1972, total oil imports rose by 52% to 4.7 million barrels per day. Imports for 1973 of both crude oil and products are projected at 6.0 million barrels per day. In early 1972, landed foreign crude prices were still lower than domestic prices and the sum of domestic production plus imports was equal to demand. The ticket still had value and could be traded, thus facilitating full operation of inland, independent refineries and providing ample products for the independent marketers.

In 1973, landed foreign crude and product prices rose significantly.

This was due to increased OPEC ownership participation in production companies, devaluation of the dollar, high tanker rates, and high spot market prices for scarce low sulphur fuels. With increased ticket allocations (56% increase in 1973), there is now no shortage of tickets. These two factors have made import tickets of little or no value. Under these circumstances, some major oil companies have been less willing to trade tickets. Thus, many independent refiners and marketers have had problems obtaining supplies.

To respond to the need for increasing importation of crude oil and products, the President in 1972 raised the import quota levels twice to ensure adequate supplies. Quotas were totally lifted on heating oil in December, 1972, until April 30, 1973, and the 1973 import quota is 56% higher than in 1972. In addition, in March of this year, the President removed all limitations on the amount of import licenses which can be issued by the Oil Import Appeals Board (OIAB). The OIAB now issues these licenses to any party, usually a refiner, terminal operator, or marketer, based on hardship. These actions, coupled with the longer range actions announced today, are expected to reduce the possible near term fuel shortages.

The President has instituted the most sweeping changes since the Program was begun in 1959. The Program is being restructured to meet both the current needs for fuels at the lowest cost to the consumer by removing the current tariffs, while at the same time, providing longer term stability and additional incentives for increased domestic exploration and production and new refinery construction and expansion by providing for license fees to be imposed on imports above the 1973 levels.

Those presently holding tickets under the 1973 program will be able to trade these valuable, license fee exempt import licenses for domestic crude oil or products. This should help alleviate some of the current distribution problems affecting primarily the inland independent refiners and marketers. The licensee-fee exempt import rights will be phased out over seven years, to minimize Federal involvement and provide for more efficient market operation. The President also announced specific provisions to stimulate the construction of domestic refineries and plans to provide for increased storage to minimize the impact of possible supply interruptions.

Deepwater Ports

There are at least 60 ports or buoy facilities currently in operation worldwide which are capable of handling ships of 175,000 deadweight tons (DWT) or more. These facilities generally have water depths of at least 80 feet. There are no ports in the United States now capable of handling these large ships; consequently, the U.S. is currently not able to benefit directly from the significant economic savings and environmental benefits from the use of offshore ports and supertankers.

With a few exceptions, the United States has a shallow continental shelf and no natural deepwater harbors. Most major U.S. ports are currently dredged to depths between 35 and 45 feet. It is generally not feasible to build deepwater ports in the United States by dredging or improving existing harbors. Thus, most deepwater ports would have to be built offshore beyond state waters in international waters, sometimes at distances of twenty or thirty miles from the shoreline.

At the end of 1971, more than one-fourth of the world's total oil-carrying capacity consisted of ships in the 175,000 DWT class and over. A total of 223 such ships were in operation and 321 more were on order. New orders represent approximately 50% of existing tanker tonnage of all registries.

Total tanker arrivals for the 48 contiguous states in 1971 was 67,770, with 56,700 (84%) of these in Petroleum Administration District I (PAD I) which is the Eastern Seaboard. West Coast arrivals totaled 4,420 and Gulf Coast arrivals were 6,650. Most of the shipments were products from the Gulf Coast and the Caribbean to PAD I. The average size of the ships currently carrying imported crude is about 29,000 DWT.

By 1980, Eastern Seaboard (PAD I) imports of foreign oil by very large crude carriers (VLCC) are expected to average between 1 and 3.5 million barrels per day, virtually all of which will come from Africa or the Persian Gulf. If the U.S. does not rapidly develop deepwater port capability, foreign transshipment terminals in the Bahamas and the Canadian Maritime Provinces will probably be developed by U.S. and foreign companies. The U.S. will then be serviced by increasing numbers of small and medium sized transshipment vessels, increasing the risks of pollution from vessel casualties and operations and requiring expansion of conventional port facilities.

Significant economies can be achieved from use of larger vessels. Dollar per ton freight costs could be reduced nearly 30% by increasing tanker size from 65,000 to 250,000 DWT. Greater economies can be realized utilizing bigger ships.

The environmental advantage of offshore deepwater ports is that they reduce the risks of collision and grounding and minimize the probability that spilled oil will reach beaches or estuaries. The most valid environmental concern involves the impact of primary and secondary economic development, such as refineries and petrochemical plants, associated with the port. These risks are recognized and can be controlled through land use planning and adequate local zoning. Dispersion of facilities versus concentration with only a few ports would probably significantly reduce the environmental impact on any particular region.

The President has proposed legislation which will provide authority for the Secretary of the Interior, in consultation with other concerned Federal agencies and state governments, to issue a license in waters beyond state jurisdiction for the construction and operation of deepwater ports. The legislation is intended to simply provide a complete legal regime for licensing beyond the three mile limit, under strict environmental safeguards and with provisions for navigation and safety. The President recognizes the importance of the states in developing ports and associated onshore facilities. The legislation does not preempt state authority, but extends state laws to any deepwater port licensed by the Department of the interior, as long as those laws are not in conflict with Federal laws.

The President's legislation makes provision for issuance of the necessary license for the rights-of-way for an associated pipeline by amending the Outer Continental Shelf Lands Act (OCSLA). Under the OCSLA, the Secretary of the Interior currently grants rights-of-way for pipelines constructed to bring oil and gas ashore from offshore drilling operations.

Energy Conservation

Current Federal energy conservation programs are diffused in many Federal departments and agencies. The President has directed the establishment of an Office of Energy Conservation within the Department of the Interior. That Office will coordinate Federal energy conservation programs, conduct research on issues related to energy conservation, and work to educate the public on energy efficiency and costs.

Energy demand is growing more rapidly than in the past, now at levels of 4.8% annually. Some sectors, such as consumption of fuels for electricity and transportation, are growing at significantly faster rates. Besides the impact of the continually increasing U.S. standard of living and the availability of more labor saving devices to more Americans, environmental regulations have significantly increased energy consumption. This is particularly apparent with the automobile, where pollution control devices have reduced engine operating efficiencies.

The President directed the Department of Commerce, in cooperation with the Council on Environmental Quality and the Environmental Protection Agency, to develop a voluntary labeling program which would apply to major energy-consuming home appliances, automobiles and auto accessories. Automobiles and home appliances account for approximately 20% of current energy demand. Manufacturers could voluntarily display labels providing data on energy use, as well as a rating based on the product's efficiency relative to other similar projects. Standard testing procedures for appliances would be developed by the National Bureau of Standards and for autos by the Environmental Protection Agency. As a first step toward this goal, the Environmental Protection Agency will shortly release the results of its tests of automotive efficiency.

In the last two years, the President has twice directed the Department of Housing and Urban Development to strengthen FHA insulation requirements for single and multifamily housing. The President has now directed HUD to evaluate extension of insulation standards to mobile homes.

The President directed all Federal agencies to develop programs to conserve energy. These programs include building design and construction, procurement of energy conserving products and through taking into account the energy impacts of their major actions. The new Office of Energy Conservation will work closely with the Federal agencies to implement this directive.

The General Services Administration is constructing a new Federal office building in Manchester, New Hampshire, using advanced energy conservation techniques. The GSA has established a goal of reducing energy use by 20% over typical buildings of the same size. The National Bureau of Standards is now evaluating energy use in an actual full size house in its laboratories in Gaithersburg, Maryland. When this evaluation is complete, analytical techniques will be available to help predict energy use for new structures. This effort, combined with the experience gained in the construction and operation of the demonstration Federal building, will provide guidance for construction of Federal buildings and assist architects and contractors to help them conserve energy.

ENERGY RESEARCH AND DEVELOPMENT

The President indicated today that funding for energy R&D would continue to be monitored carefully and when additional funds are essential those funds would be provided.

A detailed summary of the specific programs is attached. The highlights of the President's energy R&D program follow.

Coal.—The President's fiscal year 1974 budget includes a 27% increase to $120 million for coal R&D—or a 300% increase since 1970. Additional funds to be requested would further increase this level. Major programs at the Department of the Interior to expand the use of coal in a manner compatible with the environment are:

—liquefaction and precombustion removal of pollutants.
—high BTU coal gasification to produce pipeline quality gas.
—low BTU coal gasification for industrial and utility use.

Nuclear Fission.—The fiscal year 1974 budget provides for a $63 million increase for AEC's nuclear fission R&D programs.

Highlights are:

—a $51 million increase to maintain the pace of the Liquid Metal Fast Breeder Reactor program toward the goal of commercial demonstration by 1980.
—an 11% increase in R&D to further ensure the safety of the current generation of light water reactors.

Nuclear Fusion.—The AEC's thermonuclear fusion program is increased 35% to $88 million in the fiscal year 1974 budget. This program includes:

—a 19% increase to develop controlled thermonuclear fusion reactors through magnetic confinement.
—a 59% increase to develop the capability to initiate a thermonuclear reaction using a high powered laser.

Solar Energy.—The solar energy program would triple, from $4 million in fiscal year 1973 to $12 million in fiscal year 1974. The program will be administered by the National Science Foundation and emphasize the development of solar energy for:

—heating and cooling of buildings.
—producing and converting organic materials to fuels.
—generating electricity.

Additional Environmental Control R&D.—In addition to the substantial efforts to develop cleaner fuel from coal, the fiscal year 1974 budget provides for a 24 percent increase, from $38 to $47 million, for other environmental control research with expected near-term benefits. This includes a construction of the TVA demonstration SO_x removal plant as well as continued R&D aimed at minimizing the thermal effects of power plants.

Other R&D Programs.—Other energy R&D programs include:

—an accelerated effort in utilization of geothermal energy.
—development of magnetohydrodynamic (MHD) devices, in cooperation with the Soviet Union, to produce electric power more efficiency from heat.

Electric Utility Participation.—The President also cited the importance of non-Federal energy R&D and noted with pleasure the formation of the Electric Power Research Institute. He indicated that this utility R&D organization, with a budget in 1974 exceeding $100

million, would provide additional capability to accelerate and influence the development of energy technology. The President also urged all State utility commissions to consider permitting increased R&D expenditures to be included in utility rate bases.

INTERNATIONAL

The President called for greater cooperation between all nations on energy matters. He specifically noted the need for consuming nations to cooperate to ensure that ample supplies are available to all nations.

Most of the world's oil producing nations have been organized into a cartel in 1960 called the Organization of Petroleum Exporting Countries (OPEC).[1] The member nations provide over 90 percent of the world's current oil trade and 75 percent of the free world oil reserves. Revenues to these nations in 1970 were approximately $7 billion; and are growing.

In early 1972 the exporting states won special price increases from the companies to compensate for devaluation of the U.S. dollar and will receive similar increases in 1973. Recently, the oil companies accepted the host governments as partners in petroleum operations. Under the agreements worked out for the Persian Gulf states, government equity in the properties will rise in steps from an initial 25 percent to 51 percent by 1982.

The United States currently imports approximately 6.0 million barrels per day of crude oil and petroleum products. The products, approximately 2.2 million barrels per day, are mostly residual fuel oil for the Eastern Seaboard (2.3 million barrels per day). U.S. imports by source can be summarized as follows:

	Million barrels per day	Percent
U.S. oil imports (current, by source of origin):		
Canada	1.2	20
Other Western Hemisphere	2.3	38
Eastern Hemisphere	2.5	42
Total	6.0	(1)

[1] 33 percent of demand.

The nations of Western Europe and Japan are highly dependent on foreign sources of supply for fuels, particularly the Middle East.

INTERNATIONAL IMPORT SUMMARY

[Million barrels per day]

	1972	Established 1975	Established 1980	Current dependence on oil (percent)
United States	4.7	6.0	10–12	46
Western Europe	14.4	15.5	22–26	60
Japan	5.0	5.5	10–13	75

[1] The charter members were Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. Joining later were Qatar (1961), Libya and Indonesia (1962), Abu Dhabi (1967), Algeria (1969), and Nigeria (1971).

The United States meets regularly with these other consuming nations, including Canada and Australia, as a member of the Organization for Economic Cooperation and Development (OECD).

The entire world faces energy-related problems similar to those faced by the United States, although this nation is more fortunate than many with vast reserves of fossil fuels. The President proposed greater international cooperation in solving these problems through research and development. He cited the recent agreements with the Soviet Union to exchange information on fusion, fission, electric generation, transmission and pollution control technology and to jointly pursue research in magnetohydrodynamics (MHD).

Energy Organization

In March 1971, the President proposed legislation to create a Department of Natural Resources which would have included important energy policy functions and programs. The 92nd Congress did not act on that proposal.

The President has announced a number of changes by executive action better to focus and implement Federal energy programs and coordinate energy matters which affect many agencies and involve both domestic and international considerations. In addition, he will propose shortly new organizational arrangements which require Congressional approval.

Steps taken by the President include:

—Established a Special Energy Committee composed of his Assistants for Domestic Affairs, Foreign Affairs, and Economic Affairs.

—Appointed a Special Consultant to the President for energy matters who heads a staff in the Office of the President to support the Special Energy Committee.

—Issued, today, an Executive Order formalizing the Energy Committee and reaffirming the appointment and role of his Special Consultant for Energy.

—Appointed in January 1973 the Counsellor to the President for Natural Resources who coordinates a broad range of domestic natural resources, environment and energy matters.

—Direct the Secretary of the Interior to strengthen his Department's organization for energy activities. Actions accomplished to date or planned include creation of a new position with the title of Assistant Secretary for Energy and Minerals, a new Office of Energy Conservation, and increased capability for energy data and analysis. Capabilities for overseeing and coordinating energy R. & D. are being strengthened.

—Placed authority in the Department of Treasury for direction of the Oil Policy Committee, which committee coordinates the oil import program and recommends changes in the program to the President.

These actions will help improve the ability of the Executive Branch to develop, implement and coordinate energy programs, but they are largely interim steps. More fundamental changes are needed and the President will submit legislation to the Congress establishing a Department of Energy and Natural Resources (DENR). This legislation will modify the President's 1971 proposal for DNR to provide more emphasis for energy policy and management.

FEDERAL ENERGY R. & D. FUNDING

Type of energy and agency	Fiscal year— 1970	1971	1972	1973	1974
Coal resources development	30.4	49.0	73.5	94.5	119.9
Production and utilization R. & D., including gasification, liquefaction, and MHD:					
DOI-OCR	13.5	18.8	30.3	43.5	52.5
DOI-BOM	13.2	15.4	14.7	19.8	18.1
Mining health and safety research: DOI-BOM	3.7	14.8	28.5	31.2	28.3
Interior central fund (part): DOI					21.0
Petroleum and natural gas	8.8	11.5	12.9	12.8	9.1
Petroleum extraction technique: DOI-BOM	2.7	2.7	3.2	3.1	3.1
Nuclear gas stimulation: AEC	3.7	6.1	7.1	7.2	4.0
Oil shale: DOI-BOM	2.4	2.7	2.6	2.5	2.0
Nuclear fission	283.4	295.2	358.0	412.0	475.4
Liquid metal fast breeder reactor:					
AEC	144.3	167.9	236.0	269.0	320.0
TVA			.2	3.0	3.0
Other civilian nuclear power: AEC	108.5	96.6	86.8	98.0	90.5
Nuclear materials process development: AEC	30.6	30.7	35.0	42.0	61.9
Nuclear fusion	57.5	42.2	52.8	65.5	88.5
Magnetic confinement: AEC	34.3	32.2	33.3	39.6	47.3
Laser: AEC	3.2	10.0	19.5	25.9	41.2
Solar energy: NSF			1.7	4.2	12.2
Geothermal energy	.2	.2	1.4	3.4	4.1
NSF			.7	.7	1.4
DOI-GS	.2	.2	.7	2.5	2.5
DOI-BOM				.2	.2
Electrical generation, transmission and storage		1.3	2.2	4.9	4.1
NSF		.5	1.3	2.4	.9
DOI		.8	.9	1.0	1.0
AEC				1.5	2.2
Control technology (stationary sources)			28.6	38.1	47.5
Air pollution control technology: EPA	19.8	17.4	24.5	29.5	21.5
SOX removal: TVA			1.1	3.0	18.0
Thermal effects:					
EPA	.8	.6	.7	1.0	1.0
AEC	1.5	1.8	2.3	4.6	7.0

EXECUTIVE ORDER

APRIL 18, 1973

SPECIAL COMMITTEE ON ENERGY AND NATIONAL ENERGY OFFICE

This Administration is determined to continue to develop a more comprehensive, integrated national energy policy to meet the emerging energy challenge. Many steps have been taken toward that end, including measures to increase domestic production of all forms of energy without violating our natural environment, to conserve the energy we produce, to better utilize our current resources, and to use our vast scientific and technological capacities to develop new sources and new forms of energy. I have now determined that in order to protect and promote the interests of the people of the United States as energy users, and to coordinate the policies of the executive branch in this area, it is necessary to establish a Special Committee on Energy and a National Energy Office.

Now, therefore, by virtue of the authority vested in me as President of the United States by the Constitution and statutes of the United States, it is hereby ordered as follows:

SPECIAL COMMITTEE ON ENERGY

SECTION 1. Three Assistants to the President, John D. Ehrlichman, Henry A. Kissinger, and George P. Shultz, shall constitute a Special Committee on Energy. The Director of the National Energy Office shall perform his functions under this order in accordance with policies and guidance provided him by the Special Committee.

ESTABLISHMENT OF THE OFFICE

SEC. 2. There is hereby established in the Executive Office of the President a National Energy Office. The Office shall be under the immediate supervision and direction of a Director who shall be designated by the President. The Director shall report to the President through the Special Committee on Energy.

FUNCTIONS OF THE DIRECTOR

SEC. 3. (a) The Director shall advise the President, through the Special Committee on Energy, with respect to all Federal energy programs, activities, and related matters.

(b) The Director shall recommend policies and guidelines pertaining to energy matters for all energy related programs within the Executive Branch. To the maximum extent permitted by law, Federal officers and Federal departments and agencies shall cooperate with the Director in carrying out his functions under this Order.

(c) In addition, the Director shall—

(1) assure the development of comprehensive plans and programs to insure the availability of adequate and dependable supplies of energy;

(2) assure that Federal energy policy is properly coordinated;

(3) evaluate all such programs;

(4) advise the heads of departments and agencies of his findings and recommendations, when appropriate;

(5) make recommendations to the Director of the Office of Management and Budget concerning proposed funding of energy programs and activities;

(6) constitute a clearinghouse for the prompt consideration of energy problems brought to his attention by Federal departments and agencies and by other public and private entities, organizations, agencies, or individuals; and

(7) report, through the Special Committee on Energy, from time to time, to the President concerning the foregoing.

RICHARD NIXON.

THE WHITE HOUSE, *April 18, 1973.*

STATEMENT

JUNE 29, 1973

One of the most critical problems on America's agenda today is to meet our vital energy needs.

Two months ago I announced a comprehensive program to move us forward in that effort. Today I am taking the following additional measures:

First, I am appointing John A. Love, Governor of Colorado, to direct a new energy office that will be responsible for formulating and coordinating energy policies at the Presidential level.

Second, I am asking the Congress to create a new Cabinet-level department devoted to energy and natural resources and a new independent Energy Research and Development Administration.

Third, I am initiating a $10 billion program for research and development in the energy field, which will extend over the next five years.

Finally, I am launching a conservation drive to reduce anticipated personal consumption of energy resources across the Nation by 5 percent over the next twelve months. The Federal Government will take the lead in this effort, by reducing its anticipated consumption by 7 percent during this same period.

America faces a serious energy problem. While we have only 6 percent of the world's population, we consume one-third of the world's energy output. The supply of domestic energy resources available to us is not keeping pace with our ever-growing demand, and unless we act swifty and effectively, we could face a genuine energy crisis in the foreseeable future.

PROGRESS SINCE APRIL

On April 18, I submitted a message to the Congress discussing the energy challenge and the steps necessary to meet it. That message emphasized that as we work to conserve our energy demands, we must also undertake an intensive effort to expand our energy supplies. I am happy to report that many of these steps are already underway, and that they are proving effective.

—At least eight oil companies have made firm decisions to undertake significant refinery construction projects. Within the next three years these projects will increase refinery capacity by more than 1.5 million barrels daily—a 10 percent increase over existing capacity.

—We have announced and carried out a voluntary oil allocation program to help provide farmers and essential government and health

services, as well as independent refiners and marketers, with an equitable share of available petroleum.

—A great deal of oil from the Outer Continental Shelf and other Federal lands, which has traditionally been retained by the producers, has been allocated to small independent refiners to augment their present supplies. That figure has already reached 100 thousand barrels of oil per day and will increase to 160 thousand by mid-August.

—The Council on Environmental Quality has begun a study of the environmental impact of drilling on the Atlantic Outer Continental Shelf and in the Gulf of Alaska. The study is scheduled for completion by next spring.

—The Senate Committee on Interior and Insular Affairs has reported out legislation which would finally permit the construction of an Alaskan pipeline. Legislation will shortly be reported out in the House of Representatives. Since construction of that pipeline would provide two million barrels of domestic oil a day, I again urge that the Congress give swift approval to this legislation.

—The Office of Energy Conservation and the Office of Energy Data and Analysis have been established at the Department of the Interior. Although not yet fully staffed, they are now beginning to provide information we must have to proceed with our developing energy policy.

—The Commerce Department has proposed regulations covering the labeling of household appliances so that consumers can make comparisons of the efficiency with which the appliances consume energy.

—The Environmental Protection Agency has published information on gasoline mileage for 1973 automobiles.

—The Department of State is taking steps to consult with the major oil-producing nations to develop the cooperative arrangements needed to ensure adequate and stable sources of oil in the future. We are also working closely with the other major oil-consuming nations in studying ways of meeting growing world demand for energy supplies. These include emergency sharing arrangements, as well as stockpile and rationing programs which might lead to more coordinated policies for meeting oil supply shortages should they occur in the future.

Several of the steps which I announced in April were in the form of legislative proposals which will help to increase energy supplies. They called for the Alaskan pipeline, competitive pricing of natural gas, licensing of deepwater ports, streamlining of powerplant siting, and a rational framework for controls over surface mining. Only the pipeline request has been finally acted on in committee. I hope the Congress will now act quickly and favorably on my other requests.

These steps are a beginning. But they are only a beginning.

Reorganization

The acquisition, distribution, and consumption of energy resources have become increasingly complex and increasingly critical to the functioning of our economy and our society. But the organization of

the Federal Government to meet its responsibilities for energy and other natural resource policies has not changed to meet the new demands. The Federal Government cannot effectively meet its obligations in these areas under the present organizational structures, and the time has come to change them.

Energy Policy Office

Effective immediately, the duties of the Special Energy Committee and National Energy Office which I set up 2 months ago to advise and assist in the preliminary organizational phases of the Federal response to the energy challenge will be combined in an expanded Energy Policy Office within the Executive Office of the President. This office will be responsible for the formulation and coordination of energy policies at the Presidential level.

This office will be headed by Governor Love, who will be an Assistant to the President as well as Director of the Energy Policy Office. He will spend full time on this assignment and will report directly to me. My Special Consultant on energy matters, Charles DiBona, will continue in his present advisory capacity, working within the new office.

Department of Energy and Natural Resources

Two years ago I sent to the Congress my proposals for a sweeping reorganization of executive departments and independent agencies to provide an executive branch structure more responsive to the basic goals of public policy. One of those proposals called for a Department of Natural Resources.

During the time these proposals have been receiving the consideration of the Congress, my Administration has continued to refine and improve them. It has become increasingly obvious that reorganization is imperative, and nowhere more clearly so than in the areas of natural resources and related energy matters.

I am therefore proposing today the establishment of a new Cabinet-level Department of Energy and Natural Resources, responsible for the balanced utilization and conservation of America's energy and natural resources.

The Department of Energy and Natural Resources would take charge of all of the present activities of the Department of the Interior, except the Office of Coal Research and certain other agency research and development programs, which would be transferred to a new Energy Research and Development Administration. It would also assume the responsibilities of the Forest Service and certain water resource activities of the Soil Conservation Service from the Department of Agriculture; the planning and funding of the civil functions of the Army Corps of Engineers; the duties of the National Oceanic and Atmospheric Administration of the Department of Commerce, the uranium and thorium assessment functions of the Atomic Energy Commission, the functions of the interagency Water Resources Council, and gas pipeline safety functions of the Department of Transportation.

Energy Research and Development Administration

I am further proposing to the Congress that we create an Energy Research and Development Administration.

The new Administration would have central responsibility for the planning, management and conduct of the Government's energy research and development and for working with industry so that promising new technologies can be developed and put promptly to work. The new Administration would be organized to give significant new emphasis to fossil fuels and potential new forms of energy, while also assuring continued progress in developing nuclear power.

In order to create the new Administration, the present functions of the Atomic Energy Commission, except those pertaining to licensing and related regulatory responsibilities, would be transferred to it as would most of the energy reseach and development programs of the Department of Interior. The scientific and technological resources of the AEC should provide a solid foundation for building a well-conceived and well-executed effort.

Under my proposal, the five-member organization of the AEC would be retained to provide direction for a separate and renamed Nuclear Energy Commission which would carry on the important licensing and regulatory activities now within the AEC. In addition, I have asked that a comprehensive study be undertaken, in full consultation with the Congress, to determine the best way to organize all energy-related regulatory activities of the Government.

Research and Development

While we must rely on conventional forms of fuel to meet our immediate energy needs, it is clear that the answer to our long-term needs lies in developing new forms of energy.

With this necessity in mind, I am taking three steps immediately to enlarge our Federal energy research and development efforts.

First, I am initiating a Federal energy research and development effort of $10 billion over a five-year period, beginning in fiscal year 1975. To give impetus to this drive, I am directing that an additional $100 million in fiscal year 1974 be devoted to the acceleration of certain existing projects and the initiation of new projects in a number of critical research and development areas. At least one-half of the funding for the new initiatives for this coming fiscal year will be devoted to coal research and development with emphasis on producing clean liquid fuels from coal, improving mining techniques to increase coal mining safety and productivity, accelerating our coal gasification program and developing improved combustion systems. The remainder of the $100 million will be for research and development projects on advanced energy conversion systems, environmental control, geothermal steam, conservation, and gas-cooled nuclear reactors. While it is essential that we maintain the present budget ceiling for fiscal year 1974, these vital programs must and can be funded within that ceiling.

Second, I am directing the Chairman of the Atomic Energy Commission to undertake an immediate review of Federal and private energy research and development activities, under the general direction of the Energy Policy Office, and to recommend an integrated energy research and development program for the Nation. This program should encourage and actively involve industry in cooperative efforts to develop and demonstrate new technologies that will permit better use of our energy resources. I am also directing the Chairman,

in consultation with the Department of the Interior and other agencies, to recommend by September 1 of this year specific projects to which the additional $100 million would be allocated during fiscal year 1974. By December 1 of this year, I am asking for her recommendations for energy research and development programs which should be included in my fiscal year 1975 budget.

Third, I am establishing an Energy Research and Development Advisory Council reporting to the Energy Policy Office, to be composed of leading experts in various areas of energy research and development from outside the Government.

I feel that these steps will greatly improve and expand our current energy research and development effort and will ensure the development of technologies vital to meeting our future energy needs.

Conservation

The Federal Effort

In my Energy Message of April 18, I announced preliminary steps to conserve America's fuel supplies. I said at that time that while energy conservation is a national necessity, conservation efforts could be undertaken on a voluntary basis. I still believe this.

However, public persuasion alone is not sufficient to the challenge confronting us. The Federal Government is the largest consumer of energy in the country and, as such, it hasi ts own unique role to play in reducing energy consumption and thus setting an example for all consumers.

Effective today, I am therefore ordering the Federal Government to achieve a seven percent reduction in its anticipated energy consumption over the next 12 months.

I have directed the heads of all Cabinet departments and other Federal agencies to report by July 31 on the specific steps they will take to meet this target. Secretary Morton will be responsible for monitoring agency efforts and reporting their progress to me.

These conservation measures are to be designed to ensure that no vital services are impaired nor the proper functioning of these departments and agencies curtailed. Exceptions will be permitted only in unique circumstances, such as the program of uranium enrichment at the AEC where a substantial reduction in energy consumption would have a detrimental effect on our efforts to provide new forms of energy.

While the precise means of conserving energy will be left to the discretion of Cabinet and agency heads, I am directing that conservation efforts include the following measures:

—Reduction in the level of air conditioning of all Federal office buildings throughout the summer.

—Reduction in the number of official trips taken by Federal employees.

—Purchase or leasing of automobiles and other vehicles which provide good gasoline mileage.

Each department and agency is expected to review all of its activities to determine how its own demands might be reduced. The Department of Defense, the largest single consumer of energy within the executive branch, has already examined its activities and has taken steps to reduce its energy demands by 10 percent over last year—steps which will in no way jeopardize our military preparedness.

Conservation in the Private Sector

I am also directing all departments and agencies to work closely with Secretary Morton and the Office of Energy Conservation in the development of long-term energy conservation plans and recommendations for both the private and the public sector.

At my request, the Secretary of the Interior, the Secretary of Commerce and Governor Love are to meet with representatives of American industry to discuss ways of cutting back on unnecessary consumption of energy and to urge their active participation in the conservation effort.

Further, I have directed the Secretary of Transportation to work with the Nation's airlines, the Civil Aeronautics Board, and the Federal Aviation Administration to reduce flight speeds, and, where possible, the frequency of commercial airline flights. This effort is now underway. By effecting only a small reduction in speeds and flights, it is possible to achieve significant reductions in energy consumption.

Placing the Challenge in Perspective

As these measures cover a broad range of activities in the public and private sectors, I want to put both the problem and the proposed conservation measures into perspective. We all need to understand the dimensions of the challenge, as well as the significance of the role every single American has to play in meeting it.

The Department of the Interior estimates that under the conditions of current usage, our available supply of gasoline this summer could fall short of demand by one or two percent and possibly as much as five percent should the most adverse conditions prevail. To overcome this potential shortage, and to reduce pressure on supplies of other energy resources, I am suggesting that a reasonable and attainable national goal is to reduce anticipated energy use by individual consumers by five percent.

We can achieve this goal by making very small alterations in our present living habits, for steps such as those we are taking at the Federal level can be taken with equal effectiveness by private individuals. We need not sacrifice any activities vital to our economy or to our well-being as a people.

Raising the thermostat of an air conditioner by just 4 degrees, for instance, will result in a saving of an estimated 15–20 percent in its use of electricity.

Just as the Government can obtain energy efficient automobiles, private citizens can do the same. Nearly three-quarters of the gasoline used in America is consumed by automobiles.

Those who drive automobiles can also assist by driving more slowly. A car travelling 50 miles per hour uses 20 to 25 percent less gasoline per mile than the same car travelling 70 miles per hour. Carpooling and using public transportation will result in further fuel savings.

In order to help reduce driving speeds, I am today taking the additional step of writing to each of the Nation's Governors, asking them to work with their State legislatures to reduce highway speed limits in a manner consistent with safety and efficiency, as well as with energy needs.

I also continue to urge the Congress to pass highway-mass transit legislation which would provide States and localities flexibility to choose between capital investment in highways or mass transit. Diversion of some commuter traffic from single occupant automobiles to mass transit will result in significant energy and environmental benefits, and at the same time, permit the highways to be operated in the efficient manner for which they were designed.

Energy conservation is not just sound policy for the country, it is also good economics for the consumer.

Changing to a more efficient automobile, for example, could produce savings of as much as one thousand gallons of gas in the course of a year. A savings of one thousand gallons of gas equals a personal savings of approximately $400.

Cutting down on air conditioning and heating, of course, also cuts down on the family gas or electric or oil bill.

Actions to reduce the rate of growth in energy demands will also improve our ability to protect and improve the quality of our environment.

The conservation of existing energy resources is not a proposal; it is a necessity. It is a requirement that will remain with us indefinitely, and it is for this reason that I believe that the American people must develop an energy conservation ethic.

As a matter of simple prudence and common sense, we must not waste our resources, however abundant they may seem. To do otherwise, in a world of finite resources, reflects adversely upon what we are as a people and a Nation.

Conclusion

We face a challenge in meeting our energy needs. In the past, the American people have viewed challenges as an opportunity to improve our Nation, and to move forward. The steps I have outlined above are not meant to be conclusive. They are part of the ongoing process.

I urge the Congress to act with due concern for our energy needs by rapid consideration of all of my legislative proposals in this field, especially my request to clear the way for the Alaskan pipeline.

Over the coming years it is essential that we increase our supplies of energy.

I urge the members of the Federal Government to play their role in meeting the spirit and the letter of my energy-conservation directives.

I urge private industry to respond with all the imagination and resourcefulness that has made this Nation the richest on earth.

But the final question of whether we can avoid an energy crisis will be determined by the response of the American people to their country's needs. In the past, whenever we have been faced with real challenges, the American people have joined together to share in the common interest.

I am confident we will do so now.

Richard M. Nixon.

The White House, *June 29, 1973.*

SUMMARY OUTLINE—FACT SHEET

June 29, 1973

BACKGROUND

On April 18, 1973, the President's Energy Message to the Congress outlined the energy challenge facing America and announced initial steps to meet that challenge. That message pointed out that the United States has only six percent of the world's population but consumes approximately one-third of the world's total energy production. For the past several years, the United States has been consuming energy at a faster rate than it has been developing new domestic supplies. The result has been increased reliance on foreign energy sources, with over 30 percent of our current petroleum needs coming from abroad and the increasing likelihood of domestic energy shortages.

The President's Energy Message announced a number of initiatives to encourage the development of the Nation's domestic energy resources base and he called for a comprehensive effort to reduce the growth in our energy consumption.

Seven pieces of legislation important to the improvement of our energy situation have been submitted to the Congress and are now awaiting action. This proposed legislation includes:

—Electric Facilities Siting Act
—Mined Areas Protection Act
—Mineral Leasing Act Amendments
—Bureau of Land Management Organic Act
—Santa Barbara Channel legislation
—Deepwater Port Facilities Act
—Natural Gas Supply Act

SIGNIFICANT DEVELOPMENTS SINCE APRIL 18

Since the President's April 18 message, the following actions have been taken:

—Eight oil companies have decided to build new refinery capacity. The expanded refinery capacity of about 1.5 million barrels per day—a 10 percent increase over existing capacity—will be available in about 3 years. Additional decisions are expected shortly.
—A voluntary oil allocation program has been established in an effort to provide priority customers, refiners and marketers an equitable share of gas and oil.
—The Office of Energy Conservation and the Office of Energy Data and Analysis have been established in the Department of the Interior.
—The total allocation to small refiners of royalty oil available to the Government from leases on the Outer Continental Shelf and on Federal lands has reached 100,000 barrels per day. It is anticipated that about 60,000 additional barrels per day will be available for allocation and that this will be completed by mid-August.

—The Senate Committee on Interior and Insular Affairs has reported out legislation which would remove right-of-way restrictions preventing construction of the Alaska Pipeline. Hearings are being held in the House. The pipeline would be able to provide 2 million barrels of oil per day.
—The Council on Environmental Quality has begun a study of the environmental impact of drilling on the Atlantic Outer Continental Shelf and the Gulf of Alaska; the study is to be completed next spring.
—The Commerce Department has issued proposed regulations covering the labelling of household appliances to show energy efficiency.
—The Environmental Protection Agency has published information on gasoline mileage for all 1973 automobiles.
—The Department of State is taking steps to consult with the major oil producing and consuming nations to develop cooperative arrangements to provide adequate and stable ways to meet the world's growing energy demands.

Organization of Federal Energy and Natural Resource Activities

Summary

The President upgraded and strengthened White House arrangements for energy policy by appointing an Assistant to the President for Energy who will head the Energy Policy Office.

The President is proposing legislation which would:

—Establish a Department of Energy and Natural Resources consisting of functions transferred from the Department of the Interior and several other agencies.
—Establish a new independent agency, the Energy Research and Development Administration (ERDA), to focus all Federal energy R&D.
—Retain the five-member commission organization of the AEC to carry on the licensing, regulatory and related environmental and safety functions of that agency but under a new name, Nuclear Energy Commission.

The President has directed that a comprehensive study be undertaken of Federal energy regulatory activities, looking to possible reorganization of these activities.

Energy Policy Office (EPO)

The President has created an Energy Policy Office in the Executive Office of the President. The EPO will replace the Special Committee on Energy. It will also expand upon the role of the National Energy Office (created by Executive Order 11712) which helped guide the development of the Administration's energy policies including the new government-wide organizational arrangements. The Office will be headed by a Director who will also serve as Assistant to the President for Energy. The Director will serve as the President's principal energy advisor and be responsible for identifying major problems, reviewing alternatives, making policy recommendations, assuring that agencies develop short and long range plans, and for monitoring the implementation of approved energy policies.

The Department of Energy and Natural Resources (DENR)

This new Department would be responsible for the balanced utilization and conservation of our Nation's energy and natural resources. The Department would bring together and realign many related Federal programs which are now scattered among several departments and agencies. DENR would have the responsibility for assuring that future demands for water, timber, minerals and energy resources are met without sacrificing our forests, lakes, wilderness, beaches, and the general environment. It would foster a better understanding of the total environment—the oceans, the atmosphere, the lands and their interaction. It would provide a more modern, effective department for managing and carrying out Federal responsibilities with respect to Indian and Territorial peoples.

DENR would have an organization and managerial capability which could most effectively and vigorously develop and implement comprehensive natural resources policies and programs.

In March 1971, the President proposed creation of a Department of Natural Resources (DNR) but the Congress did not enact that legislation. Today's legislation builds on the earlier proposal. The President has again stressed the need to consolidate key natural resources functions in the new Department so that we can meet better our national objectives.

Function and resource transfers to DENR

The principal functions and resources that would be transferred to DENR are listed below. Estimates are, for the most part, for direct program activities and do not include departmental overhead resources which will be identified later.

	Fiscal year 1973	
	Budget outlay estimates (in millions)	Full-time permanent employment
From Department of the Interior: All functions except Office of Coal Research, the energy research centers of Bureau of Mines and Underground Power Transmission R. & D. which would be transferred to ERDA	$2,554	56,130
From Atomic Energy Commission: Uranium and thorium assessment program	2	78
From Department of Transportation: Oil and gas pipeline safety programs	1	26
From Department of Agriculture:		
Forest Service	788	21,860
River basin surveys and investigations, and planning and funding for large watershed protection and flood prevention projects from the Soil Conservation Service	67	200
From Department of Commerce: National Oceanic and Atmospheric Administration (NOAA)	322	12,450
From Department of the Army: Corps of Engineers, civil functions (planning, evaluation, policy, and funding only)	1,643	360
From Water Resources Council: All functions	8	45
Total	5,385	91,149

DENR Organization and Management

The Department would be managed by a Secretary, a Deputy Secretary, an Under Secretary for Policy and an Under Secretary for Management, having cross-cutting departmentwide responsibilities. The Department's missions would be carried out largely through five Administrations, each containing programs grouped on the basis of common major purposes. The assignment of functions among Administrations would be the responsibility of the Secretary. Currently it

is expected that the primary functions of each Administration would be as follows:

Energy and Minerals Administration.—This Administration would include those DENR functions primarily concerned with energy and minerals including Interior's Office of Energy Conservation, Office of Energy Data and Analysis, Office of Oil and Gas, Office of Research and Development, Bureau of Mines (except energy research centers), Mining Enforcement and Safety Administration, and Bonneville, Southeastern, Southwestern and Alaska Power Administration. It would also include the Uranium and Thorium Assessment Program from AEC and Office of Pipeline Safety from DOT.

Land and Recreation Resources Administration.—This Administration would be composed of most functions and resources of the Bureau of Outdoor Recreation, the Bureau of Land Management, National Park Service, and the Bureau of Sport Fisheries and Wildlife from the Department of Interior, the Forest Service from the Department of Agriculture.

Water Resources Administration.—This Administration would provide a single management framework for the integration and coordination of national water resources policy and planning. The organizational functions and resources to be included in this Administration include the Bureau of Reclamation, Office of Saline Water, and Office of Water Resources Research from Interior; the policy, planning and funding of the civil functions of the Corps of Engineers; the River Basin Surveys and Investigations Program and Planning and Funding for large Watershed Protection and Flood Prevention projects from the Soil Conservation Service, Department of Agriculture; and the Water Resources Council.

Oceanic, Atmospheric, and Earth Sciences Administration.—This Administration would include the functions and responsibilities of the Geological Survey of the Interior Department and the National Oceanic and Atmospheric Administration (NOAA) of the Department of Commerce.

Indian and Territorial Affairs.—This Administration would combine Interior's Office of Territories and Bureau of Indian Affairs. The Indian and Territorial Affairs Programs are included in DENR because of their historical association with natural resources and the Department of the Interior. Most Indians in the past have rejected proposals for transfer of Indian programs to other departments and, pending further study, are included in DENR.

In addition to the functions located in DENR's Energy and Minerals Administration, the Secretary would be responsible for and have resources to assemble information with respect to energy resources and demands in all sectors, perform analyses and identify energy policy and program options that would provide guidance to other operating agencies and assistance to the Energy Policy Office and other agencies of the Executive Office of the President.

The Energy Research and Development Administration (ERDA)

This new independent agency would bring together and direct research and development programs on all forms of energy. The agency's

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objective would be the development in cooperation with industry of new energy sources to meet the energy needs of present and future generations in a manner which protects or enhances the quality of our environment. ERDA would conduct development programs involving all forms of energy.

Function and resource transfers to ERDA

ERDA would at the outset be composed principally of the following functions:

All of the functions, authorities and resources of the Atomic Energy Commission, except the uranium and thorium assessment program which will be transferred to DENR, and the AEC's licensing, regulatory and related environment and safety functions. Functions transferred to ERDA from AEC would include nuclear materials production, reactor development, military applications, physical research, biomedical and environmental research, non-nuclear energy R&D and other non-regulatory functions.

Most of Interior's fossil fuels R&D, namely the Office of Coal Research and the energy research centers of the Bureau of Mines, the synthane pilot plant for high BTU coal conversion which is under construction in Bruceton, Pa., and underground power transmission R&D.

This agency would be the focal point for the new accelerated energy R&D programs. It is also contemplated that the bulk of the $25 million central fund for energy R&D that was requested in the 1974 budget of the Interior Department would be transferred to ERDA. The principal resources identified thus far for transfer to ERDA are estimated to be:

	piscal year 1973	
	Budget outlays estimates (in millions)	Employment (full-time Permanent)
From AEC: All functions except uranium and thorium assessment program, and licensing, regulatory and related environment and safety	$2,250	5,800
From Interior:		
Office of Coal Research	58	37
Bureau of Mines energy research centers and synthane plant	13	728
Underground power transmission R. & D	1	5
Total	2,322	6,570

ERDA Organization and Management

The creation of ERDA contemplates building upon the scientific and technical base of the Atomic Energy Commission and making use of the laboratories and technical management capabilities now located in that agency. ERDA would be headed by an Administrator, Deputy Administrator and Assistant Administrators responsible for major programs and supporting functions. Specific proposals for the internal organization of ERDA will be made at a later date, following a study of R&D and production functions that would be transferred from AEC, functions to be transferred from other agencies and new programs. The internal organization would reflect clearly ERDA's role in non-nuclear energy R. & D. while assuring continued progress on the nuclear energy functions transferred from AEC.

Nuclear Energy Commission (NEC)

The five-member Commission form of organization would be retained to head the licensing, regulatory and related functions of the Atomic Energy Commission. The name of the agency would be changed to the Nuclear Energy Commission.

Resources now directly associated with the AEC's licensing and regulatory functions include approximately $40 million in net 1973 Budget outlays and about 1275 full-time permanent employees. Studies will begin immediately to ascertain which of the functions and resources now under the General Manager of the AEC or directly under the Commission should be transferred to the NEC in support of that agency's licensing and regulatory functions. In addition, it is expected that ERDA would be available to perform work in support of NEC on a reimbursable basis.

Study of Energy Regulatory Activities

The President has directed that a comprehensive study of Federal energy regulatory activities be undertaken to see whether reorganization is desirable. A number of Federal agencies are engaged in such activities, including the Atomic Energy Commission, Federal Power Commission, and others that carry out energy regulatory functions as a part of broader missions such as the Departments of Interior and Transportation, Corps of Engineers, EPA, and Interstate Commerce Commission. A wide variety of interests and objectives are involved, including economic, public health and safety, environment, and adequacy and reliability of energy supply. The study will be undertaken over the next year to determine whether existing organizational arrangements are most efficient and effective for balancing the interests and objectives involved. The interface with State and local regulatory activities will also be considered an opportunity for Congressional and public participation in the study will be provided. OMB will be responsible for assuring that the study is completed.

Energy Research and Development

In addition to the major legislative proposals to improve energy and natural resources organization, the President announced three major steps to accelerate and to improve coordination of our Federal energy R&D efforts:

The President has concluded that:

—Federal funding for energy R&D should be $10 billion over the next 5 years beginning in FY 1975.

—As a start on this program, funding of $100 million would be devoted to new or accelerated high priority energy R&D projects in FY 1974. This amount is in addition to the $25 million energy R&D fund requested in the Department of the Interior's FY 1974 budget.

—At least half of the $100 million funding would be used for coal R&D, including programs on clean liquid fuels from coal, improved mining techniques to increase safety and productivity, accelerated coal gasification and improved combustion.

—The remainder would be for projects in:

—advanced energy conversion R&D to achieve greater efficiencies in energy utilization and less waste heat, including work

on high temperature conversion cycles, low temperature conversion cycles, magnetohydrodynamics, alternate gas cycles and advanced automotive power systems.

—a new program on energy conservation R&D to improve efficiency and reduce energy consumption in transportation, residential, commercial and industrial sectors.

—additional environmental control R&D to accelerate work on power plant SO_x removal, including work on improved processes resulting in useful byproducts and reduced wastes.

—geothermal R&D with emphasis on resource appraisal and exploration, developing and demonstrating technology for utilizing hot brine and hot dry rock resources, and examining environmental and systems problems.

—gas-cooled nuclear reactor R&D, including funds for a program to permit use of thorium as an additional nuclear fuel and funds for additional high temperature gas-cooled reactor (HTGR) safety and fuel research.

The President has directed the Chairman of the AEC, with assistance of the Department of the Interior and other Federal agencies to:

—Conduct a comprehensive review to provide the detailed elements of our high priority FY 1974 energy R&D program. The review will be under the general direction of the Energy Policy Office and is to be completed by September 1, 1973.

—Organize immediately a review of Federal and private energy R&D activities for the purpose of recommending an integrated R&D program for the Nation. Industry is to be involved actively in a number of cooperative efforts to develop and demonstrate new technologies. Recommendations for future increases in R&D programs are due from the AEC chairman by December 1 of this year so that the President's FY 1975 budget can adequately reflect such recommendations.

The President also directed that a high-level energy R&D Advisory Council composed of leading experts from outside the Federal Government in various areas of energy technology be established to advise the Energy Policy Office. The Council will provide technical advice on major directions and the substance of an integrated R&D energy program.

Energy Conservation

Several energy conservation actions were announced in the President's April 18 message. Since then additional steps have been announced by industry, Government agencies and other groups. The measures announced today are major new actions to reduce the rate of growth in demand for energy—focusing particularly on gasoline and electricity.

Actions to reduce the rate of growth in energy demands will improve our ability to meet the important objectives of protecting and improving the quality of our environment.

The most immediate energy problem facing the Nation is a shortage of gasoline. The Department of the Interior estimates that, unless we take actions to conserve fuel, the summer gasoline shortage nation wide over the next three months under expected conditions may be 1–2

percent of total demand. Under less favorable conditions, these shortages could reach the neighborhood of 5 percent of demand.

Even a 1-2 percent shortage nation wide could cause significant problems in some areas. Shortages may be more severe in the last few weeks of the summer when many Americans take their annual vacations.

The Nation uses approximately 294 million gallons of gasoline per day (or 7 million barrels). 95 percent of all gasoline is used for transportation, over 70 percent of which is used for automobiles. The rate of gasoline consumption is over 5 percent higher than last year. Production and imports are not keeping pace with increased demand. Gasoline inventories currently are about 5 percent below last year.

The removal of all quantitative restrictions on petroleum imports announced in the President's April 18 Energy Message is allowing domestic suppliers to import increased amounts of gasoline from abroad. In addition, the voluntary allocation program and the allocation by the Interior Department of the Federal Government's royalty oil to small refiners will ease the summer gasoline shortage by creating a more equitable distribution of gasoline and crude oil among all consuming segments with special attention to high priority users. However, conservation measures are essential if the shortfall in gasoline is to be minimized.

Gasoline, diesel fuel, jet fuel, heating fuel, and residual oil used by the electric utility industry are all made from petroleum. The modern refinery can be adjusted to vary the amount of each kind of product produced from a barrel of oil, and this is done each year to maximize gasoline production for the summer and heating fuel production for the winter. In short, each gallon of gasoline and kilowatt of electricity we save this summer will increase our heating fuel supply next winter.

The steps being announced are a beginning in the process of slowing growth in the total demand for energy.

Natural Goal

The President has indicated that a reasonable and attainable goal is to reduce anticipated personal consumption of energy by 5 percent over the next 12 months.

Reduce Federal Government Energy Use

The President has directed each executive department and agency to participate in a government-wide program to reduce anticipated energy consumption by 7 percent over the next 12 months.

—All Federal departments and agencies are being instructed to report through Secretary Morton to the President, and to:

—Review the activities of the agencies and their contractors which place demands on our energy resources and determine how demand can be reduced.

—Report by July 31, 1973 on their energy consumption and specific actions and time-tables to reduce demands.

—Consider such steps as:

—Reduce air conditioning and encourage appropriate relaxation of dress standards in offices this summer. (A 4 degree increase in temperature saves 15-20 percent of energy required to run an air conditioner. For all Federal buildings combined

this will amount to an annual savings of 113 million kilowatt hours or 270,000 barrels of fuel per year.)

—Use more energy efficient automobiles in Federal activities.

—Reduce business trips. (Federal employees travel 250 million miles per year. A 10 percent reduction in travel would save 25 million miles per year or 1.7 million gallons annually, assuming 15 passenger miles per gallon.)

—Reduce unnecessary lighting in Federal buildings and offices.

—Encourage employees to use carpools and mass transit.

—Reduce demand in Government-owned laboratories and industrial-type facilities operated by the Government for contractors.

—The President has directed the General Services Administration to establish new regulations to require the use of more efficient automobiles in Federal activities, i.e., to reduce substantially the size of cars and engines to be purchased and used by the Government, and require Federal agencies to purchase and lease more energy efficient automobiles when feasible.

—The Department of Defense has already taken steps to reduce their fuel consumption in FY 1974 by 10 percent.

Reduce Airline Fuel Requirements

The Secretary of Transportation has asked the Civil Aeronautics Board, Federal Aviation Administration and the Air Transport Association representing scheduled airlines to consider immediate reductions in flight frequencies and aircraft cruising speeds. The idea for this action came from the airline industry. A 3 percent reduction in aircraft speeds adds only 12 minutes to a transcontinental flight, but saves 200 million gallons of jet fuel per year. Raising the national average aircraft load factor from 52 percent to 60 percent by reducing flight frequencies can save 1.3 billion gallons of jet fuel per year.

State and Local Governments and Industry

State and local governments and industry are being urged to follow the Federal Government's lead in finding ways to conserve energy.

—The President has sent a letter to each Governor asking for his support and cooperation.

—The President has directed the Secretaries of the Interior and Commerce, and his Assistant for Energy to meet with representatives of American industry to encourage their strong participation in energy conservation efforts.

Actions by the Public to Conserve Energy

—The President is asking the public to reduce voluntarily speed on highways. (The potential fuel savings nationwide from a 10 mph reduction would be 2 percent. Miles per gallon of gasoline vary significantly with speed; e.g., a car consumes 20-25 percent less fuel per mile at 50 mph than at 70 mph.)

—The President asked Governors to support this request and to work with State legislatures as soon as possible to reduce highway speed limits, taking into account the objectives of mobility, safety and energy conservation.

—The President has urged motorists to reduce gasoline consumption in additional ways:

—Reduce non-essential driving.
—Use carpools and mass transit more frequently.
—Consider taking the bus or train on long trips.
—Keep cars well-tuned and tires properly inflated.
—Consider energy efficiency when purchasing a new car. If more than one is owned, use the most efficient car.

—The President has also urged conservation of energy at home by:
—Raising thermostat settings on air conditioning by 4 degrees, thus saving 15 to 20 percent of the energy required for air conditioning.
—Lowering winter home heating temperatures as much as 5 degrees, thereby saving up to 10 percent of the energy required for home heating.

Congressional Action on Highways—Mass Transit Legislation

The President has again urged the Congress to pass highway-mass transit legislation which provides states and localities flexibility to choose between capital investment in highways or mass transit.

—Key legislation on this matter is now being considered in a Senate-House conference committee.
—Diversion of some commuter traffic from single occupant autos to mass transit would result in significant savings of gasoline.

Long-Term Conservation

The President has directed other departments and agencies to work closely with Interior Secretary Morton's new Office of Energy Conservation in the development of long-term energy conservation plans. The Secretary has identified the following items for further study:

—Incentives to encourage use of carpools and mass transit.
—Horsepower, weight or other taxes on automobiles to encourage more energy efficient automobiles.
—Incentives to encourage recycling of waste materials.
—More energy efficient commercial and residential building construction and operation. (Has potential to reduce nationwide space heating and cooling energy requirements 10 percent by 1985.)
—Methods and exchange of ideas for conservation in industrial and commercial uses of energy.
—An awards program for industrial energy conservers, and for manufacturers whose products are efficient.

Other Federal Actions

—The Environmental Protection Agency will soon publish proposed procedures for voluntary labeling of automobiles and accessories to show fuel consumption. This will permit consumers to compare similar cars to determine their relative efficiency.
—Major departments and agencies have designated energy conservation coordinators who will work with the Department of the Interior in the Federal effort.
—Interior's Office of Energy Conservation, in cooperation with the President's Adviser on Consumer Affairs and other agencies, will develop and implement a consumer information program on energy conservation.

EXECUTIVE ORDER

June 29, 1973

ENERGY POLICY OFFICE

By virtue of the authority vested in me as President of the United States of America, it is hereby ordered as follows:

ENERGY POLICY OFFICE

SECTION 1. There is hereby established in the Executive Office of the President an Energy Policy Office. The office shall be under the immediate supervision and direction of a Director of the Energy Policy Office who shall be designated or appointed by the President.

FUNCTIONS OF THE DIRECTOR

SEC. 2. (a) The Director shall be the Administration's chief policy officer with respect to energy matters, and shall be the President's principal adviser concerning those matters.

(b) The Director shall also be responsible for—

(1) identifying major problems, present and prospective, in the energy areas;

(2) making policy recommendations to the President with respect to energy matters;

(3) working with executive branch agencies and outside groups in reviewing policy alternatives with respect to energy matters;

(4) reviewing, commenting on, and making separate recommendations on all other energy-related matters which require Presidential attention;

(5) insuring that executive branch agencies develop short- and long-range plans for dealing with energy matters;

(6) monitoring the implementation of approved energy policies with the assistance of the Office of Management and Budget;

(7) providing guidance and direction to the Oil Policy Committee and its Chairman in the performance of its functions;

(8) providing advice to the Cost of Living Council concerning energy matters;

(9) assuring the development of comprehensive plans and programs to assure the availability of adequate and dependable supplies of energy; and

(10) initiating studies to be carried out by the appropriate Government agencies.

SUPPORT

SEC. 3. (a) Necessary expenses of the Energy Policy Office may be paid from the Emergency Fund of the President or from such other funds as may be available.

(b) The Administrator of General Services shall provide, on a reimbursable basis, such administrative support as may be needed by the Energy Policy Office.

(c) All departments and agencies of the executive branch shall, to the extent permitted by law, provide assistance and information to the Director of the Energy Policy Office.

SEC. 4. The Director of the Energy Policy Office shall make a report to the President, for transmission to the Congress, no later than March 15, 1974, concerning actions that have been taken and actions that should be taken to carry out the purposes of this order.

SUPERSEDURE

SEC. 5. Executive Order No. 11712 of April 18, 1973, is hereby superseded and the Special Committee on Energy and the National Energy Office are hereby abolished.

RICHARD NIXON.

THE WHITE HOUSE, *June 29, 1973.*

REMARKS ON THE NATION'S ENERGY POLICY

SEPTEMBER 8, 1973

The PRESIDENT: As you know, we have just completed a two hour meeting in the Cabinet Room of the major Administration officials having responsibilities in the field of energy. Governor Love presided over the meeting at my direction and gave a report with regard to the programs that he has initiated and that had been initiated prior to his taking over this assignment.

I would like to summarize for the members of the press, before having the Governor answer your specific questions in this field, the problem as I see it at this time.

We have heard a lot about a crisis. I do not use that term because we do not face a crisis in that sense of the word. I would simply say that in the short-term we face a problem, a problem with regard to energy, heating, for example, this winter, just as we thought we faced a problem of gasoline this summer, and the possibility of brown-outs.

We are not Pollyannish about solving that problem, but insofar as the short-term problem is concerned, Governor Love has a program which he is working on and one which is designed to meet the problem and to deal with it.

So I would summarize by saying that short-term we face a problem. But long-term, and this is the important thing for us to remember, the prospects for adequate energy for the United States are excellent. I would say the prospects for adequate energy for the United States are as good as they are for any industrial nation in the world and perhaps better, better because of our enormous research capabilities.

This morning we addressed both the short-term problem and the long-term problem and the legislative problem and the administrative problem.

In my press conference a couple of days ago, I mentioned seven pieces of legislation. Today we have moved down to four pieces of legislation that we consider to be of the highest urgency and that must be acted upon before the end of the year. These pieces of legislation deal with both the short-term problem and address themselves particularly, however, to the long-term problem.

One is the Alaska pipeline which is presently in conference and, of course, where the propects are excellent. The second is the deep water ports. The longer we wait here, the longer we are going to have to wait to have the capacity to bring in the products from abroad that we need to meet our energy needs. The third is the deregulation of gas.

This we must act upon now because only through deregulation can the new construction, which is essential, the new construction, the drilling, et cetera, and refineries be undertaken. And the fourth is the legislation with regard to strip mining.

The strip mining legislation, as we know, has elements of controversy because of conflict with the environmentalists. But Mr. Train was here at the meeting this morning, at our request, and he has been participating in all of these meetings and he believes that the legislation that we have presented to the Congress, properly administered, is one that can be consistent with our environmental goals.

So much for what the Congress should do. These four pieces of legislation the Congress should consider on a high priority basis, because failing to act means that we could have very serious problems, not just this year, but particularly in the years ahead.

The other points that I would make are with regard to what we can do and have done and are doing from an administrative standpoint, that do not require legislation.

One is the relaxation of emission standards. Governor Love is calling together several Governors who have particular interest in this area and he will be meeting with them either next week or early in the following week. The relaxation of emission standards will have the effect of dealing with the immediate problem, the problem we face this winter and unless those standards are relaxed, we could have a very serious problem this winter. That is why the Governor is moving in this particular area. This can be done, incidentally, administratively, but it requires the cooperation of the Governors because the Governors have, in many instances, as a result of our asking them to do so, had their legislators adopt standards at the State level which presently are State law. It will be necessary for those to be modified.

A second area where administrative action is possible is with regard to the Elk Hills Naval Reserve. Here consultation with the Congress is required and we will institute that kind of consultation that is necessary, particularly with the Armed Services Committee. But developing the Elk Hills Reserves is essential in terms of providing, from our domestic sources, for the needs that we have.

And consequently, we are moving next week in the consultative process so that we can go forward with the Elk Hills development.

And then further, and this looks down the road, we gave the go-ahead this morning for a sharp step up in the development of peaceful uses of nuclear energy.

Now, there are many old wives' tales and horror stories that are told about nuclear plants and all the rest. Russell Train was there, I asked him about the effect on the environment, to separate out the fears from what actually the facts were. He came down on the side of going forward with the program, the development of nuclear power, not only having in mind our present technology, but also research which would allow us to develop nuclear energy in much more exciting ways, looking to the future, for peaceful purposes.

And in this field, I will be meeting myself next week with members of the Atomic Energy Commission, along with the Governor and with Russell Train so that we can give new impetus to that program of the development of nuclear power for peaceful purposes.

We were the first to make the breakthrough in nuclear power for military purposes. We have lagged behind in peaceful uses. Some nations abroad, while they certainly do not have our technology, at least have more thrust here, they have more drive here in this area than we have. But the development of nuclear power for peaceful purposes is to be a major Administration initiative from now on through the balance of our term here.

In the field of research also—this relates clear back to the strip mining a moment ago—is the area of research with regard to the use of coal. Secretary Morton pointed out in our meeting this morning that when we think of the energy sources for the United States, that four percent, only four percent presently in the ground come from oil, three percent potentially from natural gas and 91 percent from coal.

The United States, at the present time, has almost half of the coal reserves of the world. And the problem only is to get the coal out in a way that is not too destructive to the environment, but also to find the uses for coal, liquification programs, other programs which the Governor is quite familiar with and I am not, but which he will be glad to fill you in on.

I would simply summarize in this way. The other day in our press conference—the Governor and I did discuss this and I have asked him, once he does have the time, to perhaps travel abroad and have an opportunity to survey the situation in some of these countries himself—I was asked about the developments in the Mideast and what that meant to us.

The United States would prefer to continue to import oil, petroleum products from the Mideast, from Venezuela, from Canada, from other countries, but also we are keenly aware of the fact that no nation, and particularly no industrial nation, must be in the position of being at the mercy of any other nation by having its energy supplies suddenly cut off.

We are going to do the very best we can to work out problems with the Mideastern countries or any other countries that may develop, so that we can continue to have a flow of imports into the United States of oil products particularly.

On the other hand, the programs that I have discussed here today, for the most part, as you know, deal with developing within the United States itself, the capability of providing for our energy resources. We can develop those resources. It can be done within a matter of a very few years. I am not going to put a timetable on it, but it can be done. Because the United States, as a great industrial nation, the most advanced industrial nation of the world, must be in a position and must develop the capacity so that no other nation in the world that might, for some reason or another, take an unfriendly attitude toward the United States, has us frankly in a position where they can cut off our oil, or basically more important, cut off our energy.

I would like to say finally that Governor Love in his brief time here has done a superb job of trying to pull all the various agencies of the government together. The conversation within the Cabinet Room was quite spirited. There were disagreements in certain areas and finally, however, we did agree on the program that I have outlined here today.

The Governor will be able to answer technical questions about propane and other things, where I am not, frankly, quite knowledgeable.

So, Governor, the ladies and gentlemen are yours.

RICHARD M. NIXON.

THE WHITE HOUSE, *September 8, 1973.*

EXCERPT FROM MESSAGE TO THE CONGRESS

SEPTEMBER 10, 1973

MEETING THE ENERGY CHALLENGE

I have previously stated, and wish to restate in the most emphatic terms, that the gap between America's projected short-term energy needs and our available domestic energy supplies is widening at a rate which demands our immediate attention.

I am taking all appropriate measures within my authority to deal with this problem, seeking to increase our supplies and moderate our demands. Looking to the future, I have announced plans for a large scale increase in our research and development effort, and I have asked my top energy advisor, Governor John Love, to meet with State officials to seek temporary modifications of air quality standards. Such modifications would help to minimize fuel shortages this winter. In addition, I will soon be meeting with members of the Atomic Energy Commission to determine whether we can bring nuclear powerplants on line more quickly. But the energy problem requires more than Presidential action; it also requires action by the Congress.

It is absolutely essential that the Congress not wait for the stimulation of energy shortage to provide the legislation necessary to meet our needs. Already we have seen some regional inconveniences this summer with respect to gasoline and this winter we may experience a similar problem with regard to heating fuels.

Over the long term, the prospects for adequate energy for the United States are excellent. We have the resources and the technology to meet our growing needs. But to meet those long-term needs and to avoid severe problems over the short term, we must launch a concentrated effort which mobilizes the Government, American industry and the American people.

I have recently called for passage of seven major energy bills now before the Congress. Not all of those can be acted upon with equal speed, but four of these bills are of the highest urgency and must be acted upon before the end of this year. These four would provide for the construction of the Alaskan pipeline, construction of deepwater ports, deregulation of natural gas and establishment of new standards for surface mining. All four of these bills are addressed to both our short-term and long-term needs.

Alaskan Pipeline

Our first legislative goal—and one that should be achieved this month—is the enactment of an Alaskan pipeline bill. Construction of the pipeline would provide us with up to 2 million barrels of oil per

day over which we would have full control and would simultaneously reduce by more than $3 billion per year our need for oil imports. I have proposed legislation to avoid any further delay in the construction of the Alaskan pipeline and I am gratified that both Houses of the Congress have already passed variations of this proposal. I urge the earliest possible attention to these bills by the House-Senate Conference Committee, so that pipeline construction can begin.

Deepwater Ports

Until domestic resources are in full production and technological progress has reached a point where sufficient energy sources are within reach, we will have to rely upon imports of foreign oil. At the present time, however, continental port facilities are inadequate to handle our import requirements.

Because of our limited port capacity, the super-tankers presently used for petroleum transport cannot be off-loaded anywhere on our Atlantic coast. I have therefore proposed measures to authorize the construction and operation of deepwater port facilities in a manner consistent with our environmental priorities and consonant with the rights and responsibilities of the States involved.

We must not delay this important legislation. To do so would further delay the economical import of petroleum and would mean increased costs to the American consumer, unnecessary threats to our coastal environment, and further loss of revenues to Canadian and Caribbean ports which are already capable of off-loading large supertankers.

Natural Gas

For several years Federal regulation of natural gas has helped to keep the price of that product artificially low. Large industrial consumers have welcomed this system of regulations—it has helped them to hold their fuel costs down, and since natural gas is the cleanest of our fossil fuels, it has also enabled them to meet environmental standards at an artificially low cost. This system of regulation, however, has also had the unfortunate result of discouraging producers from expanding supplies. As a result of high consumption by industrial uses coupled with the reluctance of producers to explore and develop new sources of natural gas, we now face a natural gas shortage.

I have therefore proposed that we begin a gradual move to free market prices for natural gas by allowing the price of new supplies of domestic natural gas to be determined by the competitive forces of the marketplace. This action should provide a secure source of natural gas at a price significantly lower than alternative sources. While there may be an increase in the price of natural gas over the short term that increase should be modest.

Surface Mining

Our most abundant domestic source of energy is coal. We must learn to use more of it, and we must learn to do so in a manner which does not damage the land we inhabit or the air we breathe.

Surface mining is both the most economical and the most environmentally destructive method of extracting coal. The damage caused by surface mining, however, can be repaired and the land restored. I believe it is the responsibility of the mining industry to undertake such restorative action and I believe it must be required of them.

I have proposed legislation to establish reclamation standards which would regulate all surface and underground mining in this country. These standards would be enforced by the States. I call again for enactment of this proposal, for it would enable us to increase the supply of a highly economic fuel while avoiding the severe environmental penalties which we have often paid in the past.

Reorganization of Federal Energy Effort

The four energy bills discussed above can and should be passed by the Congress this year. There are three additional measures proposed by the Administration whose early passage is important but not so critical that they require action this year. I would hope that these measures would be near the top of the legislative agenda in the future.

One of these bills provides for reorganization of the Federal energy effort. While energy is one of our Nation's most pressing problems, and while the preservation and effective use of our natural resources is an imperative policy goal, it is presently impossible to administer these related objectives in a coordinated way. Our ability to manage our resources and provide for our needs should not be held hostage to old forms and institutions.

I have noted repeatedly the need for thorough reorganization of the executive branch of the Federal Government. I believe the need for reorganization is especially acute in the natural resource area. I have urged and I urge again the creation of a Department of Energy and Natural Resources to permit us to deal with these questions in a more comprehensive and more effective manner.

I also again ask the Congress to create a new, independent Energy Research and Development Administration so that we can make the very best use of our research and development funds in the future. Our research and development effort could produce the most helpful solutions to the energy problem. For that reason, I recently announced plans to initiate a $10 billion Federal effort in this field over the next five years. No legislative action is needed by the Congress this year to provide funding, but it will be necessary for the Congress to approve such funding in the years ahead.

Since regulation of atomic energy resources can be better and more fairly performed if it is disengaged from the question of their development and promotion, I have also included in this reorganization package a separate and independent Nuclear Energy Commission to perform these vital duties.

Siting of Power Plants

One of the major energy questions we face in 1973 is whether we can provide sufficient electric power to light our cities, cool and heat our homes, and power our industries in the decades ahead. One of the solutions to that problem lies in the increased use of nuclear energy. It is estimated that by the year 2000 nuclear power can provide nearly half of this country's electrical production.

We now have adequate safeguards to ensure that nuclear power plants are safe and environmentally acceptable, but the way in which we apply those safeguards sometimes causes unreasonable delays in construction. Similarly, protracted delays have been encountered in the siting of our plants that are powered by fossil fuels, which still must provide the majority of our electric generation capacity over

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the next three decades. Accordingly, I have proposed legislation which would streamline the process for determining the sites of power plants and transmission lines while continuing to provide full protection for public health and for the environment. This legislation has been under study for two years, and I am anxious to get it out of committees and onto the statute books.

Santa Barbara Energy Reserve

It is important to the necessary expansion of our domestic energy resources that we make more effective use of the vast oil and gas reserves along our Outer Continental Shelf. That is why I have ordered the Department of the Interior to triple the leasing schedule in this area and have directed the Council on Environmental Quality to study the feasibility of extending Outer Continental Shelf leasing to the waters off our Atlantic Coast and the Gulf of Alaska. I am equally determined, however, that our efforts to expand energy production should not run rough-shod over our valid concern to protect and enhance the natural environment.

I have therefore proposed in the past, and have resubmitted to the Congress this year, legislation to cancel oil leases in the Santa Barbara Channel and to create in that area a National Energy Reserve. Under this legislation, oil from Naval Petroleum Reserve No. 1 in California would be substituted for the oil off Santa Barbara and part of the proceeds from that production would be used to meet the expenses of exploring other potentially vast oil and gas reserves in Naval Petroleum Reserve No. 4 in Alaska. I believe that this legislation would permit us to maintain momentum in exploration and development while at the same time removing the threat of oil spills as a result of the unique geological formations off the Southern California coast.

In view of the present scarcity of fuels, it is important that we act now to draw upon the oil available in the Naval Petroleum Reserve No. 1 (Elk Hills). During the next several days, at my direction, representatives of the Administration will seek the necessary consultations with members of the Congress in order to increase production of oil from Elk Hills. This increased production should help to meet the fuel needs of the West Coast this winter.

RICHARD M. NIXON.

THE WHITE HOUSE, *September 10, 1973.*

STATEMENT

OCTOBER 9, 1973

A meeting I held this afternoon with many of my top energy and environmental advisors has underscored once again the need for a full-scale effort to conserve energy.

It is now widely recognized that we may face fuel shortages for the next few years. The shortage of heating oil this winter could be as high as 400,000 barrels per day. If every household will lower its thermostat by just four degrees this winter, the total savings in heating oil alone will exceed that 400,000 barrel-per-day figure. This is what conservation by all our citizens can accomplish.

A more prudent use of energy must be made at all levels—by Government, by industry, and by private citizens. This June I directed that action be taken throughout the Federal Government to reduce anticipated energy consumption by a total of 7 percent, and I urged industry, State and local government and the general public to participate in efforts to reduce expected energy demands across the Nation by 5 percent over a 12-month period.

Our meeting today was to assess the progress made so far and to discuss plans for the winter phase of our National Energy Conservation Campaign. The most encouraging report came from Secretary Morton, who said that the Federal agencies have made an excellent start toward achieving their goal of a 7 percent reduction in energy consumption. Just as a single example, the General Services Administration in the District of Columbia has taken steps which should result in a savings of 164 million kilowatt hours of electricity annually, reportedly enough electricity to supply the entire city of Washington for several days. Among the actions being taken by the Federal agencies are:

—A lowering of winter temperature settings to 70–72 degrees, compared to last year's level of 74–76 degrees.

—Elimination of unnecessary lighting.

—And purchase and rental of vehicles which use gasoline more efficiently.

Also in today's meeting, Secretary Dent outlined to me his proposed program to encourage business and industry to save energy. As industrial use accounts for 40 percent of all energy consumption in the United States, our business leaders have a vital role to play in this effort.

Mrs. Knauer reported this morning on her efforts to provide consumers with the information they will need to use energy wisely.

Finally, I received a report on energy conservation from my Citizens' Advisory Committee on Environmental Quality. This Committee is chaired by Mr. Henry Diamond of New York and includes 15 of the Nation's leading citizens. Its report, which will receive wide distribution, makes extensive recommendations for citizen actions to cut back their energy demands.

Our campaign to meet America's energy needs is not confined, of course, to conservation. We are also pushing to increase supplies through both executive and legislative means. We have already taken a number of executive actions, such as accelerating the leasing of offshore oil rights, and if other steps should become appropriate, I will not hesitate to take them. On the legislative front, there are still seven major proposals awaiting passage on Capitol Hill, and I am anxious that at least four of these bills be enacted before the end of the year.

In addition, we are asking that all citizens be prepared to bear their share of possible shortages. To that end, the Administration has just announced its decision to establish a program of mandatory allocation for home heating oil and propane. It should be understood that this action will not increase available supplies, but will merely distribute supplies so that, insofar as possible, no areas will face critical shortages and any possible inconveniences will be shared equally by all Americans.

Our energy program is thus all-embracing. We must act to increase supplies and we must insure a fair distribution of those supplies. But equally important, we must not consume more than we need. We must not waste energy.

Whenever Americans have been called upon to join together and work together in the national interest, they have responded. We need the united action of all Americans now to conserve the fuel we must have to meet our vital energy needs.

RICHARD M. NIXON.

THE WHITE HOUSE, *October 9, 1973.*

STATEMENT

OCTOBER 11, 1973

America's national energy policy requires the fullest possible utilization of science and technology to insure that all of our energy resources become available rapidly and in a balanced and prudent fashion. As I indicated in my press statement on September 8, our goal must be self sufficiency—the capacity to meet our energy needs with our own resources. I intend to take every step necessary to achieve that goal. A great nation cannot be dependent upon other nations for resources essential to its own social and economic progress.

Preparatory to the massive five-year, $10 billion energy research and development program that I have announced will begin in the next fiscal year and in keeping with my intention to commit additional funds in this fiscal year for high priority energy research programs, I am today announcing the details of an additional $115 million increment to this fiscal year's budget for energy research and development. This increase will raise the total energy R & D funding level for FY 1974 to about $1 billion, a 37 percent increase over FY 1973.

Appropriations already approved by the Congress will provide most of the funds for this $115 million increment. I will soon be forwarding to the Congress a request for supplemental appropriations to cover the remainder.

Our hopes for advancing research and development also rest upon my proposed legislation to create a Department of Energy and Natural Resources and an independent Energy Research and Development Administration. This legislation, along with six other bills now before the Congress, is essential to meet the full range of our energy needs. The Congress has initiated hearings on my proposal for reorganization, and I again urge that it proceed with dispatch.

On June 29, I directed the establishment of an Energy R & D Advisory Council to assist Governor Love. I am pleased to announce today that fifteen of our Nation's most distinguished scientists and engineers, under the leadership of Dr. H. Guyford Stever, who serves as my science advisor and as Director of the National Science Foundation, have agreed to serve on this Council. This group is holding its first meeting this morning at the White House. In this meeting and in coming months, this Council will be discussing short- and long-range research and development programs, and acting to enlist the talents of our scientific and technological community—in industry, universities, and Government laboratories—in this effort.

I am confident that with these initiatives, all now in progress, we are well underway in our effort to meet our energy requirements with proper regard for the preservation of our natural environment and for the early achievement of energy self sufficiency. As additional efforts prove necessary, I shall be prepared to take those steps.

RICHARD M. NIXON.

THE WHITE HOUSE, *October 11, 1973.*

ADDRESS ON THE ENERGY EMERGENCY

NOVEMBER 7, 1973

The PRESIDENT: Good evening. I want to talk to you tonight about a serious national problem, a problem we must all face together in the months and years ahead.

As America has grown and prospered in recent years, our energy demands have begun to exceed available supplies. In recent months, we have taken many actions to increase supplies and to reduce consumption. But even with our best efforts, we knew that a period of temporary shortages was inevitable.

Unfortunately, our expectations for this winter have now been sharply altered by the recent conflict in the Middle East. Because of that war, most of the Middle Eastern oil producers have reduced overall production and cut off their shipments of oil to the United States. By the end of this month, more than 2 million barrels a day of oil we expected to import into the United States will no longer be available.

We must, therefore, face up to a very stark fact. We are heading toward the most acute shortages of energy since World War II. Our supply of petroleum this winter will be at least 10 percent short of our anticipated demands, and it could fall short by as much as 17 percent.

Now, even before war broke out in the Middle East, these prospective shortages were the subject of intensive discussions among members of my Administration, leaders of the Congress, Governors, Mayors and other groups. From these discussions has emerged a broad agreement that we, as a Nation, must now set upon a new course.

In the short run, this course means that we must use less energy—that means less heat, less electricity, less gasoline. In the long run, it means that we must develop new sources of energy which will give us the capacity to meet our needs without relying on any foreign nation.

The immediate shortage will affect the lives of each and every one of us. In our factories, our cars, our homes, our offices, we will have to use less fuel than we are accustomed to using. Some school and factory schedules may be rearranged, and some jet airplane flights will be canceled.

This does not mean that we are going to run out of gasoline or that air travel will stop, or that we will freeze in our homes or offices anyplace in America. The fuel crisis need not mean genuine suffering for any American. But it will require some sacrifice by all Americans.

We must be sure that our most vital needs are met first—and that our less important activities are the first to be cut back. And we must be

sure that while the fat from our economy is being trimmed, the muscle is not seriously damaged.

To help us carry out that responsibility, I am tonight announcing the following steps:

First, I am directing that industries and utilities which use coal—which is our most abundant resource—be prevented from converting from coal to oil. Efforts will also be made to convert power plants from the use of oil to the use of coal.

Second, we are allocating reduced quantities of fuel for aircraft. Now, this is going to lead to a cutback of more than 10 percent of the number of flights, and some rescheduling of arrival and departure times.

Third, there will be reductions of approximately 15 percent in the supply of heating oil for homes and offices and other establishments. To be sure that there is enough oil to go around for the entire winter, all over the country, it will be essential for all of us to live and work in lower temperatures. We must ask everyone to lower the thermostat in your home by at least 6 degrees, so that we can achieve a national daytime average of 68 degrees.

Incidentally, my doctor tells me that in a temperature of 66 to 68 degrees, you are really more healthy than when it is 75 to 78, if that is any comfort. In offices, factories and commercial establishments, we must ask that you achieve the equivalent of a 10-degree reduction by either lowering the thermostat or curtailing working hours.

Fourth, I am ordering additional reductions in the consumption of energy by the Federal Government. We have already taken steps to reduce the Government's consumption by 7 percent. The cuts must now go deeper, and must be made by every agency and every department in the Government. I am directing that the daytime temperatures in Federal offices be reduced immediately to a level of between 65 and 68 degress, and that means in this room, too, as well as in every other room in the White House. In addition, I am ordering that all vehicles owned by the Federal Government—and there are over a half million of them—travel no faster than 50 miles per hour except in emergencies. This is a step which I have also asked Governors, Mayors and local officials to take immediately with regard to vehicles under their authority.

Fifth, I am asking the Atomic Energy Commission to speed up the licensing and construction of nuclear plants. We must seek to reduce the time required to bring nuclear plants on line, nuclear plants that can produce power, to bring them on line from 10 years to 6 years, reduce that time lag.

Sixth. I am asking that Governors and Mayors reinforce these actions by taking appropriate steps at the State and local level. We have already learned for example, from the State or Oregon, that considerable amounts of energy can be saved simply by curbing unnecessary lighting and slightly altering the school year. I am recommending that other communities follow this example and also seek ways to stagger working hours, to encourage greater use of mass transit and car pooling.

How many times have you gone along the highway or the freeway, wherever the case may be, and see hundreds and hundreds of cars with one individual in that car. This we must all cooperate to change.

Consistent with safety and economic consideration, I am also asking Governors to take steps to reduce highway speed limits to 50 miles per hour. This action alone, if it is adopted on a nationwide basis could save over 200,000 barrels of oil a day—just reducing the speed limit to 50 miles per hour.

Now, all of these actions will result in substantial savings of energy. More than that, most of these are actions that we can take right now without further delay.

The key to their success lies, however, not just here in Washington, but in every home, in every community across this country. If each of us join in this effort, joins with the spirit and the determination that have always graced the American character, then half the battle will already be won.

But we should recognize that even these steps, as essential as they are, may not be enough. We must be prepared to take additional steps, and for that purpose, additional authorities must be provided by the Congress.

I have therefore directed my chief adviser for energy policy, Governor Love, and other Administration officials, to work closely with the Congress in developing an emergency energy act.

I met with the leaders of the Congress this morning and I asked that they act on this legislation on a priority urgent basis. It is imperative that this legislation be on my desk for signature before the Congress recesses this December.

Because of the hard work that has already been done on this bill by Senators Jackson and Fannin, and others, I am confident that we can meet that goal, and I will have the bill on this desk and will be able to sign it.

This proposed legislation would enable the Executive Branch to meet the energy emergency in several important ways:

First, it would authorize an immediate return to Daylight Saving Time on a year-round basis.

Second, it would provide the necessary authority to relax environmental regulations on a temporary case-by-case basis, thus permitting an appropriate balancing of our environmental interests, which all of us share, with our energy requirements, which, of course, are indispensible.

Third, it would grant authority to impose special energy conservation measures such as restrictions on the working hours for shopping centers and other commercial establishments.

And fourth, it would approve and fund increased exploration development and production from our Naval Petroleum Reserves. These reserves are rich sources of oil. From one of them alone—Elk Hills in California—we could produce more than 160,000 barrels of oil a day within two months.

Fifth, it would provide the Federal Government with authority to reduce highway speed limits throughout the Nation.

And finally, it would expand the power of the Government's regulatory agencies to adjust the schedules of planes, ships, and other carriers.

If shortages persist, despite all of these actions and despite inevitable increases in the price of energy products, it may then become necessary—may become necessary—to take even stronger measures.

It is only prudent that we be ready to cut the consumption of oil products, such as gasoline, by rationing, or by a fair system of taxation, and consequently, I have directed that contingency plans, if this becomes necessary, be prepared for that purpose.

Now, some of you may wonder whether we are turning back the clock to another age. Gas rationing, oil shortages, reduced speed limits—they all sound like a way of life we left behind with Glenn Miller and the war of the 1940s. Well, in fact, part of our current problem also stems from war—the war in the Middle East. But our deeper energy problems come not from war, but from peace and from abundance. We are running out of energy today because our economy has grown enormously and because in prosperity what were once considered luxuries are now considered necessities.

How many of you can remember when it was very unusual to have a home air conditioned? And yet, this is very common in almost all parts of the Nation.

As a result, the average American will consume as much energy in the next seven days as most other people in the world will consume in an entire year. We have only six percent of the world's people in America, but we consume over 30 percent of all the energy in the world.

Now, our growing demands have bumped up against the limits of available supply and until we provide new sources of energy for tomorrow, we must be prepared to tighten our belts today.

Let me turn now to our long-range plans.

While a resolution of the immediate crisis is our highest priority, we must also act now to prevent a recurrence of such a crisis in the future. This is a matter of bipartisan concern. It is going to require a bipartisan response.

Two years ago, in the first energy message any President has ever sent to the Congress, I called attention to our urgent energy problem. Last April, this year, I reaffirmed to the Congress the magnitude of that problem, and I called for action on seven major legislative initiatives. Again in June, I called for action. I have done so frequently since then.

But thus far, not one major energy bill that I have asked for has been enacted. I realize that the Congress has been distracted in this period by other matters. But the time has now come for the Congress to get on with this urgent business—providing the legislation that will meet not only the current crisis, but also the long-range challenge that we face.

Our failure to act now on our long-term energy problems could seriously endanger the capacity of our farms, and of our factories, to employ Americans at record-breaking rates—nearly 86 million people are now at work in this country—and to provide the highest standard of living we, or any other nation, has ever known in history.

It could reduce the capacity of our farmers to provide the food we need. It could jeopardize our entire transportation system. It could seriously weaken the ability of America to continue to give the leadership which only we can provide to keep the peace that we have won at such great cost, for thousands of our finest young Americans.

That is why it is time to act now on vital energy legislation that will affect our daily lives, not just this year, but for years to come.

We must have legislation now which will authorize construction of the Alaska pipeline—legislation which is not burdened with irrelevant and unnecessary provisions.

We must have legislative authority to encourage production of our vast quantities of natural gas, one of the cleanest and best sources of energy.

We must have the legal ability to set reasonable standards for the surface mining of coal.

And we must have the organizational structures to meet and administer our energy programs.

And therefore, tonight, as I did this morning in meeting with the Congressional leaders, I again urge the Congress to give its attention to the initiatives I recommended six months ago to meet these needs that I have described.

Finally, I have stressed repeatedly the necessity of increasing our energy research and development efforts. Last June, I announced a five-year, $10 billion program to develop better ways of using energy and to explore and develop new energy sources. Last month I announced plans for an immediate acceleration of that program.

We can take heart from the fact that we in the United States have half the world's known coal reserves. We have huge, untapped sources of natural gas. We have the most advanced nuclear technology known to man. We have oil in our continental shelves. We have oil shales out in the Western part of the United States and we have some of the finest technical and scientific minds in the world. In short, we have all the resources we need to meet the great challenge before us. Now we must demonstrate the will to meet that challenge.

In World War II, America was faced with the necessity of rapidly developing an atomic capability. The circumstances were grave. Responding to that challenge, this Nation brought together its finest scientific skills and its finest administrative skills in what was known as the Manhattan Project. With all the needed resources at its command, with the highest priority assigned to its efforts, the Manhattan Project gave us the atomic capacity that helped to end the war in the Pacific and to bring peace to the world.

Twenty years later, responding to a different challenge, we focused our scientific and technological genius on the frontiers of space. We pledged to put a man on the moon before 1970, and on July 20, 1969, Neil Armstrong made that historic "giant leap for mankind" when he stepped on the moon.

The lessons of the Apollo project, and of the earlier Manhattan Project, are the same lessons that are taught by the whole of American history: Whenever the American people are faced with a clear goal and they are challenged to meet it, we can do extraordinary things.

Today the challenge is to gain the strength that we had earlier in this century, the strength of self-sufficiency. Our ability to meet our own energy needs is directly limited to our continued ability to act decisively and independently at home and abroad in the service of peace, not only for America, but for all nations in the world.

I have ordered funding of this effort to achieve self-sufficiency far in excess of the funds that were expended on the Manhattan Project, but money is only one of the ingredients essential to the success of such a project.

We must also have a unified commitment to that goal. We must have unified direction of the effort to accomplish it. Because of the urgent need for an organization that would provide focused leadership for this effort, I am asking the Congress to consider my proposal for an Energy Research and Development Administration separate from any other organizational initiatives, and to enact this legislation in the present session of the Congress.

Let us unite in committing the resources of this Nation to a major new endeavor, an endeavor that in this bicentennial era we can appropriately call "Project Independence." Let us set as our national goal, in the spirit of Apollo, with the determination of the Manhattan Project, that by the end of this decade we will have developed the potential to meet our own energy needs without depending on any foreign energy sources.

Let us pledge that by 1980, under Project Independence, we shall be able to meet America's energy needs from America's own energy resources.

In speaking to you tonight in terms as direct as these, my concern has been to lay before you the full facts of the Nation's energy shortage. It is important that each of us understands what the situation is and how the efforts we, together, can take to help to meet it are essential to our total effort.

No people in the world perform more nobly than the American people when called upon to unite in the service of their country. I am supremely confident that while the days and weeks ahead may be a time of some hardship for many of us, they will also be a time of renewed commitment and concentration to the national interest.

We have an energy crisis, but there is no crisis of the American spirit. Let us go forward, then, doing what needs to be done, proud of what we have accomplished together in the past, and confident of what we can accomplish together in the future.

Let us find in this time of national necessity a renewed awareness of our capacities as a people, a deeper sense of our responsibilities as a Nation, and an increased understanding that the measure and the meaning of America has always been determined by the devotion which each of us brings to our duty as citizens of America.

I should like to close with a personal note.

It was just one year ago that I was re-elected as President of the United States of America. During this past year we have made great progress in achieving the goals that I set forth in my re-election campaign.

We have ended the longest war in America's history. All of our prisoners of war have been returned home. And for the first time in 25 years, no young Americans are being drafted into the Armed Services. We have made progress toward our goal of a real prosperity, a prosperity without war. The rate of unemployment is down to 4½ percent, which is the lowest unemployment in peacetime that we have had in 16 years, and we are finally beginning to make progress in our fight against the rise in the cost of living.

These are substantial achievements in this year 1973. But I would be less than candid if I were not to admit that this has not been an easy year in some other respects, as all of you are quite aware.

As a result of the deplorable Watergate matter, great numbers of Americans have had doubts raised as to the integrity of the President of the United States. I have even noted that some publications have called on me to resign the office of President of the United States.

Tonight I would like to give my answer to those who have suggested that I resign.

I have no intention whatever of walking away from the job I was elected to do. As long as I am physically able, I am going to continue to work 16 to 18 hours a day for the cause of a real peace abroad, and for the cause of prosperity without inflation and without war at home. And in the months ahead, I shall do everything that I can to see that any doubts as to the integrity of the man who occupies the highest office in this land, to remove those doubts where they exist.

And I am confident that in the months ahead, the American people will come to realize that I have not violated the trust that they placed in me when they elected me as President of the United States in the past, and I pledge to you tonight that I shall always do everything that I can to be worthy of that trust in the future.

Thank you and good night.

RICHARD M. NIXON.

THE WHITE HOUSE, *November 7, 1973.*

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FACT SHEET

November 7, 1973

BACKGROUND

In the President's Energy Message of April 18, the President characterized the energy situation facing the country as a problem, but not a crisis.

While we were faced with a tight supply situation this winter, particularly in home heating oil, we felt that voluntary conservation efforts, coupled with increased imports would allow us to balance the supply and demand.

However, as a result of the actions taken in the Middle East, our ability to import has not increased, but has in fact declined. Therefore, the energy problem has become much more severe.

CURRENT SITUATION

Recent oil curtailments will mean a shortage this winter of between 2 and 3 million barrels per day of crude oil and products—or 10 to 17% of expected demand.

—Current shortages are approximately 10% of demand.

—If the oil cutoff continues as petroleum demand increases during the winter, the overall shortage will rise toward the 3 million barrels per day level—17% of demand.

—At the current 2 million barrels per day level, the total shortage in major fuels are:

—Distillate fuels—including heating oil, diesel fuel and kerosene—at least 450,000 barrels per day or 11% short of expected demand. (Heating oil shortages are expected to be over 15% short of demand.)
—Residual fuel oil—which is used primarily by electric utilities, industrial operations and for heating large buildings—is approximately 500 thousand barrels per day or 13% short of expected demand.
—Jet fuel—at least 100 thousand barrels per day or 13% short of commercial and private use.
—Gasoline—at least 500,000 barrels per day or 7% short of demand. Expected shifts in refinery output to higher production of heating oil at the expense of gasoline could decrease the shortage of heating oil and increase the shortage of gasoline by as much as 200,000 barrels per day.

ACTIONS NOW BEING TAKEN BY THE ADMINISTRATION

The following actions are being taken by the Administration, primarily under the authority of the Economic Stabilization Act of 1970 and the Defense Production Act of 1950.

Reduce Residential Oil Consumption

—Regulations are being issued which prevent utilities and industrial facilities from switching from coal to petroleum fuels to reduce the growing demand for residual oil.
—Utilities will be encouraged and, where possible, required to convert power plants currently using residual oil to coal.
—46 power plants have indicated a capacity to convert within 60 days, with a potential savings of residual oil of 400,000 barrels per day.
—Actual conversions will depend upon such factors as the availability of coal, transportation and storage facilities, and variances from State Clean Air restrictions.

Reduce Jet Fuel Consumption

—The Federal Aviation Administration is continuing to work with airlines on action to reduce fuel consumption, such as reducing speeds and limiting the amount of taxiing. This will save an estimated 20,000 barrels per day.
—New steps will be taken under the fuel allocation program to distribute available jet fuel equitably among commercial and other jet fuel users. Shortages could result in a 10% reduction in scheduled flights.

Reduce Heating Oil Consumption

—Thermostats in Federal buildings will be reduced to 65–68°, leading to a 19% reduction from last year in energy required for heating—or the equivalent of 40,000 barrels of oil per day during the winter.
—The President asked that:
—Thermostats in homes be reduced by 6°, to reach a national daytime average of 68°.
—Offices, factories and commercial establishments achieve the equivalent of a 10° reduction through lowering thermostats or

curtailing working hours. (An estimated 450,000 to 600,000 barrels per day of heating oil could be saved by these actions).
—Homeowners and businesses that heat with electricity and natural gas make the same sacrifices as those using oil.
—Plans are being developed to control consumption of heating oil through rationing, if that proves necessary. A proposed plan will be published in the *Federal Register* in about 4 weeks. In addition, control fees are being considered to dampen excessive use of natural gas and electricity.

Reduce Gasoline Demand

—The President has directed that operators of all Federal motor vehicles observe a 50 MPH speed limit.
—The President asked Governors, Mayors and the general public to take steps to reduce gasoline use. Possible steps include:
—Make greater use of mass transit and car pools. An increase in the average car occupancy for commuter trips from the current 1.6 persons to 2.5 persons would save approximately 400 thousand barrels per day.
—Reduce speeds on highways within their states to a maximum of 50 MPH.
—State and local governments can discourage automobile use by:
—Setting aside bus lanes.
—Establishing higher parking taxes.
—Blocking off certain city sectors to cars with only one occupant.
—Providing preferential parking for car pools.
—State and local governments can stagger working hours to smooth traffic flow and increase use of public transit.
—The President directed the Secretary of Transportation to give priority to grant applications for the purchase of buses for mass transit under the authority of the Federal Aid Highway Act of 1973 and the Urban Mass Transportation Act. (Approximately $1.8 billion per year is available for urban highway and urban mass transit capital assistance).
—A plan for rationing of gasoline is being developed and will be implemented if necessary.

Other Presidential Actions

—Directed the Office of Management and Budget to establish an interagency task force to monitor the allocation and rationing programs and develop plans for dealing with the expected shortage.
—Directed the Secretary of Interior to establish a fuel allocation administration to administer all energy allocation and rationing programs.
—Directed the Secretary of Commerce to establish a National Industrial Energy Conservation Council to promote conservation in industry.
—Directed the Secretary of the Interior to activate the Emergency Petroleum Supply Committee, which consists of oil company officials and serves in emergencies to gather information on imported petroleum supplies and their transportation.

—Energy companies should not take advantage of the current oil shortages to gain excessive profits. If necessary the Economic Stabilization Act will be used to insure that the companies do not benefit unduly.

Other State and Local Actions

Governors and Mayors that have not yet done so are being asked to establish energy emergency offices or committees to:

—Determine the energy supply and demand situations in their areas.
—Develop and implement actions to reduce energy demand.
—Coordinate activities to assist those who do not have adequate fuel supplies.
—Work with Federal agencies that are allocating fuel.

Emergency Energy Legislation

Current emergency authority available by the President for dealing with the energy emergency is largely limited to:

—Defense Production Act of 1950, as amended, which provides broad authority including authority to allocate and control the use of materials for National security purposes.
—Economic Stabilization Act of 1970, as amended which provides authority to allocate petroleum as well as authority to control prices and wages.
—Export Administration Act of 1969, as amended, which provides authority to restrict exports.

At the President's direction, Energy Policy Advisor John Love and other Administration officials have been working with the Congress over the past two weeks to identify new authority needed to respond in a timely fashion to an energy emergency.

Legislation is needed for action in an energy emergency in the following areas:

—Authorize mandatory energy conservation measures such as:
  —Curtailing outdoor electrical advertising and ornamental lighting (ornamental gas lights use an amount of natural gas equivalent to 35,000 barrels per day or enough to heat 175,000 homes).
  —Reducing commercial operating hours.
  —Reducing speed limits.
  —Imposition of energy conservation fees or taxes, such as on consumption of natural gas or on excessive uses of electric energy.
—Give Congressional approval to:
  —The finding by the Secretary of the Navy (approved by the President) that increased production from the Elk Hills Naval Petroleum Reserve is needed for national defense purposes. (160,000 barrels of oil per day—8% of current shortages—could be obtained from Elk Hills within 60 days).
  —Use of proceeds from sale or exchange of the Navy owned oil to fund further development and production from Elk Hills and for exploration and proving Naval Petroleum Reserves, especially NPR #4 in Alaska.
—Authorize the use of daylight savings time throughout the year. (This could reduce electricity and heating demands, particularly in Northern areas, by as much as 3%).

—Authorize the President, acting through the Administrator of EPA to exempt (grant waivers) stationary sources from Federal and State air and water quality laws and regulations. There would be no change in Federal or State standards. Rather, there would be a case-by-case review by the Environmental Protection Agency with authority for the Administrator of EPA to grant waivers, without notice or hearing, and to override state or local regulations, if necessary. Relaxation would generally be limited to one year except where longer periods are necessary to make conversions to alternative fuel economically feasible.

—Authorize the President to exempt actions taken under the proposed energy emergency act from the National Environmental Protection Act (NEPA). However, an environmental evaluation of substantive content similar to an environmental impact statement would be required prior to the action, if possible, but within 60 days in any event. Actions in effect over one year would become subject to the full NEPA requirements.

—Upon declaration of an emergency by the President, regulatory agencies (FPC, CAB, ICC, FMC and AEC) would:

—consider energy use and conservation as part of their public interest determinations, and,

—in the case of the transportation agencies, be authorized, after summary hearings, to adjust a carrier's operating authority in such respects as: number of trips, points served, and rate schedules, and,

—in the case of the FPC, be authorized, for the duration of the energy emergency to suspend the regulation of prices of new production of natural gas, and,

—in the case of the AEC, be empowered to grant a temporary (up to 18 months) operating license without a public hearing, but subject to all safety and other requirements of its act.

Organization and Funding for Energy R. & D.

The President is requesting the Congress to give priority attention to the establishment of ERDA, separate and distinct from DENR in order to move ahead rapidly with the creation of a strong management framework for developing energy technology.

—**On June 29, 1973, the President proposed to Congress legislation to establish a Department of Energy and Natural Resources (DENR), Energy Research and Development Administration (ERDA), Nuclear Energy Commission (NEC).**

—The creation of ERDA will also result in a corresponding reorganization of the AEC's regulatory functions into an independent NEC.

The President also directed authorizing legislation for the 5-year—$10 billion energy R & D program that he announced on June 29, 1973 be forwarded to Congress to provide the necessary funds for ERDA.

Other Administration Legislative Proposals on Energy Awaiting Congressional Action

The President again asked that the Congress act on the following legislative proposals needed to improve our longer term energy situation:

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—During this session:
  —Alaska Pipeline
  —Natural Gas Supply Act
  —Mined Area Protection Act (Surface mining)
  —Deepwater Port Facilities
  —ERDA/NEC Reorganization
—Early next session:
  —Electrical facilities siting
  —DENR

PREVIOUS PRESIDENTIAL STATEMENTS ON ENERGY

—June 20, 1971 Message to the Congress on Clean Energy
—April 18, 1973 Message to Congress on National Energy Policy
—June 29, 1973 statement on Energy Conservation, R & D and Organization
—October 9, 1973 statement on Energy Conservation
—October 11, 1973 statement on Energy R & D, including added funds for FY–74.

Data on sources and uses of energy, 1972

All Energy Sources

Petroleum (including natural gas liquids):	
Million barrels	5,960
Trillion BTU	32,812
Percent	46
Natural gas:	
Billion cubic feet	22,607
Trillion BTU	23,308
Percent	32
Coal (Bituminous, anthracite and lignite):	
Thousand short tons	517,053
Trillion BTU	12,428
Percent	17
Hydropower:	
Billion kilowatt-hours	280.2
Trillion BTU	2,937
Percent	4
Nuclear power:	
Billion kilowatt-hours	56.9
Trillion BTU	606
Percent	1
Total gross energy: Trillion BTU	72,091

All Energy Uses

The 1972 figures show that consumption by major consuming sectors was fairly evenly divided:

	Percent
Industrial	28.8
Electricity Generation	25.6
Transportation	25.0
Household and Commercial	20.6

When electrical generation is factored into the other sectors, the breakdown is as follows:

	Percent
Industrial	43
Commercial	19
Residential	24

Petroleum

At present, the United States depends upon petroleum to meet approximately one-half of its energy demand.

On the average for 1973, petroleum use is approximately 17 million barrels per day.

Imports accounted for approximately 33% of all crude oil and petroleum products prior to the recent curtailments.

The table below shows United States imports of crude oil and products.

U.S. IMPORTS OF CRUDE OIL AND PRODUCTS

[Figures for 2d quarter 1973—in thousands of barrels per day]

Source	Crude oil	Products	Total
Venezuela	326.8	599.5	926.3
Other Caribbean	62.5	746.2	808.7
Canada	1,036.7	330.2	1,366.9
Mexico	2.7	14.9	17.6
Other Western Hemisphere	47.8	551.1	598.9
Non-Communist:			
Europe		183.2	183.2
Egypt	20.8		20.8
Other North Africa	294.3	42.4	336.7
West Africa	466.9	13.1	480.0
Israel	3.4		3.4
Iran	207.0	2.6	209.6
Other Mideast	487.7	62.1	549.8
Japan		2.2	2.2
Indonesia	205.2	3.5	208.7
Other Eastern Hemisphere		18.0	18.0
Rumania		6.4	6.4
U.S.S.R.		24.9	24.9
Total	3,161.9	2,600.3	5,762.2

MESSAGE TO THE CONGRESS

NOVEMBER 8, 1973

To the Congress of the United States:

As America has grown and prospered in recent years, our demands for energy have begun to outstrip available supplies. Along with other major industrialized nations, we are now faced with the prospect of shortages for several years to come.

Two years ago, in the first energy message ever sent to the Congress by a President of the United States, I called attention to the looming energy problem. Since that time, I have repeatedly warned that the problem might become a full-blown crisis, and seeking to minimize shortages, I have taken a number of administrative steps to increase supplies and reduce consumption. Earlier this year, I also sent more than a half dozen urgent legislative proposals to the Congress. While none of these has yet been enacted, I am hopeful at least several of the measures will be ready for my signature before year's end.

Unfortunately, the energy crisis that once seemed a distant threat to many people is now closing upon us quickly. We had expected moderate shortages of energy this winter, but four weeks ago, when war broke out in the Middle East, most of our traditional suppliers in that area cut off their shipments of oil to the United States. Their action has now sharply changed our expectations for the coming months.

Largely because of the war, we must face up to the stark fact that we are heading toward the most acute shortages of energy since the Second World War. Of the 17 million barrels of oil a day that we would ordinarily consume this winter, more than two million barrels a day will no longer be available to us. Instead of a shortage of approximately 2–3 percent that we had anticipated this winter, we now expect that our supply of petroleum will be at least 10 percent short of and anticipated demand—and could fall short by as much as 17 percent.

Administration Actions To Meet the Emergency

Faced with this emergency, I believe that we must move forward immediately on two fronts: administrative and legislative.

In a speech to the Nation last night, I announced a number of immediate actions:

First, industries and utilities which use coal—our most abundant resource—will be prevented from converting to oil. Efforts will also be made to convert power plants from the use of oil to the use of coal.

Second, reduced quantities of fuel will be allocated to aircraft. This

will lead to a cutback of some 10 percent in the number of commercial flights, but it should not seriously disrupt air travel nor cause serious damage to the airline industry.

Third, there will be reductions of approximately 15 percent in the supply of heating oil for homes, offices and other establishments. This is a precautionary measure to ensure that the oil now available not be consumed early in the winter, so that we shall have adequate amounts available in the later months. This step will make it necessary for all of us to live and work in lower temperatures. We must ask everyone to lower the thermostat in his home by at least 6 degrees, so that we can achieve a national daytime average of 68 degrees. In offices, factories and commercial establishments we must ask that the equivalent of a 10-degree reduction be achieved by either lowering the thermostat or curtailing working hours.

Fourth, there will be additional reductions in the consumption of energy by the Federal Government, cutting even deeper than the 7 percent reduction that I ordered earlier this year. This new reduction will affect the operations of every agency and department in the Government, including the Defense Department, which has already led the way in previous cutbacks. As one of the steps in this Federal effort, I have ordered that daytime temperatures in Federal offices be reduced to a level between 65 and 68 degrees. I have also ordered that all vehicles owned by the Federal Government be driven no faster than 50 miles per hour except in emergencies. This is a step which I have also asked Governors, mayors, and other local officials to take immediately with regard to vehicles under their authority.

Fifth, I have asked the Atomic Energy Commission to speed up the licensing and construction of nuclear plants, seeking to reduce the time required to bring nuclear plants on line from ten years to six years.

Sixth, I have also asked Governors and mayors to reinforce these actions by taking appropriate steps at the State and local level. Among the steps which I beileve would be helpful are these: staggering of working hours, the encouragement of mass transit and carpooling, alteration of school schedules, and elimination of unnecessary lighting. I have also recommended to the Governors that, consistent with safety and economic considerations, they seek to reduce highway speed limits to 50 miles per hour. This step alone could save over 200,000 barrels of oil a day.

Need for Emergency Legislation

As essential as these actions are to the solution of our immediate problem, we must recognize that standing alone, they are insufficient. Additional steps must be taken, and for that perhaps, we must have new legislation.

I am therefore proposing that the Administration and the Congress join forces and together, in a bipartisan spirit, work to enact an emergency energy bill. Members of my Administration have been consulting with appropriate leaders of the Congress for more than two weeks on this matter. Yesterday I met with the bipartisan leaders of the House and Senate and found them constructive in spirit and eager to get on with the job. In the same manner. I pledge the full cooperation of my Administration. It is my earnest hope that

by pushing forword together, we can have new emergency legislation on the books before the Congress recesses in December.

Based on previous consultations with the Congress, I have decided not to send a specific Administration bill to the Congress on this matter but rather to work with the Members in developing a measure that would be acceptable to both the executive and legislative branches. As part of that process, I think it would be helpful to call attention to those provisions that I think should be included in this emergency bill. At a minimum, I hope that the act would:

—Authorize restrictions on both the public and private consumption of energy by such measures as limitations on essential uses of energy (office hours, for instance) and elimination of non-essential uses (decorative lighting, for example);

—Authorize the reduction to 50 miles per hour of speed limits on highways across the country;

—Authorize the exemption or granting of waivers of stationary sources from Federal and State air and water quality laws and regulations. Such actions would be taken through the Administrator of EPA.

—Authorize the exemption of steps taken under the proposed energy emergency act from the National Environmental Protection Act (NEPA).

—Provide emergency powers for the Federal regulatory agencies involved in transportation to adjust the operations of air, rail, ship and motor carriers in a manner responsive to the need to conserve fuel.

—Empower the Atomic Energy Commission to grant a temporary operating license of up to 18 months for nuclear power plants without holding a public hearing. Such actions would be subject to all safety and other requirements normally imposed by the Commission.

—Authorize the initiation of full production in Naval Petroleum Reserve #1 (Elk Hills, California) and the exploration and further development of other Naval Petroleum Reserves, including Naval Petroleum Reserve #4 in Alaska.

—Permit Daylight Saving Time to be established on a year-round basis.

—And authorize the President, where practicable, to order a power plant or other installation to convert from the use of a fuel such as oil to another fuel such as coal and to make such equipment conversions as are necessary.

In addition to the provisions above, all of which I believe must be enacted before December, there are a number of other authorities which should be provided as soon as possible and hopefully will be included in the emergency measure.

One such provision would grant the President additional authority to allocate and ration energy supplies. Under this new authority, the President could take such actions based solely upon energy considerations. It is my hope that rationing of energy products will never be required, but if circumstances dictate it, there should be no impediments to swift action. For contingency purposes, I have already directed that plans for gasoline rationing be drawn up and held in reserve.

Recognizing that a more efficient use of our transportation resources

is necessary, we should also provide additional authority to encourage greater use of funds from the Federal-Aid Highway Act of 1973 for mass transit capital improvements.

In addition, we should provide the Federal Power Commission with authority, during the duration of the energy emergency, to suspend the regulation of prices of new natural gas at the wellhead.

Finally, I believe it would be wise if, on energy grounds, the President were empowered to exercise any authority now contained in the Defense Production Act, the Economic Stabilization Act and the Export Administration Act, even though those acts may have otherwise expired.

Meeting the Long-Term Challenge

As we act to deal with the immediate problem before us, we must not ignore the need for preventing such a crisis from recurring. The lead-times required to meet our long-range energy needs dictate that we must move on them at once.

Legislation authorizing construction of the Alaskan pipeline must be the first order of business as we tackle our long-range energy problems. The American people are depending upon the Congress to enact this legislation at the earliest possible moment, and they are depending upon me to approve it. With passage apparently imminent, I would urge the Congress not to burden this legislation with irrelevant amendments. This is no time to hold the Nation's energy future hostage to other controversial interests.

I am also requesting early action on pending legislative proposals to:

—permit the competitive pricing of new natural gas;
—provide reasonable standards for the surface mining of coal;
—provide simplified procedures for the siting and approving of electric energy facilities;
—establish a Department of Energy and Natural Resources;
—and provide procedures for approving construction and operation of deepwater ports.

Because of the critical role which energy research and development will play in meeting our future energy needs, I am requesting the Congress to give priority attention to the creation of an Energy Research and Development Administration separate from my proposal to create a Department of Energy and Natural Resources. This new administration would direct the $10 billion program aimed at achieving a national capacity for energy self-sufficiency by 1980.

This new effort to achieve self-sufficiency in energy, to be known as Project Independence, is absolutely critical to the maintenance of our ability to play our independent role in international affairs. In addition, we must recognize that a substantial part of our success in building a strong and vigorous economy in this century is attributable to the fact that we have always had access to almost unlimited amounts of cheap energy. If this growth is to continue, we must develop our capacity to provide enormous amounts of clean energy at the lowest possible cost. Thus, irrespective of the implications for our foreign policy and with the implicit understanding that our intentions are not remotely isolationist, the increasing costs of foreign energy further contribute to the necessity of our achieving self-sufficiency in energy.

RICHARD NIXON.

THE WHITE HOUSE, *November 8, 1973.*

ADDRESS ON THE NATIONAL ENERGY POLICY

NOVEMBER 25, 1973

THE PRESIDENT: Good evening. Three weeks ago, I spoke to you about the national energy crisis and our policy for meeting it. Tonight I want to talk with you again to report on our progress and to announce further steps we must take to carry out our energy policy.

When I spoke to you earlier, I indicated that the sudden cut-off of oil from the Middle East had turned the serious energy shortages we expected this winter into a major energy crisis. That crisis is now being felt around the world, as other industrialized nations have also suffered from cutbacks in oil from the Middle East.

Shortages in Europe, for example, are far more critical than they are here in the United States. Already seven European nations have imposed a ban on Sunday driving. Fortunately, the United States is not as dependent upon Middle Eastern oil as many other nations. We will not have a ban on Sunday driving, but as you will hear later, we are going to try to limit it. Nevertheless, we anticipate that our shortages could run as high as 17 percent. This means that we must immediately take strong, effective counter-measures.

In order to minimize disruptions in our economy, I asked on November 7th that all Americans adopt certain energy-conservation measures to help meet the challenge of reduced energy supplies. These steps include reductions in home heating, reductions in driving speeds, elimination of unnecessary lighting. The American people, all of you, you have responded to this challenge with that spirit of sacrifice which has made this such a great nation.

The Congress has also been moving forward on the energy front. The Alaska pipeline bill has been passed. I signed it into law nine days ago right here at this desk. The Congress has passed a fuel allocation bill which I will sign into law on Tuesday. An additional emergency bill providing special authority to deal with this problem has now passed the Senate. When the House returns from its recess, I am confident the House will move promptly so that this vital legislation can be signed into law by the middle of December.

And so we have made some encouraging progress, but there is much more to be done, and that is what I want to talk to you about tonight.

I have appointed an Energy Emergency Action Group, under my chief energy adviser, Governor John Love, to analyze our situation on a continuing basis and to advise me of all actions required to deal with it.

And upon the action and the recommendation of this group, I am announcing tonight the following steps to meet the energy crisis:

First, to increase the supply of heating oil that will be available this winter, we must adjust production schedules and divert petroleum which might normally go for the production of gasoline to the production of more heating oil.

To accomplish this, the amount of gasoline which refiners distribute to wholesalers and retailers will be reduced across the Nation by 15 percent. As we reduce gasoline supplies, we must act to insure that the remaining gasoline available is used wisely, and conserved to the fullest possible extent.

Therefore, as a second step, I am asking tonight that all gasoline filling stations close down their pumps between 9:00 p.m. Saturday night and midnight Sunday every weekend, beginning December 1. We are requesting that this step be taken voluntarily now.

Upon passage of the emergency energy legislation before the Congress, gas stations will be required to close during these hours. This step should not result in any serious hardship for any American family. It will, however, discourage long-distance driving during weekends. It will mean perhaps spending a little more time at home.

This savings alone is only a small part of what we have to conserve to meet the total gasoline shortage. We can achieve substantial additional savings by altering our driving habits. While the voluntary response to my request for reduced driving speeds has been excellent, it is now essential that we have mandatory and full compliance with this important step on a nationwide basis.

And therefore, the third step will be the establishment of a maximum speed limit for automobiles of 50 miles per hour nationwide as soon as our emergency energy legislation passes the Congress. We expect that this measure will produce a savings of 200,000 barrels of gasoline per day. Inter-city buses and heavy duty trucks which operate more efficiently at higher speeds, and therefore, do not use more gasoline, will be permitted to observe a 55 mile per hour speed limit.

The fourth step we are taking involves our jet airliners. There will be a phased reduction of an additional 15 percent in the consumption of jet fuel for passenger flights bringing the total reduction to approximately 25 percent.

These savings will be achieved by a careful reduction in schedules, combined with an increase in passenger loads. We will not have to stop air travel, but we will have to plan for it more carefully.

The fifth step involves cutting back on outdoor lighting. As soon as the emergency energy legislation passes the Congress, I shall order the curtailment of ornamental outdoor lighting for homes and the elimination of all commercial lighting except that which identifies places of business.

In the meantime, we are already planning right here at the White House to curtail such lighting that we would normally have at Christmastime and I am asking that all of you act now on a voluntary basis to reduce or eliminate unnecessary lighting in your homes.

As just one example of the impact which such an initiative can have, the energy consumed by ornamental gas lights alone in this country is equivalent to 35,000 barrels per day of oil and that is enough fuel to heat 175,000 homes.

Finally, I want to report to you tonight that we have now developed final plans for allocating reduced quantities of heating oil this winter

and all of you know how very important heating oil is, particularly in the wintertime.

These plans, to be published Tuesday, will call for an average reduction of 10 percent of heating oil for industrial use, 15 percent for home use, and 25 percent for commercial use.

The reductions for homeowners alone will result in a savings of some 315,000 barrels of heating oil a day, which is enough to heat over 1½ million homes every day. For the average American family, as I indicated three weeks ago, this cutback in heating oil does not mean severe discomfort for anyone, but it will mean that everyone should lower the thermostat—as it is right here in this office now, and throughout the White House, and throughout every Federal installation—you should lower the thermostat by six degrees below its normal setting so that we can achieve a national daytime average of 68 degrees.

Those who fail to adopt such a cutback risk running out of fuel before the winter is over. While additional actions will be necessary to further offset the anticipated shortage of 17 percent, the steps which I have outlined tonight will relieve about 10 percent of that shortage.

They will make a very substantial contribution to our immediate goal of insuring that we have enough fuel to be adequately warm in our homes this winter, that we are able to get to work, and that we experience no serious disruptions in the normal conduct of our lives.

Above all, every step will be taken to insure that any disruptions to our economy which could cost jobs, will be as brief as possible and that they do not cause serious damage.

Nothing we do can succeed, however, without the full cooperation of the Congress in providing the legislation we must have, without the full cooperation of State and local governments in providing the broad leadership that we must have, and without the full cooperation of each and every one of you, all the American people, in sacrificing a little so that no one must endure real hardship.

For my part, I pledge to do everything in my power to insure that the decisions I have announced will be carried out swiftly and effectively and fairly, and whatever additional action is necessary to achieve our objective will be taken.

I intend to participate personally and on a regular basis, as I have since I last addressed you three weeks ago, in the work of my energy advisers. I intend to advise the congressional leadership regularly of problems and progress. And I intend to see that the persons and organizations having responsibilities and capabilities in this area are fully and regularly informed.

We need new rules if we are to meet this challenge; but most of all, we need sustained and serious action and cooperation by millions of men and women if we are to achieve our objective, and that means millions of Americans across this land listening to me tonight.

Let me conclude by restating our overall objective. It can be summed up in one word that best characterizes this Nation and its essential nature. That word is "independence." From its beginning 200 years ago, throughout its history, America has made great sacrifices of blood and also of treasure to achieve and maintain its independence. In the last third of this century, our independence will depend on maintaining and achieving self-sufficiency in energy.

What I have called Project Independence-1980 is a series of plans and goals set to insure that by the end of this decade Americans will not have to rely on any source of energy beyond our own.

As far as energy is concerned, this means we will hold our fate and our future in our hands alone. As we look to the future, we can do so confident that the energy crisis will be resolved not only for our time but for all time. We will once again have plentiful supplies of energy which helped to build the greatest industrial nation and one of the highest standards of living in the world.

The capacity for self-sufficiency in energy is a great goal. It is also an essential goal, and we are going to achieve it.

Tonight I ask all of you to join together in moving toward that goal, with the spirit of discipline, self-restraint and unity which is the cornerstone of our great and good country.

Thank you and good evening.

RICHARD M. NIXON.

THE WHITE HOUSE, *November 25, 1973.*

* * * * * * *

FACT SHEET

November 25, 1973

BACKGROUND

On November 7, 1973, the President addressed the Nation concerning our serious energy shortages which have resulted primarily from the cut-off of oil from the Mideast. He described the magnitude of the problem, announced a number of administrative actions to reduce demand for energy, and indicated that the Administration was working with the Congress on legislation to provide new authority for dealing with the energy emergency. He also asked the Congress to pass legislation proposed by the Administration to deal with our longer term energy problems and to permit the United States to develop by 1980 the potential to meet our own energy needs without depending on any foreign energy sources.

In an additional step to meet the current situation, the President on November 12, 1973, established an Energy Emergency Action Group headed by his chief energy adviser, John Love. That group has recommended a number of actions which have been approved by the President and which are being announced today.

Efforts are underway throughout the Executive Branch, under the leadership of the Energy Emergency Action Group, to assess the energy supply and demand situation and to continue to identify additional actions that are needed as the situation evolves. New actions will be announced as the need and desirability for them becomes clear.

CURRENT ASSESSMENT OF THE PROBLEM

The Role of Petroleum in U.S. Energy Supplies

—Petroleum accounts for 46% of the nation's energy supplies. The remainder is supplied by coal—17%; natural gas—32%; hydropower—4% and nuclear—1%.

—A reduction of 10% to 17% in petroleum supplies will involve a reduction in total energy supplies of 5–8%.

Overall Petroleum Supply and Demand Situation

—If the supply of petroleum were not constrained, current estimates are that U.S. demand would reach 18.6 million barrels per day in the 4th quarter of 1973, and 19.7 million barrels per day in the 1st quarter of 1974.

—Current estimates of petroleum supplies (details in Table 1) are 17.4 million barrels/day in the 4th quarter of 1973 and 16.5 million barrels per day in the 1st quarter of 1974. The deficits, if actions to reduce demands are not taken, will amount to 1.4 million barrels per day in the 4th quarter and 3.5 million barrels per day in the 1st quarter. The deficit would then drop back below 3 million barrels per day in the 2nd quarter of 1974.

—Stocks of petroleum could be used to supply demands for a limited period (28 to 40 days, depending upon the type of fuel), but the use of stocks only postpones the time when a more permanent solution to the problem becomes necessary.

—The alternative actions that must be taken to bring demand into line with supplies include reducing demand, substituting one fuel for another, and changing the mix of petroleum products from refineries to meet highest priority needs, i.e., to distillates, jet fuel and residual from gasoline (see Table 2). These actions are designed to spread the impact of shortages as equitably as possible, and to minimize the impact of the shortages on our economic activity.

SHORTAGES AND GENERAL STRATEGIES BY TYPE OF PETROLEUM

Jet Fuel

—The projected first quarter shortage is 400,000 barrels per day (32.2% of demand).

—Half of that shortage can be made up by shifting refinery production; the remainder will be realized through reductions in airline flights.

Gasoline

—With the expected 700,000 barrels per day shift in refinery production expected shortages will be 1,400,000 barrels per day during the first quarter of 1974 (21.4% of demand).

—15% reduction in use by business and government will yield a 300,000 barrels per day saving.

—Reductions in passenger car use of 24% could provide 1,100,000 barrels per day savings.

Middle Distillates

—Current shortages of 900,000 barrels per day (17.5% of demand) can be reduced by a refinery shift of 400,000 barrels per day.

—Reduction of residual heating by 6° and commercial heating by 10° saves 490,000 barrels per day.

—Cutting industrial use of distillates by 10% provides 40,000 barrels per day.

—50% reduction in the use of distillates for "peak power" production by electric utilities on a selective basis yields 150,000 barrels per day.

—These reductions will provide approximately 200,000 barrels per day as a hedge against a colder than normal winter.

Residual Oil

—Current shortages of 1,050,000 barrels per day (29.4%) can be made up through:
  —refinery shift of 200,000 barrels per day,
  —the conversion of oil burning electrical generation plants to coal (250,000 barrels per day),
  —a 15% reduction in heating uses of residual oil (90,000 barrels per day),
  —a 3% cut in electricity (300,000 barrels per day),
  —a 10% reduction in the industrial use of residual oil (60,000 barrels per day).
—Reducing residential consumption of natural gas so that electric utilities can use it instead of residual oil for power generation (100,000 barrels per day).

Actions Taken Today Under Existing Authority

The following actions are being taken by the Administration under the authority of the Economic Stabilization Act of 1970, and the Defense Production Act of 1950. These are the initial steps to start us rapidly on the way to achieving the goals of the general strategy described above and to ensure during this quarter we are not reducing inventories excessively. Additional steps will be taken as they are developed and as they become necessary in light of our assessment of the boycott.

The mandatory allocation program for middle distillate fuels will be extended to control allocations to end users

—Current estimates of heating oil shortages require modification of the current allocation program to establish priorities for critical use and equitably to distribute the burden of heating reductions according to regional weather patterns.
—Proposed regulations to be published on Tuesday, November 27 will, through cuts in deliveries, reduce amounts available for residential space heating by 15%, commercial and other space heating by 25%, and industrial uses by 10%.
—Priority will be given to fuel production activities, public passenger transportation, food production and processing, and essential community services.
—New regulations will be effective January 1, 1974, but voluntary compliance is expected sooner.
—Estimated savings will be 530,000 barrels of oil per day.

A Gasoline Allocation Program will be initiated

—Proposed regulations will be published in December setting forth a mandatory program to allocate gasoline at wholesale and retail levels.
—Initial allocations will be made at a rate 15% below projected first quarter demand (10% below 1972 demand), consistent with expected initial shifts in refinery production. The percentage may be increased as refineries shift from production of gasoline to other petroleum products.

—Refineries will be asked immediately to begin reducing delivery to wholesalers and retailers by 15%.
—Estimated savings are 900,000 barrels per day.

Allocations of jet fuel to airlines will be reduced

—Beginning December 1 domestic airlines will be allocated 5% less than their 1972 levels and international airlines will be reduced to their 1972 levels.
—Beginning January 7, 1974, all carriers will be allocated 15% less than their 1972 levels.
—Saving will be 53,000 barrels per day of jet fuel in December and 220,000 barrels per day beginning January 7.

Electric power will be diverted from uranium enrichment facilities if the emergency makes such action essential

—Power will be diverted from the U.S. Atomic Energy Commission facilities producing enriched uranium for nuclear power plants when no alternate source of power exists; conservation measures are inadequate to meet the need; and the power is required to replace electricity lost temporarily while utilities convert from oil to coal.
—Approximately 1400 megawatts of electricity produced by coal are available for diversion to the Midwest or East Coast from Oak Ridge, Tennessee, and Portsmouth, Ohio, facilities.
—53,000 barrels of residual oil per day would be required to generate 1400 megawatts of electricity.

The Emergency Petroleum and Gas Administration Executive Reserve will be partially activated

—The Executive Reserve is a stand-by group of oil and gas industry personnel established under the Defense Production Act of 1950.
—Approximately 250 reservists will be activated to assist in planning and administering emergency programs.

Preventing Coal to Oil Switching

—Final regulations to prevent power plants and industries from switching from coal to oil will be published on November 27 and will be effective December 7.

ACTIONS ANNOUNCED TODAY THAT WILL BE EFFECTIVE WHEN NEW AUTHORITY IS AVAILABLE

The President announced that the following actions will be put into effect as soon as authority is provided by the Congress. The Senate passed a bill to provide the authority on November 19 (the National Energy Emergency Act, S. 2589.)

Retail gasoline sales will be banned from 9:00 p.m. Saturdays to 12:01 a.m. Mondays

—The ban would apply to gasoline for use in automobiles, trucks, pleasure boats, private aircraft and recreational vehicles.
—The estimated savings is 50,000 barrels per day.
—Retail outlets are urged to comply voluntarily beginning December 1.

A maximum speed limit will be set for all roads and highways in the nation of 50 miles per hour for automobiles and 55 miles per hour for intercity buses and heavy duty, over the road, trucks

—Estimated savings in gasoline from the speed limits is 200,000 barrels per day.

—Inter-city buses and heavy duty, over the road, trucks are geared, on balance, to run more efficiently at 55 m.p.h. than at 50 m.p.h. and therefore will save more fuel at the higher speed.

—The President urged all states to set new speed limits as soon as possible.

—Drivers are urged to comply voluntarily.

Promotional, display and ornamental lighting by commercial establishments will be banned

—Included in the ban will be window display lights, billboards and all interior and exterior ornamental lighting.

—Lighted signs to identify business establishments will be allowed during the hours the business is open.

—All commercial firms are urged to comply voluntarily prior to passage of the legislation.

Fuel for use by general aviation will be reduced.

—Fuel for high priority aviation such as air taxi service and industrial usage will be curtailed 20%; business flying, including corporate jets, will be cut 40%. Fuel for personal pleasure and instructional flying will be restricted to half of previous levels.

—Immediate voluntary compliance is urged. Reductions will result in savings of 12,000 barrels per day of aviation gasoline and 8,000 barrels per day of jet fuel.

Residential ornamental lighting will be banned

—The ban will include gas and electric yard lights, outside Christmas lights and other decorative lights.

—All citizens are urged to comply voluntarily prior to the passage of the emergency legislation.

MEMBERS OF THE PRESIDENT'S ENERGY EMERGENCY ACTION GROUP

—John Love, Assistant to the President for Energy, Chairman
—Rogers Morton, Secretary of the Interior
—Roy Ash, Director, Office of Management and Budget
—Melvin Laird, Counsellor to the President for Domestic Affairs
—George Shultz, Secretary of the Treasury
—Claude Brinegar, Secretary of Transportation
—Frederick Dent, Secretary of Commerce
—William Clements, Deputy Secretary of Defense
—Brent Scowcroft, Deputy Assistant to the President for National Security Affairs

CHRONOLOGY OF PAST ENERGY ACTIONS BY THE PRESIDENT

—June 4, 1971—First message to the Congress on energy ever submitted by a President.

—April 18, 1973—Message to the Congress on National Energy Policy.

—June 29, 1973—Statement on energy conservation, R&D and organization.
—October 9, 1973—Statement on energy conservation.
—October 11, 1973—Statement on energy R&D, including added funds for fiscal year 1974.
—November 7, 1973—Address to the Nation on the National energy emergency announcing a number of administrative actions and outlining additional authority needed to deal with the emergency.
—November 8, 1973—Message to Congress requesting the additional authority.

ENERGY LEGISLATION PROPOSED BY THE ADMINISTRATION AWAITING CONGRESSIONAL ACTION

—Electrical Facilities Siting Act—Initially proposed in February, 1971. Again proposed in February, 1973.
—Mined Area Protection Act—Initially proposed in February, 1971. Again proposed in February, 1973.
—Management of Public Lands [1]—Initially proposed in July, 1971.
—Mineral Leasing Act Amendments [1]—Initially proposed in October, 1971. Again proposed in February, 1973.
—Deepwater Port Facilities Act—Proposed in April, 1973.
—Natural Gas Supply Act—Proposed in April, 1973.
—Reorganization legislation to create Department of Energy & Natural Resources, Energy Research & Development Agency, and Nuclear Energy Commission—Proposed on June 29, 1973.
—Legislation to permit production from the Elk Hills Naval Petroleum Reserve and provide funds for Petroleum Reserve exploration, development and production—Proposed on November 7, 1973.

TABLE 1.—U.S. SUPPLY AND DEMAND FOR PETROLEUM PRODUCTS 4TH QUARTER 1973 AND 1ST QUARTER 1974

(Millions of barrels per day)

	4th quarter 1973			1st quarter 1974		
	Base level	Impact of cutoff	Current forecast	Base level	Impact of cutoff	Current forecast
Demand	18.6	[1] 0.2	18.8	19.7	[1] 0.3	20.0
Supply:						
From domestic sources	11.4	.....	11.4	11.1	.....	11.1
From imports:						
Crude oil	(3.7)	(.5)	(3.1)	(3.8)	(1.4)	(2.5)
Refined	(3.3)	(.7)	(2.6)	(4.0)	(1.8)	(2.2)
Subtotal	7.0	1.2	5.7	7.8	3.2	4.7
Change in product inventories	.2	.....	.2	.7	.....	.7
Total supply	18.6	1.2	17.4	19.7	3.2	16.5
Demand/supply deficit			1.4			3.5
Percent of total demand			7.5			17.9

[1] Military requirements previously met from foreign sources which now become a part of domestic demand.

[1] Included provisions to resolve right of way obstacle to the construction of the Alaska pipeline. The Alaska Pipeline legislation was enacted on November 16, 1973.

TABLE 2.—IMPACT OF REFINERY SHIFTS ON 1ST QUARTER 1974 SHORTFALLS

[Thousands of barrels per day]

Product	Unadjusted shortage	Refinery shift	Net shortage	Percent of projected demand
Jet fuel	398	−225	173	14
Gasoline	712	700	1, 412	22
Middle distillates	898	−400	498	11
Residual oil	1, 052	−200	852	24
Other	401	125	526	14
Total	3, 461		3, 461	17

REMARKS OF THE PRESIDENT UPON ANNOUNCING CREATION OF THE FEDERAL ENERGY OFFICE

DECEMBER 4, 1973

Ladies and gentlemen, I have an announcement with regard to the energy crisis that I will now make, and at the conclusion of my announcement Mr. Simon will have a brief statement with regard to his acceptance of the position I am appointing him to, and then he will take questions on the new office that we are setting up and new actions that we are taking to meet the energy crisis.

As you recall, in my report to the Nation on November 25th, I said that I would be reporting from time to time on the energy crisis and on the steps that I would personally be taking to meet it.

Last June I asked Governor Love to join my staff in order to develop the necessary policies to meet what was then essentially a long-term problem which had important short-term consequences. Governor Love has provided me with a broad range of recommendations and policy considerations for achieving independence with regard to energy by the year 1980. The work which Governor Love and his staff have done in the last six months constitutes an invaluable and lasting contribution to this Nation's efforts to meet a challenge of formidable dimensions.

While the process of policy formulation is going forward, the world, the United States and all the rest of the world as well, was confronted with a new and far more critical situation arising from the Middle East oil embargo.

I have discussed in recent weeks those steps which we would take to meet this new situation. Such steps will involve the Federal Government directly in operational matters, in addition to its policy-making role in resolving the energy crisis. In order to administer the necessary voluntary and mandatory actions, some of which have been announced, some of which are still under consideration, we must now strengthen our ability to make and implement our energy program.

The planning for this step has been in process for several weeks. I have been in consultation with my senior advisers on the development of an operational structure to carry out our energy policies, and we also have been in contact with major congressional leaders who are interested in this particular problem and have responsibilities in the Congress for the problem.

As a result of these consultations, I have decided to bring together in one agency the major energy resource management functions of the Federal Government to provide the centralized authority we must have for dealing with the energy crisis.

I am personally assuming the Chairmanship of the Energy Emergency Action Group which will continue to oversee all major policy issues relating to energy, and Mr. William E. Simon, who is currently Deputy Secretary of the Treasury, will serve as Executive Director of this group. I expect, Mr. Simon, that this will take almost all of your time.

Concurrently, I am asking the Congress to create a Federal Energy Administration and in the Executive Office of the President, a Federal energy office to carry out all energy-related functions.

In anticipation of congressional action on my request, I am today establishing by Executive Order the Federal Energy Office, which will begin to perform these functions while we await the necessary statutory authority which we hope to get from the Congress.

The Federal Energy Office will also be headed by Mr. Simon. I am gratified by the rapid action which the Congress is taking on many of the proposals for dealing with the energy crisis. The emergency legislation which we must have is being considered in an expeditious manner, as is my request for legislation establishing an Energy Research and Development Administration, and I am confident, too, that my proposal for a Federal Energy Administration will be dealt with in a similar manner by the Congress.

As these steps are being taken, I want to emphasize once again that the work of the Government agencies involved in meeting the energy crisis cannot be fully successful without the total commitment of every American citizen to see our Nation through this situation.

The American people recognize a challenge faces us, and they are already responding to it in a way that speaks well for the future. Every day reports flow into the White House of families who are driving more slowly, turning down their thermostats in their homes and seeking other ways to conserve fuel. Each of these families has my personal gratitude and has also the gratitude of the entire Nation.

As we see the spirit of sacrifice which has distinguished this response, we approach the days ahead with the strongest confidence that we will weather this present difficulty as we have others in our history and that the ultimate accomplishment of independence with regard to energy can and will be a fitting tribute to America's strength and perseverance in this time.

Now Mr. Simon, who will have such great responsibilities to carry out these policies in this new office, will have a statement, and then he will take your questions.

RICHARD NIXON.

THE WHITE HOUSE, *December 4, 1973.*

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EXECUTIVE ORDER

December 4, 1973

FEDERAL ENERGY OFFICE

By virtue of the authority vested in me as President of the United States of America by the Constitution and statutes of the United

States, including the Economic Stabilization Act of 1970 (Public Law 91-379, 84 Stat. 799), as amended, the Emergency Petroleum Allocation Act of 1973 (Public Law 93-159), the Defense Production Act of 1950 (50 U.S.C. App. 2061, *et seq*), as amended, and Section 301 of title 3 of the United States Code, it is hereby ordered as follows:

SECTION 1. There is hereby established in the Executive Office of the President a Federal Energy Office. The Office shall be under the immediate supervision and direction of an Administrator and a Deputy Administrator of the Federal Energy Office. The Administrator shall be the Deputy Secretary of the Treasury.

SEC. 2. The Administrator of the Federal Energy Office shall advise the President with respect to the establishment and integration of domestic and foreign policies relating to the production, conservation, use, control, distribution, and allocation of energy and with respect to all other energy matters.

SEC. 3(a) There is hereby delegated to the Administrator all the authority vested in the President by the Emergency Petroleum Allocation Act of 1973.

(b) The Administrator shall either submit to the Congress the reports required by Section 4(c)(2) of the Emergency Petroleum Allocation Act, or may require any other officer or any department or agency of the United States to submit the required reports to Congress.

SEC. 4(a) There is hereby delegated to the Administrator the authority vested in the President by Section 203(a)(3) of the Economic Stabilization Act of 1970, as amended.

(b) The Chairman of the Cost of Living Council shall, from time to time, delegate to the Administrator such authority under the Economic Stabilization Act as may be necessary to carry out the purposes of that Act with respect to energy matters.

SEC. 5. There is hereby delegated to the Administrator the authority vested in the President by the Defense Production Act of 1950, as amended, as it relates to the production, conservation, use, control, distribution, and allocation of energy. Any provision of Executive Order No. 10480, as amended, which is inconsistent with the exercise of such authority is hereby suspended for so long as this Section remains in effect.

SEC. 6. Executive Order No. 11726 of June 29, 1973, is hereby superseded to the extent that it is inconsistent with this Order.

SEC. 7. All Orders, regulations, circulars, or other directives issued and all other actions taken pursuant to any authority delegated to the Administrator by this Order prior to and in effect on the date of this Order are hereby confirmed and ratified, and shall remain in full force and effect, as if issued under this Order, unless or until altered, amended, or revoked by the Administrator or by such competent authority as he may specify.

SEC. 8. All authority delegated to and placed in the Administrator by this Order may be further delegated, in whole or in part, by the Administrator to any other officer or any department or agency of the United States.

SEC. 9(a) Necessary expenses of the Federal Energy Office may be paid from the Emergency Fund of the President or from such other funds as may be available.

(b) The Administrator of the General Services Administration shall provide, on a reimbursable basis, such administrative support as may be needed by the Federal Energy Office.

(c) All departments and agencies of the executive branch shall, to the extent permitted by law, provide assistance and information to the Administrator of the Federal Energy Office.

RICHARD NIXON.

THE WHITE HOUSE, *December 4, 1973.*

STATEMENT

DECEMBER 19, 1973

One of the central facts underlying the national energy crisis is that we have a shortage in the production of domestic crude oil. This shortage has been further aggravated by the embargo of oil by the Arab nations. It is one of the ironies in the present situation, as well as one of the sources of confidence that we can solve the energy shortage, that the United States is an energy-rich nation. In addition to our superabundance of coal, oil shale, natural gas, and other resources, both natural and technological, we also possess extensive supplies of oil. In the past we have drawn on proven supplies in the most economical manner and this practice, coupled with heretofore cheap imports, has provided us with sufficient petroleum and, more importantly, petroleum at very low prices.

It has not previously been commercially feasible to develop our oil shale resources, or to extract all of the crude oil which exists in developed fields and in unproven reserves. Now we must become self-sufficient in energy, and in order to do so we must be prepared to pay the attendant costs.

In order to increase our production of crude petroleum, new reservoirs must be discovered and drilled, often to deeper and more costly depths. Expensive new technology must be applied to existing wells to bring up more of the 60 percent of the crude oil which present drilling processes leave in the ground. Very large expenditures are also needed to produce oil from oil shale, a resource which alone could supply our needs for years to come.

Today, prices of crude oil in the world market are rising and it is inevitable that they will come to rest at levels higher than we historically have enjoyed. Nevertheless, after a short-run adjustment period, the long-run price required to supply our needs should not be unreasonably high.

In the meantime, because of the abrupt nature of the present shortage, prices could temporarily exceed the price levels required to increase supply, and oil producers could reap unanticipated "windfall" profits.

EMERGENCY WINDFALL PROFITS TAX

I want to assure all Americans that there will be no windfall profits at their expense. When the Congress reconvenes in January, I will ask it to enact an Emergency Windfall Profits Tax. The specific details of this proposal will be provided today by the Treasury Department. Over the holidays, the Treasury Department will continue to work with Congressional staffs so that this proposal and related

materials will be ready for consideration by the Congress after the holiday recess.

The Emergency Windfall Profits Tax I will propose would apply at rates graduated up to 85 percent on the sale by any domestic producer of crude oil at prices higher than the ceiling price of the Cost of Living Council on December first.

This special emergency tax will prevent future windfalls to producers and will make up, in some degree, for those which may have already occurred.

At the same time, the tax is carefully designed to avoid completely depriving producers of a legitimate return on the major investments they will have to make in order to produce the additional supply we need. It would be self-defeating to tax away the oil producers' incentive and ability to help meet our energy shortage.

The Emergency Windfall Profits Tax must be a temporary tax. This is an essential part of my recommendation to the Congress. The tax is intended only to serve the immediate objective of preventing windfall profits to oil producers while other economic factors are at work to increase supply and eliminate the shortage in crude oil. As prices return to the long-run supply level and as the potential for windfall profits disappears, a continuation of the tax would result in higher prices for consumers, with no concomitant increase in oil supplies.

I am not today making any recommendation to the Congress for using revenues derived from the Emergency Windfall Profits Tax. That will naturally be a part of the Congress' deliberations. There are a number of possibilities for use of these revenues. One would be to place those revenues in an Energy Development Trust Fund which would act as a bank for the financing of a wide range of energy development and conservation projects which might not otherwise be feasible. Another possibility would be to refund all or part of the tax to the oil producer if he invests his profits in additional energy producing efforts.

These and all other possibilities for increasing our energy production at a faster pace, as well as for minimizing any inequities resulting from the present shortage, are being given the most careful study. The steps which I am announcing today are not the entire answer to our energy needs, but they will contribute significantly to the overall solution.

We must be more creative in conserving our vital natural resources, and we must do more to develop those resources. As we take these steps, every American must be assured that others will not profit at his expense. My recommendation to the Congress for an Emergency Windfall Profits Tax is designed to give that assurance.

RICHARD NIXON.

THE WHITE HOUSE, *December 19, 1973.*

ADDRESS BY THE PRESIDENT ON THE NATIONAL ENERGY SITUATION LIVE ON NATIONWIDE RADIO

JANUARY 19, 1974

Ten weeks ago, I reported to the Nation on the energy crisis. I asked all Americans to accept some sacrifices in comfort and convenience so that no American would have to suffer real hardship.

Today I want to report to you on our progress and answer the basic questions that many Americans have asked about this crisis.

On the positive side, I am glad to be able to report that we are making solid progress in facing up to this challenge. There are several reasons for this:

Far more important than anything else is what every American has done voluntarily. It is your response—the actions you take to save energy on a personal, voluntary, day-in, day-out basis—that is now the single most important reason for our success so far.

For the past seven weeks, we have observed "gasless Sundays" across the country. Your cooperation with this program helped to make it possible for me to announce today that during the month of December, the total consumption of gasoline in the United States was nearly nine percent below expectations.

Americans are also responding to the call for lower temperatures at home and at work. A recent report from New England shows that 19,000 homes surveyed there have reduced heating oil consumption by more than 16 percent under last year, and that is after making adjustments for warmer weather.

Utilities are reporting that the consumption of natural gas across the country has been reduced by approximately six percent over last year, while the consumption of electricity—in homes, offices, factories, and elsewhere—is down by about 10 percent.

Beyond the progress we have made because of voluntary conservation, we have also been fortunate because the weather in the last quarter of 1973 was warmer than usual, so we did not consume as much fuel for heating as we expected. Even though the oil embargo continues in the Middle East, we have also received some oil we did not expect at the time the embargo was imposed.

Finally, let me tell you what your Government has been doing to meet this crisis.

A fuel allocation program has been set up so that no area of the Nation is being subjected to undue hardship. We have begun the process of converting oilburning utilities to the use of coal wherever possible, freeing some 200,000 barrels of oil a day for use in other areas.

At my request, laws governing energy conservation, such as year-round daylight saving time, has been enacted by the Congress and are now in effect. Teams of Federal inspectors have been sent to investi-

gate fuel prices at gasoline stations and truck stops. Where price gouging is discovered, it is being stopped.

Within the Government, where we have a special obligation to set an example, I first directed that energy consumption be cut by at least 7 percent. That goal has now been met and it has been exceeded. Consumption of energy by the Federal Government has been cut by more than 20 percent under anticipated demands.

These are just some of the steps we have taken to meet the problem head-on, and you can expect more in the future.

Nothing which the Federal Government might do could be successful, however, without the full cooperation of the American people. It is your sacrifice that is making the difference. You deserve the credit.

If this voluntary cooperation continues, I can say confidently to you today that we can prevent hardships this winter and that we can avoid gas rationing this spring. Your Government has a responsibility to prepare for the worst, so that we shall be ready to ration gas if necessary.

But with continued cooperation by everyone, we all have good reason today to hope for the best, and you can be sure that with your help I will do everything in my power to achieve the goal of avoiding gas rationing.

Now let me turn directly to the tough questions which are now being asked by millions of concerned Americans.

First, will the big oil companies be allowed to make huge profits from the shortage? Will they reap the benefits of your personal sacrifices?

My feelings on this question could not be stronger. The sacrifices made by the American people in the energy crisis must be for the benefit of all the people and not just for the benefit of big business.

Your sacrifies must mean that jobs can be preserved, that schools can stay open, that homes will be heated. They must not mean that a few get rich at the expense and sacrifice of the many.

I recognize, as you do, that the prices of gasoline, heating oil and other petroleum products are rising. Now, these prices are going up because the costs of foreign oil are going up. The Nations from which we still import oil have increased their prices from some $4 billion, ($4) a barrel 5 months ago to as much as $12 a barrel today. This tripling in costs is passed on to you, the consumer, and that is why prices are rising.

I will do everything I can to hold down the price of foreign oil. Scare stories that the American people will soon be paying a dollar for a gallon of gas are just as ridiculous as the stories that will say that we will be paying a dollar for a loaf of bread. The American people cannot afford to pay such prices, and I can assure you that we will not have to pay them.

At the same time, I pledge to you that I shall do everything in my power to prevent the big oil companies and other major energy producers from making an unconscionable profit out of this crisis. Too many Americans have sacrificed too much to allow that to happen.

That is why I shall urge the Congress, when it reconvenes on Monday, to act immediately on the windfall profits tax that I requested last month. This tax would require that windfall profits either be turned over to the Government or be invested in the development of new supplies, supplies that will be vitally needed in the years ahead.

Private profiteering at the expense of public sacrifice must never be tolerated in a free country.

Another question many people are asking, to put it bluntly, is whether there is really an energy shortage at all. If so, how serious is it? I am just as interested as you are in getting at the truth in this matter. That is why when the Congress returns I will propose legislation requiring the oil companies to provide a full and constant accounting of their inventories, their production, their costs and their reserves.

This legislation will make it possible for the Federal Government to monitor these supplies independently.

In the meantime, to be sure that the information I am getting is accurate and complete, I have directed the Federal Energy Office to conduct a thorough audit of the records of all the major domestic oil companies. They will have several hundred inspectors in the field. If more inspectors are needed, they will be provided. If the reports are not satisfactory, I shall ask the heads of the major oil companies to meet with me personally in Washington so that I can get the facts I need to make decisions that are right and that are best for all Americans.

I assure you that I shall not allow the American people to be the victims of a "snow job" in a crisis which affects the jobs, the comfort and the very way of life of millions of Americans.

I have also directed that an immediate review be made of the international tax structure to insure that American companies which are developing energy resources abroad are not permitted to avail themselves of special tax advantages aboard. I have also ordered a review of other tax laws affecting companies that produce energy.

Based on the best information I have been able to get, this is my analysis of the energy crisis at this time:

The shortages are genuine, they may become more severe, and they are potentially dangerous.

Last year, the United States consumed roughly 18 million barrels of petroleum, in one form or another, every day.

We produce over 11 million barrels a day from our own resources here in this country.

The differences must be made up by imports from foreign producers.

Because of the Mideast oil embargo, however, my chief adviser, Mr. William Simon, in the energy area, now advises that during the first three months of 1974, our imports will fall short of our normal demands by 2.7 million barrels a day. That shortfall is the heart of the current emergency.

The economic stress now felt by the United States is having an even stronger impact upon Western Europe, Japan and many developing countries because they lack the domestic resources we have in this country.

In the long run, the producing nations will also suffer. We are therefore approaching a point where the oil embargo and the increase in prices on the international market is self-defeating for everyone. Clearly, we must have a cooperative, international accommodation on both supplies and prices.

In pursuit of that goal, I have invited the leaders of major energy-consuming nations to send representatives to the United States to discuss these matters. They will convene here in Washington on February 11 to discuss the pricing problem and other matters relating to the current emergency.

But regardless of the success we have in increasing petroleum imports and in stabilizing prices through diplomatic means, we must continue to move forward toward achieving a capacity for self-sufficiency in energy right here at home.

America is a rich, a strong and a good country. We must set for ourselves this goal: We must never again be caught in a foreign-made crisis where the United States is dependent on any other country, friendly or unfriendly, for the energy we need to produce our jobs, to heat our homes, to furnish our transportation for wherever we want to go.

Late last year I announced the beginning of Project Independence, a full-scale effort to provide the capacity to meet American energy needs with American energy resources by 1980. As an important part of that project, the head of the Federal Energy Office, William Simon, will mount a major effort this year to accelerate the development of new energy supplies for the future.

Most of the money and the work for Project Independence must come from private enterprise. But the Federal Government also has a vital role to play.

It must be a catalyst for industrial initiative. It must clear away the red tape that lies in the way of expanding our supplies, and it must provide the seed money for research and development.

Many of these Federal responsibilities can only be met with new legislation. That is why over the next few weeks I shall submit to the Congress a broad legislative package of energy initiatives and urge it to pace these requests at the very top of the Congressional agenda for 1974. If we are to be successful in dealing with our long-term energy needs, the Congress must play its part, and I believe that the Congress, after returning from their districts over the Christmas Holidays, will agree that the people want them to play their part, along with the Administration.

The burden of energy conservation, of cutbacks and inconvenience, of occasional discomfort, continued concern is not, I can assure you, an artificial one. It is real. During the Second World War, Winston Churchill was once asked why England was fighting Hitler. He answered, "If we stop, you will find out."

If we should choose to believe that our efforts in fighting the energy crisis are unnecessary, if we permit ourselves to slacken our efforts and slide back into the wasteful consumption of energy, then the full force of the energy crisis will be brought home to America in a most devastating fashion, and there will be no longer any question in anyone's mind about the reality of the crisis.

The distance between the winter of 1974 and the springtime of energy independence for the United States remains great. We must proceed with confidence in our ability to do the job. Far more importantly, we must act now, as one people to do the job that must be done.

With the proud dedication we Americans have always displayed when confronted with great challenges, we can and we will achieve the great goal of Project Independence. Where energy is concerned, we, the American people, shall be the sole masters of our fate.

RICHARD NIXON.

THE WHITE HOUSE, *January 19, 1974.*

PROPOSALS TO DEAL WITH THE ENERGY CRISIS

JANUARY 23, 1974

To the Congress of the United States:

As the 93rd Congress reconvenes this week, it returns to an agenda that is piled high with vital legislative questions.

America is undergoing a period of rapid change and growth when decisions made in Washington could affect the patterns of our national life for the rest of this century. These decisions demand not only the collective wisdom of our national leadership but also a continuing spirit of cooperation between the executive and legislative branches of our Government. In this first legislative message of 1974, I want to renew my pledge that I stand ready and eager to work with the Members of the Congress in shaping the solutions that are best for America.

In the next few weeks, I will send to the Congress a series of messages requesting swift legislative action in the areas where I feel that progress is most keenly needed. In each of these areas—health, education, transportation, natural resources, and others—these proposals reflect the best efforts of my Administration to solve a wide range of difficult domestic problems.

No single legislative area is more critical or more challenging to us as a people, however, than the subject of this first message to the Congress: The energy crisis. It is because of its importance and because of the urgent need for action that I have chosen to break tradition, outlining to the Congress my legislative requests in energy before delivering my State of the Union Address.

I first warned of approaching energy shortages in a message to the Congress in 1971—the first energy message ever presented by an American President. In 1973, an embargo was suddenly imposed upon many of our foreign supplies of oil, the crisis broke upon us, and the entire country took the first step toward coping with the emergency. We have made solid progress since then, but it is clear that our efforts in 1973 were just the beginning. As our first order of business in the new year, therefore, let us resolve that 1974 shall be the year that we build a permanent framework for overcoming the energy crisis.

In the initial portion of this message, I want to report to the Congress on our progress over the last three months. The remainder of the message addresses the legislative program on which I am urging Congressional action in 1974:

—*First*, the proposals that I believe are essential to meet the short-term emergency, including:

—A special energy act that would permit restrictions on the private and public consumption of energy and would temporarily

relax certain Clean Air Act requirements for power plants and automotive emissions;
—A windfall profits tax that would prevent private profiteering at the expense of public sacrifice;
—Unemployment insurance to help those who lose their jobs because of the energy crisis;
—And establishment of a Federal Energy Administration.

—*Second*, the legislative proposals that I have previously submitted in order to meet our long-range goal of achieving self-sufficiency in energy, including proposals that would:
—Allow market pricing of new natural gas;
—Allow temporary oil production from the Elk Hills Naval Petroleum Reserve in California;
—Permit surface mining of coal in a manner that is environmentally safe;
—Permit the development of new deepwater port facilities offshore;
—Amend the tax laws regarding drilling investments;
—Modernize the laws regarding mineral leasing on Federal lands;
—And reorganize the executive branch so that it may deal more effectively with energy and natural resource problems.

—*Third*, proposals which are designed to help us achieve self-sufficiency in energy and which I am submitting to the Congress this year for the first time, including proposals that would:
—Eliminate depletion allowances for foreign oil and gas production;
—Accelerate the licensing and construction of nuclear facilities;
—Require labeling of products for energy efficiency;
—And streamline the site selection process for energy facilities.

In addition to these legislative proposals, the Administration is moving forward this year with a series of executive actions and studies relating to our long-term energy needs. The latter are addressed in the last section of the message.

I. Report on the Current Emergency

Last year the United States consumed roughly 18 million barrels of petroleum, in one form or another, every day. This represented about one-half of our total energy consumption. The level of petroleum consumption was also rising, so that we expected demands to reach about 20 million barrels a day in 1974.

While the country is rich in natural resources, our production of petroleum resources is far less than our demands. Last year we were producing approximately 11 million barrels of petroleum a day, and the level of production was declining.

The difference between our demands and our domestic consumption must be made up, of course, by imports from abroad, reductions in demand, or increased domestic production. Even before the embargo on oil in the Middle East, our foreign supplies were barely adequate. Since the embargo, the shortage has become a good deal more serious. The Federal Energy Office has estimated that during the first three months of 1974, our imports will fall short of our normal demands by

2.7 million barrels a day. If the embargo continues, shortages could exceed three million barrels a day during the rest of the year. That shortfall is the major factor in our current emergency.

ENCOURAGING PROGRESS

With the Nation confronting a severe energy shortage, I appealed to the public eleven weeks ago to undertake a major conservation effort on a personal, voluntary basis. My appeal was repeated by public servants across the land. The Congress acted quickly to pass laws putting the Nation on year-round daylight savings time and reducing the national highway speed limits to no more than 55 miles per hour. The Federal Government began moving swiftly to ensure that fuel supplies were allocated fairly and that conservation measures were undertaken within the Government. Most importantly, the people themselves responded positively, lowering the thermostats in their homes and offices, reducing their consumption of gasoline, cutting back on unnecessary lighting, and taking a number of other steps to save fuel.

Largely because of the favorable public response, I can report to the Congress today that we are making significant progress in conserving energy:

—Total consumption of gasoline in the United States during the month of December was nearly nine percent below expectations.

—Consumption of home heating oil has been reduced. A recent survey of 19,000 homes in New England showed they had reduced heating oil consumption by more than 16 percent under last year, after making adjustments for warmer weather.

—Utility report that consumption of natural gas across the country has been reduced by approximately 6 percent over last year, while the consumption of electricity is down about 10 percent.

Beyond the progress we have made because of voluntary conservation, we have also been fortunate in two other respects. The weather in the last quarter of 1973 was warmer than usual, so that we did not consume as much fuel for heating as we expected. In addition, the oil embargo in the Middle East has not yet been totally effective, allowing us to import more oil than we first anticipated.

ACTION AT THE FEDERAL LEVEL

The Federal Government clearly has a major responsibility in helping to overcome the energy crisis. To fulfill that responsibility, several steps have been taken in the last three months:

—A major conservation program has been established and has cut consumption of energy by Federal agencies by more than 20 percent below anticipated demands in the third quarter of 1973.

—A sweeping investigation of fuel prices charged at gasoline stations and truck stops has been launched, putting an end to price gouging wherever it is found.

—A Federal Energy Office has been created to serve as a focal point for energy actions taken by the Government.

—Finally, a fuel allocation program has been set up to assure that no area of the Nation is subjected to undue hardships and to assure that in allocating fuel, the protection of jobs comes ahead of the satisfaction of comforts. As part of this allocation effort, refiners are being encouraged to produce less gasoline and more of the products that are needed in homes and industry, such as heating oil, diesel oil, residual fuel oil, and petrochemical feed-stocks. The Cost of Living Council has issued regulations to encourage the shift away from gasoline production. If necessary, additional steps will be taken to encourage shifts in refinery production.

The allocation program now underway will mean some cutbacks in travel, heating and other end uses of fuel, while uses which keep our economy operating at a high level will be permitted to remain at or above last year's levels.

Market forces are also at work allocating fuel. Due primarily to huge increases in prices for foreign oil, the price of gasoline has risen by 12 to 15 cents per gallon over last year. This obviously discourages the consumption of gasoline. Hearing oil has also shown a comparable rise with similar effect.

There is a limit, however, to the amount of market allocation through higher prices which we will allow. We will not have consumers paying a dollar gallon for gasoline. We must therefore seek to maximize the production of domestic oil at a price lower than the price of foreign oil. We will also carefully review requests for energy price increases, to ensure that they are genuinely needed.

All of the measures of conservation and allocation have greatly improved the Nation's chances of avoiding hardships this winter and gas rationing this spring. *Gas rationing, with its attendant bureaucracy and cost to the taxpayer, should be only a last resort.* Nevertheless, we are attempting to be prudent and therefore have developed a system of coupon rationing. The system is now on the record for public comment, and will be ready for use this spring should it prove necessary.

The system would provide for transferable coupons for all licensed drivers over 18 years old. The coupons, unlike the World War II coupons, would be freely transferable. Thus those who can economize and use less than their allotment would be given tangible incentive to do so, while those who seriously need larger amounts would be able to buy coupons legally.

The measures of allocation and conservation are, in the very short-run, the only actions which will have an effect in lessening the crisis. However, in the slightly longer term, we can and we are making efforts to increase domestic supplies of petroleum very rapidly.

Increases in supplies of domestic crude oil are necessary not only to assure supplies, but to keep the prices for consumers at a reasonable level. The prices charged by a foreign cartel for crude oil have risen so dramatically that U.S. oil prices are now greatly below the world market price.

To ensure that domestic oil exploration continues and grows, the price of oil from new exploration and development has been removed from Economic Stabilization Act controls. Also, to compensate for increased production costs and to stimulate advanced techniques for recovering oil, we have permitted a $1 per barrel increase in the cost of petroleum under existing oil contracts.

As a result, domestic oil wells that had been abandoned because they were no longer profitable are being put back into production, and new American oil is now beginning to come into the market. We anticipate additional increases in the oil in the future.

As a greater domestic production fills more of our oil needs, we will be demanding less foreign oil, and the price for foreign oil will not be driven upwards by our demands. Our own domestic production will tend to put a cap on the prices foreign suppliers may charge.

To deal further with the world shortage of oil and its increasingly unrealistic price levels, I have invited major consuming nations to a conference in Washington on February 11. The conference will, I hope, eventually lead to greater international cooperation in the areas of energy conservation, research, pricing policy, oil exploration, and monetary policy.

II. Legislation To Meet the Current Emergency

Although we have made significant progress over the last three months in reducing consumer demands for energy and in allocating fuel supplies, additional legislative measures must be enacted if we are to maintain our momentum. I am therefore asking that the Congress give its highest priority to five proposals which I have previously recommended for dealing with the short-term emergency:

1. SPECIAL ENERGY ACT

The principal purposes of this legislation are to grant the executive branch authority to restrict the public and private consumption of energy and to modify certain Clean Air Act requirements.

During the closing weeks of December, both Houses of Congress labored long and hard on this emergency bill. As presently drafted in the House-Senate conference, the bill is laden with so many extraneous provisions that I would have difficulty signing it. I urge the Congress to pass a basic bill dealing with mandatory conservation, fuel conversion, rationing, and changes to the Clean Air Act. I would also urge that the extraneous provisions be placed in separate legislation where they belong.

2. WINDFALL PROFITS TAX

The solution to the energy crisis must ultimately depend in large measure upon the response of the public, and their actions will in turn be based upon their recognition that an energy crisis actually exists and that it has not been contrived for the benefit of big business. For weeks, believing that the crisis is genuine, millions of Americans have made sacrifices in their comfort and convenience so that no Americans would have to suffer personal hardships. Those sacrifices are continuing today, and they will be needed in the future. It is up to the leaders of the Nation to ensure that the public trust is not abused.

As President, I am deeply committed to a firm policy: *We must not permit private profiteering at the expense of public sacrifice.* The sacrifices made by the American people must be for the benefit of all the people, not just for the benefit of big business. *In equal measure, we must not permit the big oil companies or any other major domestic*

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energy producers to manipulate the public by withholding information on their energy supplies. That information must be made available to the public, and it must be accurate and complete.

The windfall profits tax that I outlined last December and am again asking the Congress to pass would serve this policy by preventing major domestic energy producers from making unconscionable profits as a result of the energy crisis. It would exact a tax of up to 85 percent on receipts from sales of crude oil above the ceiling set by the Cost of Living Council in December of 1973.

3. ENERGY-RELATED UNEMPLOYMENT INSURANCE

The energy emergency will undoubtedly result in some dislocation within the economy. Selected labor market areas may experience unusually large rises in unemployment despite our best efforts to minimize economic disruption. Jobs in those areas may become harder than usual to find. Therefore, as an integral part of the same philosophy which has led me to seek a windfall profits tax that prevents a few people from benefitting unduly from the energy emergency, I will also recommend new unemployment insurance measures to cushion American workers against the shocks of economic adjustment. Last April, I submitted legislation to improve the unemployment insurance program by increasing benefit levels and expanding coverage. I call again for the enactment of those measures. In addition, I will submit unemployment insurance amendments that would, on enactment, extend the duration of benefit entitlement and expand coverage in those labor market areas that experience significant increases in the level of unemployment. These provisions, coupled with the recently enacted Comprehensive Employment and Training Act will provide a solid foundation for the more rapid reabsorption of workers into the Nation's economy.

4. MANDATORY REPORTING OF INFORMATION BY PRIVATE INDUSTRY

The information now provided to the public and to the Government by the energy industry is insufficient for public planning purposes. This is a serious deficiency which has understandably become a matter of intense public interest. To correct it, I will shortly submit legislation requiring major energy producers to provide to the Government a full and constant accounting of their inventories, their production, and their reserves. Where required for national security or competitive purposes, confidentiality of the information will be protected. Most of this data, however, can and will be made available to the public.

To provide a focus for the collection and analysis of this data, I have directed the Federal Energy Office to establish an Energy Information Center. This center will coordinate energy data within the Government and provide the information to the public, the Congress and other Federal agencies.

5. FEDERAL ENERGY ADMINISTRATION

FEA would bring together and significantly expand programs to deal with the current energy emergency. It would also carry out

major new activities in energy resource development, energy information and energy conservation. Included within this agency would be the functions of the Offices of Petroleum Allocation, Energy Data and Analysis, Oil and Gas, and Energy Conservation from the Department of the Interior and the Energy Division of the Cost of Living Council.

III. Our Program for the Future: Project Independence

Energy demand in the United States will certainly continue to rise. Were domestic oil production to continue to decline and demand continue to grow at over 4 percent annually, as it did before the embargo, imports would increase from 35 percent of U.S. consumption in 1973 to roughly half of U.S. consumption by 1980.

We must also face the fact that when and if the oil embargo ends, the United States will be faced with a different but no less difficult problem. Foreign oil prices have risen dramatically in recent months. If we were to continue to increase our purchase of foreign oil, there would be a chronic balance of payments outflow which, over time, would create a severe problem in international monetary relations.

Without alternative and competitive sources of energy here at home, we would thus continue to be vulnerable to interruptions of foreign imports and prices could remain at these cripplingly high levels. Clearly, these conditions are unacceptable.

To overcome this challenge, I announced last November 7 that the United States must embark upon a major effort to achieve self-sufficiency in energy, an effort I called Project Independence. If successful, Project Independence would by 1980 take us to a point where we are no longer dependent to any significant extent upon potentially insecure foreign supplies of energy.

Project Independence entails three essential concurrent tasks.

The first task is to rapidly increase energy supplies—maximizing the production of our oil, gas, coal and shale reserves by using existing technologies and accelerating the introduction of nuclear power. These important efforts should begin to pay off in the next 2 to 3 years. They will provide the major fraction of the increased supplies needed to achieve energy self-sufficiency.

The second task is to conserve energy. We must reduce demand by eliminating nonessential energy use and improving the efficiency of energy utilization. This must be a continuing commitment in the years ahead.

The third task is to develop new technologies through a massive new energy research and development program that will enable us to remain self-sufficient for years to come.

We cannot accept part of the overall program and ignore the others. Within the Federal sector, success will depend on a wide range of actions by many agencies. As an important part of that effort, the head of the Federal Energy Office, William Simon, will mount a major effort this year to accelerate the development of new energy supplies for the future.

Our strategy for Project Independence is reflected in urgent measures now pending in the Congress as well as many new legislative proposals and administrative actions I now plan to take.

A. LEGISLATION STILL AWAITING CONGRESSIONAL ACTION

Over the past three years, I have submitted a number of legislative proposals that are essential to our pursuit of energy self-sufficiency but are still awaiting final Congressional action. I ask that the 93rd Congress move ahead with these proposals, and I pledge the cooperation of this Administration in working out any differences. These proposals include the following:

Natural Gas Supply Act

The artificially low prices for natural gas created by Government regulations continue to create a double problem: consumers wish to purchase more of this cheap, clean fuel than is available, while suppliers have little incentive to develop it. I again ask the Congress to provide for competitive pricing of newly developed gas supplies in order to encourage new drilling and to direct available gas into the premium uses.

Although my deregulation proposal should not cause a significant rise in consumer prices for natural gas for some years, I recognize that there is a strong desire to provide added insurance that unreasonable price increases do not occur. This insurance can be provided by adding to the Administration's legislative proposal a provision authorizing the Federal Power Commission to establish limits on absolute price increases. We are prepared to work with the Congress on these changes.

Naval Petroleum Reserves

The Nation has vast oil and oil shale reserves which years ago were set aside for national defense purposes by placing them under the control of the Secretary of the Navy. That action was taken at a time when naval petroleum requirements were an especially important share of total national petroleum consumption. Some of these oil reserves, principally those located in Wyoming and California, have been explored and developed to the point where limited production is possible. The largest reserve, located in Alaska, has not been significantly explored or developed and could not be available for production for several years, even in a grave national emergency. I have proposed legislation that would greatly improve the availability of the reserves for future needs and would permit limited production from the Elk Hills Reserve in California to assist in meeting our short-term energy problems.

In accordance with law, the Secretary of the Navy has issued and I have approved a finding that production of oil from Naval Petroleum Reserve No. 1 (Elk Hills) is necessary for national defense purposes. Approval of the Congress is also necessary and I have proposed legislation that would give such Congressional approval. It would also provide that funds from the sale or exchange of the oil could be used for further exploration and development of Elk Hills and for exploration of Naval Petroleum Reserve No. 4 in Alaska. I am pleased that the Senate has already passed this legislation, and I am hopeful that immediate action will now be taken by the House of Representatives.

Mined Area Protection

A Mined Area Protection Act is needed to encourage the development of State programs which permit the mining of coal and other

minerals to go forward in a way that is environmentally safe. The absence of clear legislation in this area is inhibiting the development of our coal reserves. The Senate has passed a bill, but it deals only with surface mining of coal rather than all mining and it contains provisions which would actually impede production of coal.

The House Committee on Interior and Insular Affairs is scheduled to take up the matter soon and I am hopeful that it will act favorably on the Administration's proposal.

Deepwater Port Facilities

Even though our policy is to achieve self-sufficiency, we will clearly continue to import oil as long as it is available at reasonable prices. To enable us to import fuel more economically, I have proposed Federal Government licensing of the construction and operation of deepwater port facilities three miles or more at sea on the Outer Continental Shelf. The main use of these facilities would be to import crude oil in ships that are economically and environmentally desirable, but are too deep of draft to permit their entry into our port facilities on the East and Gulf Coasts.

This legislation would also eliminate many of the legal uncertainties which now drive private investors away from American waters and to other nations of the Western Hemisphere. The present system only serves to create investments and jobs abroad and raises our costs of imported oil, already high, even further.

Drilling Investment Credit

Last April I proposed that the investment credit provisions of present tax laws be extended to provide a credit for all exploratory drilling for new oil and gas fields. Approval of this provision would provide an essential incentive for new oil and gas exploration. At the same time, I am asking the Congress to eliminate the tax shelter that now exists for wealthy taxpayers who reduce their taxes by taking deductions for investments in oil drilling.

Mineral Leasing Act

The Mineral Leasing Act of 1920 governs the exploration and production of oil, gas, coal, and other minerals on Federal lands while the Mining Act of 1872, governs the exploration and mining for "hard-rock" (gold, silver, copper, etc.) minerals. Both acts have become obsolete. Last February, I proposed a bill that would place all mineral exploration and mining activities on Federal lands under a single Federal leasing system. The bill would assure that the persons who obtain the leases are those who have an interest in early exploration for oil, gas, and other minerals. It would also require that exploration meet the environmental standards of the Administration's proposed Mined Area Protection Act.

Organizing the Federal Energy Effort

If the Federal Government is to achieve prompt and productive results in the energy field, its many energy programs and resources must be organized in the best possible manner. Toward this end, I have submitted several organizational proposals to the Congress and urged their prompt adoption. One calls for establishment of the Federal Energy Administration as discussed above. The others call for statutory establishment of the following:

(1) *Energy Research and Development Administration.*—This new organization would provide unified leadership and direction for energy technology programs at the Federal level. ERDA would include the research and development as well as the production functions of the Atomic Energy Commission, along with selected energy research and development functions of the Department of the Interior, the National Science Foundation, and the Environmental Protection Agency. Under this proposal, the five-member Atomic Energy Commission would be renamed the Nuclear Energy Commission and would carry out the vital task of licensing and regulating the rapidly growing use of nuclear power.

(2) *Department of Energy and Natural Resources.*—As the longer-run solution to the many interrelated problems in the energy and natural resources area, I have proposed the establishment of this new department. DENR would incorporate most of the responsibilities of the Department of the Interior; the activities of the Forest Service and certain water resource functions of the Department of Agriculture; the activities of the National Oceanic and Atmospheric Administration of the Department of Commerce; the water resource planning functions of the Corps of Engineers; the gas pipeline safety functions of the Department of Transportation, and the Water Resources Council. Drawn together, these responsibilities would form the basis of a modern department truly capable of providing a much needed balance between the wise utilization and careful conservation of our Nation's precise natural resources.

Because of the energy crisis, I urge that the Congress give priority attention to the creation of FEA and ERDA. Because of its comprehensive scope, DENR may require additional examination by the Congress, but I reaffirm the need for this modern Cabinet department. Once DENR is established, it should incorporate the functions of ERDA and FEA.

B. NEW LEGISLATIVE INITIATIVES

In addition to the legislation now pending before the Congress still further steps must be taken if we are to progress at a proper pace toward self-sufficiency. Within the next several weeks, I will be sending to the Congress a number of legislative proposals to help us take those steps, including:

Changes in Foreign Tax Treatment

U.S. companies that produce oil overseas have been granted the same 22 percent depletion allowance abroad that is granted to U.S. companies producing oil in the United States. Both allowances provide an incentive for oil production.

As we move toward U.S. self-sufficiency in energy, however, we want to encourage greater development of U.S. energy resources rather than foreign resources. I am therefore asking the Congress to eliminate these foreign depletion allowances, while retaining the depletion allowance for domestic oil production.

Taxes paid to foreign governments by U.S. oil companies drilling abroad have increased dramatically. There is growing concern about the degree to which such increases should be allowed as credits against

U.S. tax on other income. Under these circumstances, it is no longer realistic to treat these payments to foreign governments entirely as income taxes creditable against the U.S. tax. Obviously, however, the oil producing countries, like any other country, have the right to impose taxes and some reasonable portion of those taxes should be creditable. I have asked the Treasury Department to prepare proposals which would cause part of these amounts to be designated as a creditable tax and the balance to be allowed solely as a deduction.

Accelerating the Licensing and Construction of Nuclear Facilities

Nuclear power, which lessens our dependence on foreign fuel, is an essential part of our program of achieving energy self-sufficiency. At present, however, it takes 9–10 years to complete the planning, licensing, and construction of nuclear power plants. In order to get vitally needed nuclear power on-line more rapidly, I have directed that steps be taken to reduce the licensing and construction cycle to 5–6 years, without compromising safety and environmental standards.

I will soon transmit a legislative proposal to expedite the completion of nuclear power plants by separating the approval process for plant sites from the reactor licensing process and by encouraging the use of standardized plant designs. These designs, once approved, would reduce the required licensing review time and would enhance safety. This legislation would also permit the establishment of an inventory of approved sites for nuclear plants.

Efficiency Labels

Energy conservation must play a major role in achieving self-sufficiency, but few of the products we now purchase clearly indicate how much energy they require to operate. To assure that such information is available, I will shortly submit to the Congress legislation requiring that all major appliances and automobiles produced or imported into the United States be clearly labeled to indicate their energy use and energy efficiency.

Energy Facilities Siting

The present multitude of Federal, State, and local approvals required for the construction of energy facilities has caused serious delays in their availability. There is also no provision for advanced approval of sites which will be needed in the future. In addition, the public has often been frustrated because public participation in the site approval process seldom occurs early enough to affect the basic siting decision.

In 1971 I requested legislation to overcome these problems for electrical power plants and transmission lines. I resubmitted similar legislation in February 1973, but the Congress has not acted on my proposal. I have now directed that new legislation be prepared, building upon my earlier proposals but covering additional critical energy facilities. This legislation will be directed toward:

—advanced approval of adequate sites for energy facilities on a regional basis;

—better coordination of the various approvals now required by all levels of Government;

—and improved long range planning of energy facility requirements.

Changes in the Clean Air Act

The Clean Air Act has provided the basis for major improvements in air quality and we must continue our progress toward even greater improvement. However, during the current energy shortage, it has become clear that some changes in the act are needed to provide greater flexibility in deadlines and other requirements. The special energy legislation now before the Congress would permit temporary relaxation in some requirements applicable to power plants when an adequate supply of clean energy is not available. It would also extend the deadlines for the reduction of emissions from automobiles. I hope the Congress will move quickly to grant authority for temporary relaxation of requirements and freezing the standards for auto emissions—now applicable to 1975 model cars—for two additional years. This latter action will permit auto manufacturers to concentrate greater attention on improving fuel economy while retaining a fixed target for lower emissions. These changes can be made without significantly adverse effect on our progress in improving air quality.

The Congress has also been advised by the Environmental Protection Agency of evidence demonstrating that the reductions of nitrogen oxides from automobiles as required by the Clean Air Act are unnecessarily stringent and that technology to achieve the reductions is not yet practicable. In addition, the Congress has been advised by the Environmental Protection Agency that deadlines cannot be met for meeting air quality standards in some metropolitan areas without drastically curtailing the use of motor vehicles. For instance, these deadlines would require that motor vehicle usage in Los Angeles be reduced by as much as 87 percent.

An extensive review is now underway within the executive branch of the implications of court decisions which require that EPA act to prevent "significant deterioration" of air quality—a requirement that is not defined in either the law or court decisions. This matter has far-reaching implications for public policy regarding land use as well as air quality. Changes in the law may thus be required to deal with this problem, and we will consult with the Congress as appropriate.

We must continue to assess the impact of actions required by the Clean Air Act so that there will be a basis for sound decisions that provide an appropriate balance among our objectives for environmental quality, economic and social growth, energy supply and national security.

IV. New Administrative Actions and Studies

In addition to preparing the legislative proposals above, I have directed that a number of executive actions be taken and additional legislative studies be made which could help us to succeed with Project Independence. Among these actions are the following:

OUTER CONTINENTAL SHELF DEVELOPMENT

The undiscovered oil and gas beneath our Outer Continental Shelf can provide a significant portion of the energy necessary to make us self-sufficient. I have already ordered leasing in that area to be stepped up. Today I am directing the Secretary of the Interior to increase the

acreage leased on the Outer Continental Shelf to 10 million acres beginning in 1975, more than tripling what had originally been planned. In later years, the amount of acreage to be leased will be based on market needs and on industry's record of performance in exploring and developing leases. In contracting for leases, the Secretary of the Interior is also to ensure that the proper competitive bidding procedures are followed and that environmental safeguards are observed. He will, in addition, set up an interagency program for monitoring the environmental aspects of the new leasing program. There will be no decision on leasing on the Outer Continental Shelf in the Atlantic and in the Gulf of Alaska until the Council on Environmental Quality completes its current environmental study of those areas.

ALASKA PIPELINES

In 1973, the Congress passed the Alaskan pipeline bill, allowing the construction of a vitally needed oil pipeline. The Secretary of the Interior plans to issue the construction permit for that pipeline this afternoon, and construction should begin this year.

It has long been clear that while an oil pipeline was needed, it alone would not be enough. In addition to the huge oil reserves in the North Slope of Alaska, there are also gas reserves there of at least 26 trillion cubic feet—enough to heat 10 million homes for 20 years. Construction of a gas pipeline should thus accompany the construction of the oil pipeline. What is now needed, and what I am directing, is prompt action by the Administration. Interior Secretary Morton expects to receive two competing applications for the gas pipeline in the near future, one proposing construction across Alaska and the other proposing construction across Canada. I have asked the Secretary to consider these proposals carefully but promptly and to deliver a recommendation to me as soon as possible. I have also asked the Secretary to undertake a further study of the need for future oil and gas pipeline capacity and the best routes for new pipelines should they prove necessary.

STIMULATION OF SYNTHETIC FUEL PRODUCTION

At current rates of consumption, our coal reserves could supply our needs for 300 years while shale oil could satisfy an additional 150 years of demand. However, these resources are not easily recoverable, or usable in a manner that is environmentally acceptable. Therefore, the development of a domestic synthetic fuels industry—the production of oil from shale and the production of gas or oil from coal—can be an important element of our program for reducing our future dependence on energy imports.

The recent bidding for the first commercial oil shale lease indicates strong commercial interest in shale oil development. Five other lease offerings of Federal oil shale lands will be made this year. Several companies have also announced plans to construct plants for the production of commercially usable gas from coal. Nevertheless, a variety of factors including environmental, economic, technical, and regulatory problems impose constraints on any major increase in the commercial production and industrial use of synthetic fuels. I have

therefore asked the Administrator of the Federal Energy Office to head up an interagency evaluation of financial or economic incentives or regulatory changes that may be needed to stimulate domestic production.

EVALUATING ENERGY EFFICIENT PRODUCTS

There are now several products on the market which, if given wider use, might help us to use energy more efficiently and could conceivably reduce air pollution. Among them are chemical catalysts and additives, attachments for automobile engines and more efficient heat transfer devices for industrial and home furnaces. Previously, these products have not been commercially profitable because of the low price of fuel. With an increase in fuel prices, however, they have become more attractive. I have therefore directed the Federal Energy Office to collect information on these products and on their energy efficiency. As results are available, we will publicize them and, where appropriate, will purchase the products for use by the Government.

IMPROVING URBAN TRANSPORTATION

It is widely recognized now that the development of better mass transit systems may be one of the key solutions to both our energy and environmental problems. My budget for fiscal year 1975, which will be sent to the Congress in the next two weeks, gives special priority to the improvement of urban transportation, especially transit bus fleets. In addition, I will soon propose legislation to increase the amount and flexibility of Federal transportation aid which is available to local communities.

ENERGY RESEARCH AND DEVELOPMENT

Nowhere will the need for the combined efforts of industry and Government be greater than in energy research and development. If we are to see the successful culmination of Project Independence, the Federal Government must work in partnership with American industry.

For the last five years, I have provided for a continual expansion of our efforts in energy research and development. Federal funding increased almost 75 percent from $382 million in fiscal year 1970 to $672 million in fiscal year 1973 and was then raised to $1 billion for fiscal year 1974. Last June I announced my commitment to an even more rapid acceleration of this effort through a $10 billion Federal program over the next five years, and I asked the Chariman of the Atomic Energy Commission to develop recommendations for the expanded program.

Today I am announcing that in fiscal year 1975—the first year of my proposed five year, energy R&D program—total Federal commitment for direct energy research and development will be increased to $1.8 billion, almost double the level of a year ago. In addition, I will be requesting an increase of $216 million for essential supporting programs in basic and environmental effects research.

Regardless of short-term fluctuations in the energy supplies, our Nation must move swiftly and steadily on a course to self-sufficiency.

The private sector clearly must provide most of the money and the work for this effort. We must also guard against Government expenditures which merely replace private sector investments. But the Federal Government does have a role to play in supplementing and accelerating private development and in filling major technological gaps where market incentives are lacking. The Federal expenditures which I am announcing today are designed to serve those purposes.

In pursuing our energy R&D program, we must maintain balance. We cannot afford to direct all our efforts to finding long-term solutions while ignoring our immediate problems, nor can we concentrate too strongly on finding short-range solutions. Our program must be structured to provide us with payoffs in the near, middle, and far term.

For the near term—the period before 1985—we must develop advanced technologies in mining and environmental control that will permit greater direct use of our coal reserves. We must speed the widespread introduction of nuclear power. And we must work to develop more efficient energy-consuming devices, for use in both home and industry.

Beyond 1985, we can expect considerable payoffs from our programs in nuclear breeder reactors and in advanced technologies for the production of clean synthetic fuels from coal. By this time, we should also have explored the potential of other resources such as solar and geothermal energy.

For the far term, our programs in nuclear fusion, advanced breeder reactors, hydrogen generation and solar electric power appear to be the ultimate keys to our energy future.

V. Conclusion

Although shortages were long in appearing, the energy crisis itself came suddenly, borne by a tragic war in the Middle East. It was a blow to American pride and prosperity, but it may well turn out to be a fortunate turning point in our history.

We learned, at a stage short of the truly critical, that we had allowed ourselves to become overly dependent upon foreign supplies of a vital good. We saw that the acts of foreign rulers, even far short of military action, could plunge us into an authentic crisis. The Arab oil embargo will temporarily close some gasoline stations, but it has opened our eyes to the short-sighted policy we had been pursuing.

The energy emergency has shown us that we must never again be caught so dependent upon uncertain supplies. It is a lesson the American people must and will take to heart. By 1980, if we move forward with the proposals I have outlined today, I believe we can place ourselves in a position where we can be essentially independent of foreign energy producers.

America has half the world's reserves of coal. It has billions of barrels of oil in the ground, as well as convertible oil shale. It has vast natural gas reserves. We have the world's largest installed nuclear capacity and half the world's hydroelectric plants. This represents a truly enormous store of energy.

The United States also has the largest pool of highly trained scientific talent in the world. Our managerial skills in the private sector are

enormous. And our organized facilities for solving technical problems in universities, businesses, and government are unparalleled.

I have no doubt that the bringing together of these natural and human resources can propel us toward an era of energy independence.

It will take time. But along the way we will assure that no groups of Americans are better off because other groups are suffering. We will assure that the genius of the free enterprise system is maintained and not destroyed by its response to this crisis.

Years from now, let us look back upon the energy crisis of the 1970s as a time when the American spirit reasserted itself for the lasting benefit of America and the world.

RICHARD NIXON.

THE WHITE HOUSE, *January 23, 1974.*

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FACT SHEET

January 23, 1974

BACKGROUND

On June 4, 1971, the President sent a message to Congress on energy—the first energy message ever sent by a President. Energy also played an important role in several legislative proposals, statements, and messages during 1971 and 1972 and early 1973.

On April 18, 1973, the President sent his second energy message to the Congress, a message outlining comprehensive energy policies, programs, and legislation.

On June 29, 1973, the President announced a major energy conservation program, proposed legislation making major changes in Federal energy and natural resource organization, and announced plans for a $10 billion 5-year energy R&D program. He made additional statements on energy conservation and R&D in October 1973.

On November 7, November 25, and December 4, 1973, and January 19, 1974, the President made major statements on the Nation's energy crisis. His energy message today to the Congress—the first in this year's series of legislative messages—breaks tradition by outlining legislative requests before the State of the Union Address is delivered. The message reports on the current energy emergency and outlines legislation needed to cope with that emergency. It outlines the Nation's energy program for the future—Project Independence. It also describes urgent legislation now awaiting Congressional action, outlines new legislative initiatives, administrative actions and studies and priority budget proposals needed to achieve capability for energy self-sufficiency—the goal of Project Independence.

REPORT ON THE CURRENT EMERGENCY

SUPPLY AND DEMAND SITUATION

1973 U.S. consumption of petroleum products was approximately 18 million barrels per day.

1974 U.S. demand was expected to reach almost 20 million barrels per day.

Domestic petroleum production leveled off in 1971 at about 11 million barrels per day and has been declining.

Imports of crude oil and refinery products have approached 35 percent of U.S. consumption.

The Federal Energy Office's current estimate of the 1974 supply, demand and shortfall situation is as follows:

	Calendar quarter			
	1st	2d	3d	4th
Total demand	20.0	18.1	18.0	20.2
Supply:				
Domestic	11.2	11.2	11.2	11.1
Imports	4.9	4.5	4.6	5.0
From inventory	1.2	[1] −0.7	[1] −1.0	0.7
Total supply	17.3	15.0	14.8	16.8
Shortfall	2.7	3.1	3.2	3.4
(Percent of total demand)	(13.6)	(17.0)	(17.7)	(16.6)

[1] Flows to inventory to build up for next winter's drawdown.

PROGRESS IN RESPONDING TO THE CHALLENGE

Voluntary actions by private individuals, State and local governments, business and industry have reduced energy consumption; e.g.:

—Gasoline consumption during the month of December was nearly 9 percent below expectations.

—19,000 homes surveyed in New England reduced heating oil consumption by more than 16 percent over last year.

—Utilities indicate natural gas consumption has been reduced by approximately 6 percent from last year's levels and consumption of electricity is down about 10 percent.

During the last quarter of 1973, weather was warmer than usual and the oil embargo was not totally effective—allowing more imports than anticipated.

Federal Government actions include:

—Reduced use of energy by Federal agencies amounting to a 20.8 percent savings below anticipated demands for the third quarter of 1973.

—Federal investigators are seeking out and ending price gouging at gasoline stations and truck stops.

—The Federal Energy Office, established on December 4, 1973, is serving as a focal point for Federal energy emergency actions.

—A fuel allocation program has been put into effect which carries forward the strategy of giving maximum protection to economic growth and employment and spreading shortages fairly over less essential activities. The allocation program promulgated on January 15, 1974, covers: Propane; Butane; Motor gasoline; Residual fuel oil; Aviation fuels; Crude oil and refinery yield; Lubricants and other products; Petrochemical feedstocks; and Middle distillates.

—Steps have been taken to encourage refineries to shift production to products required for the most essential purposes.
—Year round daylight savings time has been reinstituted.
—National maximum speed limit of 55 miles per hour has been established.
—A standby gasoline rationing system has been developed and published for comment.
—Economic stabilization act controls have been revised to allow increased prices to spur domestic production.

PRIORITY LEGISLATION NEEDED TO MEET THE CURRENT EMERGENCY

The President urged the Congress to act quickly on the following five proposals for dealing with the short term emergency:

Special Energy Act—to provide authority for mandatory conservation and rationing and the temporary relaxation of certain Clean Air Act requirements.

Windfall Profits Tax—of up to 85 percent on receipts from sale of crude oil above the Cost of Living Council ceiling price—would prevent oil companies from undue profits during this time of crisis.

Job Security Assistance Proposal—augmented by mechanisms to supplement assistance in areas experiencing unusually large increase in unemployment.

Mandatory Reporting of Energy Information—requiring energy companies to report on inventories, production, cost, and reserves with information to be made public in most cases.

Creation of a Federal Energy Administration—to significantly expand programs to deal with the current energy emergency, and carry out major new activities in energy resource development, energy information and energy conservation.

PROGRAM FOR THE FUTURE: PROJECT INDEPENDENCE

On November 7, 1973, the President announced the beginning of Project Independence—a major effort to achieve the capability for self-sufficiency in energy for the United States by 1980. Project Independence includes programs to: increase energy supplies rapidly using existing technologies, conserve energy now and in the years ahead, and develop new technologies for long term energy needs through R&D. It requires enactment of legislation now awaiting Congressional action, new legislative proposals soon to be submitted, administrative actions, and major budget increases.

LEGISLATION AWAITING CONGRESSIONAL ACTION

Natural Gas Supply Act—allows competitive pricing of new gas supplies and encourages exploration (proposed on April 18, 1973).

Naval Petroleum Reserves—permits limited production of oil from reserve No. 1 (Elk Hills) and provides funds for further exploration and development of reserve No. 1 and exploration of reserve No. 4 (Alaska). (Proposed on November 7, 1973.)

Mined Area Protection Act—would establish standards to govern mining of coal and other minerals in surface and subsurface mines. (Originally requested in 1971; resubmitted in February 1973.)

Deepwater Port Facilities Act—would authorize the Secretary of the Interior to grant permits for the construction and operation of ports beyond the three mile limit (proposed in April 1973).

Drilling Investment Credit—provides a credit for all exploratory drilling for new oil and gas fields (proposed in April 1973).

NEW LEGISLATIVE INITIATIVES ANNOUNCED BY THE PRESIDENT

Change in Law—to eliminate foreign depletion allowances and modify the system of foreign tax credits.

Accelerated Nuclear Facilities Licensing and Construction—to expedite the completion of nuclear plants by separation site approval from reactor licensing, encourage the use of standardized plant designs thereby reducing licensing review time, establish an inventory of approved sites to be used when needed without further review.

Mandatory Efficiency Labelling—would require labels on major appliances and automobiles sold in the United States to indicate their energy use and efficiency.

Energy Facilities Siting Act—building on the Electrical Facilities Siting Act (originally proposed in February 1971 and resubmitted in February 1973) to cover additional critical energy facilities—and to establish a process for advanced approval of sites for energy facilities, provide better coordination of the various approvals now required by all levels of government, and improved long range planning for energy facilities.

Changes in Clean Air Act—including provisions

—immediate amendment in the Special Energy Act to:

permit temporary relaxation of deadlines and limitations on emissions from stationary sources where an adequate supply of clean energy is not available; and

extend 1975 interim emission standards for automobiles for two additional model years.

—amendments to remove statutory requirement for 90 percent reduction in 1976 automobiles of remission of oxides of nitrogen and extend the deadline for meeting air quality standards in metropolitan areas which would have to impose unreasonable transportation controls.

(Studies are underway of requirements with respect to prevention of "significant deterioration" in air quality and balance among air quality and other objectives.)

ADMINISTRATIVE ACTIONS AND STUDIES ANNOUNCED BY THE PRESIDENT

Outer Continental Shelf Leasing—Secretary Morton was directed to increase acreage leased for oil and gas exploration and development to ten million acres beginning in 1975 (more than tripling acreage originally planned) and to set up an interagency program for monitoring environmental aspects of the new program. No decision will be made on leasing in the Atlantic OCS or the Gulf of Alaska until CEQ completes its environmental study of those areas.

Alaska Pipelines—Secretary Morton is issuing the permit for construction of the Trans-Alaska Pipeline. He was directed to evaluate promptly two applications, expected soon, for a gas pipeline from Alaska and to undertake a study of the need for future oil and gas pipeline capacity and routes.

Stimulation of Synthetic Fuel Production—FEO Administrator Simon was directed to lead an evaluation of financial or economic incentives or regulatory changes that may be needed to stimulate domestic production.

Evaluation of Energy Efficiency Products—FEO was directed to collect information on energy efficient products and publicize findings.

MAJOR BUDGET PRIORITIES ANNOUNCED BY THE PRESIDENT

Improving Urban Transportation—the President's 1975 Budget will give special priority to urban transportation, with greater flexibility to local communities in use of transportation aid.

Energy Research and Development—the President's 1975 Budget wil. provide $1.8 billion for direct energy R&D as part of his $10 billion, five year commitment for such R&D. The budget also includes an additional $216 million for supporting basic research and environmental and health effects research in 1975. Tables showing funding details are attached.

—On June 29, 1973, the President announced Federal funding of $10 billion for a five-year period beginning in fiscal year 1975.

—On December 1, the President received long range energy R&D program prepared by Chairman Dixy Lee Ray of the AEC, which he requested her to do on June 29, 1973.

—The 1975 budget reflects long range R&D strategy for achieving a capability for energy self-sufficiency, including:

R&D which will have an impact in the near term (before 1985):

—conservation, including improved efficiency;

—increased production of proven reserves (i.e., oil and gas and nuclear);

—greater utilization of existing resources consistent with environmental protection (e.g., stack gas cleaning of coal).

R&D which will have an impact beginning in the mid term (1985 and beyond):

—fossil energy (e.g., coal);

—nuclear fission energy (e.g., advanced converter and breeder reactors).

R&D directed at finding permanent means to maintaining energy self-sufficiency:

—nuclear fusion;

—solar energy.

—In pledging to increase Federal energy R&D, the President announced that he anticipates the private sector will continue to increase its own energy R&D efforts and that the Federal government will assist in supplementing and accelerating these private efforts.

—The 1975 budget includes the following specific program levels for Energy R&D:

$427 million for coal R&D—an increase of $262 million or 160 percent over 1974—for liquefaction, low and high BTU gasification, advanced combustion, and improved coal extraction and reclamation techniques.

$725 million for nuclear fission R&D—an increase of $194 million or 36 percent over fiscal year 1974—with continued primary emphasis on the Liquid Metal Fast Breeder Reactor, which is being increased by $116 million over 1974; plus a $34 million increase in the development of advanced converters and alternative breeder technologies, and an additional $18 million for reactor safety research and radioactive waste management.

$42 million for improved oil and gas recovery methods, resource assessment and oil shale development—an increase of $23 million or 119 percent over 1974.

$16 million for energy conservation—an increase of $51 million or 79 percent over 1974—for an expanded program to improve efficiency in energy utilization in the areas of electric transmission and distribution, energy storage, conversion of wastes, and advanced energy conversion systems, and to reduce energy waste.

$179 million for environmental control technology—an additional $113 million or 171 percent over 1974—for accelerating completion of the development of reliable and efficient technologies to facilitate wide spread utilization of sulfur oxide (SO_x) removal technology in the next few years and to accelerate the development of more advanced technologies for controlling other pollutants in the future.

$45 million for geothermal energy development—an increase of $34 million or 300 percent over 1974—including resource exploration and appraisal, development of power generation technology and study of environmental impacts.

$50 million for solar energy—an increase of $36 million or 257 percent over 1974—including R&D on heating and cooling of buildings and more advanced technologies for central station power generation.

$169 million for nuclear fusion—an additional $68 million or 68 percent over 1974—to accelerate current research efforts in magnetic confinement and laser fusion.

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FEDERAL ENERGY RESEARCH AND DEVELOPMENT PROGRAM, JAN. 23, 1974

[Dollars in millions and fiscal years]

Program area	Program level (obligations) 1973	1974	1975	Percent change from 1974–75	Estimated total 1975–79
1. Conservation	$32.2	$65.0	$115.7	+78	$700
a. End use (residential and commercial)		15.0	15.0		
b. Improved efficiency (transmission)	2.9	5.0	18.8	+276	
c. Improved efficiency (conversion)	6.5	15.9	29.8	+100	
d. Improved efficiency (storage)	1.6	2.9	6.4	+121	
e. Automotive	7.4	14.2	23.7	+67	
f. Other transportation	13.8	13.0	22.0	+69	
2. Oil, gas, and shale	18.7	19.1	41.8	+119	400
a. Production	.3	3.0	17.0	+467	
b. Resource assessment	4.5	5.0	13.1	+162	
c. Oil shale	3.2	2.3	3.0	+30	
d. Related programs	10.7	8.8	8.6	−1	
3. Coal	85.1	164.4	426.7	+160	2,900
a. Mining	1.7	7.5	55.0	+633	
b. Mining health and safety	2.28	28.3	31.0	+10	
c. Direct combustion	1.5	15.9	36.2	+128	
d. Liquefaction	11.0	45.5	108.5	+138	
e. Gasification (high Btu)[1]	32.5	33.0	65.3	+98	
f. Gasification (low Btu)	4.6	21.3	50.7	+138	
g. Synthetic fuels pioneer program			50.0		
h. Resource assessment	1.0	1.2	1.9	+58	
i. Other (including common technology)	4.6	11.7	28.1	+140	
4. Environmental control	38.4	65.5	178.5	+173	800
a. Near term SO_x	19.0	39.9	82.0	+174	
b. Advanced SO_x		4.0	12.0	+200	
c. Other fossil fuel pollutants (including NO_x, particulates)	8.8	13.1	57.0	+335	
d. Thermal pollution	.6	1.5	18.5	+1,133	
e. Automotive emissions	10.0	7.0	9.0	+29	
5. Nuclear fission	406.5	530.5	724.7	+37	4,000
a. LMFBR	253.7	357.3	473.4	+33	
b. Other breeders (GCFBR & MSBR)	5.6	4.0	11.0	+175	
c. HTGR	7.3	13.8	41.0	+197	
d. LWBR	29.5	29.0	21.4	−26	
e. Reactor safety research	38.8	48.6	61.2	+26	
f. Waste management	3.6	6.2	11.5	+85	
g. Uranium enrichment	50.3	57.5	66.0	+15	
h. Resource assessment	2.8	3.4	10.4	+206	
i. Other (including advanced technology)	14.9	10.7	28.8	+169	
6. Nuclear fusion	74.8	101.1	168.6	+67	1,600
a. CTR	39.7	57.0	102.3	+79	
b. Laser[2]	35.1	44.1	66.3	+50	
7. Other	16.5	53.5	154.5	+189	900
a. Solar	4.0	13.8	50.0	+262	
b. Geothermal	4.4	10.9	44.7	+310	
c. Systems studies	7.2	17.3	30.0	+73	
d. Miscellaneous	.9	11.5	29.8	+159	
Total, direct energy R. & D.	672.2	999.1	1,810.5	+81	11,300
ADDITIONAL FUNDS FOR SUPPORT PROGRAMS					
1. Environmental and health effects research			+133.7		
2. Basic research and manpower development			+82.3		
Total, additional funds for support programs			+216.0		

[1] Funds for high Btu gasification in Office of Coal Research Budget do not include trust fund amounts.
[2] Includes amounts for laser fusion directed toward military applications.

RICHARD NIXON.

THE WHITE HOUSE, *January 23, 1974.*

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Remarks of the President Accompanying His Energy Message to the Congress

January 23, 1974

The energy crisis is now touching the lives of millions of Americans and just as the people of this country are doing their part to meet this crisis, now it is time for the Federal Government, your Government, to do its part by enacting legislation that will accomplish these goals.

In a meeting with the legislative leaders this morning, I set forth these primary objectives that I consider to be of the highest priority for the Congress as it begins its new session.

First, we must protect the jobs of American workers. Second, we must prevent price gouging when you buy gas for your car and heating oil for your home. Third, we will compel the oil companies and other energy producers to provide the public with complete information on their supplies. And we will prevent them from making windfall profits as a result of the sacrifices that you are making.

Today, I asked the Congress to enact over 15 different legislative measures which will accomplish these goals. In the next few weeks, I will be sending up additional proposals to get this job done. This legislation is urgently needed to meet the current crisis and to assure that we, the United States, can become self-sufficient in energy by 1980 and not be dependent upon any other country for our energy needs.

For several weeks now, millions of Americans have voluntarily accepted sacrifices in their comfort and convenience so that no American would suffer hardship because of the energy crisis.

It is that sacrifice that has helped us to get through this emergency so far. If that kind of cooperation by millions of Americans continues, it means that we can help to avoid gas rationing this spring.

Richard Nixon.

The White House, *January 23, 1974.*

VETO OF THE ENERGY EMERGENCY ACT

MARCH 6, 1974

To the Senate of the United States:

It is with a deep sense of disappointment that I return the Energy Emergency Act to the Congress without my approval.

Four almost four months the Congress has considered urgently needed legislation to deal with the Nation's energy problem. After all the hearings and speeches, all the investigations, accusations and recriminations, the Congress has succeeded only in producing legislation which solves none of the problems, threatens to undo the progress we have already made, and creates a host of new problems.

I share the sense of frustration and discouragement which must be felt by the many conscientious legislators who spent so many laborious hours trying to draft a responsible bill, only to see their efforts wasted.

ROLLING BACK GAS SUPPLIES

The Energy Emergency Act would set domestic crude oil prices at such low levels that the oil industry would be unable to sustain its present production of petroleum products, including gasoline. It would result in reduced energy supplies, longer lines at the gas pump, minimal, if any, reduction in gasoline prices, and worst of all, serious damage to jobs in America. Unemployment would go up, and incomes would go down.

Certainly everyone shares the goal of increasing energy supplies, and our present policies are directed toward this end.

We now have a system for controlling crude oil prices at a level consistent with maintaining and increasing production. To do this, we are permitting higher prices for 'new' crude oil in order to encourage greater domestic production.

Our experience in administering the crude oil allocation program passed by the Congress last fall has shown how difficult it can be if enough flexibility is not provided by statute. It is our hope that we can work with the Congress in the coming weeks to develop a more flexible allocation program.

The net effect of the price provision of the Energy Emergency Act would be to cut the supply of gasoline and other oil products, and make compulsory rationing of gasoline much more likely. I am sure the vast majority of Americans want to avoid an expensive gasoline rationing program which would do nothing to increase the supply, would cost $1.5 billion a year to manage, would require a bureaucracy of as many as 17,000 people, and would create problems of fairness and enforcement.

The rollback would not only cut domestic oil production, but would also retard imports since in the present environment oil companies are reluctant to import oil and gasoline that would have to be sold at prices far above the domestic prices.

Further, the effects of the price rollback would not be confined to the immediate situation. The longer-run consequences could be even more serious. If we are to achieve energy independence, hundreds of billions of private dollars will have to be invested in the development of energy from U.S. sources. This money will not be invested if investors do not have reasonable assurance of being able to earn a return in the marketplace. To make the price of oil a political football, as this act does, would be a serious setback for Project Independence.

As we call upon industry to provide these supplies, I feel very strongly that we must also insure that oil companies do not benefit excessively from the energy problem. I continue to believe that the most effective remedy for unreasonably high profits is the windfall profits tax which I have proposed. That tax would eliminate unjust profits for the oil companies, but instead of reducing supplies, it would encourage expanded research, exploration and production of new energy resources. The Congress is holding hearings on this proposal, and I hope it will move rapidly toward passage. I urge the Congress to enact this windfall profits tax as quickly as possible.

Objectionable Program for Unemployment

Beyond the rollback provision, the Energy Emergency Act is also objectionable because it would establish an unworkable and inequitable program of unemployment payments. Under it, the Government would be saddled with the impossible task of determining whether the unemployment of each of the Nation's jobless workers is "energy related." In addition, eligibility for these benefits would not take into account the availability of jobs in the area. There is no excuse for shoveling out the taxpayer's money under a standard so vague and in a fashion so arbitrary.

The correct answer to the problem of those who become temporarily unemployed for any reason, energy or otherwise, is to strengthen our regular unemployment insurance program, extend it to workers not now covered, and provide additional benefits to those who lose jobs in areas where high unemployment rates show that other jobs will be hard to find. I asked the Congress to strengthen and extend the unemployment insurance system last year. I recently expanded this request to provide additional benefits in areas of high unemployment.

I urge the Congress to enact this latest, expanded proposal.

Low Interest Loans

In addition, this legislation contains authority for the Department of Housing and Urban Development and the Small Business Administration to make low interest loans to homeowners and small businesses to finance insulation, storm windows and heating units. If every eligible homeowner and small businessman took advantage of this section, the result could be an outlay for federally-guaranteed, low interest loans of many billions of dollars. The actual energy savings produced by these vast expenditures would not justify such an enormous loan program.

Facing up to Our Needs

The energy shortage has been a pressing problem for the American people for several months now. We have made every effort to soften the impact of this problem. We have come through this winter without serious hardship due to heating oil shortages. We have tried to distribute gasoline shortages equally. Many are concerned about rising costs of such energy supplies as propane, and we have taken action to reduce these prices while continuing to increase supplies. Above all, we have tried to insure that basic industries would not be severely affected and that unemployment due to the energy shortage would be kept to a minimum. We have been largely successful in these endeavors. But we must be able to approach this situation in a systematic fashion that aims not at symptoms, but at solutions to the problem itself.

The time has passed for political debate and posturing that raise false hopes. It's time for all of us to face up to this problem with a greater sense of realism and responsibility.

Unfortunately, there are some who have chosen to capitalize on the Nation's energy problems in an effort to obtain purely political benefits. Regrettably, the few who are so motivated have managed to produce the delays, confusion, and finally the tangled and ineffective result which is before me today. The amendments, counter-amendments, and parliamentary puzzles which have marked the stumbling route of this bill through the Congress must well make Americans wonder what has been going on in Washington while they confront their own very real problems. We must now join together to show the country what good government means.

We need the authority to require energy conservation measures. We need the direct authority to ration gasoline if, and only if, rationing becomes necessary, which it has not. We need the authority to require conversion of power plants, where possible, to permit the use of our abundant coal reserves. We need a well-conceived Federal Energy Administration capable of managing national energy programs and not the woefully inadequate Federal Energy Emergency Administration mandated in S. 2589.

We must, above all else, act to increase our supplies of energy. To meet this important goal, I have submitted to the Congress a comprehensive package of legislative initiatives which I have repeatedly urged the Congress to pass. I have offered every possible kind of cooperation with the Congress in shaping this vital legislation.

In addition to my requests for a windfall profits tax and unemployment insurance plan, the Congress has many other Administration proposals before it, including:

—Mandatory reporting of energy information, a proposal which requires energy companies to report on inventories, production, cost, and reserves with information to be made public in most cases.

—The Natural Gas Supply Act to allow competitive pricing of new gas supplies and encourage exploration.

—A resolution permitting limited production of oil from Naval Petroleum Reserve No. 1 (Elk Hills) and providing funds for further exploration and development of Reserve No. 1 and exploration of Reserve No. 4 (Alaska).

—The Mined Area Protection Act, establishing standards that would permit mining of coal to go forward while minimizing environmental impact.
—The Deepwater Port Facilities Act, authorizing the Secretary of the Interior to grant permits for the construction and operation of ports beyond the three-mile limit.
—The Minerals Leasing Act, placing all mineral exploration and mining activities on Federal lands under a modernized leasing system.
—A drilling investment tax credit to provide an incentive for exploratory drilling for new oil and gas fields.
—Creation of a Federal Energy Administration to deal with the current energy problem and to carry out major new activities in energy resource development, energy information and energy conservation.
—Creation of an Energy Research and Development Administration to provide a central agency for Federal energy research and development programs.
—Creation of a Department of Energy and Natural Reseources to provide a new Cabinet department for the comprehensive management of energy and natural resource programs.

Further key measures will be proposed to the Congress in the very near future, including a set of amendments to our environmental legislation that would provide the flexibility necessary to acquire and use our fuel resources most efficiently in times of shortage. I will continue to propose legislative initiatives in order to respond to the changing needs and priorities generated by the energy problem.

In enacting this Energy Emergency Act after long months of waiting by the American people, the Congress has sadly failed in its responsibility. I believe the Nation expects better. It deserves better.

In returning this bill, I pledge once again the full cooperation of my Administration in the effort to provide energy legislation which is responsive to the problems we face and responsible in its impact on the economy and on the American people.

RICHARD NIXON.

THE WHITE HOUSE, *March 6, 1974.*

STATEMENT OF THE PRESIDENT ON CONSERVING ENERGY

APRIL 19, 1974

At a time when all Americans are being asked to conserve energy, it is imperative that their Government set an example in this effort. I have established energy conservation goals for Federal departments and agencies which are even more ambitious than those being asked of the general public. The results thus far have been most encouraging. We must provide the same responsible Government leadership to the use of land and other natural resources in meeting our energy needs.

In my January 23, 1974 Energy Message to the Congress, I stressed again the necessity for streamlining the site selection process for energy facilities. The availability of potential sites, of course, resolves around the general issue of land use. Therefore, on the basis of recommendations by the Federal Property Council, I am announcing three actions to be implemented in a manner consistent with applicable environmental laws and zoning regulations, which will insure that our Nation's energy requirements are considered in Federal land use decisions.

First, I am directing the Administrator of the General Services Administration to review all pertinent Federal regulations to determine the need for amendments ensuring that GSA and the Federal agencies and departments consider energy implications in building design, building management, land acquisition and land disposal actions. Working with the Federal Energy Office and other appropriate agencies, GSA shall submit proposed amendments within 90 days to the Federal Property Council for review.

Second, I am directing the Administrator of the General Services Administration to consider the need for energy sites for power plants, storage areas, or refineries in the disposal of surplus Federal property under existing laws and regulations. The need for energy sites should be given careful consideration as an end use objective for the sale of surplus Federal land at fair market value.

Third, I am directing the Chairman of the Federal Property Council, upon receiving from the Administrator of the Federal Energy Office an assessment of the supply and demand factors of energy facilities in both the short and long run, to initiate a study to determine what other initiatives the Federal Government might take to (a) identify potential energy sites on Federal land, and (b) investigate the feasibility of using such sites for energy purposes.

This new initiative will become an integral part of Project Independence. The Federal Property Councils leadership has been outstanding in the Legacy of Parks program, through which 400 surplus Federal properties covering 62,000 acres have been made available

for parks and recreation. I am confident that the Council, working with the other agencies, can build on this experience and play an important role in our national effort to achieve the capability for energy self-sufficiency.

RICHARD NIXON.

THE WHITE HOUSE, *April 19, 1974.*

STATEMENT OF THE PRESIDENT ON SIGNING OF THE FEDERAL ENERGY ADMINISTRATION ACT OF 1974

MAY 7, 1974

Today marks another important step in our journey toward independence in energy.

Five months ago, when the Nation was still in the grips of the energy crisis, I set up the Federal Energy Office on a temporary basis to deal with our most immediate problems. I also proposed legislation to create an agency to carry on the activities of the FEO on a continuing basis.

The FEO, under the leadership of William Simon and John Sawhill, has been highly effective in allocating scarce fuel supplies, in encouraging consumer conservation, and in initiating a new look at our energy demands in the future.

It has become increasingly apparent during the short life span of the Federal Energy Office that its activities should be placed on firmer footing. I therefore take special pleasure today in signing in to law the Federal Energy Administration Act of 1974, creating a new, independent agency, the Federal Energy Administration, which will replace the Federal Energy Office. I congratulate the Congress on the passage of this measure and particularly the leaders who were responsible for managing the bill.

The new energy agency—FEA, as it will be called—will provide a more firmly based organization to carry out the responsibilities of the FEO through June 30, 1976, including:

—fuel allocation and pricing regulation;

—energy data collection and analysis; and

—broad energy planning with particular emphasis on energy conservation and expansion of energy supplies.

As a first priority, I have directed FEA to work with other Government agencies to prepare a comprehensive plan for achieving the goals of Project Independence—the capacity for energy self-sufficiency by 1980.

The creation of the Federal Energy Administration is an important accomplishment, but we should recognize that by no stretch of the imagination have we yet overcome the energy challenge. There are now disturbing indications that with the passage of the immediate crisis—a crisis that we weathered much better than the critics ever expected—many Americans believe that good conservation habits can be forgotten.

We need continued conservation and major new initiatives to expand our energy supplies for the future. We must get on with the

actions that are needed to meet the goals of Project Independence—to reduce the vulnerability of the United States to threats from other nations arising from our growing dependence upon foreign sources of energy.

The Nation is fortunate in having abundant energy resources. Now, with the help of the Congress, we must act to accelerate the development of those resources. Private industry is already moving ahead with investments to increase the production of coal, oil and natural gas. The Government can assist by removing obstacles to efficient energy production.

The FEA, working with other Federal agencies, will make an important contribution to these efforts. Federal agencies are encouraging new methods of producing energy such as the commercial use of geothermal energy and oil from our vast oil shale reserves. Further, we are supporting research and development to find new and better ways of using our abundant coal resources and to capture the benefits of solar energy and nuclear fusion. These efforts will be expanded if the Congress provides the greatly increased funding I have requested for fiscal year 1975.

But still more remains to be done by the Congress and the Nation if we are to bring energy supplies and demand into balance. There are now 16 key Administration proposals awaiting action on Capitol Hill, some of them for as long as three years. These measures are vital to both the conservation of energy and the expansion of supplies, and I urge once again that the Congress move forward more swiftly in acting on these bills.

As witnessed by the enactment of the Federal Energy Administration Act, we are making encouraging headway on the organizational front. I am also pleased to note that the Senate Government Operations Committee is moving ahead with favorable action on the proposal I submitted last June, and which the House of Representatives passed in December, to create an Energy Research and Development Administration. This new organization, ERDA, would spearhead the Nation's extensive R&D efforts in energy.

I would urge similar speed on bills that would greatly expand our domestic supplies.

One proposal of particular importance is the Natural Gas Supply Act which I sent to the Congress in April of 1973. This act would replace the current, outmoded system of Federal price regulation with the competitive pricing of new natural gas. The existing system encourages inefficient use and waste of natural gas and destroys the incentive for the exploration and development which would make new natural gas supplies available.

I have also proposed legislation, the Mined Area Protection Act, which would allow mining of coal and other minerals to proceed with reasonable environmental protection and reclamation requirements. This legislation has been awaiting action since 1971. Legislation is needed which does not restrict coal production in unnecessary and arbitrary ways, but instead permits development in a manner which balances environmental considerations with our energy requirements. The legislation presently active in Congress in this area does not meet these needs.

This Administration has also made important proposals regarding the construction of deepwater ports, labelling of appliances and auto-

mobiles for energy efficiency, the revision of nuclear power plant licensing procedures, and other actions which would relieve our Nation's energy problems in the years ahead.

We have also proposed a series of changes in the tax laws which would recapture the windfall profits that are possible in a period of energy shortage, and would give incentives to search for new energy sources at home rather than abroad.

All of these measures are important. The American people this winter showed that they had the spirit to face the energy challenge. Now it is up to the Government to show that it can provide leadership in the same spirit. I welcome the Federal Energy Administration Act as a major step in the right direction.

RICHARD NIXON.

THE WHITE HOUSE, *May 7, 1974.*

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FACT SHEET

May 7, 1974

THE FEDERAL ENERGY ADMINISTRATION ACT OF 1974

The President today is signing legislation establishing the Federal Energy Administration.

Background

On December 4, 1973, the President, by Executive Order, created the Federal Energy Office (FEO) on a temporary basis to lead the national effort to respond to the energy crisis caused by the Mideast oil embargo and production cutbacks. At that time, the President also asked for legislation to create a Federal Energy Administration (FEA), to carry out the activites of FEO on a continuing basis.

The FEO bill is the second major Administration energy proposal on which Congress has completed action. The Alaskan Pipeline bill was signed by the President on November 16, 1973.

The Federal Energy Administration

The Federal Energy Administration will replace the Federal Energy Office and will be reasponsible for carrying out the responsibilities of the FEO in the following areas:

—Fuel allocation and petroleum pricing regulation;
—Energy data collection and analysis;
—Energy planning for Project Independence; and
—Energy conservation.

The FEA is expected to be formally in place, replacing FEO, by June 30. (The bill allows 60 days for implementation.)

The functions being transferred to FEA include those formerly in:

—The Department of the Interior:
— Office of Petroleum Allocation;
— Office of Energy Data and Analysis;
— Office of Oil and Gas; and
— Office of Energy Conservation.
—The Cost of Living Council: Energy Division.

As a first priority, the President has directed that FEA work with other Government agencies (e.g., Department of the Interior, Atomic Energy Commission) to prepare a comprehensive plan for achieving the goals of Project Independence—the capacity for energy self-sufficiency by 1980.

Administration Energy Proposals Awaiting Congressional Action

Sixteen additional energy legislative proposals are awaiting Congressional action. These include, for example, the following:

—Creation of an Energy Research and Development Administration (ERDA) to lead the Nation's extensive energy R&D efforts (this bill has passed the House last December and is now moving through the Senate Government Operations Committee).

—The Natural Gas Supply Act of 1974 which would allow competitive pricing of new natural gas and thereby encourage exploration and development of domestic natural gas resources.

—The Mined Area Protection Act which would allow mining of coal and other minerals to proceed with reasonable environmental protection and reclamation requirements.

—The Deepwater Ports Facilities Act which would authorize the Secretary of the Interior to grant permits for construction, licensing and operation of ports beyond the three-mile limit.

—Revision of the nuclear licensing process to encourage standardization of nuclear plant designs and early site review so as to reduce the time required for getting plants on line.

—Amendments to the Clean Air Act, proposed on March 22, 1974, to relax temporarily certain deadlines and requirements which cannot be met or which are necessary to achieve a balance between our goals for improving air quality and for assuring an adequate supply of energy.

RICHARD NIXON.

THE WHITE HOUSE, *May 7, 1974.*

STATEMENT BY THE PRESIDENT ON SIGNING THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT OF 1974

JUNE 26, 1974

I have signed H.R. 14368, the Energy Supply and Environmental Coordination Act of 1974. This bill represents a first step by the Congress toward achieving a balance between our environmental requirements and our energy requirements. While the Congress has begun to address the complex problem of reconciling these two priorities, it must be clear that this step is only a beginning and that more remains to be done.

This bill provides two principal authorities. First, the bill amends the Clean Air Act by extending for up to two years the automotive emission standards that currently apply to 1975 model light-duty vehicles and engines. This amendment will provide additional time for the development of emission control technology and permit manufacturers to focus attention on improving automobile fuel economy.

Second, the bill provides authority for a limited program to convert power-plants and other major fuel-burning installations from the use of petroleum products and natural gas to the use of coal. This authority represents a step in the right direction, but it does not provide a basis for the long term program of coal conversion necessary to achieve our goal of developing the capacity for energy self-sufficiency.

As I indicated to the Congress in my January 23, 1974, Energy Crisis Message, the Clean Air Act has provided the basis for major improvements in air quality, and we must continue our progress toward even greater improvement. It has become clear, however, that certain requirements established by the act cannot be achieved within the deadlines allotted and others have unacceptable economic and social implications.

A thorough review of the Clean Air Act was undertaken by the appropriate executive branch agencies. Following that review, EPA Administrator Russell Train submitted proposed amendments to the Clean Air Act to the Congress on behalf of the Administration.

Since the bill that I have signed deals in only a limited way with the problem of insuring that our environmental priorities and our energy needs are managed evenhandedly, I urge the Congress to review the Administration's proposed amendments and to act quickly and favorably upon them.

RICHARD NIXON.

THE WHITE HOUSE, *June 26, 1974.*

AGREEMENT BETWEEN THE UNITED STATES OF AMERICA AND THE UNION OF SOVIET SOCIALIST REPUBLICS ON COOPERATION IN THE FIELD OF ENERGY

JUNE 28, 1974

The United States of America and the Union of Soviet Socialist Republics;

Attaching great importance to meeting the energy needs of the two countries, with proper regard to the protection of the environment;

Recognizing that the development of cooperation in the field of energy can benefit the peoples of both countries and all mankind;

Desiring to expand and to deepen the cooperation now existing between the two countries in the field of energy research and development;

Recognizing the need to create better mutual understanding of each country's national energy programs and outlook;

Convinced that cooperation in the field of energy will contribute to the overall improvement of relations between the two countries;

In accordance with and in development of the Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Cooperation in the Fields of Science and Technology of May 24, 1972, and the agreement on Cooperation in the Field of Environmental Protection between the United States of America and the Union of Soviet Socialist Republics of May 23, 1972, as well as in accordance with the Agreement between the United States of America and the Union of Soviet Socialist Republics on Scientific and Technical Cooperation in the Field of Peaceful Uses of Atomic Energy of June 21, 1973, and the General Agreement between the United States of America and the Union of Soviet Socialist Republics on Contacts, Exchanges and Cooperation of June 19, 1973;

Have agreed as follows:

ARTICLE I

The Parties will expand and strengthen their cooperation in the field of energy on the basis of mutual benefit, equality and reciprocity.

ARTICLE II

The main objectives of such cooperation under this Agreement are:

a. to use the scientific and technical potential of both countries to accelerate by cooperative efforts research and development in the areas of existing and alternative sources of energy as well as to increase effectiveness in the use of energy and its conservation, and

b. to achieve a better mutual understanding of each country's national energy programs and outlook.

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ARTICLE III

1. Cooperation will be implemented in the following areas:

a. technologies concerning the exploration, extraction, processing and use of fossil fuels, including but not limited to oil, shale, natural gas and coal, and, in particular, new methods of drilling and of increasing the rate of extraction and degree of recovery of oil and natural gas from strata, and of mining, extracting and processing coal and shale;

b. the exchange of relevant information, views and methods of forecasting concerning the natural energy programs and outlooks of the respective countries, including all questions of mutual interest related to production, demand and consumption of the major forms of fuels and energy;

c. technology for developing non-conventional sources of energy, such as solar and geothermal energy and synthetic fuels;

d. energy-related environmental technology; and

e. measures to increase the efficiency of energy use and to restrain demand.

2. Other areas of cooperation may be added by mutual agreement.

ARTICLE IV

1. Cooperation between the Parties may take the following forms;

a. exchange of scientists and specialists:

b. exchange of scientific and technical information, documentation and results of research;

c. establishment of groups of experts for the planning and execution of joint research and development programs;

d. joint work by theoretical and experimental scientists in appropriate research centers of the two countries; and

e. holding joint consultations, seminars and panels.

2. Other forms of cooperation may be added by mutual agreement.

3. Cooperation under this Agreement will be carried out in accordance with the laws and regulations of the respective countries.

ARTICLE V

1. In furtherance of this Agreement, the Parties will, as appropriate, encourage, facilitate and monitor the development of contacts and cooperation between organizations, institutions and firms of the respective countries, including the conclusion, as appropriate, of implementing agreements for carrying out cooperative activities under this Agreement.

2. To assure fruitful development of cooperation, the Parties will render every assistance for the travel of scientists and specialists to areas of the respective countries appropriate for the conduct of activities under this Agreement.

ARTICLE VI

1. For implementation of this Agreement, there shall be established a US-USSR Joint Committee on Cooperation in the Field of Energy. Meetings of the Joint Committee will be convened once a year in the

United States and the Soviet Union alternately, unless otherwise mutually agreed.

2. The Joint Committee shall take such action as is necessary for effective implementation of this Agreement including, but not limited to, consultations on the energy situation and outlook of the respective countries; approval of specific projects and programs of cooperation; designation of appropriate participating organizations and institutions responsible for carrying out cooperative activities; and making recommendations, as appropriate, to the two Governments. The Joint Committee shall establish the necessary working groups to carry out the programs, projects and exchange of information contemplated by this Agreement.

3. Each Party shall designate its Executive Agent which will be responsible for carrying out this Agreement. During the period between meetings of the Joint Committee, the Executive Agents shall maintain contact with each other, keep each other informed of activities and progress in implementing this Agreement, and coordinate and supervise the development and implementation of cooperative activities conducted under this Agreement.

Article VII

Nothing in this Agreement shall be interpreted to prejudice or modify any existing agreements between the Parties, except that energy projects within the Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Cooperation in the Fields of Science and Technology of May 24, 1972 and the Agreement between the United States of America and the Union of Soviet Socialist Republics on Cooperation in the Field of Environmental Protection of May 23, 1972 which clearly fall under this Agreement henceforward will be implemented pursuant to this Agreement.

Article VIII

Unless an implementing agreement contains other provisions, each Party or participating institution, organization or firm, shall bear the costs of its participation and that of its personnel in cooperative activities engaged in pursuant to this Agreement.

Article IX

1. This Agreement shall enter into force upon signature and remain in force for five years. It will be automatically extended for successive five-year periods unless either Party notifies the other of its intent to terminate this Agreement not later than six months prior to the expiration of this Agreement.

2. This Agreement may be modified at any time by mutual agreement of the Parties.

3. The termination of this Agreement will not affect the validity of implementing agreements concluded under this Agreement between institutions, organizations and firms of the respective countries.

Done at Moscow on June 28, 1974, in duplicate, in the English and Russian languages, both texts being equally authentic.

For the United States of America:

President of the United States.

For the Union of Soviet Socialist Republics:

Chairman, Presidium, U.S.S.R. Supreme Soviet.

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FACT SHEET

June 28, 1974

U.S.–U.S.S.R. AGREEMENT ON COOPERATION IN THE FIELD OF ENERGY

Today's Agreement on Cooperation in the Field of Energy builds on the joint scientific and technical efforts of the United States and the Soviet Union on energy topics being carried out under the U.S.-U.S.S.R. Agreement on Cooperation in the Fields of Science and Technology of May 24, 1972, and the Agreement on Cooperation in the Field of Environmental Protection of May 23, 1972. Given the countries with the largest energy resources as well as demand for energy—a formal "umbrella" agreement under which the two countries could conduct and expand their scientific and technical cooperation in this important field was deemed appropriate.

SUBSTANCE OF THE AGREEMENT

The Agreement provides for developing a broad and balanced range of joint scientific and technological R&D programs of mutual interest on conventional and nonconventional forms of energy, energy-related environmental topics and conservation and demand restraint measures. Existing energy programs and projects under the Science and Technology and the Environmental Protection Agreements will be transferred to the Energy Cooperation Agreement. In this way, it is hoped to have a more comprehensive approach to joint energy R&D projects and to develop in new energy areas the kind of mutually beneficial cooperation which has already proven to be of value to both sides in such fields as magneto-hydrodynamics and superconducting transmission technology.

The Joint U.S.–U.S.S.R. Committee on Cooperation in the Field of Energy, which will be established to implement this agreement, will also approve the scientific joint scientific/technological projects and programs in the broad areas outlined in the Agreement.

The other major provisions of this Agreement is aimed at achieving a better mutual understanding of the two countries' national energy programs and outlook. To this end the Agreement provides for the exchange of relevant information, views and forecasting methodology. Both sides have agreed to take up all questions of mutual interest related to production, demand and consumption of the major fuels and energy sources. A working group to be set up by the Joint Committee to implement this provision of the Agreement should provide

each side with an assessment of the total energy outlook which it can take into consideration in formulating national programs and plans. There is no intention, however, to take up commercial issues relating to pending or potential energy cooperation projects.

The Agreement contains what are now virtually standard provisions on implementation in the specialized cooperative agreements between the U.S. and the U.S.S.R. We expect to name shortly the U.S. Executive Agent for this Agreement.

In sum, the Agreement provides a good basis for developing a new and important aspect of the U.S.-Soviet cooperation which may be of considerable value to both sides in dealing with the long-term energy problem.

RICHARD NIXON.

THE WHITE HOUSE, *June 28, 1974.*

STATEMENT

JULY 2, 1974

The energy crisis in America has passed, but the energy challenge is as great as ever. Our goal must be to develop the capacity for self-sufficiency in energy, and to achieve this goal we must continue our efforts to both expand energy supplies and conserve energy.

In June of last year, I directed the Federal departments and agencies to reduce their anticipated energy consumption by at least seven percent over the succeeding 12-month period. At the same time, I appealed to consumers, to industry and to other organizations to join in a nationwide, voluntary campaign of energy conservation.

John C. Sawhill, the Administrator of the Federal Energy Administration, has now reported to me on the progress of the Federal effort. The achievements are impressive. During the third quarter of the Federal program, savings in the non-defense agencies amounted to 19 percent of anticipated energy usage, while savings by the Defense Department rose to 31 percent. The composite saving of 30 percent for the quarter, exceed the records of 20 and 26 percent, respectively, achieved during the first and second quarters of fiscal year 1974. Figures for the fourth quarter are not yet available, but when they are, we are confident that the Federal Government will have far exceeded our original goals for the year.

The total savings for the first nine months of the Federal program represent the equivalent of 75 million barrels of oil or approximately $600 million in reduced costs to the taxpayer for energy.

I am also pleased by a report I have received from the Secretary of Commerce, Frederick B. Dent, on the progress made by business in response to the voluntary program I asked him to undertake with the business community. He reports that energy consumption in the industrial sector was reduced by five percent per unit of output during the period of October 1973 through January 1974. This rate of saving, which the Secretary expects will be maintained or exceeded in 1974 by all of commerce and industry, represents an annual saving of the equivalent of 425 million barrels of oil. He indicates that 8,000 chief executives have pledged to undertake energy management programs and that some individual companies are reporting savings in excess of 20 percent. Many companies are also reporting that improved energy management is reducing their costs and increasing productivity. Since private industry accounts for approximately 65 percent or two-thirds of our country's energy consumption, these savings will have a significant impact upon our national consumption levels.

We learned last winter that all of us can contribute to energy conservation. Voluntary actions by millions of Americans were a critically important factor in bringing our Nation through the oil crisis. The continuing accomplishments of the Federal Government and of business and industry should serve as a splendid example of the way that further savings can be achieved and, as part of Project Independence, will advance us toward our ultimate goal of self-sufficiency in energy.

I welcome this opportunity to commend the Federal departments and agencies as well as private industry for their fine leadership. In the final analysis, of course, their efforts alone are not enough. Every American must join in this cause. Our ability to achieve energy independence will depend heavily upon the conservation efforts of all segments—consumers, business and government.

RICHARD NIXON.

THE WHITE HOUSE, *July 2, 1974.*

STATEMENT OF THE PRESIDENT ON SIGNING THE ENERGY REORGANIZATION ACT OF 1974

OCTOBER 11, 1974

It is my privilege today to sign into law a bill which takes a big step forward in this Nation's program to face up to and solve its crucial energy needs for the future.

H.R. 11510 abolishes the present Atomic Energy Commission and establishes three new Federal entities:

1. The *Energy Research and Development Administration* (*ERDA*) which, for the first time, will bring together into one agency major Federal programs of research and development for all forms of energy and will organize these programs for cooperation with industry, academic institutions and other organizations in the nation's rapidly expanding energy research and development effort.

2. The *Energy Resources Council* composed of the Secretaries of State and Interior, the Administrators of ERDA and the Federal Energy Administration, the Director of the Office of Management and Budget, and other members as I may designate. I am pleased that the Congress acted consistent with my suggestion for an interagency council, which I had announced in my Economic Message October 8. It is, therefore, my pleasure to name the Secretary of the Interior to chair this Council and I am today issuing an Executive Order to assure prompt action.

3. The *Nuclear Regulatory Commission* (*NRC*) which will take over the licensing and regulation responibilities previously performed by the Atomic Energy Commission.

My Administration is already committed to a greatly accelerated five-year program of over ten billion dollars for energy research and development. ERDA gives us the unified, high quality scientific technical and management organization to achieve the greatest benefit from this investment of public funds. By combining the research and development capabilities of AEC with the fossil fuels research capability of the Interior Department, and with energy research skills from EPA and the National Science Foundation, we are bringing together in ERDA the best of our government skills in energy research and development.

From these agencies, we will be drawing upon a highly respected team of scientists, engineers, and program managers, capable of making immediate contributions to research on all forms of energy. Bringing together these skills, using AEC as its base, represents the quickest way in which the Federal Government can work with industry and others in mobilizing the talents, facilities and skills needed to

undertake the major expansion and extension of the nation's energy research and development programs.

The Energy Research and Development Administration is being given a broad range of challenging and important research missions:

1. It will continue the research of the present Atomic Energy Commission in nuclear fusion and fission, working with American industry to design, develop and demonstrate increasingly more effective nuclear power systems to meet our growing electric power needs—and to see to it that these systems are completely safe in operation, economically feasible, and environmentally clean.

2. It will continue to expand fossil fuels research programs which the Department of the Interior initiated to capitalize on our immense national reserves of coal and oil shale, with emphasis on advancing the technology for the clean use of coal, including gasification and liquefaction.

3. It will continue to serve our national security needs by carrying on AEC's responsibility for the design, development and fabrication of weapons systems for the Department of Defense.

4. It will maintain our nuclear materials production capability which serves both military and civilian needs, including international commitments for supplying nuclear reactor fuel.

5. It will give us greatly strengthened Government scientific and engineering capability to expand and upgrade our research into making use of new and potentially important forms of energy such as solar and geothermal sources.

6. It will move immediately into a substantial new effort in energy conservation research and development, including the utilization of the best scientific and engineering talent to find new ways to make our factories, our automobiles, our buildings and our appliances more energy efficient and economical.

7. It will additionally continue and expand a program of environmental control technology and assessment of environmental and health effects of energy technologies.

8. It will continue strong basic research programs in such areas as physics, environmental and biological sciences and extend these scientific capabilities to support *all* energy areas—not just nuclear energy.

ERDA must and will become a lot more than the sum of its present parts. What is envisioned is nothing less than a *complete* energy research and development organization. It will be one which will fill in the gaps in our present research efforts and provide a balanced national research program. It will give proper emphasis to each energy source according to its potential and its readiness for practical use. It will closely integrate our energy research and development efforts with overall national energy policy.

In addition to creating ERDA, H.R. 11510 also creates a new Nuclear Regulatory Commission (NRC) which will assume the licensing and regulatory responsibilities previously carried out under the Director of Regulation within the Atomic Energy Commission. The highly technical nature of our nuclear facilities and the special potential hazards which are involved in the use of nuclear fuels fully warrant the creation of an independent and technically competent regulatory agency to assure adequate protection of public health and safety.

NRC will be responsible for the licensing and regulation of the nuclear industry under the provisions of the Atomic Energy Act. This means that NRC will be fully empowered to see to it that reactors using nuclear materials will be properly and safely designed, constructed and operated to guarantee against hazards to the public from leakage or accident. NRC will also exercise strengthened authority to assure that the public is fully safeguarded from hazards arising from the storage, handling and transportation of nuclear materials being used in power reactors, hospitals, research laboratories or for any other purpose.

With the creation of *ERDA* and NRC, the Federal Government has acted in a timely way to participate in the national effort to meet our future energy research and development needs. This action has been feasible through the very best kind of cooperation between the Congress and the Executive Branch. I want especially to express my appreciation and gratitude to those members of both Houses, who, by their leadership, brought this legislation to reality.

GERALD R. FORD.

THE WHITE HOUSE, *October 11, 1974.*

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FACT SHEET

October 11, 1974

THE ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION (ERDA)

The President today has signed H.R. 11510, which establishes the Energy Research and Development Administration. This new executive agency will consolidate the Federal energy research and development efforts of four existing agencies, the Atomic Energy Commission, Interior Department, National Science Foundation, and the Environmental Protection Agency. ERDA will be the central energy research and development agency with broad charter to develop new and improved energy source and utilization technologies consistent with sound environmental and safety practices.

Such technologies will cover a broad range of energy sources including fossil, nuclear, solar, geothermal and advanced as well as conservation research and development. ERDA will provide a sound organizational framework and management and technical expertise to achieve the Nation's research and development goals in the energy area.

ERDA RESPONSIBILITIES

ERDA will have a central role in the planning and management of the Administration's accelerated five-year, $10 billion plus energy research and development program. Major responsibilities will include:

—exercising central responsibility for policy planning, coordination, support and management of research and development respecting all energy sources and utilization technologies.

—encouraging and conducting research, development and demonstration for extraction, conversion, storage transmission and utilization energy phases.
—engaging in and supporting environmental, biomedical, physical and safety research.
—participating in and supporting cooperative research and development projects.
—developing, collecting, distributing scientific information.

AGENCY TRANSFERS TO ERDA

The bill provides for the transfer of the following agency functions to ERDA:

—All of the functions, authorities and resources of the Atomic Energy Commission, except the AEC's licensing, regulatory and related environment and safety functions. Functions transferred to ERDA from AEC will include nuclear materials production, reactor development, military applications, physical research, biomedical and environmental research, controlled thermonuclear research, nonnuclear energy R&D and other nonregulatory functions.
—From Interior, the functions of the Office of Coal Research, six energy research centers of the Bureau of Mines, the synthane pilot plant for high BTU coal conversion at Bruceton, Pa., and underground power transmission research and development.
—From the National Science Foundation, programs for solar heating and cooling development and geothermal power development.
—From the Environmental Protection Agency, research, development and demonstration of alternative automotive power systems except those programs relating to assessment or monitoring for regulatory purposes.

FUNDING AND PERSONNEL

The energy R&D involved in the transfers to ERDA are estimated at:

	Fiscal year 1975 budget request (millions)	Year end fiscal year 1975 employment (full time permanent)
Atomic Energy Commission [1]		5,988
Civilian energy (mostly nuclear programs)	$1,453	
Physical, biomedical, and environmental research	554	
Program support (all categories)	230	
Total AEC	2,237	5,988
Interior:		
Office of Coal Research	283	222
Bureau of Mines (six energy centers)	81	865
Underground power transmission, R. & D.	8	19
Total Interior	372	1,106
National Science Foundation:		
Solar energy development	25	8
Geothermal energy development	12	5
Total NSF	37	13
Environmental Protection Agency: Alternative automotive power systems	5	17
Grand total	2,651	7,124

[1] In addition the military development and production functions of AEC estimated at $1,542 million will be transferred.

The Administrator (Level II) will review alternative concepts and set program priorities among alternative technologies. The Deputy Administrator (Level III) will assist the Administrator in the conduct of the agency's business. The Assistant Administrator will sponsor their technologies in the process. The ERDA Administrator will be supported by a strong and independent staff at the headquarters level. A great deal of flexibility will be available to the Administrator to carry out needed R&D programs.

There will be six Assistant Administrators each responsible for a major program area as follows:

—Assistant Administrator for *fossil energy*—Responsible for developing new and improved technology for the production and utilization of fossil fuels including coal, oil, oil shale, gas, etc. Significant programs include coal liquefaction, coal gasification, oil shale transformation, control technology.

—Assistant Administrator for *nuclear energy*—Responsible for developing nuclear technologies including fission and fusion. Major programs include reactor research and development, naval reactors, reactor safety research, thermonuclear fusion research.

—Assistant Administrator for *environment and safety*—Responsible for environmental and safety oversight for all technology developed by ERDA. Major programs include biomedical and environmental research, waste management, transportation, operational safety programs.

—Assistant Administrator for *conservation*—Responsible for conservation R&D programs including automotive power systems, end-use consumption technologies, and improving energy efficiency.

—Assistant Administrator for *solar, geothermal and advanced energy systems*—Responsible for developing energy source and utilization technologies including solar, geothermal, conducting physical research, and advanced energy conversion concepts.

—Assistant Administrator for *national security*—Responsible for nuclear weapons research, development and production including the production of weapons materials and the testing, manufacture, and reliability assessment of weapon components and systems.

Energy Resources Council

The bill provides for establishment of an interagency Energy Resources Council in the Executive Office of the President to insure communication and coordination among the Federal agencies that have responsibilities for the development and implementation of energy policy. Members of the Council identified in the bill include:

Secretary of the Interior.
Secretary of State.
Administrator, Federal Energy Administration.
Administrator, Energy Research and Development Administration.
Director, Office of Management and Budget.

The Energy Resources Council is entirely consistent with the approach of the National Energy Board referred to in the President's Economic Message. Therefore, an Executive Order is being issued simultaneous with President's approval of this bill immediately ac-

tivating the Energy Resources Council with the following members, in addition to those listed in the bill:

Assistant to the President for Economic Affairs.
Secretary of the Treasury.
Secretary of Defense.
Attorney General.
Secretary of Commerce.
Secretary of Transportation.
Chairman, Atomic Energy Commission.
Chairman, Council of Economic Advisers.
Administrator, Environmental Protection Agency.
Chairman, Council on Environmental Quality.
Director, National Science Foundation.
Executive Director. Domestic Council.

In addition, the President is authorized to designate other officials of the Federal Government as members of the Council. Also, the President is designating the Secretary of the Interior, Rogers C. B. Morton, as Chairman, as indicated in his Economic Message.

Nuclear Regulatory Commission (NRC)

The current Atomic Energy Commission will be abolished and a new five-member Commission will be established with responsibility for the licensing, regulatory and related functions of the AEC.

The Nuclear Regulatory Commission will be organized into three offices reporting through an Executive Director of Operations:

—Office of Nuclear Reactor Regulation will have the principal licensing and related regulatory responsibilities for the construction and operation of commercial nuclear reactors.

—Office of Nuclear Material Safety and Safeguards will have the principal licensing and related regulatory responsibility for all other nuclear facilities and overall nuclear materials including its processing, handling and transportation.

—Office of Nuclear Regulatory Research will be responsible for conducting research in the form of a confirmatory assessment of technology relating to reactor safety, safeguards, and environmental protection in support of the licensing and regulatory process.

The bulk of the new Commission's resources will come from the regulatory side of the AEC with part of the Division of Reactor Safety also being transferred to form the nucleus of the Office of Regulatory Research. Anticipated resources for the Commission in fiscal year 1975 include approximately $140 million in obligations and 1,900 full-time permanent employees. It is also expected that ERDA and other Federal agencies would be available to perform research-related work in support of NRC on a reimbursable basis.

The establishment of this new independent regulatory commission will maximize regulatory objectivity and impartiality, thereby increasing public confidence in nuclear regulations. NRC will enhance the orderly development of the nuclear industry and at the same time assure protection of the public health and safety in civilian nuclear activities.

Gerald R. Ford.

The White House, *October 11, 1974.*

EXECUTIVE ORDER—ACTIVATION OF THE ENERGY RESOURCES COUNCIL

OCTOBER 11, 1974

In my address to the Congress on October 8, 1974, I expressed my intention to create a new National Energy Board, under the chairmanship of the Secretary of the Interior, to develop, coordinate, and assure the implementation of Federal energy policy. Subsequent to my delivery of that address, the Congress completed action on the Energy Reorganization Act of 1974 which I have just approved into law. Section 108 of that act creates in the Executive Office of the President a new Energy Resources Council which would be charged with performing functions that are essentially the same as those I had intended to assign to the National Energy Board. Consequently, I have determined that it would serve no useful purpose to create that Board. Instead, I am now exercising the authority vested in me by section 108 of the Energy Reorganization Act of 1974, to activate immediately the Energy Resources Council, to designate the Secretary of the Interior as its Chairman, and to designate additional officials as members thereof.

NOW THEREFORE, by virtue of the authority vested in me as President of the United States of America by the Constitution and laws of the United States, particularly section 108 of the Energy Reorganization Act of 1974, and section 301 of title 3 of the United States Code, it is hereby ordered as follows:

SECTION 1. Section 108 of the Energy Reorganization Act of 1974 shall be effective as of the date of this order and the Energy Resources Council shall be deemed to have been activated as of that date.

SEC. 2. The Council shall consist of the Secretary of the Interior, who shall be its Chairman, the Assistant to the President for Economic Affairs, the Secretary of State, the Secretary of the Treasury, the Secretary of Defense, the Attorney General, the Secretary of Commerce, the Secretary of Transportation, the Chairman of the Atomic Energy Commission, the Director of the Office of Management and Budget, the Chairman of the Council of Economic Advisers, the Administrator of the Federal Energy Administration, the Administrator of the Energy Research and Development Administration (upon entry into office), the Administrator of the Environmental Protection Agency, the Chairman of the Council on Environmental Quality, the Director of the National Science Foundation, the Executive Director of the Domestic Council, and such other members as the President may, from time to time, designate.

SEC. 3. The Energy Resources Council shall perform such functions as are assigned to it by section 108 of the Energy Reorganization Act of 1974, shall develop a single national energy policy and program, and shall perform such other functions as may be assigned to it, from time to time, by the President.

SEC. 4. All departments and agencies shall cooperate with the Council and shall, to the extent permitted by law, provide it with such assistance and information as the Chairman of the Council may request.

SEC. 5. The Committee on Energy, the establishment of which was announced on June 14, 1974, is hereby abolished.

SEC. 6. The Council shall terminate in accordance with the provisions of section 108 of the Energy Reorganization Act of 1974.

GERALD R. FORD.

THE WHITE HOUSE, *October 11, 1974.*

ADDRESS BY THE PRESIDENT ON LIVE TELEVISION AND RADIO

JANUARY 13, 1975

Good evening.

Without wasting words, I want to talk with you tonight about putting our domestic house in order. We must turn America in a new direction. We must reverse the current recession, reduce unemployment and create more jobs.

We must restore the confidence of consumers and investors alike. We must continue an effective plan to curb inflation. We must, without any delay, take firm control of our progress as a free people. Together we can and will do this job.

Our national character is strong on self-discipline and the will to win. Americans are at their very best when the going is rough. Right now, the going is rough, and it may get rougher. But if we do what must be done, we will be on our way to better days. We have an historic opportunity.

On Wednesday I will report to the new Congress on the State of the Union and ask for its help to quickly improve It. But neither Congress nor the President can pass laws or issue orders to assure economic improvement and instant prosperity.

The Government can help by equalizing unfair burdens, by setting an example of sound economic actions and by exerting leadership through clear and coordinated national recovery programs.

Tonight I want to talk to you about what must be done. After all, you are the people most affected.

Since becoming your President five months, ago economic problems have been my foremost concern. Two elements of our problem are long-range—inflation and energy. Both are affected not only by our actions, but also by international forces beyond our direct control.

The new and disturbing element in the economic picture is our worsening recession and the unemployment that goes with it. We have made some progress in slowing the upward spiral of inflation and getting interest rates started down, but we have suffered sudden and serious setbacks in sales and unemployment.

Therefore, we must shift our emphasis from inflation to recession, but in doing so, we must not lose sight of the very real and deadly dangers of rising prices and declining domestic energy supplies.

Americans are no longer in full control of their own national destiny, when that destiny depends on uncertain foreign fuel at high prices fixed by others. Higher energy costs compound both inflation and recession, and dependence on others for future energy supplies is intolerable to our national security.

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Therefore, we must wage a simultaneous three-front campaign against recession, inflation and energy dependence. We have no choice. We need within 90 days the strongest and most far-reaching energy conservation program we have ever had.

Yes, gasoline and oil will cost even more than they do now, but this program will achieve two important objectives—it will discourage the unnecessary use of petroleum products, and it will encourage the development and substitution of other fuels and newer sources of energy.

To get started immediately on an urgent national energy plan, I will use the Presidential emergency powers to reduce our dependence on foreign oil by raising import fees on each barrel of foreign crude oil by $1 to $3 over the next three months.

A more comprehensive program of energy conservation taxes on oil and natural gas to reduce consumption substantially must be enacted by the Congress. The revenues derived from such taxes will be returned to the economy. In addition, my energy conservation program contains oil allocation authority to avoid undue hardships in any one geographic area, such as New England, or in any specific industry or areas of human need where oil is essential.

The plan prevents windfall profits by producers. There must also be volunteer efforts to cut gasoline and other energy use.

My national energy conservation plan will urge Congress to grant a five-year delay on higher automobile pollution standards in order to achieve a 40 percent improvement in miles per gallon.

Stronger measures to speed the development of other domestic energy resources, such as coal, geothermal, solar and nuclear power are also essential.

This plan requires personal sacrifice. But if we all pitch in, we will meet our goal of reducing foreign oil imports by one million barrels a day by the end of this year and by two million barrels before the end of 1977. The energy conservation measures I have outlined tonight will be supplemented by use of Presidential power to limit oil imports as necessary to fully achieve these goals.

By 1985—10 years from now—the United States will be invulnerable to foreign energy disruptions or oil embargoes such as we experienced last year. Of course, our domestic needs come first. But our gains in energy independence will be fully coordinated with our friends abroad. Our efforts should prompt similar action by our allies.

If Congress speedily enacts this national energy program, there will be no need for compulsory rationing or long waiting lines at the service station. Gasoline prices will go up, though not as much as with a 20 cent a gallon gas tax. Furthermore, the burden of the conservation taxes on oil will be shared by all petroleum users, not just motorists.

Now, let me talk about the problem of unemployment. This country needs an immediate Federal income tax cut of $16 billion. Twelve billion dollars, or three-fourths of the total of this cut, should go to individual taxpayers in the form of a cash rebate amounting to 12 percent of their 1974 tax payments—up to a $1,000 rebate. If Congress acts by April first, you will get your first check for half the rebate in May and the rest by September.

The other one-fourth of the cut, about $4 billion, will go to business taxpayers, including farmers, to promote plant expansion and create more jobs. This will be in the form of an increase in the investment tax credit to 12 percent for one year. There will be special provisions to assist essential public utilities to step up their energy capacity. This will encourage capital spending and productivity, the key to recovery and growth.

As soon as the new revenues from energy conservation taxes are received, we will be able to return $30 billion to the economy in the form of additional payments and credits to individuals, business and State and local governments. Cash payments from this total also will be available to those who pay no income taxes because of low earnings. They are the hardest hit by inflation and higher energy costs. This combined program adds up to $46 billion—$30 billion in returned energy tax revenues to compensate for higher fuel costs and $16 billion in tax cuts to help provide more jobs. And the energy conservation tax revenues will continue to be put back into the economy as long as the emergency lasts.

This economic program is different in emphasis from the proposals I put forward last October.The reason is that the situation has changed. You know it, and I know it. What we need most urgently today is more spending money in your pockets rather than in the Treasury in Washington. Let's face it, a tax cut to bolster the economy will mean a bigger Federal deficit temporarily, and I have fought against deficits all my public life. But unless our economy revives rapidly, Federal tax revenues will shrink so much that future deficits will be even larger. But I have not abandoned my lifelong belief in fiscal restraint. In the long run, there is no other real remedy for our economic troubles.

While wrestling with the budgets for this year and next, I found that at least three-quarters of all Federal expenditures are required by laws already on the books. The President cannot, by law, cut spending in an ever-growing list of programs which provide mandatory formulas for payments to State and local governments and to families and to individuals. Unless these laws are changed, I can tell you there are only two ways to go—still higher Federal taxes or the more ruinous hidden tax of inflation. Unchecked, Federal programs mandated by law will be prime contributors to Federal deficits of $30 to $50 billion this year and next. Deficits of this magnitude are wrong—except on a temporary basis in the most extenuating circumstances.

Reform of these costly mandated Federal spending programs will take time. Meanwhile, in order to keep the budget deficit as low as possible, I will do what I can.

In my State of the Union and subsequent messages, I will not propose any new Federal spending programs except for energy, and the Congress—your representatives in Washington—share an equal responsibility to see that no new spending programs are enacted.

I will not hesitate to veto any new spending programs the Congress sends to me. Many proposed Federal spending programs are desirable and have had my support in the past. They cost money—your tax dollars. Mainly it is time to declare a one-year moratorium on new Federal spending programs.

I need your support in this. It is vital that your representatives in Congress know that you share this concern about inflation.

I believe the Federal Government ought to show all Americans it practices what it preaches about sacrifices and self-restraint. There-

fore, I will insist on a 5 percent limit on any Federal pay increases in 1975, and I will ask Congress to put the same temporary 5 percent ceiling on automatic cost of living increases in Government and military retirement pay and Social Security.

Government alone cannot bring the cost of living down, but until it does start down, Government can refrain from pushing it up. For only when the cost of living comes down can everybody get full value from a pension or a paycheck. I want to hasten that day.

Tonight I have summarized the highlights of my energy and my economic programs. They must go hand in hand, as I see it.

On Wednesday I will spell out these proposals to the Congress. There will be other recommendations, both short-term and long-range, to make our program as fair to all as possible.

I will press for prompt action and responsible legislation. The danger of doing nothing is great. The danger of doing too much is just as great.

We cannot afford to throw monkey wrenches into our complex economic machine because it isn't running at full speed. We are in trouble, but we are not on the brink of another Great Depression.

Our political and economic system today is many times stronger than it was in the 1930's. We have income safeguards and unemployment cushions built into our economy. I have taken and will continue to take whatever steps are needed to prevent massive dislocations and personal hardships and, in particular, the tragedy of rising unemployment.

But sound solutions to our economic difficulties depend primarily on the strong support of each one of you. Self-restraint must be exercised by big and small business, by organized and unorganized labor, by State and local governments, as well as by the Federal Government.

No one will be allowed to prosper from the temporary hardships most of us willingly bear, nor can we permit any special interests to gain from our common distress.

To improve the economic outlook we must rekindle faith in ourselves. Nobody is going to pull us out of our troubles but ourselves and by our own bootstraps.

In 200 years as a Nation we have triumphed over external enemies and internal conflicts and each time we have emerged stronger than before. This has called for determined leaders and dedicated people, and this call has never gone unheeded.

In every crisis, the American people have closed ranks, rolled up their sleeves and rallied to do whatever had to be done.

I ask you and those who represent you in the Congress to work to turn our economy around, declare our energy independence and resolve to make our free society again the wonder of the world.

The beginning of our Bicentennial is a good time to reaffirm our pride and purpose as Americans who help themselves and help their neighbors no matter how tough the task. For my part, I will do what I believe is right for all our people—to do my best for America as long as I occupy this historic house.

We know what must be done. The time to act is now. We have our Nation to preserve and our future to protect. Let us act together.

May God bless our endeavors. Thank you, and good night.

GERALD R. FORD.

THE PRESIDENT'S 1975

STATE OF THE UNION MESSAGE

including

ECONOMY

and

ENERGY

EMBARGOED FOR RELEASE
UNTIL 1:00 P.M., EST

JANUARY 15, 1975

EMBARGOED FOR WIRE TRANSMISSION
UNTIL 10:00 A.M., EST

Office of the White House Press Secretary

THE WHITE HOUSE

TO THE CONGRESS OF THE UNITED STATES:

Twenty-six years ago, a freshman Congressman, a young fellow, with lots of idealism who was out to change the world, stood before Speaker Sam Rayburn in the well of this House and solemnly swore to the same oath you took yesterday. That is an unforgettable experience, and I congratulate you all.

Two days later, that same freshman sat in the back row as President Truman, all charged up by his single-handed election victory, reported as the Constitution requires on the State of the Union.

When the bipartisan applause stopped, President Truman said:

"I am happy to report to this Eighty-first Congress that the State of the Union is good. Our Nation is better able than ever before to meet the needs of the American people and to give them their fair chance in the pursuit of happiness. It is foremost among the nations of the world in the search for peace."

Today, that freshman Member from Michigan stands where Mr. Truman stood and I must say to you that the State of the Union is not good.

Millions of Americans are out of work. Recession and inflation are eroding the money of millions more. Prices are too high and sales are too slow.

This year's Federal deficit will be about $30 billion; next year's probably $45 billion. The national debt will rise to over $600 billion.

Our plant capacity and productivity are not increasing fast enough. We depend on others for essential energy.

Some people question their government's ability to make the hard decisions and stick with them. They expect Washington politics as usual.

Yet, what President Truman said on January 5, 1949, is even more true in 1975.

We are better able to meet the peoples' needs.

All Americans do have a fairer chance to pursue happiness. Not only are we still the foremost nation in pursuit of peace, but today's prospects of attaining it are infinitely brighter.

There were 59,000,000 Americans employed at the start of 1949. Now there are more than 85,000,000 Americans who have jobs. In comparable dollars, the average income of the American family has doubled during the past 26 years.

Now, I want to speak very bluntly. I've got bad news, and I don't expect any applause. The American people want action and it will take both the Congress and the President to give them what they want. Progress and solutions can be achieved. And they will be achieved.

My message today is not intended to address all the complex needs of America. I will send separate messages making specific recommendations for domestic legislation, such as General Revenue Sharing and the extension of the Voting Rights Act.

The moment has come to move in a new direction. We can do this by fashioning a new partnership between the Congress, the White House and the people we both represent.

Let us mobilize the most powerful and creative industrial nation that ever existed on this earth to put all our people to work. The emphasis of our economic efforts must now shift from inflation to jobs.

To bolster business and industry and to create new jobs, I propose a one-year tax reduction of $16 billion. Three-quarters would go to individuals and one-quarter to promote business investment.

This cash rebate to individuals amounts to 12 percent of 1974 tax payments -- a total cut of $12 billion, with a maximum of $1,000 per return.

I call today on the Congress to act by April 1. If you do, the Treasury can send the first check for half the rebate in May and the second by September.

The other one-fourth of the cut, about $4 billion, will go to businesses, including farms, to promote expansion and create more jobs. The one-year reduction for businesses would be in the form of a liberalized investment tax credit increasing the rate to 12 percent for all businesses.

This tax cut does not include the more fundamental reforms needed in our tax system. But it points us in the right direction -- allowing us as taxpayers rather than the Government to spend our pay.

Cutting taxes, now, is essential if we are to turn the economy around. A tax cut offers the best hope of creating more jobs. Unfortunately, it will increase the size of the budget deficit. Therefore, it is more important than ever that we take steps to control the growth of Federal expenditures.

Part of our trouble is that we have been self-indulgent. For decades, we have been voting ever-increasing levels of Government benefits -- and now the bill has come due. We have been adding so many new programs that the size and growth of the Federal budget has taken on a life of its own.

One characteristic of these programs is that their cost increases automatically every year because the number of people eligible for most of these benefits increases every year. When these programs are enacted, there is no dollar amount set. No one knows what they will cost. All we know is that whatever they cost last year, they will cost more next year.

It is a question of simple arithmetic. Unless we check the excessive growth of Federal expenditures or impose on ourselves matching increases in taxes, we will continue to run huge inflationary deficits in the Federal budget.

If we project the current built-in momentum of Federal spending through the next 15 years, Federal, State, and local government expenditures could easily comprise half of our gross national product. This compares with less than a third in 1975.

I am now in the process of preparing the budget submissions for fiscal year 1976. In that budget, I will propose legislation to restrain the growth of a number of existing programs. I have also concluded that no new spending programs can be initiated this year, except those for energy. Further, I will not hesitate to veto any new spending programs adopted by the Congress.

As an additional step toward putting the Federal government's house in order, I recommend a five percent limit on Federal pay increases in 1975. In all Government programs tied to the consumer price index -- including social security, civil service and military retirement pay, and food stamps -- I also propose a one-year maximum increase of 5 percent.

None of these recommended ceiling limitations, over which the Congress has final authority, are easy to propose, because in most cases they involve anticipated payments to many deserving people. Nonetheless, it must be done. I must emphasize that I am not asking you to eliminate, reduce or freeze these payments. I am merely recommending that we slow down the rate at which these payments increase and these programs grow.

Only a reduction in the growth in spending can keep Federal borrowing down and reduce the damage to the private sector from high interest rates. Only a reduction in spending can make it possible for the Federal Reserve System to avoid an inflationary growth in the money supply and thus restore balance to our economy. A major reduction in the growth of Federal spending can help to dispel the uncertainty that so many feel about our economy, and put us on the way to curing our economic ills.

If we do not act to slow down the rate of increase in Federal spending, the United States Treasury will be legally obligated to spend more than $360 billion in Fiscal Year 1976 -- even if no new programs are enacted. These are not matters of conjecture or prediction, but again of simple arithmetic. The size of these numbers and their implications for our everyday life and the health of our economic system are shocking.

I submitted to the last Congress a list of budget deferrals and recisions. There will be more cuts recommended in the budget I will submit. Even so, the level of outlays for fiscal year 1976 is still much too high. Not only is it too high for this year but the decisions we make now inevitably have a major and growing impact on expenditure levels in future years. This is a fundamental issue we must jointly solve.

The economic disruption we and others are experiencing stems in part from the fact that the world price of petroleum has quadrupled in the last year. But we cannot put all of the blame on the oil-exporting nations. We in the United States are not blameless. Our growing dependence upon foreign sources has been adding to our vulnerability for years and we did nothing to prepare ourselves for an event such as the embargo of 1973.

During the 1960s, this country had a surplus capacity of crude oil, which we were able to make available to our trading partners whenever there was a disruption of supply. This surplus capacity enabled us to influence both supplies and prices of crude oil throughout the world. Our excess capacity neutralized any effort at establishing an effective cartel, and thus the rest of the world was assured of adequate supplies of oil at reasonable prices.

In the 1960s, our surplus capacity vanished and, as a consequence, the latent power of the oil cartel could emerge in full force. Europe and Japan, both heavily dependent on imported oil, now struggle to keep their economies in balance. Even the United States, which is far more self-sufficient than most other industrial countries, has been put under serious pressure.

I am proposing a program which will begin to restore our country's surplus capacity in total energy. In this way, we will be able to assure ourselves reliable and adequate energy and help foster a new world energy stability for other major consuming nations.

But this Nation and, in fact, the world must face the prospect of energy difficulties between now and 1985. This program will impose burdens on all of us with the aim of reducing our consumption of energy and increasing production. Great attention has been paid to considerations of fairness and I can assure you that the burdens will not fall more harshly on those less able to bear them.

I am recommending a plan to make us invulnerable to cut-offs of foreign oil. It will require sacrifices. But it will work.

I have set the following national energy goals to assure that our future is as secure and productive as our past:

-- First, we must reduce oil imports by 1 million barrels per day by the end of this year and by 2 million barrels per day by the end of 1977.

-- Second, we must end vulnerability to economic disruption by foreign suppliers by 1985.

-- Third, we must develop our energy technology and resources so that the United States has the ability to supply a significant share of the energy needs of the Free World by the end of this century.

To attain these objectives, we need immediate action to cut imports. Unfortunately, in the short-term there are only a limited number of actions which can increase domestic supply. I will press for all of them.

I urge quick action on legislation to allow commercial production at the Elk Hills, California, Naval Petroleum Reserve. In order that we make greater use of domestic coal resources, I am submitting amendments to the Energy Supply and Environmental Coordination Act which will greatly increase the number of power plants that can be promptly converted to coal.

Voluntary conservation continues to be essential, but tougher programs are also needed -- and needed now. Therefore, I am using Presidential powers to raise the fee on all imported crude oil and petroleum products. Crude oil fee levels will be increased $1 per barrel on February 1, by $2 per barrel on March 1 and by $3 per barrel on April 1. I will take action to reduce undue hardship on any geographical region. The foregoing are interim administrative actions. They will be rescinded when the necessary legislation is enacted.

To that end, I am requesting the Congress to act within 90 days on a more comprehensive energy tax program. It includes:

-- Excise taxes and import fees totalling $2 per barrel on product imports and on all crude oil.

-- Deregulation of new natural gas and enactment of a natural gas excise tax.

-- Enactment of a windfall profits tax by April 1 to ensure that oil producers do not profit unduly. At the same time I plan to take Presidential initiative to decontrol the price of domestic crude oil on April 1.

The sooner Congress acts, the more effective the oil conservation program will be and the quicker the Federal revenues can be returned to our people.

I am prepared to use Presidential authority to limit imports, as necessary, to assure the success of this program.

I want you to know that before deciding on my energy conservation program, I considered rationing and higher gasoline taxes as alternatives. Neither would achieve the desired results and both would produce unacceptable inequities.

A massive program must be initiated to increase energy supply, cut demand and provide new standby emergency programs to achieve the independence we want by 1985. The largest part of increased oil production must come from new frontier areas on the Outer Continental Shelf and from the Naval Petroleum Reserve No. 4 in Alaska. It is the intention of this Administration to move ahead with exploration, leasing and production on those frontier areas of the Outer Continental Shelf where the environmental risks are acceptable.

Use of our most abundant domestic resource -- coal -- is severely limited. We must strike a reasonable compromise on environmental concerns with coal. I am submitting Clean Air Act amendments which will allow greater coal use without sacrificing our clean air goals.

I vetoed the strip mining legislation passed by the last Congress. With appropriate changes, I will sign a revised version into law.

I am proposing a number of actions to energize our nuclear power program. I will submit legislation to expedite nuclear licensing and the rapid selection of sites.

In recent months, utilities have cancelled or postponed over 60 percent of planned nuclear expansion and 30 percent of planned additions to non-nuclear capacity. Financing problems for that industry are growing worse. I am therefore recommending that the one year investment tax credit of 12 percent be extended an additional two years to specifically speed the construction of power plants that do not use natural gas or oil. I am also submitting proposals for selective changes in State utility commission regulations.

To provide the critical stability for our domestic energy production in the face of world price uncertainty, I will request legislation to authorize and require tariffs, import quotas or price floors to protect our energy prices at levels which will achieve energy independence.

Increasing energy supplies is not enough. We must also take additional steps to cut long-term consumption. I therefore propose:

-- Legislation to make thermal efficiency standards mandatory for all new buildings in the United States. These standards would be set after appropriate consultation with architects, builders and labor.

-- A new tax credit of up to $150 for those home owners who install insulation equipment.

-- The establishment of an energy conservation program to help low income families purchase insulation supplies.

-- Legislation to modify and defer automotive pollution standards for 5 years to enable us to improve new automobile gas mileage 40 percent by 1980.

These proposals and actions, cumulatively, can reduce our dependence on foreign energy supplies to 3-5 million barrels per day by 1985. To make the United States invulnerable to foreign disruption, I propose standby emergency legislation and a strategic storage program of 1 billion barrels of oil for domestic needs and 300 million barrels for defense purposes.

I will ask for the funds needed for energy research and development activities. I have established a goal of 1 million barrels of synthetic fuels and shale oil production per day by 1985 together with an incentive program to achieve it.

I believe in America's capabilities. Within the next ten years, my program envisions:

-- 200 major nuclear power plants,

-- 250 major new coal mines,

-- 150 major coal-fired power plants,

-- 30 major new oil refineries,

-- 20 major new synthetic fuel plants,

-- the drilling of many thousands of new oil wells,

-- the insulation of 18 million homes,

-- and construction of millions of new automobiles, trucks and buses that use much less fuel.

We can do it. In another crisis -- the one in 1942 -- President Franklin D. Roosevelt said this country would build 60,000 aircraft. By 1943, production had reached 125,000 airplanes annually.

If the Congress and the American people will work with me to attain these targets, they will be achieved and surpassed.

From adversity, let us seize opportunity. Revenues of some $30 billion from higher energy taxes designed to encourage conservation must be refunded to the American people in a manner which corrects distortions in our tax system wrought by inflation.

People have been pushed into higher tax brackets by inflation with a consequent reduction in their actual spending power. Business taxes are similarly distorted because inflation exaggerates reported profits resulting in excessive taxes.

Accordingly, I propose that future individual income taxes be reduced by $16.5 billion. This will be done by raising the low income allowance and reducing tax rates. This continuing tax cut will primarily benefit lower and middle income taxpayers.

For example, a typical family of four with a gross income of $5,600 now pays $185 in Federal income taxes. Under this tax cut plan, they would pay nothing. A family of four with a gross income of $12,500 now pays $1,260 in Federal taxes. My plan reduces that by $300. Families grossing $20,000 would receive a reduction of $210.

Those with the very lowest incomes, who can least afford higher costs, must also be compensated. I propose a payment of $80 to every person 18 years of age and older in that category.

State and local governments will receive $2 billion in additional revenue sharing to offset their increased energy costs.

To offset inflationary distortions and to generate more economic activity, the corporate tax rate will be reduced from 48 percent to 42 percent.

Now, let me turn to the international dimension of the present crisis. At no time in our peacetime history has the state of the Nation depended more heavily on the state of the world. And seldom if ever has the state of the world depended more heavily on the state of our Nation.

The economic distress is global. We will not solve it at home unless we help to remedy the profound economic dislocation abroad. World trade and monetary structure provides markets, energy, food and vital raw materials -- for all nations. This international system is now in jeopardy.

This Nation can be proud of significant achievements in recent years in solving problems and crises. The Berlin Agreement, the SALT agreements, our new relationship with China, the unprecedented efforts in the Middle East -- are immensely encouraging. But the world is not free from crisis. In a world of 150 nations, where nuclear technology is proliferating and regional conflicts continue, international security cannot be taken for granted.

So let there be no mistake about it: international cooperation is a vital fact of our lives today. This is not a moment for the American people to turn inward. More than ever before, our own well-being depends on America's determination and leadership in the world.

We are a great Nation -- spiritually, politically, militarily, diplomatically and economically. America's commitment to international security has sustained the safety of allies and friends in many areas -- in the Middle East, in Europe, in Asia. Our turning away would unleash new instabilities and dangers around the globe which would, in turn, threaten our own security.

At the end of World War II, we turned a similar challenge into an historic achievement. An old order was in disarray; political and economic institutions were shattered. In that period, this Nation and its partners built new institutions, new mechanisms of mutual support and cooperation. Today, as then, we face an historic opportunity. If we act, imaginatively and boldly, as we acted then, this period will in retrospect be seen as one of the great creative moments of our history.

The whole world is watching to see how we respond.

A resurgent American economy would do more to restore the confidence of the world in its own future than anything else we can do. The program that this Congress will pass can demonstrate to the world that we have started to put our own house in order. It can show that this Nation is able and willing to help other nations meet the common challenge. It can demonstrate that the United States will fulfill its responsibility as a leader among nations.

At stake is the future of the industrialized democracies, which have perceived their destiny in common and sustained it in common for 30 years.

The developing nations are also at a turning point. The poorest nations see their hopes of feeding their hungry and developing their societies shattered by the economic crisis. The long-term economic future for the producers of raw materials also depends on cooperative solutions.

Our relations with the Communist countries are a basic factor of the world environment. We must seek to build a long-term basis for coexistence. We will stand by our principles and our interests; we will act firmly when challenged. The kind of world we want depends on a broad policy of creating mutual incentives for restraint and for cooperation.

As we move forward to meet our global challenges and opportunities, we must have the tools to do the job.

Our military forces are strong and ready. This military strength deters aggression against our allies, stabilizes our relations with former adversaries and protects our homeland. Fully adequate conventional and strategic forces cost many billions, but these dollars are sound insurance for our safety and a more peaceful world.

Military strength alone is not sufficient. Effective diplomacy is also essential in preventing conflict and building world understanding. The Vladivostok negotiations with the Soviet Union represent a major step in moderating strategic arms competition. My recent discussions with leaders of the Atlantic Community, Japan and South Korea have contributed to our meeting the common challenge.

But we have serious problems before us that require cooperation between the President and the Congress. By the Constitution and tradition, the execution of foreign policy is the responsibility of the President.

In recent years, under the stress of the Vietnam War, legislative restrictions on the President's capability to execute foreign and military decisions have proliferated. As a member of the Congress, I opposed some and approved others. As President, I welcome the advice and cooperation of the House and Senate.

But, if our foreign policy is to be successful we cannot rigidly restrict in legislation the ability of the President to act. The conduct of negotiations is ill suited to such limitations. For my part, I pledge this Administration will act in the closest consultations with the Congress as we face delicate situations and troubled times throughout the globe.

When I became President only five months ago, I promised the last Congress a policy of communication, conciliation, compromise and cooperation. I renew that pledge to the new members of this Congress.

To sum up:

America needs a new direction which I have sought to chart here today -- a change of course which will:

-- put the unemployed back to work;

-- increase real income and production;

-- restrain the growth of government spending;

-- achieve energy independence; and

-- advance the cause of world understanding.

We have the ability. We have the know-how. In partnership with the American people, we will achieve these objectives.

As our 200th anniversary approaches, we owe it to ourselves, and to posterity, to rebuild our political and economic strength. Let us make America, once again, and for centuries more to come, what it has so long been -- a stronghold and beacon-light of liberty for the world.

GERALD R. FORD

THE WHITE HOUSE, 12

January 15, 1975.

# # # #

The President's Energy Program
(including energy taxes and fees)

The President's State of the Union Address outlined the Nation's energy outlook, set forth national energy policy objectives, and described actions he is taking immediately and indicated proposals he is asking the Congress to pass.

BACKGROUND

Over the past two years, progress has been made in conserving energy, expanding energy R&D and improving Federal government energy organization. Despite such accomplishments, we have not succeeded in solving fundamental problems and our National energy situation is critical. Our reliance on foreign sources of petroleum is contributing to both inflationary and recessionary pressures in the United States. World economic stability is threatened and several industrialized nations dependent upon imported oil are facing severe economic disruption.

With respect to the U.S. energy situation:

-- Petroleum is readily available from foreign sources -- but at arbitrarily high prices, causing massive outflow of dollars, and at the risk of increasing our Nation's vulnerability to severe economic disruption should another embargo be imposed.

  - Petroleum imports remain at high levels even at present high prices.

  - Domestic oil production continues to decline as older fields are depleted and new fields are years from production; 8.0 million barrels per day in 1974 compared to 9.2 million in 1973.

  - Total U.S. petroleum consumption is increasing, although at slower rates due to higher prices.

-- Natural gas shortages are forcing curtailment of supplies to many industrial firms and denial of service to new residential customers. (14% expected this winter versus 7% last year.) This is resulting in unemployment, reductions in the production of fertilizer needed to increase food supplies, and increased demand for alternative fuels -- primarily imported oil.

-- Coal production is at about the same level as in the 1930's.

-- Nuclear energy accounts for only 1 percent of total energy supply and new plants are being delayed, postponed or cancelled.

-- Overall energy consumption is beginning to increase again.

-- U.S. vulnerability to economic and social impact from an embargo increases with higher imports and will continue to do so until we reverse current trends, ready standby plans, and increase petroleum storage.

Economic impacts of the four-fold increase in OPEC oil prices include:

-- Heavy outflow of U.S. dollars (and, in effect, jobs) to pay for growing oil imports -- about $24 billion in 1974 compared to $2.7 billion in 1970.

-- Tremendous balance of payments deficits and possible economic collapse for those nations of Europe and Asia that must depend upon expensive imported oil as a primary energy source.

-- Accumulation of billions of dollars of surplus revenues in oil exporting nations -- approximately $60 billion in 1974 alone.

U.S. ENERGY OUTLOOK

I. Near-Term (1975-1977): In the next 2-3 years, there are only a few steps that can be taken to increase domestic energy supply particularly due to the long lead time for new production. Oil imports will thus continue to rise unless demand is curbed.

II. Mid-Term (1975-1985): In the next ten years, there is greater flexibility. A number of actions can be taken to increase domestic supply, convert from foreign oil to domestic coal and nuclear energy, and reduce demand -- if the Nation takes tough actions. Vulnerability to an embargo can be eliminated.

III. Long-Term (Beyond 1985): Emerging energy sources can play a bigger role in supplying U.S. needs -- the results of the Nation's expanded energy research and development program. U.S. independence can be maintained. New technologies are the most significant opportunity for other consuming nations with limited domestic resources.

NATIONAL ENERGY POLICY GOALS AND PRINCIPLES ANNOUNCED BY THE PRESIDENT

I. Near-Term (1975-1977): Reduce oil imports by 1 million barrels per day by the end of 1975 and 2 million barrels by the end of 1977, through immediate actions to reduce energy demand and increase domestic supply.

   (A) With no action, imports would be about 8 million barrels per day by the end of 1977, more than 20 percent above the 1973 pre-embargo levels.

   (B) Acting to meet the 1977 goal will reduce imports below 1973 levels, assuring reduced vulnerability from an embargo and greater consumer nation cooperation.

   (C) More drastic short-term reductions would have unacceptable economic impacts.

II. Mid-Term (1975-1985): Eliminate vulnerability by achieving the capacity for full energy independence by 1985. This means 1985 imports of no more than 3-5 million barrels of oil per day, all of which can be replaced immediately from a strategic storage system and managed with emergency measures.

   (A) With no action, oil imports by 1985 could be reduced to zero at prices of $11 per barrel or more -- or they could go substantially higher if world oil prices are reduced (e.g., at $7 per barrel, U.S. consumption could reach 24 million barrels per day with imports of above 12 million, or above 50% of the total.)

   (B) The U.S. anticipates a reduction in world oil prices over the next several years. Hence, plans and policies must be established to achieve energy independence even at lower prices -- countering the normal tendency to increase imports as the price declines.

(C) Actions to meet the 1985 goal will hold imports to no more than 3-5 million barrels per day even at $7 per barrel prices. Protection against an embargo of the remaining imports can then be handled most economically with storage and standby emergency measures.

III. Long-Term (Beyond 1985): Within this century, the U.S. should strive to develop technology and energy resources to enable it to supply a significant share of the Free World's energy needs.

(A) Other consuming nations have insufficient fossil fuel resources to reach domestic energy self-sufficiency.

(B) The U.S. can again become a world energy supplier and foster world energy price stability -- much the same as the nation did prior to the 1960's when it was a major supplier of world oil.

IV. Principles: Actions to achieve the above national energy goals must be based upon the following principles:

-- Provide energy to the American consumer at the lowest possible cost consistent with our need for secure energy supplies.

-- Make energy decisions consistent with our overall economic goals.

-- Balance environmental goals with energy requirements.

-- Rely upon the private sector and market forces as the most efficient means of achieving the Nation's goals, but act through the government where the private sector is unable to achieve our goals.

-- Seek equity among all our citizens in sharing of benefits and costs of our energy program.

-- Coordinate our energy policies with those of other consuming nations to promote interdependence, as well as independence.

ACTIONS ANNOUNCED TODAY BY THE PRESIDENT

I. ACTIONS ANNOUNCED BY THE PRESIDENT TO MEET NEAR-TERM GOALS (1975-1977)

To meet the national goals, the President outlined a comprehensive program of legislative proposals to the Congress which he requested be enacted within 90 days and administrative actions that he will begin implementing immediately. The legislative package is more effective and equitable than the administrative program, but the President indicated that the seriousness of the situation demanded immediate action. These actions will reduce overall energy demand, increase domestic production, increase conversion to coal, and reduce oil imports. They include:

(A) Administrative Actions

1. Import Fee — Because of the seriousness of the problem and because time is required for Congressional action on his legislative proposals, the President is acting immediately within existing authorities to increase the import fees on crude oil and petroleum products. These new import fees would be modified upon passage of the President's legislative package.

(a) Import fees on crude oil and petroleum products under the authority of the Trade Expansion Act of 1962, as amended, will be increased by $1 effective February 1, 1975, an additional $1 effective March 1, and another $1 effective April 1, for a total increase of $3.00 per barrel. Currently existing fees will also remain in effect.

(b) FEA's "Old Oil Entitlements" program will be utilized to spread price increases on crude among all refiners and to lessen disproportionate regional effects, particularly in the Northeast.

(c) As of February 1975, product imports will cease to be covered by FEA's "Old Oil Entitlements" program. In order to overcome any severe regional impacts that could be caused by large fees in import dependent areas, imported products will receive a rebate corresponding to the benefit which would have been obtained under that program. The rebate should be approximately $1.00 in February, $1.40 in March, and $1.80 per barrel in April.

(d) This import fee program would reduce imports by about 500,000 barrels per day. In April it would generate about $400 million per month in revenues.

2. Backup Import Control Program -- The energy conservation measures and tax proposals will be supplemented by the use of Presidential power to limit oil imports as necessary to achieve the near-term goals.

3. Crude Oil Price Decontrol -- To stimulate production and further cut demand, steps will be taken to remove price controls on domestic crude oil by April 1, 1975, subject to congressional disapproval as provided by §4(g) of the Emergency Petroleum Allocation Act of 1973.

4. Increase Public Education on Energy Conservation -- Energy Resources Council will step up its efforts to provide information on energy conservation methods and benefits.

(B) Legislative Proposals

1. Comprehensive Tax and Decontrol Program -- The President asked the Congress to pass within 90 days a comprehensive legislative package which could lead to reduction of oil imports of 900,000 barrels per day by 1975 and 1.6 million barrels by 1977. Average oil prices would rise about $4.00 per barrel of $.10 per gallon. The package which will raise $30 billion in revenues on an annual basis includes:

(a) Windfall Profits Tax -- A tax on all domestic crude oil to capture the windfall profits resulting from price decontrol. The tax would take 88% of the windfall profits on crude oil and would phase out over several years. The tax would be retroactive to January 1, 1975.

(b) Petroleum Excise Tax and Import Fee -- An excise tax on all domestic crude oil of $2 per barrel and a fee on imported crude oil and product imports of $2 per barrel. The new, administratively established import fee of $3 on crude oil would be reduced to $2.00 and $1.20 fee on products would be increased to $2.00 when the tax is enacted. The product import fee would keep the excise tax from encouraging foreign refining and the related loss of jobs to the U.S.

(c) New Natural Gas Deregulation -- Remove Federal interstate price regulation on new natural gas to increase domestic production and reduce demand for scarce natural gas supplies.

(d) Natural Gas Excise Tax -- An excise tax on natural gas of 37¢ per thousand cubic feet (mcf), which is equivalent on a Btu basis to the $2 per barrel petroleum excise tax and fee. This will discourage attempts to switch to natural gas and acts to reduce natural gas demand curtailments. Since the usual results of gas curtailments is a switch to oil, this will limit the growth of oil imports.

2. Elk Hills Naval Petroleum Reserve. The President is asking the Congress to permit production of the Elk Hills Naval Petroleum Reserve (NPR #1) under Navy control. Production could reach 160,000 barrels per day early in 1975 and 300,000 barrels per day by 1977. The oil produced would be used to top off Defense Department storage tanks, with the remainder sold at auction or exchanged for refined petroleum products used by the Department of Defense. Revenues would be used to finance further exploration, development and production of the Naval petroleum reserves and the strategic petroleum storage.

3. Conversion to the Use of Domestic Coal. The President is asking the Congress to amend the Clean Air Act and the Energy Supply and Environmental Coordination Act of 1974 to permit a vigorous program to make greater use of domestic coal to reduce the need for oil. This program would reduce the need for oil imports by 100,000 barrels per day in 1975 and 300,000 barrels in 1977. These amendments would extend FEA's authority to grant prohibition orders from 1975 to 1977, prohibit powerplants early in the planning process from burning oil and gas, extend FEA enforcement authority from 1978 to 1985, and make clear that coal burning

installations that had originally planned to convert from coal to oil be eligible for compliance date extensions. It would give EPA authority to extend compliance dates and eliminate restrictive regional environmental limitations. A plant could convert as long as its own emissions do not exceed ambient air quality standards.

II. ACTIONS ANNOUNCED BY THE PRESIDENT TO MEET MID-TERM GOALS (1975-1985)

These actions are designed to meet the goal of achieving the capability for energy independence by 1985. The actions include measures to increase domestic energy production (including measures to cope with constraints and strike a balance between environmental and energy objectives), reduce energy demand, and prepare for any future emergency resulting from an embargo.

(A) Supply Actions

1. Naval Petroleum Reserve No. 4 (Legislative proposal) -- The President is asking the Congress to authorize the exploration, development and production of NPR-4 in Alaska to provide petroleum for the domestic economy, with 15-20% earmarked for military needs and strategic storage. The reserves in NPR-4 which are now largely unexplored could provide at least 2 million barrels of oil per day by 1985. Under the legislative proposal:

(a) The President would be authorized to explore, develop and produce NPR-4.

(b) The Government's share of production (approximately 15-20%) would be used to help finance the strategic storage system and to help fulfill military petroleum requirements. Any other receipts go to the United States Treasury as miscellaneous receipts.

2. OCS Leasing (Administrative) -- The President reaffirmed his intention to continue an aggressive Outer Continental Shelf leasing policy, including lease sales in the Atlantic, Pacific, and Gulf of Alaska. Decisions on individual lease sales will await completion of appropriate environmental studies. Increased OCS leasing could add domestic production of 1.5 million barrels of oil and additional supplies of natural gas by 1985. There will be close cooperation with Coastal states in their planning for possible increased local development. Funding for environmental studies and assistance to States for planning has been increased in FY 1975.

3. Reducing Domestic Energy Price Uncertainty (Legislative proposal) -- Legislation will be requested authorizing and requiring the President to use tariffs, import quotas, import price floors, or other measures to achieve domestic energy price levels necessary to reach self-sufficiency goals. This legislation would enable the President to cope with possible large-scale fluctuations in world oil prices.

4. Clean Air Act Amendments (Legislative proposal) -- In addition to the amendments outlined earlier for short-term goals, the President is asking for other Clean Air Act amendments needed for a balance between environmental and energy goals. These include:

   (a) Legislative clarification to resolve problems resulting from court decisions with respect to significant air quality deterioration in areas already meeting health and welfare standards.

   (b) Extension of compliance dates through 1985 to implement a new policy regarding stack gas scrubbers -- to allow use of intermittent control systems in isolated power plants through 1985 and requiring other sources to achieve control as soon as possible.

(c) A pause for 5 years (1977-1981 model years) for nationwide auto emission standards at the current California levels for hydrocarbons (0.9 grams per mile) and carbon monoxide (9 grams per mile), and at 1975 standards (3.1 grams per mile) for oxides of nitrogen (with the exception of California which has adopted the 2.0 standard). These standards for hydrocarbons (HC) and carbon monoxide (CO) are more stringent than now required nationwide for 1976 model year's cars. The change from the levels now required for 1977-1981 model years in the law will have no significant impact on air quality standards, yet they will facilitate attainment of the goal of 40% increase in auto fuel efficiency by the 1980 model year.

(d) EPA will shortly begin comprehensive hearings on emission controls and fuel economy which will provide more detailed data for Congressional consideration.

5. Surface Mining (Legislative proposal) -- The President is asking the Congress to pass a surface mining bill which strikes a balance between our desires for reclamation and environmental protection and our need to increase domestic coal production substantially over the next ten years. The proposed legislation will correct the problems which led to the President's veto of a surface mining bill last year.

6. Coal Leasing (Administrative) -- To assure rapid production from existing leases and to make new, low sulfur coal supplies available, the President directed the Secretary of the Interior to:

(a) Adopt legal diligence requirements to assure timely production from existing leases.

(b) Meet with Western Governors to explore regional questions on economic, environmental and social impacts associated with new Federal coal leases.

(c) Design a program of new coal leasing consistent with timely development and adequate return on public assets, if proper environmental safeguards can be provided.

7. Electric Utilities -- The President is asking the Congress for legislation concerned with utilities. In recent months, 60% of planned nuclear capacity and 30% of non-nuclear capacity additions have been postponed or cancelled by electric utilities. Financing problems are worsening and State utility commission practices have not assured recovery of costs and adequate earnings. The transition from oil and gas-fired plants to coal and nuclear has been slowed greatly -- contributing to pressure for higher oil imports. Actions involve:

(a) Uniform Investment Tax Credit (Legislative) -- an increase in the investment tax credit to eliminate the gap between utilities and other industries -- currently a 4% rate applies to utilities and 7% to others.

(b) Higher Investment Tax Credit (Legislative) -- An increase in investment tax credit for all industry, including utilities, for 1 year -- to 12%. The 12% rate would be retained for two additional years for all power plants except oil and gas-fired facilities.

(c) Preferred Stock Dividend Deductions (Legislative) -- A change in tax laws applicable to all industries, including utilities, which allows deductions of preferred stock dividends for tax purposes to reduce the cost of capital and stimulate equity rather than debt financing.

(d) Mandated Reform of State Utility Commission Processes (Legislative) -- The legislation would selectively reform utility commission practices by: (1) setting a maximum limit of 5 months for rate or service proceedings; (2) requiring fuel adjustment pass-throughs, including taxes, (3) requiring that construction work in progress be included in a utility's rate base; (4) removing any rules prohibiting a utility from charging lower rates for electric power during off-peak hours and (5) allowing the cost of pollution control equipment to be included in the rate base.

(e) Energy Resources Council Study (Administrative) -- Review and report to the President on the entire regulatory process and financial situation relating to electric utilities and determine what further reforms or actions are needed. ERC will consult with State utility commissions, governors, public utilities and consumers.

8. Nuclear Power -- To accelerate the growth of nuclear power which supplies only one percent of our energy needs, the President is proposing, in addition to actions outlined above:

(a) Expedited Licensing and Siting (Legislative) A Nuclear Facility Licensing Act to assure more rapid siting and licensing of nuclear plants.

(b) 1976 Budget Increase (Legislative) -- An increase of $41 million in appropriations for nuclear safety, safeguards, and waste management.

9. Energy Facilities Siting (Legislative) -- Legislation would reduce energy facility siting bottlenecks and assure sites for needed facilities with proper land use considerations:

(a) The legislation would require that states have a comprehensive and coordinated process for expeditious review and approval of energy facility applications; and state authorities which ensure that final State energy facility decisions cannot be nullified by actions of of local governments.

(b) Provision for owners of eligible facilities or citizens to sue States for inaction.

(c) Provide no Federal role in making case by case siting decisions for the States.

(b) Energy Conservation Actions

The President announced a number of energy conservation measures to reduce demand, including:

1. Auto Gasoline Mileage Increases (Administrative) -- The Secretary of Transportation has obtained written agreements with each of the major domestic automobile manufacturers which will yield a 40 percent improvement in fuel efficiency on a weighted

average for all new autos by 1980 model year. These agreements are contingent upon relaxation of Clean Air Act auto emission standards. The agreement provides for interim goals, Federal monitoring and public reporting of progress.

2. Building Thermal Standards (Legislative) -- The President is asking Congress for legislation to establish national mandatory thermal (heating and cooling) efficiency standards for new homes and commercial buildings which would save the equivalent of over one-half million barrels of oil per day by 1985. Under this legislation:

(a) The Secretary of Housing and Urban Development shall consult with engineering, architectural, consumer, labor, industry, and government representatives to advise on development of efficiency standards.

(b) Thermal standards for one and two-family dwellings will be developed and implementation would begin within one year. New minimum performance standards for energy in commercial and residential buildings would be developed and implemented as soon thereafter as practicable.

(c) Standards would be implemented by State and local governments through local building codes.

(d) The President also directed the Secretary of Housing and Urban Development to include energy conservation standards in new mobile home construction and safety standards.

3. Residential Conservation Tax Credit -- The President is asking Congress for legislation to provide incentives to homeowners for making thermal efficiency improvements in existing homes. This measure, along with a stepped-up public information program, could save the equivalent of over 500,000 barrels per day by 1985. Under this legislation:

(a) A 15 percent tax credit retroactive to January 1, 1975 for the cost of certain improvements in thermal efficiency in residences would be provided. Tax credits would apply to the first $1,000 of expenditures and can be claimed during the next three years.

(b) Improvements such as storm windows, and insulation, would qualify for the tax credit.

4. Low-Income Energy Conservation Program (Legislative) -- The President is proposing legislation to establish a Low-Income Energy Conservation Program to offer direct subsidies to low-income and elderly homeowners for certain energy conservation improvements such as insulation. The program is modeled upon a successful pilot program in Maine.

   (a) The program would be administered by FEA, under new legislation, and the President is requesting supplemental appropriations in 1975 and $55 million in fiscal year 1976.

   (b) Acting through the States, Federal funds would be provided to purchase materials. Volunteers or community groups could install the materials.

5. Appliance Efficiency Standards (Administrative) -- The President directed the Energy Resources Council to develop energy efficiency goals for major appliances and to obtain agreements within six months from the major manufacturers of these appliances to comply with the goals. The goal is a 20% average improvement by 1980 for all major appliances, including air conditioners, refrigerators and other home appliances. Achievement of these goals would save the equivalent of over one-half million barrels of oil per day by 1985. If agreement cannot be reached, the President will submit legislation to establish mandatory appliance efficiency standards.

6. Appliance and Auto Efficiency Labelling Act (Legislative) -- The President will ask the Congress to enact a mandatory labelling bill to require that energy efficiency labels be placed on new appliances and autos.

(C) Emergency Preparedness

The President announced that comprehensive energy emergency legislation will be proposed, encompassing two major components.

1. Strategic Petroleum Storage (Legislative) -- Development of an energy storage system of one billion barrels for domestic use and 300 million barrels for military use. The legislation will

authorize the government to purchase and prepare the storage facilities (salt domes or steel tanks), while complex institutional questions are resolved and before oil for storage is actually purchased. FEA will develop the overall program in cooperation with the Department of the Interior and the Department of Defense. All engineering, planning, and environmental studies would be completed within one year. The 1.3 billion barrels will not be complete for some years, since time is required to purchase, prepare, and fill the facilities.

2. Standby and Planning Authorities (Legislative) -- The President is requesting a set of emergency standby authorities to be used to deal with any significant future energy shortages. These authorities would also enable the United States to fully implement the agreement on an International Energy Program between the United States and other nations signed on November 18, 1974. This legislation would include the authority to:

   (a) Implement energy conservation plans to reduce demand for energy;

   (b) allocate petroleum products and establish price controls for allocated products;

   (c) ration fuels among end users;

   (d) allocate materials needed for energy production where such materials may be in short supply;

   (e) increase production of domestic oil; and

   (f) regulate petroleum inventories.

III. ACTIONS ANNOUNCED BY THE PRESIDENT TO MEET LONG-TERM GOALS (BEYOND 1985)

The expanded research and development program on which the nation is embarked will provide the basis for increasing domestic energy supplies and maintaining energy independence. It will also make it possible in the long run for the U.S. to export energy supplies and technology to others in the free world. Important elements are:

(A) Synthetic Fuels Program (Administrative) -- The President announced a National Synthetic Fuels Commercialization Program to ensure at least one million barrels per day equivalent of synthetic fuels capacity by 1985, using technologies now nearing commercial application.

1. Synthetic fuel types to be considered will include synthetic crude from oil shale and a wide range of clean solid, liquid, and gaseous fuels derived from coal.

2. The Program would entail Federal incentives (possibly including price guarantees, purchase agreements, capital subsidies, leasing programs, etc.), granted competitively, and would be aimed at the production of selected types of gaseous and liquid fuels from both coal and oil shale.

3. The program will rely on existing legislative authorities, including those contained in the Federal Non-Nuclear Energy Research and Development Act of 1974, but new legislative authorities will be requested if necessary.

(B) Energy Research and Development Program -- In the current fiscal year, the Federal Government has greatly increased its funding for energy research and development programs. These Federal programs are a part of a much larger national energy R & D effort and are carried out in cooperation with industry, colleges and universities and others. The President stated that his 1976 Budget will continue to emphasize these accelerated programs which include research and the development of technology for energy conservation and on all forms of energy including fossil fuels, nuclear fission and fusion, solar and geothermal.

(C) Energy Research and Development Administration -- (ERDA) The President has signed an Executive Order which activates, effective January 19, 1975, the Energy Research and Development Administration. ERDA will bring together in a single agency the major Federal energy R & D programs which will have the responsibility for leading the national effort to develop technology to assure that the U.S. will have an ample and secure supply of energy at reasonable prices. ERDA consolidates major R & D functions previously handled by the AEC, Department of the Interior, National Science Foundation and Environmental Protection Agency. ERDA will also continue the basic research, nuclear materials production and weapons programs of the AEC.

IMPACTS OF NEAR AND MID-TERM
ACTIONS ON PETROLEUM CONSUMPTION AND IMPORTS

NEAR TERM PROGRAM
(MMB/D)

	1975	1977
CONSUMPTION IF NO NEW ACTIONS	18.0	18.3
IMPORTS IF NO NEW ACTIONS	6.5	8.0
		IMPORT SAVINGS
Less Service Savings by Short-term Actions:	1975	1977
Production from Elk Hills	0.2	0.3
Coal Conversion	0.1	0.3
Tax Package	0.9	1.6
TOTAL IMPORT SAVINGS	1.2	2.2
REMAINING IMPORTS	5.3	5.8

MID-TERM PROGRAM

CONSUMPTION IF NO NEW ACTIONS	23.9 MMB/D	
IMPORTS IF NO NEW ACTIONS	12.7 MMB/D	
Less Savings Achieved by Following Actions:	1985 IMPACT ON IMPORTS	
OCS Leasing	1.5	
NPR-4 Development	2.0	
Coal Conversion	0.4	
Synthetic Fuel Commercialization	0.3	
Auto Efficiency Standards	1.0	
Continuation of Taxes	2.1	
Appliance Efficiency Goals	0.1	
Insulation Tax Credit	0.3	
Thermal Standards	0.3	
Total Import Savings by Actions		8.0
Remaining Imports		4.7
Less:		
Emergency Storage	3.0	
Standby Authorities	1.7	
NET IMPORT VULNERABILITY		0

INTERNATIONAL ENERGY POLICY AND FINANCING ARRANGEMENTS

BACKGROUND

The cartel created by the Organization of Petroleum Exporting Countries (OPEC) has successfully increased their governments' price for exports of oil from approximately $2 per barrel in mid 1973 to $10 per barrel today. Even after paying for their own increased imports, OPEC nations will report a surplus of over $60 billion in 1974, which must be invested. Oil price increases have created serious problems for the world economy. Inflation pressures have been intensified. Domestic economies have been disrupted. Consuming nations have been reluctant to borrow to finance their oil purchases because of current balance of payments risks and the burden of future interest costs and the repayment of massive debts. International economic relations have been distorted by the large flows of capital and uncertainties about the future.

U.S. POSITION

The United States believes that the increased price of oil is the major international economic problem and has proposed a comprehensive program for reducing the current exorbitant price. Oil importing nations must cooperate to reduce consumption and accelerate the development of new sources of energy in order to create the economic conditions for a lower oil price. However, until the price of oil does decline, international stability must be protected by financing facilities to assure oil importing nations that financing will be available on reasonable terms to pay for their oil imports. The United States is active in developing these financing programs. Once a cooperative program for energy conservation and resource development and the interim financing arrangements are agreed upon, it will be possible to have constructive meetings with the oil producers.

ACTIONS TAKEN BY OIL CONSUMING NATIONS

The oil consuming nations have already created the International Energy Agency to coordinate conservation and resource development programs and policies for reacting to any future interruption of oil exports by producing nations. The four major elements of this cooperative program are:

An emergency sharing arrangement to immediately reduce member vulnerability to actual or threatened embargoes by producers

A long-term cooperative program to reduce member nation dependence on imported oil,

A comprehensive information system designed to improve our knowledge about the world oil market and to provide a basis for consultations among members and individual companies; and

A framework for coordinating relations with producing nations and other less developed consuming countries.

The International Energy Agency has been established as an autonomous organization under the OECD. It is open to all OECD nations willing and able to meet the obligations created by the program. This international agreement establishes a number of conservation and energy resources development goals but each member is left free to determine what domestic measures to use in achieving the targets. This flexibility enables the United States to coordinate our national and international energy goals.

OTHER U.S. ACTIONS AND PROPOSALS

The United States has also supported programs for protecting international stability against distorting financial flows created by the sudden increase of oil prices. Although the massive surplus of export earnings accumulated by the producing nations will have to be invested in the oil consuming nations, it is unlikely that these investments will be distributed so as to match exactly the financing needs of individual importing nations. Fortunately the existing complex of private and official financial institutions has, in the case of the industrialized countries, been effective in redistributing the massive oil export earnings to date. However, there is concern that some individual industrialized nations may not be able to continue to obtain needed funds at reasonable interest rates and terms during the transition period until supplies are increased, conservation efforts reduce oil imports and the price of oil declines. Therefore, the United States has supported various proposals for "reshuffling" the recycled funds among oil consuming nations, including:

Modification of International Monetary Fund (IMF) rules to permit more extensive use of existing IMF resources without further delay

Creation of a financial solidarity facility as a 'safety net' for participating OECD countries that are prepared to cooperate in an effort to increase conservation and energy resource development actions to create pressure to reduce the present price of oil

Establishment of a special trust fund managed by the IMF which would extend balance of payments assistance to the most seriously affected developing nations on a concessional basis not now possible under IMF rules. The United States hopes that oil exporting nations might contribute a major share of the trust fund and that additional resources might be provided through the sale of a small portion of the IMF's gold holdings in which the differential between the original cost of the gold and the current market price would be added to the trust fund, and

An increase in IMF quotas which would make more resources available in 1976.

These proposals will be discussed at ministerial level meetings of the Group of Ten, the IMF Interim Committee and the International Monetary Fund/International Bank for Reconstruction and Development Committee in Washington, D.C. January 14 to 17.

In these meetings, the United States will continue to press its views concerning the fundamental importance of international cooperation to achieve necessary conservation and energy resources development goals as a basis for protecting our national security and underlying economic strength.

OUTLINE OF ENERGY
QUESTIONS AND ANSWERS

BACKGROUND

- Data History and Forecasts

NEAR-TERM ACTIONS

- Import Fee, Tax and Decontrol
- Naval Petroleum Reserve

MID-TERM PROGRAM

- Outer Continental Shelf Production
- Domestic Price Uncertainty
- Clean Air Act Amendments
- Strip Mining Legislation
- Coal Leasing and Prices
- Electric Utilities
- Energy Facility Siting
- Energy Conservation

EMERGENCY PLANNING MEASURES

- Emergency Storage
- Standby Authority

LONG-TERM ACTIONS

- Research and Development

ECONOMIC IMPACT

INTERNATIONAL

GENERAL

BACKGROUND

DATA HISTORY AND FORECASTS

Q. Has demand for petroleum products increased since the embargo?

A. Domestic consumption of energy is now beginning to increase again and is estimated to keep growing, although at a slower rate than prior to the embargo. The latest figures show total domestic demand to be at 18.2 million barrels per day (MMB/D) as compared to 17.7 MMB/D at the close of 1973. Gasoline consumption dropped 3.4 percent during the first 9 months of 1974 (as compared to 1973), but has increased since September bu about 300,000 barrels per day.

Q. What about production and import levels?

A. Domestic oil procuction continues to decline as older fields have reached their peak. During the first eleven months of 1974, domestic production averaged 8.8 MMB/D as compared to 9.2 MMB/D in 1973. As a result, imports continue to rise even with present high prices. We are now importing 7.3 MMB/D (average of 6.8 MMB/D in last quarter of 1974), as compared to 6.5 MMB/D in October, 1973, the month prior to the embargo.

Q. What about coal production?

A. Coal (approximately 20 percent of domestic energy production) was the only major energy source that showed increased output during the first three quarters of 1974. Coal production in October was 5 percent above its level for the same period in 1973. However, the strike in November interrupted coal output and the industry has not yet regained former production levels.

Q. Do you foresee any shortages in the next 6 months?

A. We do not expect shortages of petroleum products but we do project large shortages for natural gas, as high as 14%. The greatest impact will be felt by electric utilities and industries that receive natural gas on an interruptible contract basis. These curtailments of natural gas have already had a serious impact on employment.

Q. How high are current inventories?

A. FEA figures indicate that December, 1974 crude oil stocks were about 20 million barrels higher (this is an adjusted figure to account for disparities between the American Petroleum Institute and FEA reporting methods) than the same period of 1973. Similarly, stocks for refined petroleum products were higher in December 1974 than the corresponding month in 1973 due to reduced demand and increased imports. Coal stocks, however, are down as a result of the recent UMW strike.

NEAR-TERM ACTIONS

IMPORT FEE, TAX AND DECONTROL

Q. Will the fee on imports create additional profits for the oil companies?

A. No, the import fee, by itself, will not increase industry profits. However, the fee will place an upward pressure on the price for crude. Since the price for uncontrolled domestic crude will rise to meet the world price, industry profits will also rise. This is why we are calling for a windfall profits tax as part of the energy proposals. It will be retroactive to collect any profits caused by Administrative actions.

Q. Won't certain areas of the country which are heavily dependent on crude oil or product imports suffer a disproportionate burden as a result of the tariff?

A. No. The FEA is currently administering a program which substantially equalizes the cost of crude oil to all domestic refiners. This crude equalization program aids refiners with high crude costs at the expense of other refiners which have access to price-controlled domestic crude. Further, the product fees will be less than crude fees; there will be a $3 fee on crude and a $1.20 fee on refined products in April.

Q. How does a tax or fee achieve our national energy goals?

A. As a result of these measures, petroleum products will become more expensive relative to other goods and services, thereby encouraging conservation and discouraging consumption. Also, making imports more expensive than domestic supplies of petroleum encourages the production of domestic crude oil.

Q. Will the fee help to lower world crude prices and protect us from another embargo?

A. The fee program will help to reduce our imports of foreign oil by reducing our overall demand. As a result, we will have less demand for products from some OPEC nations. To this extent, it may affect some prices being charged by certain OPEC nations. But overall, the fee will have a minimal effect on lowering world crude prices in the immediate future.

Q. Why didn't you tighten the mandatory allocation program which you already have authority to administer rather than raising prices? Why not rationing?

A. The mandatory allocation program was designed in response to an emergency situation, and does not address the more basic economic issues. A tighter mandatory allocation program could necessitate a significant increase in the Federal bureaucracy and could mean a return to the long gasoline lines we experienced last winter. Additionally, rationing and price control programs are inevitably discriminatory against those who would enter the market and provide competition.

While the Administration's program, which relies on the market forces, is more effective, the President announced his intention to guarantee reaching the goals by using his authority to limit imports if necessary.

Q. How much more expensive will gasoline and other products be?

A. On the average, if costs of a crude import $3 fee are spread evenly among all products, prices of gasoline and other petroleum products refined from the higher priced imported crude could rise as much as 5 cents per gallon (controlled domestic oil will stay at the same price).

The total tax package and decontrol would ultimately add about $4 a barrel (10 cents per gallon) to the average costs of all products.

Q. What are the limits to the President's power to institute a fee?

A. The President may impose a fee in response to a national security finding and should be established at that amount sufficient to offset the threat to national security.

Q. What additional actions are you asking from Congress?

A. In conjunction with the establishment of the fee, we are asking Congress for an excise tax on domestic crude oil (and will maintain a fee on all imports), the decontrol of old crude oil, deregulation of new natural gas, windfall profits tax, and a natural gas excise tax.

Q. What are the differences between a tax, a fee and a tariff?

A. All three are charges which can be used to produce revenue and all three have the effect of reducing demand. The differences lie in the source of authority to levy the charge. A tax must be levied by Congress for the purpose of raising domestic revenue. A tariff is a charge against imports and must also be authorized by the Congress. A fee is also levied on imported material but may be set for non-revenue purposes and need not be legislated.

Q. How much oil will the combined tax/fee program save?

A. The overall tax-package will save an estimated 1.6 MMB/D in 1977 and about 1.0 MMB/D in 1975.

Q. Will there be rationing?

A. No, not unless another emergency embargo situation necessitates it.

Q. Why not?

A. Rationing will not solve our long-term problems and will create severe energy disruptions in life-styles and would require a large bureaucracy to administer.

Q. Wouldn't it be better to reduce demand by imposing import quotas instead of raising prices through a fee?

A. No, it would not. Import quotas can cause disparities in the marketplace by mandating specific, allowable levels of products into the country. By raising prices via a fee, the individual consumer can determine in what areas to conserve. While we are not considering the use of import quotas at this time, we will submit legislation requesting the authority to use tariffs, import quotas or other measures to achieve energy price levels necessary to reach our goals. The Message stated that Presidential power to limit oil imports would be used if necessary.

Q. What is the effect of decontrolling domestic old oil?

A. Prices on the domestic market will rise to meet world oil prices, and oil industry profits will also rise. This is why we must have immediate enactment of a windfall profits tax - to preclude this from happening.

Q. Why are you requesting the deregulation of natural gas prices?

A. I want to let the free market work to the maximum extent possible. The deregulation of natural gas prices will greatly encourage higher production levels in the long run. As you know, we are currently faced with a natural gas shortage of 14 percent for this winter. In the short run, higher prices will serve to lessen demand and will therefore mitigate the severity of this projected shortage.

Q. Isn't the ultimate effect of this action going to be increased prices to the consumer?

A. Yes, this will be the effect. We estimate that the typical monthly natural gas bill to the consumer would increase by about $8 by 1985. The alternative to deregulation is less natural gas and higher costs for other fuels, such as petroleum and electricity.

Q. How much will natural gas prices rise in the next few years?

A. We estimate that, as a result of deregulation, the average natural gas prices will rise from 31¢/mcf in the interstate market in 1974, to 35¢/mcf in 1975; 38¢/mcf in 1976; and 41¢/mcf in 1977. The average national natural gas price will be higher, because intrastate gas is not controlled.

The estimated market clearing price for natural gas is 99¢/mcf, and would be reached by 1985.

Q. Why are you placing an excise tax on domestic natural gas?

A. The excise tax on natural gas will approximate the excise tax and import fees on oil on a Btu equivalency basis. It will also inhibit preference for natural gas over oil. This tax will reduce the curtailment problem and lessen negative employment effects.

Q. How much will the production of old oil be stimulated by price decontrol?

A. We estimate that price decontrol could result in an additional 1-2 MMB/D of crude oil production in the next 3-4 years.

Q. What are the advantages of an import fee over a gasoline tax?

A. An import fee covers all crude and product imports and spreads the effects of demand reduction more evenly than a gas tax. The gasoline tax would have to be very large to save an equivalent amount of oil -- at least 30¢ per gallon -- and it would severely affect the already depressed automobile industry and numerous related industries.

Q. Why doesn't the Administration provide priority treatment in domestic production of crude oil relative to the levying of tariffs and excise taxes? For example, the fee on imported crude could be $2.00 per barrel, whereas, the domestic excise tax would be at $1.50. Won't such action encourage domestic exploration as a result of an additional financial incentive?

A. The immediate import fees will raise the prices of imports relative to domestic production. In the long-run, and at the margin, decontrolled domestic crude would rise to the same selling price as foreign crude, and any differential in taxes would probably only result in additional profits. Further, decontrol of old oil and higher prices should provide sufficient incentives to produce.

NAVAL PETROLEUM RESERVES

Q. What is your specific proposal with regard to the Naval Petroleum Reserves?

A. There are two proposals involved. We have asked Congress to permit production of the Elk Hills, California, Naval Petroleum Reserve (NPR-1) under Navy control and are submitting legislation to the Congress to authorize the exploration, development and production of NPR-4 in Alaska. The oil produced from NPR-1 would be used to top off all Defense Department storage tanks with the remainder to be sold at auction or exchanged for refined petroleum products used by the Department of Defense. The production from NPR-4 would provide petroleum for the domestic economy as well as for defense needs.

Q. Who will have Government authority for developing NPR #1?

A. I have asked the Congress to permit production of the Elk Hills Naval Petroleum Reserve under Navy control.

Q. How quickly can NPR-1 and NPR-4 be brought onstream?

A. NPR-1 can produce 160,000 barrels per day within a few months and 300,000 barrels per day by 1977. NPR-4 will take longer to produce as exploration and development must first take place.

Q. Can we use the Trans-Alaska Pipeline to move NPR-4 oil?

A. No. North Slope oil production will fill the capacity of the Trans-Alaska Pipeline and thus new transportation facilities will be needed for NPR-4.

Q. What is the time frame and cost involved in retrieving oil and gas from NPR-4 in Alaska?

A. The development of NPR-4 will require several years and production is not expected before 1982 at the earliest. The cost would be more than $400 million if exploration is done by the Government. If any part of NPR-4 is leased commercially, revenues could more than offset costs. It is estimated that about two million barrels per day can be produced in NPR-4.

MID-TERM PROGRAM

OUTER CONTINENTAL SHELF PRODUCTION

Q. How do you know there are sufficient quantities of oil and gas in the Outer Continental Shelf to make its development worthwhile?

A. We don't know for sure that there are sufficient quantities for development although geological formations indicate that there may be. We are reaffirming our intention to continue an aggressive exploration and development policy.

Q. What will be done to insure that the environmental impacts of oil and gas development in the OCS and other frontier areas will be kept to safe levels?

A. We already have an extensive body of law designed to protect these areas from unacceptable levels of environmental damage and a whole new level of technology (environmental monitoring protection) has been developed in response to these new laws. In the field of oil and gas development technical procedures and equipment are now in use designed to prevent oil spills and to minimize and control them once they occur. In addition the development of environmental baselines and the requirement to monitor the sites under development insures that any adverse effects will be detected early to allow proper and effective counteraction.

The Council on Environmental Quality conducted an extensive study of oil and gas exploration in the offshore areas of the U.S. and concluded that with proper safeguards, these areas can be safely developed. The Department of the Interior has now adopted literally all of the recommendations of the CEQ report.

In addition, new funds are being requested for coastal zone management to investigate and develop further the additional safeguards needed to protect our environment. Of course, before any leasing of frontier areas is done, there will be extensive public hearings and environmental impact statements to advise the public of the safeguards being taken.

DOMESTIC PRICE UNCERTAINTY

Q. How would you determine when our vulnerability to pressure from oil exporting countries is high enough to make a price floor or other measure desirable?

A. Our vulnerability becomes unacceptable when our expected level of imports could not be completely replaced by emergency storage and standby actions. If the price of imported oil declines considerably, demand for oil would increase and import levels would get much higher.

Q. What is the difference between a quota and a price floor on imports?

A. A quota is designed to restrict the actual amount of imports into the country while a price floor sets a minimum price for imports so that domestic fuels will remain economically competitive with foreign sources.

Q. Wouldn't price floors maintain oil prices you have claimed are exorbitant?

A. We would have no intention of setting a floor price at current world oil price levels ($11-12 per barrel). Rather, price floors could conceivably be set at a significantly lower level and still keep traditional domestic sources economic.

CLEAN AIR ACT AMENDMENTS

Q. Will the Clean Fuels Deficit be eliminated by your proposed energy actions?

A. Yes. The Clean Fuels Deficit is a term used to describe the potential shortage of low sulfur coal needed to meet emission limitations in 1975 and beyond. This shortage of low sulfur coal was at one point estimated to be as high as 200 million tons by mid-1975. The alternatives to these actions would be to curtail coal burning, thereby curtailing electric energy generation, or to import low sulfur oil to fill the low sulfur-coal gaps, thereby increasing our oil imports. The actions I propose include voluntary revision of State emission limitations, implementation of supplementary control systems and extensions of compliance deadlines to eliminate this problem.

Q. By relaxing auto emission requirements, aren't you letting the auto industry off the hook and at the same time lowering the quality of our air?

A. No. We are actually moving to a tougher standard than now in force. I would like to emphasize that compliance with the legislative standards will still be required and cleaner air will thus be achieved. The interim standards set carbon monoxide and hydrocarbon emissions at the current California levels (9.0 grams and .9 grams per mile respectively) and NO_x emissions at 3.1 grams per mile for all States except California, where 2.0 grams per mile will still be required. Thus, the quality of our air will not be significantly impaired nor will we be retreating to the uncontrolled emission levels allowed before the passage of the Clean Air Act.

The proposal to extend the time required to comply with the original 1977 auto emission standards is based on the need to balance fuel conservation with the Clean Air Act requirements; simply proceeding with the present schedule for emission controls would have involved the additional consumption of 1 1/2 to 5 1/2 billion gallons of gasoline per year by 1980. By extending the time required to comply with the final emission limitations we achieve fuel conservation in the form of a 40 percent fuel efficiency improvement.

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Q. What are your plans for stack gas scrubbers?

A. Certainly some types of scrubbers have not reached the level of effectiveness that other designs have reached. However, scrubbers will play an important role in our future expanded use of coal. By 1985, we expect that all plants which need scrubbers will have them.

Q. Won't the Clean Air Act (CAA) and the Energy Supply and Environmental Coordination Act (ESECA) Amendments which you are proposing mean a retreat from our present efforts to clean the nation's air?

A. No, it will not. There will be a delay in achieving certain standards but the commitment remains firm.

The purpose of these proposed amendments is to facilitate the use of coal thereby reducing our dependence on imported oil and to resolve the clean fuels shortage created by the unavailability of low sulfur coal and stack gas scrubbers. In no way are they intended to trade off our environmental needs for some quick energy solutions.

Q. How will your plan to convert electric utilities from oil to coal affect air quality?

A. There may be an absolute increase in air pollution as a result of converting from oil to coal but the burning of coal itself will not adversely affect air quality since all coal conversion candidates will have to develop plans for complying with primary air quality standards. These plans must be approved by the Environmental Protection Agency before conversion orders may be placed in effect. In certain instances, an oil burning facility required to convert to coal may have difficulty obtaining the necessary low sulfur coal or pollution control equipment. Such facilities will not be converted unless they can comply with ambient air quality standards which protect health.

It has been reported that the delays you propose in auto emission requirements represent a deal with Detroit to gain your 40% fuel efficiency goal -- is this true?

No, there is no deal involved. But this action is a recognition of the technical limitations that now exist in trying to meet both the auto emission requirements as they presently exist and the 40% increased fuel efficiency goal. By allowing for the delay we are providing for a more gradual and less disruptive development of emission control equipment while at the same time achieving a 40% increase in fuel efficiency.

STRIP MINING LEGISLATION

Q. How will your proposed strip mining bill differ from the proposed bill which Congress developed and you vetoed?

A. On December 30, 1974, I gave my objections to the strip mining bill proposed by Congress. The Congressional bill would have resulted in a reduction in coal production, and also contained too many vague and unclear requirements that could have led to an extensive litigation between the Federal Government and various private interest groups. The bill I will propose will be similar in many respects to the bill developed by Congress but amended to minimize these objections.

COAL LEASING AND PRICES

Q. Why do we need increased coal leasing in the United States?

A. In order for the nation to meet the goals I have announced, we must act quickly to remove constraints and provide new incentives for domestic production. We must focus our production capability on coal as it is our most abundant domestic resource. The Federal Government owns over 200 billion tons of coal reserves, but only 6 billion tons are currently scheduled to support production by 1980. Thus, we should move ahead to design a new program of coal leasing and should speed up production from these leases, providing the environmental impact of these actions is acceptable.

Q. What was the effect of the United Mine Workers strike on coal prices?

A. Coal prices rose substantially on the spot market in anticipation of and during the UMW strike. The cost of the new UMW contract will add approximately $2-3 to the price of a ton of coal in 3 years. Other factors continue to exert upward pressure on coal prices, the most notable of which is the return to the use of less expensive coal in place of higher priced oil by electric utilities.

Q. Even though the reserves are there, can the coal industry produce as much coal as we need in the short term?

A. If we eliminate the uncertainties surrounding coal production, we can substantially close the gap between coal supply and demand. The program I have outlined addresses all these uncertainties (stripmining legislation, coal leasing, Clean Air Act implementation, oil import policy, natural gas pricing policy and electricity demand) and should serve to assure an increased production of coal. We may not, however, be able to assure that coal production meets our demands in the very near future due to the current high oil prices and the shortage of natural gas which heightens coal use. Increased coal production is also constrained by manpower and equipment shortages in the short term.

ELECTRIC UTILITIES

Q. What legislative changes are you proposing for electric utility rate structures?

A. The legislation we are proposing will require state regulatory authorities to permit the utilities under their jurisdiction to generate sufficient revenues to cover costs during a period of rapid inflation and heavy capital expansion requirements.

Three of the provisions, including the cost of construction work in progress in the rate base mandating fuel adjustment pass-throughs, and setting a 5 month maximum processing time for regulatory hearings, would require all authorities to adopt procedures that are now being used in many jurisdictions.

The off-peak pricing proposal would prevent authorities from limiting electric utilities in their efforts to increase revenues by selling more power during slack demand periods.

Q. You said you would take further actions to aid electric utilities if necessary. What actions do you anticipate?

A. At this time, more than 60 percent of all planned nuclear plants have been delayed or cancelled. The Energy Resources Council will be working with the utilities and, if warranted, we will propose additional measures to get these plants going again.

Q. Many of these proposals will lead to increases in utility rates. How large will these increases be?

A. The inclusion of Construction Work in Progress in the rate base would add about 11 percent a year to prices and the limitation on rate decision delay would add about 5 percent next year, and probably less thereafter. The other proposals would add 1 to 2 percent to rates. In all, for the first full year in which the charges would take effect, the additional increase would be almost 20 percent.

Q. Why are you proposing rate increases in a time of double-digit inflation?

A. The increases in cost of electricity must be paid either directly by consumers, or indirectly through Government subsidy. Direct increases will cut back demand and reduce the overall increase required. A Government subsidy, on the other hand, means that everybody pays, whether they use more or less. Therefore, price increases for electricity will assure that those who use more, pay more.

Q. I'm using less electricity but paying more. Why?

A. Under last year's unusual circumstances (unprecedented oil price increases) the average per unit cost of electricity to industry rose 55 percent and 20 percent to residential consumers. This increase was so large that it offset most efforts to cut consumption. Rates should not increase as fast this year.

Q. Isn't the electric utility industry already making record profits?

A. Profits did increase through 1973. However, in 1974, they began to decline. For the first three quarters of 1974, aggregate profits for the utility industry declined by about 7 percent from those of the equivalent period of 1973. The critical issue, however, is that investor-owned electric utilities are now earning less than three times their total interest charges. A number of utilities are only barely meeting statutory requirements for interest coverage.

Q. How do you intend to monitor what electric utilities pay for fuel to make sure they are trying to be as cost-conscious as possible?

A. Our proposal calls for the appropriate local regulatory authority to allow a justified fuel pass-through. It will continue to be the function of that authority to oversee these regulations.

Q. If investor-owned utilities are unable to remain solvent without Federal intervention, why aren't you proposing public ownership at the State/municipal level or nationalization?

A. Public ownership as a solution implies that such ownership can solve the problem more cheaply. However, there is no consensus that publicly owned power is cheaper than privately owned power in the United States, except to the extent that it receives subsidization through cheaper capital and lower taxes. Such subsidy would tend to stimulate consumption relative to private ownership, and would be more expensive in the long run.

Q. Aren't you suggesting an infringement of states' rights? Isn't this unconstitutional?

A. While regulation of utility rates has traditionally been under State jurisdiction, the interest of the country as a whole is at stake. Specifically, the Interstate Commerce Clause gives the Federal Government the authority to regulate activities that affect interstate commerce - and it has been determined that consumption of electricity does affect interstate commerce. Most of these proposals are not new and already exist in many states. What we propose will establish uniformity across the nation resulting in more equitable treatment of all public utilities.

ENERGY FACILITY SITING

Q. What will the role of the States be in energy facility siting?

A. Under the proposed facilities siting legislation, States will be required to develop and submit comprehensive management plans to the FEA for the siting and construction of needed energy facilities within their boundaries. Each management plan will have to be approved by the FEA before State implementation may begin.

Q. What if FEA does not approve a plan?

A. If a State fails to formulate an acceptable plan, the FEA Administrator may promulgate an energy facility management program for the State to administer.

Q. Can a State veto an FEA promulgated plan?

A. No.

Q. Will the bill authorize FEA to overturn a State decision on a particular site application?

A. No. If a State fails to comply with the plans requirements in a particular case, the applicant may seek relief in the courts.

ENERGY CONSERVATION

Q. Are the specific conservation measures you've proposed tough enough to provide the petroleum demand reduction necessary to achieve the import goal in 1977?

A. Yes, they are. We are setting a goal to reduce imports by 2 MMB/D by the end of 1977. The savings from increased taxes and import fees amounts to 1.6 MMB/D while coal conversion will bring an 0.3 MMB/D oil saving. The development of Elk Hills Naval Petroleum Reserve will allow us to cut another 0.3 MMB/D from our import needs and additional conservation programs (public information, auto efficiency standards, thermal standards, voluntary appliance standards) will save even more.

Q. Why do we need long term conservation measures if, according to the Project Independence Report, accelerated development of our supplies alone will lead us to energy independence in 1985 if oil prices stay at $11 per barrel?

A. We need long term conservation goals specifically because we do not expect that the future price of world oil will be $11 and we do not want prices that high. Since the world price may drop considerably below $11 per barrel, we must make sure that the resulting increased demand will not increase our imports. We also need to stop using energy wastefully and to preserve our limited oil resources as much as possible.

Q. Will the conservation program you proposed result in attainment of the goal of one million barrels per day savings in imports for 1975 that you established in your energy message to Congress in October, 1974?

A. Yes. If it is all carried out -- higher prices resulting from the tariff and excise taxes, combined with the comparatively smaller immediate effects of specific conservation measures, such as the expanded conservation education program, the development of the Elk Hills Naval Petroleum Reserve, and coal conversion should provide us with at least one million barrels per day savings in projected imports by the fourth quarter of 1975.

However, attainment of this very near term goal is not enough. Our attention must turn to the far tougher goals of reducing our vulnerability to foreign supply curtailments through 1977, and eliminating it by 1985.

Q. If energy efficiency improvements in the home effectively reduce fuel costs, why is a tax credit needed for thermal improvements?

A. More and more Americans are highly mobile and do not remain in the same house for long periods of time. Because of this factor, and because it may take a few years to make thermal insulation pay off economically, a tax credit will encourage homeowners to insulate now regardless of how long they reside in the same house.

Secondly, because the economics of insulation do not pay off quickly, homeowners will have to pay higher first costs. In this period of recession many will find it difficult to pay higher first costs and a tax credit will help.

Q. Has the 55 m.p.h. speed limit been effective?

A. Yes. Lower speed limits are directly attributable to lower death rates on our highways and is a factor in reduced gasoline consumption. As you know, the President just signed into law a bill making the 55 m.p.h. speed limit a national mandatory limit for interstate highways and urges all State Governors to vigorously enforce this limit.

Q. What steps are you taking to assure that conservation goals are met by industry?

A. Members of the Administration have been meeting with industrial leaders on a regular basis to work out programs of industrial conservation. We are receiving commitments from these industries to conserve more energy and I am confident that industry is prepared to conserve as much as possible. If savings are not achieved by voluntary means, however, mandatory measures will be considered.

Q. Will the mandatory thermal standards delay recovery for the construction industry anticipated during the second half of 1975?

A. Since the mandatory thermal standards proposed will take six months to formulate, and subsequently will be implemented in a phased program over three years, this conservation action should have no impact on the recovery of construction expected during 1975.

Q. Why did you decide against mandatory appliance standards?

A. As in the case of automobile efficiency standards, before the Government should intervene in the marketplace, industry should be provided an opportunity to demonstrate that it can act responsibly and responsively to the higher value on energy. For this reason, we have allowed a short period for industry to voluntarily institute measures to increase energy efficiency in appliances and have asked the Energy Resources Council to work with industry to establish the voluntary standards.

Q. Why haven't you initiated any new public transportation programs?

A. We are already doing a number of things to stimulate use of mass transit, including a rapid increase in funds for its development. Additional actions have not been taken because they would only result in small additional savings of energy.

Q. Do you think your total energy program places as much emphasis on conservation as it does on resource development?

A. Yes. The program being proposed is a tough mandatory energy conservation program and relies heavily on conservation to reduce imports in the short-term.

EMERGENCY PLANNING MEASURES

EMERGENCY STORAGE

Q. What kind of specific authority are you requesting with regard to emergency storage?

A. We are requesting authority to create and maintain a strategic reserve capacity of more than 1 billion barrels of petroleum and petroleum products and the authority to determine under what circumstances and to what extent those reserves should be used during emergency situations. This is sufficient to provide 3 million barrels of oil per day for a full year.

Q. What is the benefit of a storage program to safeguard against an embargo if it won't be operational until 1980?

A. While it is true that a storage program won't be fully operational before 1980, it will provide some protection between now and then as stocks are gradually accumulated. Further, we will need the protection provided by a storage program after 1980, as the nation will continue to be dependent upon foreign imports to meet some portion of its energy needs. During this interim period, we will continue our efforts toward stringent conservation by all consuming nations.

Q. How will the program be financed and will the ownership be public or private?

A. We have not firmly established yet how the program will be financed or who will own the storage facilities. These questions will be fully explored later in the planning and engineering stage.

Q. What products will be stored - crude as well as refined products?

A. We currently anticipate that we will store predominantly crude oil, although there will probably be some storage of petroleum products, mainly for the needs of the Northeastern part of our country. The specific amounts of each type of storage will be determined in the planning stages.

Q. Why would oil be stored in salt domes located in the Gulf Coast, when other regions are heavily import dependent?

A. Suitable salt domes provide inexpensive storage facilities and are located near crude oil distribution centers, refineries, and transportation facilities. Thus, during an embargo, oil stored in salt domes will be readily available to all sections of the country at equitable cost.

Q. How will the military be provided for in the event of another embargo?

A. Of the 1.3 billion barrels of petroleum emergency storage capacity, 300 million barrels will be reserved for national defense needs in case of an emergency.

Q. Won't petroleum for storage have to be purchased from high priced foreign oil?

A. No. We will not purchase significant quantities of oil for at least a couple of years, at which time prices may have broken. In addition, our strategic reserves will be partially filled from domestic sources.

Q. Will we store all the oil in salt domes, or will some be stored in conventional tanks?

A. The type of storage facility, location and the mix of crude oil and product to be stored will be determined in a report to Congress one year after enactment of the Strategic Reserve Bill. However, preliminary studies indicate that crude oil will comprise the majority of the reserve and will be stored in salt domes, although there will probably be selected product storage in steel tanks.

STANDBY AUTHORITY

Q. What kind of standby authority are you asking for?

A. The main features of the proposed legislation to deal with emergency situations are:

- to allocate and control the price of domestic oil;
- to ration end use of energy directly if necessary;
- to implement energy conservation programs;
- to increase domestic oil production and allocate supplies of critical materials.
- to regulate and control petroleum inventories.

This legislation will also contain authority for the U.S. to comply with the International Energy Program requiring international sharing of oil in times of emergency.

Q. Why are you asking Congress for standby energy emergency authorities?

A. In an emergency situation, such as an embargo, the President should have the authority to act quickly and effectively to minimize the impact on this country. Furthermore, standby conservation authority is one of the requirements of the International Energy Plan. I must emphasize, however, that this is "standby" authority to be activated only in a time of crisis.

LONG-TERM ACTIONS

RESEARCH AND DEVELOPMENT

Q. What are you doing about solar energy development?

A. Federal funding for solar energy R&D has climbed from approximately $3 million in FY 1972 to approximately $50 million in FY 1975. The recently enacted Solar Heating and Cooling Demonstration Act of 1974 provides an additional $60 million over five years for developing and demonstrating solar heating and cooling technology. Planning is well underway to implement this program. The Solar Research and Development Act which was also just recently enacted authorizes another $75 million in FY 1976 for solar energy R&D. The Administration is continuing to review the requirements of the program to determine the appropriate level of funding that can be usefully spent over the next five years to develop solar energy technology.

Q. What are your specific proposals with regard to increasing nuclear R&D?

A. Nuclear energy holds great promise in satisfying our energy demand. Unfortunately, it now accounts for only 1% of our energy needs due to technical problems, construction delays, and other bottlenecks which have slowed its progress. We are markedly increasing the budget appropriation for nuclear waste disposal and for continued improvements in safeguards.

Q. Will your Synthetic Fuels Commercialization Program encourage oil shale development at the expense of the environment?

A. No. The program could lessen environmental impacts if we can learn to commercialize cleaner types of production, such as in-situ processing of oil shale. In addition, one of the important purposes of this program will be to investigate and determine the environmental problems associated with synthetic fuels development and to identify the solutions.

Only when we have developed commercially useable technologies which are environmentally acceptable will we proceed to the final step of full commercial implementation.

Q. Many environmentalists are concerned about the development and use of the nuclear breeder reactor -- what is the Administration's position on this issue?

A. We have continued support of an expanded R&D program for breeder reactors and will spend over $500 million in FY 76 to answer some of these questions.

All projections indicate that nuclear power will become an increasingly important source of electric power generation. However, for such growth to occur, nuclear fuel will need to be readily available, for our supply of economically available domestic nuclear fuel is limited. Thus, we must supplement this domestic supply by developing other supply sources.

The breeder reactor is one such supply source. Other sources of nuclear fuel and other methods for nuclear power generation are also being investigated.

Q. What role will ERDA play in achieving these goals?

A. ERDA's mission is to develop ways of using solar energy, geothermal energy, nuclear power, coal gasification and other new or undeveloped energy sources and will play a major role in achieving our long-term goals.

ECONOMIC IMPACT

ECONOMIC IMPACT

Q. What impact will be made on the Federal budget by those programs proposed within the energy message?

A. There will be very small budget impacts in FY 75. In FY 76 these programs could increase Federal obligations by 100-200 million dollars, mostly for conservation and facility siting programs, but of course those are more than offset by the revenues raised by the conservation tax measures.

The emergency storage program will be financed from a special fund which will utilize revenues from Naval Petroleum Reserve production.

Q. The Administration expects prices of energy and energy-intensive goods to rise, and plans to offset the impact by reducing income taxes. Won't this affect individuals and income groups differently? Will low-income households tend to be affected more? How does the Administration plan to assist low-income households?

A. Individuals and income groups will be affected differently by these proposals. What we can do and are doing is to provide a level of tax relief that will stimulate the entire economy for the benefit of all citizens. These tax cuts proposed by the Administration will provide relief to low-income households. In addition a rebate of $80 per adult will be provided to individuals whose incomes are so low that they do not pay taxes.

Q. What are the long run and short run effects of the President's program on the regional costs of energy?

A. While there will be some significant fuel price increases in the Northeast, the uneven regional effects will be dealt with through the existing cost equalization program and lower product import fees. In the longer term, regional effects will be handled by decontrolling the price of crude oil and thus eliminating any petroleum price differentials.

Q. What will the effects of the program be on the economy in terms of inflation and recession?

A. This program contains the balancing elements essential to meet the problems inherent in the existing economic environment. It will reduce our balance of payments, increase domestic resource development, and encourage recognition of the need for energy conservation and the fact that energy is no longer abundant. This program will produce higher prices in the short run which will result in a one-time increase in inflation, but will prepare us for dealing with future energy disruptions which could be devastating to our economy.

Q. How much will all your programs increase the average family's bills in a year?

A. This program is estimated to increase the average middle-income family's energy budget by about $250 in 1975.

Q. What will be the effect of this program on the dollar outflow for oil?

A. The United States spent $2.7 billion on petroleum imports in 1970. This dollar outflow rose to $23.6 billion in 1974. If no new actions are initiated, we estimate the petroleum revenue outflow to reach $32.1 billion in 1977 and $32.4 billion in 1985. With this program, we estimate outflows to be $21.3 billion in 1977 and $12.0 billion in 1985.

INTERNATIONAL

Q. How do you expect the OPEC producing countries to react to your energy program?

A. Most of the OPEC governments have urged on several occasions that the U. S. and other consumer countries adopt policies to encourage conservation and more rational energy use. Many of them have also suggested that the industrial countries accelerate the development of alternative energy sources to reduce demands on their non-renewable petroleum reserves. We believe these features of the President's program will be viewed favorably by the producing countries as well as by other importing countries.

Q. Will we get any North Sea oil? Mexican oil?

A. While the United States will strive to achieve energy independence, we will still have to import some oil and will try to import from relatively secure sources. We will pursue negotiations with Mexico and with North Sea oil producers to add imports from these areas.

Q. Regarding Canada's decision to phase out exporting crude to the U.S., what effect will this have on the U.S., particularly on the Upper Midwest supply and demand situation?

A. Domestic refiners in the upper Midwest will be obliged to obtain their crude oil from alternate sources. This will probably require the construction or expansion of pipeline capacity. Marketers in this region may be able to obtain refined products from Canada should a crude shortfall develop in the interim. Demand will be unaffected unless a severe product shortage arises, with its attendant gasoline lines and other inconveniences. Careful planning and timing should enable the change in supply patterns to take place with a minimum of disruptions in product availability or price.

GENERAL

Q. Do you believe that the National Environmental Policy Act (NEPA) is a hindrance to the development of domestic energy production?

A. No, I do not. NEPA was promulgated to insure that environmental concerns were considered in Government decision making. Because of this new, major consideration, decision making will in many instances take more time and require more detailed review than was required in the past. However, this process should ensure that the energy projects selected will maintain the quality of the environment.

Q. What would be the projected profit picture for the oil industry this year if a windfall profits tax were enacted? If one were not enacted?

A. Either way, we estimate that profits will be relatively constant this year. If we maintain price controls but do not enact a windfall profits tax, we can expect industry profits to remain stable. If we decontrol old oil and enact a tax, we can expect a small decrease in profits from last year's levels.

Q. What are you going to do about getting New England to build refineries?

A. The Administration intends to encourage refinery construction in all areas of the country and particularly in those in which there is a significant refining deficit. In New England, for example, it would be beneficial to have refining capability now and particularly if Atlantic OCS production begins. Refineries in that area could offset New England's extensive reliance on product imports and could create jobs.

Q. Why do we say that independence and self-sufficiency can now be attained in 1985 rather than 1980 as was earlier announced by President Nixon?

A. After a thorough review of potential domestic supply and demand for all fuels, on a regional basis, we have concluded that independence by 1980 cannot be attained. The lead-times for exploring and producing oil from new sources and for constructing new facilities is too great to expand domestic supply sufficiently.

Q. How can you propose great increases in resource development when it is a fact that there are acute shortages of materials and equipment throughout the economy?

A. At present, many categories of steel products, plate and tubular goods are in short supply. There is little that can be done to accelerate supply in the next 2-3 years and that is why this program concentrates on reducing demand. Within the 1975-1985 time period, however, new capacity will come on-stream and the problem will be eased.

Q. In compiling your energy message, whose statistical data did you rely on -- industry or government?

A. Ours. One of the real achievements in the last year was growth in the capability of the Federal government to provide its own energy data. The analyses in this program were developed by the government using its own reporting systems and analytical tools.

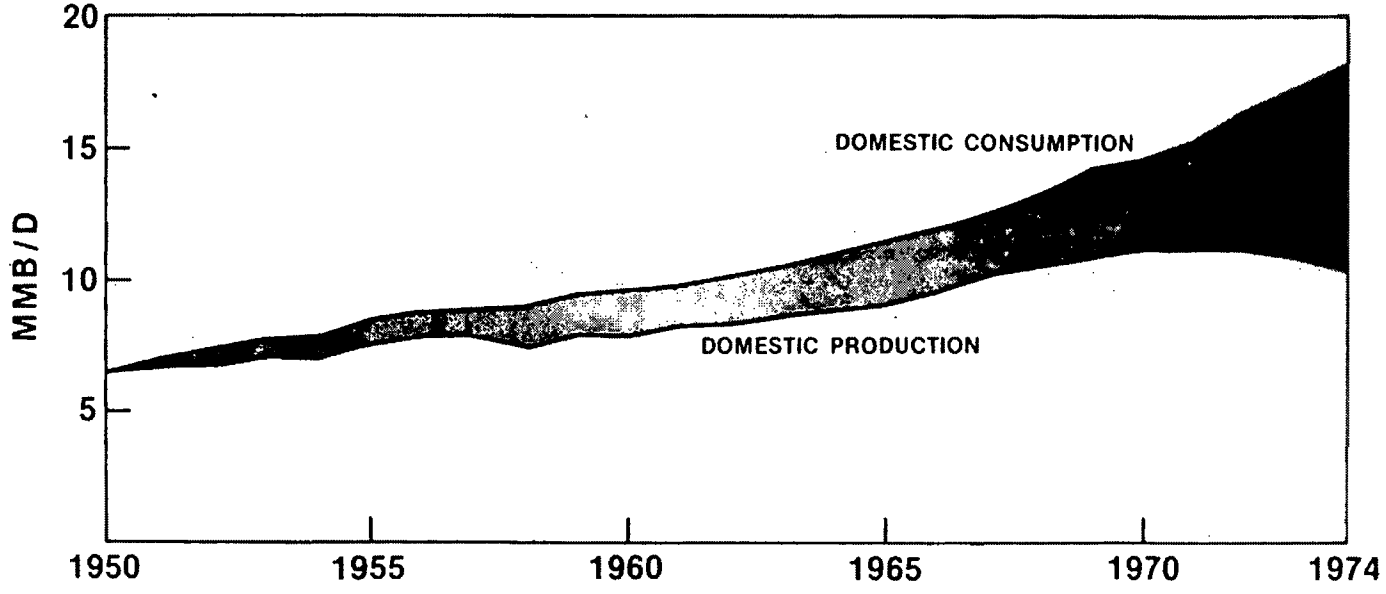
Q. What can the public do to contribute to the success of your program?

A. I am hoping that all Americans will support this program in every way possible. The most significant contribution the average consumer can make is in the area of energy conser ation -- by installing thermally efficient insulation in their homes, by lowering thermostats, by driving 55 MPH and by driving less. The greatest contributions will come when we all learn how to conserve which is why I have requested an increase of $4 million in the government's public information program. We will try to explain the rationale and effects of this program to all Americans in the next several weeks.

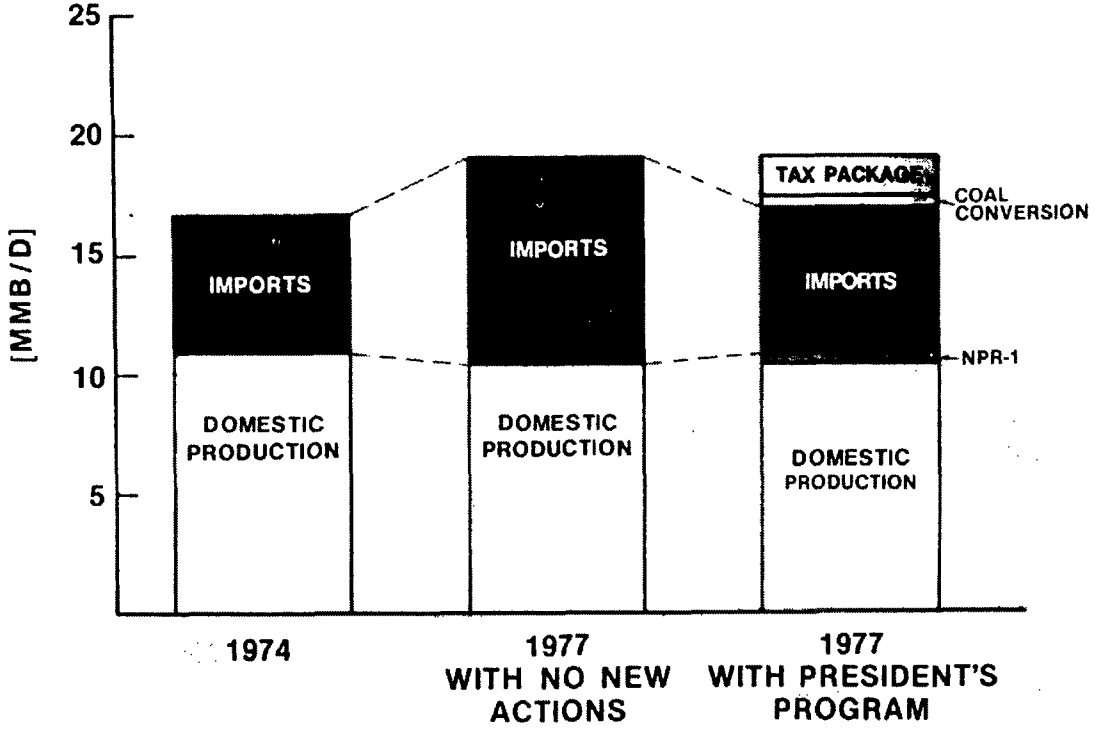
Q. What is the effect of the Trans Alaska Pipeline on domestic supply plans and will it help the situation? Are there any plans to speed up construction? What about a second pipeline?

A. The Trans Alaska Pipeline will supply more than 2 MMB/D of domestic crude production, almost 20 percent above current production levels. To assure rapid completion of the pipeline, the Administration has already given priority to its requirements of equipment and materials. A second pipeline could be constructed later if necessary.

PETROLEUM TRENDS



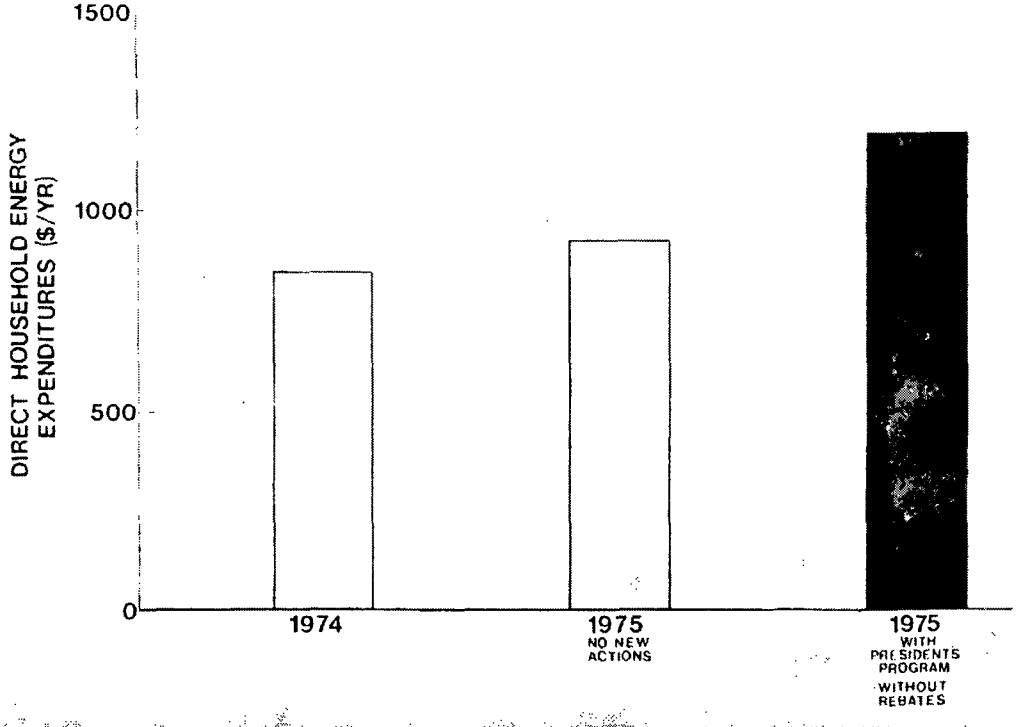
THE PRESIDENT'S SHORT-TERM PROGRAM



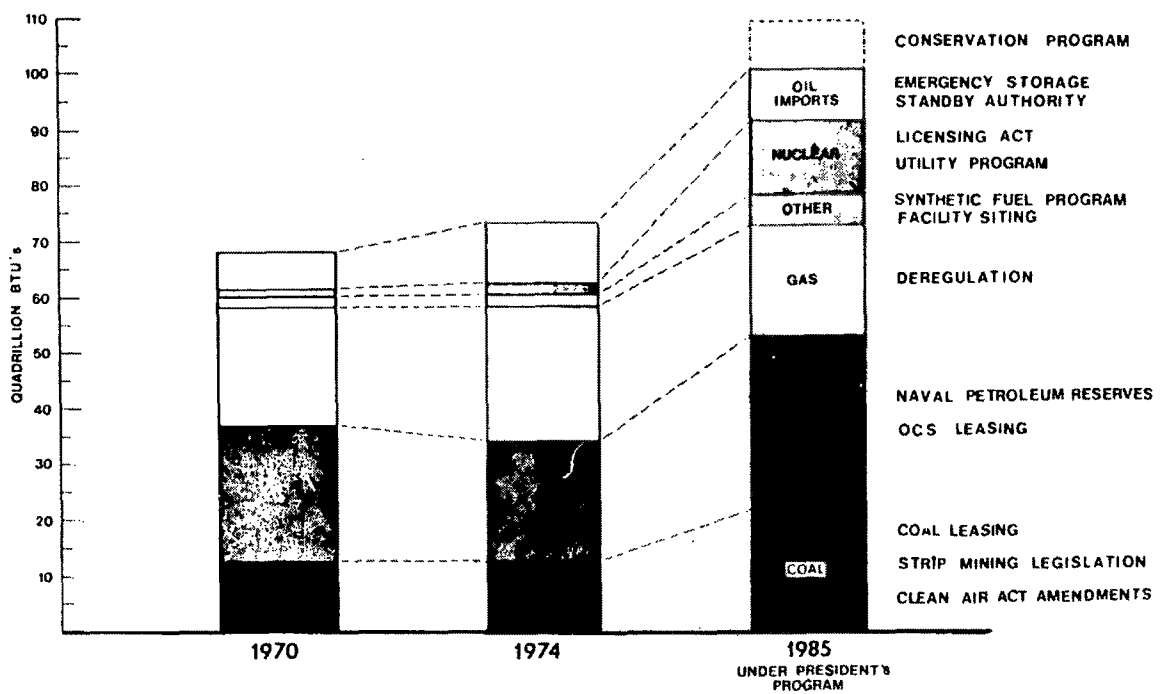
IMPACTS OF SHORT-TERM PROGRAM

	1975 [MMB/D]	1977 [MMB/D]
CONSUMPTION IF NO NEW ACTIONS	18.0	18.3
IMPORTS IF NO NEW ACTIONS	6.5	8.0
	IMPORT SAVINGS	
LESS SAVINGS BY SHORT-TERM ACTIONS:	1975 [MMB/D]	1977 [MMB/D]
PRODUCTION FROM ELK HILLS	0.2	0.3
COAL CONVERSION	0.1	0.3
TAX PACKAGE	0.9	1.6
TOTAL IMPORT SAVINGS	1.2	2.2
REMAINING IMPORTS	5.3	5.8

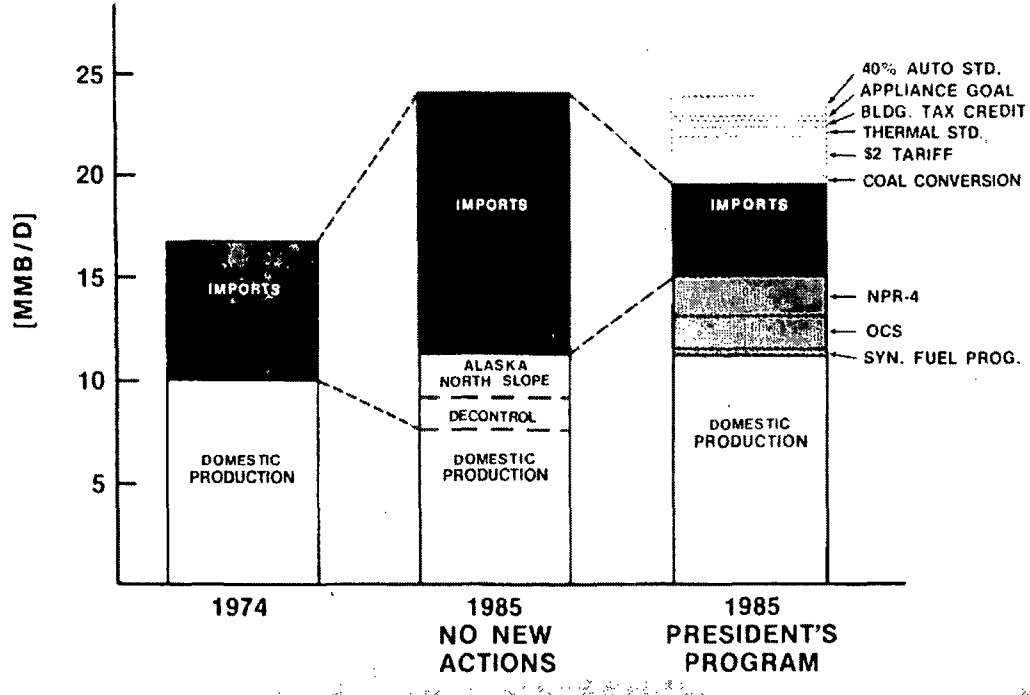
PRICE EFFECTS OF PROGRAM



ACTIONS TO BECOME INDEPENDENT



IMPACT OF THE PRESIDENT'S PROGRAMS ON PETROLEUM IMPORTS



EFFECTS OF MID-TERM PROGRAM (1985)

DEMAND WITH NO NEW ACTIONS	23.9 MMB/D
IMPORTS WITH NO NEW ACTIONS	12.7 MMB/D

LESS SAVINGS ACHIEVED BY FOLLOWING ACTIONS:		1985 IMPACT ON IMPORTS (MMB/D)
OCS LEASING		1.5
NPR-4 DEVELOPMENT		2.0
COAL CONVERSION		0.4
SYNTHETIC FUEL COMMERCIALIZATION		0.3
AUTO EFFICIENCY STANDARDS		1.0
CONTINUATION OF TAXES		2.1
APPLIANCE EFFICIENCY GOALS		0.1
INSULATION TAX CREDIT		0.3
THERMAL STANDARDS		0.3
TOTAL IMPORT SAVINGS BY ACTIONS	8.0	
REMAINING IMPORTS		4.7
LESS:		
EMERGENCY STORAGE		3.0
STANDBY AUTHORITIES		1.7
NET IMPORT VULNERABILITY	0	

STATEMENT OF THE PRESIDENT ON SIGNING EXECUTIVE ORDER TO ACTIVATE THE ERDA AND THE NRC

JANUARY 15, 1975

I have today signed an Executive Order which activates on January 19, 1975, the Energy Research and Development Administration (ERDA) and the Nuclear Regulatory Commission (NRC).

The activation of these two new agencies has special meaning for me. The proposal to create them was submitted to the Congress in June, 1973. As a member of the House of Representatives at the time, I gave strong support to their creation and cast my vote for the legislation in December, 1973. As Vice President, I followed closely the progress of the bill through the Senate. I was gratified to sign the bill into law on October 11, 1974. I am now pleased to sign the order which activates the two agencies.

Both agencies will play significant roles in our national energy programs, thereby influencing the lives of all our people.

The Nuclear Regulatory Commission will carry out the licensing and regulatory functions formerly assigned the Atomic Energy Commission. Commercial nuclear power will have an increasingly important role in our nation's energy supply in the years ahead. This new Commission will devote its full attention to assuring the safety as well as the reliability of this critically important source of energy. The creation of the NRC should end the concern that some have expressed about the past when one agency, the Atomic Energy Commission, was assigned the responsibility for both the technological development and the regulation of civilian nuclear power.

The Energy Research and Development Administration will bring together in a single agency the major Federal energy research and development programs, and bear the responsibility for leading the national effort to develop the needed technology to assure that the United States will have ample and secure supplies of energy at reasonable prices. ERDA will work with private industry, colleges and universities, and others to develop and put into effective use technology that will conserve energy and increase the supply of energy from all sources, including fossil, nuclear fission and fusion, solar and geothermal. ERDA consolidates major research and development functions previously handled by the AEC, Department of the Interior, National Science Foundation and Environmental Protection Agency. ERDA also will continue the basic research nuclear materials production and weapons programs of the AEC.

With the addition of these two agencies, we will have organized the major elements of the Federal Government that are needed to lead the national energy effort. They will play a critical role in carrying

out the energy policy which I announced today. In the years ahead, I expect to have as much pride in the r development and success as I have in their creation.

Executive Order

January 15, 1975

Activation of the Energy Research and Development Administration and the Nuclear Regulatory Commission

By virtue of the authority vested in me by the Energy Reorganization Act of 1974 (Public Law 93–438; 88 Stat. 1233), Section 301 of title 3 of the United States Code, and as President of the United States of America, it is hereby ordered:

Section 1. Pursuant to Section 312(a) of the Energy Reorganization Act of 1974 I hereby prescribe January 19, 1975, as the effective date of that Act. This action shall not impair in any way the activation of the Energy Resources Council by Executive Order No. 11814 of October 11, 1974.

Sec. 2. The Director of the Office of Management and Budget shall take all steps necessary or appropriate to ensure or effectuate the transfers provided for in the Energy Reorganization Act of 1974, the Solar Heating and Cooling Demonstration Act of 1974 (Public Law 93–409; 88 Stat. 1069), the Geothermal Energy Research, Development, and Demonstration Act of 1974 (Public Law 93–410; 88 Stat. 1079), the Solar Energy Research, Development, and Demonstration Act of 1974 (Public Law 93–473; 88 Stat. 1431), to the extent required or permitted by law, including transfers of funds, personnel and positions, assets, liabilities, contracts, property, records, and other items related to the transfer of functions, programs, or authorities.

Sec. 3. As required by the Energy Reorganization Act of 1974, this Order shall be published in the *Federal Register*.

Gerald R. Ford.

The White House, *January 15, 1975*

STATEMENT

JANUARY 21, 1975

Before we go into the questions, I would like to take a moment to briefly review with you several critical energy issues.

The energy decisions I announced as a part of my State of the Union Address resulted from the most comprehensive review this Nation has ever made of its energy problems.

This study demonstrated that there are only three basic alternatives. The first is to do essentially what we have been doing. I have rejected this because, if we follow that policy, we will be importing 25 percent more oil by 1977. By 1985, we will be dependent on foreign sources for more than half of our oil. This would subject the economy of the United States to very serious disruption if these supplies were once again curtailed. The embargo of 1973 occurred during a period when a little more than one-third of our oil came from foreign sources. The disruptions we suffered then were just a small taste of what would likely happen in the event of another embargo when we would be far more vulnerable.

Some have suggested rationing as the second alternative. I can understand why many in Congress, and elsewhere, are attempting to find a solution which does not entail sacrifice and hardship. But there is no easy solution. I never promised one.

I believe that those who propose rationing do not have a clear understanding of what their plan would entail for the American people.

Many of us, of course, remember rationing during World War II, and I have no doubt that this Nation is capable of sustaining a rationing program during a short emergency. However, to really curb demand, we would have to embark on a long-range rationing program of more than five years. Those favoring rationing must be thinking of a short-term program, not a serious long-term effort to end energy dependency.

Further, there is simply no way to reach our goals by rationing. Rationing provides no stimulus to increase domestic petroleum supply or accelerate alternative energy sources. By concentrating exclusively on gasoline rationing many other areas for energy conservation are overlooked.

In addition to being ineffective, gas rationing is inequitable. Even a rationing system that is designed with the best motives in mind and implemented by the most conscientious administrators would not be fair. If you were to go around the country and ask individuals what they should get under a "fair" rationing system, you would find that

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there would simply not be enough gasoline to go around. In fact, to reach our 1975 goal of reducing oil imports by one million barrels per day, a gas rationing system would limit each driver to an average of less than 9 gallons a week.

Inequities would be everywhere—how would people in remote areas of the country get enough gas to drive into town? How would farmers get enough gas to harvest their crops? What would happen to people who must drive a long way to work? And who would make those decisions?

It is essential that we recognize the size of the problem which we are attempting to solve. As a consequence, we must evaluate each energy program to see whether, in fact, it confronts—and solves—the problem. It does us little good to impose rationing or a gasoline tax or simply shutdown gas stations on Sunday. These will not give us energy independence. The alternative I have chosen relies on freedom of individual choice, giving people and businesses an incentive to save energy. That is the only way to achieve our energy goals. The need for action now is clear.

Therefore, later this week I will sign a Presidential Proclamation which will set in motion the most important and far reaching every conservation program in our Nation's history. It is the first step toward regaining our energy freedom.

We must reverse our increasing dependency on imported oil. It seriously threatens our national security and the very existence of our freedom and leadership in the free world.

The Proclamation is designed to impose higher fees on imported oil which are equitable and fair. For example, it will contain special provisions to avoid undue hardships on certain regions of the country—such as the Northeast—which are heavily dependent upon high-cost foreign oil. On Thursday, I will meet with the governors of the northeast states on their special problems.

However, it is absolutely critical that Congress act quickly if we are to achieve energy independence. The increased revenues which the government will collect from energy taxes must be returned to consumers and businesses through my proposed tax cut. To insure speedy enactment of the program, I will work with Congress.

I will not sit by and watch this Nation continue to talk about an energy crisis and do nothing or take half-way measures which will not change the direction that has put our Nation in this position. We have the resources in this country, the technological capability and the spirit to regain our energy independence.

I will use all of my powers as President to make certain that we succeed.

GERALD R. FORD.

THE WHITE HOUSE, *January 21, 1975.*

REMARKS OF THE PRESIDENT UPON SIGNING A PROCLAMATION ON OIL IMPORT TARIFFS

JANUARY 22, 1975

In my state of the Union address, I set forth the Nation's energy goals to assure that our future is as secure and productive as our past. This proclamation that I am about to sign is the first step down the long and difficult road toward regaining our energy freedom.

The proclamation will gradually impose higher fees on imported oil, and this will result in substantial energy conservation by the United States. As we begin to achieve our near-term conservation goals, the Nation will once again be going in the right direction, which is away from energy dependence.

Each day that passes without strong and tough action, which this proclamation is, results in a further drain on our national wealth and on the job it creates for the American people. Each day without action means that our economy becomes more and more vulnerable to serious disruption.

Each day without action increases the threat to our national security and welfare. This proclamation which is just as fair and equitable as the law permits us, must now be followed by positive Congressional action.

The Nation needs a fully comprehensive and long-range energy program, one that increases domestic energy supplies and encourages lasting conservation. To reach our national goals, we need the help of each American, and especially their representatives in the Congress.

I look forward to vigorous debate and serious Congressional hearings on our comprehensive energy plan. The crucial point is that this proclamation moves us in the right direction while we work to enact the energy legislation.

The tactics of delay and proposals which would allow our dependency and vulnerability to increase will not be tolerated by the American people, nor should they be. The new energy-saving fees put us on the right path.

There are problems ahead. There will be hardships. Let us get on with the job of solving this serious energy problem.

Thank you very much.

GERALD R. FORD.

THE WHITE HOUSE, *January 22, 1975*

REMARKS OF THE PRESIDENT UPON VETOING H.R. 1767

MARCH 4, 1975

In mid-January I said this country needed an immediate Federal income tax cut to reverse the current recession and create more jobs. I went to the Congress with a specific program of legislative action against recession, inflation and energy dependence.

I asked Congress to act by April 1. I used the authority Congress had given the President to apply additional import fees on most foreign oil.

I did this for two reasons: First, it is an immediate step toward energy conservation, the only step taken so far to slow the inflow of foreign oil and the outflow of American dollars; and secondly, to prompt the Congress to action on energy independence.

The Congress responded initially by saying it needed more time. It pushed through this act to take away Presidential authority, to impose import fees on foreign oil for 90 days.

I am vetoing this negative act for the compelling reasons outlined in a message sent to the Congress today. However, I meant what I said about cooperation with the Congress.

I want to give the Congress a reasonable time to act and the opportunity to avoid a confrontation which helps nobody, least of all the American people.

I do this readily because the most important business before us—after 50 days of debate—is still the economic stimulant that could be provided by the income tax refunds to individuals, and job-creating tax credits to farmers and businessmen that I called for in January.

Last Friday, the majority leaders of the Congress asked me to delay scheduled increases in the import fees on foreign oil for another 60 days while they work out the specifics of their own energy policy. I find this request reasonable.

The important thing is that the Congress is finally moving on our urgent national energy problem. I welcome these efforts and the leadership shown.

I am, therefore, amending my proclamation to postpone for two months the increases scheduled for March and April. Hopefully, we can agree on an energy program by May 1.

A most compelling reason for this 60-day postponement is that I want no part in delaying the speedy enactment by the Congress of the income tax cuts, which can be on this desk by the end of March. We have exactly four weeks.

What we need now is a simple but substantial tax cut to revive our economy and make more jobs. What we need next is a comprehensive energy program to end our dependence on foreign oil producers.

What we don't need is a time-wasting test of strength between the Congress and the President. What we do need is a show of strength that the United States government, your government, can act decisively and with dispatch.

Thank you very much.

GERALD R. FORD.

THE WHITE HOUSE, *March 4, 1975.*

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March 4, 1975

To the House of Representatives:

I am returning H.R. 1767 without my approval. The purposes of this Act were to suspend for a ninety-day period the authority of the President under section 232 of the Trade Expansion Act of 1962 or any other provision of law to increase tariffs, or to take any other import adjustment action, with respect to petroleum or products derived therefrom; to negate any such action which may be taken by the President after January 15, 1975, and before the beginning of such ninety-day period.

I was deeply disappointed that the first action by the Congress on my comprehensive energy and economic programs did nothing positive to meet America's serious problems. Nor did it deal with the hard questions that must be resolved if we are to carry out our responsibilities to the American people.

If this Act became law, it would indicate to the American people that their Congress, when faced with hard decisions, acted negatively rather than positively.

That course is unacceptable. Recent history has demonstrated the threat to America's security and economy caused by our significant and growing reliance on imported petroleum.

Some understandable questions have been raised since my program was announced in January. I am now convinced that it is possible to achieve my import goals while reducing the problems of adjustment to higher energy prices. Accordingly:

—I have directed the Administrator of the Federal Energy Administration to use existing legal authorities to adjust the price increases for petroleum products so that the added costs of the import fees will be equitably distributed between gasoline prices and the prices for other petroleum products, such as heating oil. These adjustments for gasoline will not be permanent, and will be phased out.

—To assist farmers, I am proposing a further tax measure that will rebate all of the increased fuel costs from the new import fees for off-road farm use. This particular rebate program will also be phased out. This proposal, which would be retroactive to the date of the new import fee schedule, will substantially lessen the adverse economic impact on agricultural production, and will reduce price increases in agricultural products.

These actions will ease the adjustment to my conservation program in critical sectors of the Nation while still achieving the necessary savings in petroleum imports.

Some have criticized the impact of my program and called for delay. But the higher costs of the added import fees would be more than offset for most families and businesses if Congress acted on the tax cuts and rebates I proposed as part of my comprehensive energy program.

The costs of failure to act can be profound. Delaying enactment of my comprehensive program will result in spending nearly $2.5 billion more on petroleum imports this year alone.

If we do nothing, in two or three years we may have doubled our vulnerability to a future oil embargo. The effects of a future oil embargo by foreign suppliers would be infinitely more drastic than the one we experienced last winter. And rising imports will continue to export jobs that are sorely needed at home, will drain our dollars into foreign hands and will lead to much worse economic troubles than we have now.

Our present economic difficulty demands action. But it is no excuse for delaying an energy program. Our economic troubles came about partly because we have had no energy program to lessen our dependence on expensive foreign oil.

The Nation deserves better than this. I will do all within my power to work with the Congress so the people may have a solution and not merely a delay.

In my state of the Union Message, I informed the Congress that this country required an immediate Federal income tax cut to revive the economy and reduce unemployment.

I requested a comprehensive program of legislative action against recession, inflation and energy dependence. I asked the Congress to act in 90 days.

In that context, I also used the stand-by authority the Congress had provided to apply an additional dollar-a-barrel import fee on most foreign oil coming into the United States, starting February 1 and increasing in March and April.

I wanted an immediate first step toward energy conservation--the only step so far to reduce oil imports and the loss of American dollars. I also wanted to prompt action by Congress on the broad program I requested.

The Congress initially responded by adopting H.R. 1767 to take away Presidential authority to impose import fees on foreign oil for 90 days.

Although I am vetoing H.R. 1767 for the reasons stated, I meant what I said about cooperation and compromise. The Congress now pledges action. I offer the Congress reasonable time for such action. I want to avoid a futile confrontation which helps neither unemployed nor employed Americans.

The most important business before us after 50 days of debate remains the simple but substantial tax refund I requested for individuals and job-creating credits to farmers and businessmen. This economic stimulant is essential.

Last Friday, the majority leaders of the Senate and House asked me to delay scheduled increases in the import fees on foreign oil for 60 days while they work out the specifics of an energy policy they have jointly produced. Their policy blueprint differs considerably from my

energy program as well as from the energy legislation now being considered by the House Committee on Ways and Means.

I welcome such initiative in the Congress and agree to a deferral until May 1, 1975. The important thing is that the Congress is finally moving on our urgent national energy problem. I am, therefore, amending my proclamation to postpone the effect of the scheduled increases for two months while holding firm to the principles I have stated. It is also my intention not to submit a plan for decontrol of old domestic oil before May 1.

I hope the House and Senate will have agreed to a workable and comprehensive national energy legislation.

But we must use every day of those two months to develop and adopt an energy program. Also, I seek a legislative climate for immediate action on the tax reductions I have requested. It is my fervent wish that we can now move from points of conflict to areas of agreement.

I will do nothing to delay the speedy enactment by the Congress of straight-forward income tax cuts and credits by the end of this month.

Under present conditions, any delay in rebating dollars to consumers and letting businessmen and farmers expand, modernize and create more jobs is intolerable.

I do not believe the Congress will endanger the future of all Americans. I am confident that the legislative branch will work with me in the Nation's highest interests.

What we need now is a simple tax cut and then a comprehensive energy plan to end our dependence on foreign oil.

What we *don't* need is a time-wasting *test* of strength between the Congress and the President. What we *do* need is a *show* of strength that the United States government can act decisively and with dispatch.

GERALD R. FORD.

THE WHITE HOUSE, *March 4, 1975.*

STATEMENT BY THE PRESIDENT ON VOLUNTARY ENERGY CONSERVATION—NOTING THE PASSAGE OF SENATE RESOLUTION 59

MARCH 20, 1975

In my state of the Union Message, I outlined a comprehensive program to address the Nation's energy and economic problems. My energy program includes measures to encourage energy conservation, to increase domestic energy production, and to prepare for any future emergency that might result from an oil embargo. I set goals of reducing oil imports by 1 million barrels per day below expected levels by the end of 1975 and 2 million barrels per day by 1977—and achieving energy independence by 1985.

I announced administrative actions and legislative proposals which are necessary to achieve these goals. The Nation is now awaiting action by the Congress on my legislative proposals. I am confident that the Congress will move quickly so that we can minimize the adverse economic impact of the outflow of dollars for imported oil and reduce our vulnerability to disruption by another embargo.

While we wait for the Congress to act, I would like to remind the American people that their voluntary actions *can* make an important contribution toward achieving our economic and energy goals. Recently, the Senate of the United States adopted a resolution sponsored by Senator Jennings Randolph of West Virginia and 67 other Senators which calls upon me to proclaim an Energy Conservation Month, during which voluntary actions to conserve energy might be intensified.

I welcome this action by the Senate and join the sponsors of the resolution in urging all Americans to renew their efforts to use energy wisely and more efficiently in their homes, offices, schools, farms, industries, commercial establishments, and travel.

The opportunities for voluntary energy conservation and the benefits of conservation are clear. Last September, I established a goal for Federal Government agencies to hold energy consumption in fiscal year 1975 to levels 15 percent below 1973. I am pleased to report that, during the first six months of fiscal year 1975, the Federal agencies have held consumption approximately 23 percent below 1973 levels—a savings equivalent to 46 million barrels of oil and a savings in energy costs to Federal taxpayers of $425 million. In addition, the Energy Resources Council is working closely with industry and others to find ways of conserving energy.

The voluntary actions we have taken have made an important contribution and I call upon the leaders of business and industry,

State and local governments, and all the American people to renew and intensify their voluntary energy conservation efforts. The Senate has called for designation of a one month period for intensified energy conservation actions. But I am confident that all the Senators who sponsored Senate Resolution 59 will join me in urging all our citizens to make energy conservation a year-round effort.

We know that voluntary actions alone cannot solve our Nation's energy and economic problems. Action by the Congress is needed on the measures I have proposed to increase domestic production and to reduce demand, all of which are essential to the solution of our problem. I trust that Senate Resolution 59 is but the first of the constructive actions that we can expect from the Congress.

GERALD R. FORD,

THE WHITE HOUSE, *March 20, 1975.*

FACT SHEET—NAVAL PETROLEUM RESERVES

MARCH 30, 1975

The Naval Petroleum Reserves were created between 1912 and 1921. Presidents Taft, Wilson, Coolidge and Harding established the petroleum reserves by withdrawal of relatively small but selective acreages of domain to be administered by the Navy as an assured defense fuel supply. Congress placed these Reserves under authority of the Secretary of the Navy on June 4, 1920.

The four reserves are summarized below.

NAVAL PETROLEUM RESERVE NO. 1, ELK HILLS, CALIF.

BACKGROUND

On September 2, 1912, President Taft, by Executive Order, set aside 38,072 acres of land in the Elk Hills area of Kern County, California, as Naval Petroleum Reserve 1. This area is 110 miles from Los Angeles and about 30 miles from Bakersfield. In the 1940's, the Reserve was enlarged by Executive Order to 46,095 acres with the government owning 37,554 acres and Standard Oil Company of California (the only private owner) owning 8,541 acres. The Navy and Standard entered into an initial Unit Plan Contract in 1944 for the cooperative exploration, development and operation of all lands in the Reserve. Under this contract, Navy is entitled to approximately 80 percent of any production and Standard is entitled to about 20 percent.

CURRENT STATUS

The recoverable reserves are estimated to be:

Oil—in excess of 1 billion barrels.

Natural gas—1.5 trillion cubic feet.

There are currently approximately 1,000 wells with a capability of producing 160,000 barrels of oil a day. With a maximum production effort, this area could be producing 300,000 barrels per day by 1977 and perhaps 400,000 in 1979.

Although Congress has not passed a production bill for Elk Hills, it has appropriated funds, following the embargo, for the Navy to institute a substantial development program. This includes a fiscal year 1975 appropriation of $42.7 million and the Navy is planning on $68.5 million in the fiscal year 1976 Budget. Wells are being drilled at a rate of seven per month, utilizing five drilling rigs. By September, there will be eight rigs working on the Reserve, completing 15 wells per month.

STATUS OF LEGISLATION

The President submitted legislation to Congress on January 30, 1975, asking for immediate production of Elk Hills under Navy control. Production would be disposed of as follows:

Sale on open market or exchange for refined products used by Defense Department.

Replenishing of Defense stocks.

Storage in a National Strategic Petroleum Reserve.

The revenues from the production sales would be deposited in a special fund in the Treasury to be used for:

Further exploration, development, maintenance and production of all naval petroleum reserves.

Acquisition, construction, filling and maintenance of the National Strategic Petroleum Reserve.

Acquisition, construction, filling and maintenance of the National Strategic Petroleum Reserve.

The House Armed Services Committee has not yet held hearings but plans to do so early in April. Representative Melcher has introduced a bill which would switch jurisdiction from the Navy Department to the Interior Department.

In the Senate, Senator Hatfield has introduced a bill similar to the Melcher bill. Other bills have been introduced by Senators Jackson and Cannon. The Senate Interior and Armed Services Committees have held joint hearings.

Naval Petroleum Reserve No. 2, Buena Vista Hills, Calif.

Since the precise amount of oil in NPR–1 was unknown when set aside in 1912, a second reservation of 30,180.69 acres in the Buena Vista Hills of Kern County, California was recommended after discovery of oil in this area in 1910. This proposed withdrawal was immediately adjacent to a part of the southern boundary of NPR–1. President Taft created Naval Petroleum Reserve No. 2 by an Executive order dated December 13, 1912.

During the period 1920–1923 all Government lands in NPR–2 were leased by the Secretary of the Interior to private operators under provisions of the Acts of February 25, 1920 (Mineral Leasing Act) and June 4, 1920 (Naval Petroleum Reserve Act). Subsequent to the Executive order of March 17, 1927, however, administration of all such leases were returned in control of the Navy.

NPR–2 is fully developed and is producing at a commercial rate. It has proven reserves of 15.6 million barrels of oil. Navy's share of the production is currently 647 BOPD as royalty.

Naval Petroleum Reserve No. 3, Teapot Dome, Wyo.

President Wilson's Executive Order of April 30, 1915, designated the Teapot Dome area in Wyoming as Naval Petroleum Reserve No. 3. Unlike the two reserves in California, all of the acreage here was owned by the Government and there were, therefore, none of the problems created by the presence of private holdings.

On April 7, 1922, NPR–3 was initially leased. On December 31, 1927 all of the producing wells on the NPR–3 were shut-in. The field

remained shut-in until the period 1951–1953 when an exploratory program was initiated; thereafter it was shut-in until 1958 when an offset drilling program was instituted to protect against drainage by adjacent operators.

There are presently 150 wells on NPR–3 with the capability to produce 2,000 BOPD. There are known reserves of 42.5 million barrels of oil. The present production is 327 BOPD.

Naval Petroleum Reserve No. 4, Alaska

On February 27, 1923, President Harding signed Executive Order No. 3797A designating an area of 37,000 square miles in the northern part of Alaska as Naval Petroleum Reserve No. 4. Virtually none of this area had ever been explored, but oil seepages had been reported indicating the existence of large hydrocarbon deposits.

There are currently proven reserves in NPR–4 of 100 million barrels of oil and it is estimated that NPR–4 contains 10 to 33 billion barrels.

The abbreviated table below provides pertinent statistics on the Naval Petroleum Reserves system:

	Proved reserves		Estimated new reserves		
	MM/bbls oil	MM/Mcf gas	MM/bbls oil	MM/Mcf gas	Area (acres)
NPR No. 1	1,009.6	1,180	482	300	[1] 46,095
NPR No. 2	15.6	NA	0	0	[1] 30,181
NPR No. 3	42.5	8.0	0	0	9,481
NPR No. 4	100.1	160.6	10,000–330,000	60,000–192,000	23,680,000

[1] Contains both Government and private titled land. NPR–1 is under a unit plan with the Standard Oil Co. of California who participates in the amount of 20 percent. SOCAL also operates NPR–1 under contract to the Department of the Navy.

Gerald R. Ford.

The White House, *March 30, 1975.*

TEXT OF LETTERS FROM THE PRESIDENT TO THE SPEAKER OF THE HOUSE OF REPRESENTATIVES AND THE PRESIDENT OF THE SENATE

APRIL 30, 1975

DEAR MR. SPEAKER: (Dear Mr. President:) Three and one-half months have passed since I presented the Nation and the Congress with a comprehensive program to achieve energy independence by 1985. Although the policy I put forth was not an easy solution, it was, and remains today, the only comprehensive and workable national energy program. Because of the seriousness of the problem, I also moved to cut energy demand and increase supply to the maximum extent within my administrative discretion by announcing a three step increase in the fees on imported petroleum starting last February 1 and complete decontrol of old oil prices by April 1.

After imposition of the first dollar of the additional import fees, the majority leadership in the Congress requested that I delay further actions to provide time to evaluate my proposals, to formulate an alternative comprehensive energy plan and to enact legislation. I granted a 60 day delay in the spirit of compromise, in spite of the fact that we had already waited much too long to make the hard decisions our country needs.

In the 60 days that followed, a number of Congressional energy programs were introduced and considered. Little progress has been made though. Thus, I am forced to again make a difficult administrative decision.

Since my State of the Union Message last January, there has been no improvement in the situation in the Middle East. The existing tensions only heighten my belief that we must do everything possible to avoid increasing our dependence on imported oil in the months ahead.

The recession is coming to an end. But the pending upturn will result in greater demand for imported oil. At the same time, however, it will put us in a better position to absorb the adjustments that greater energy conservation will require.

There are some encouraging signs in the Congress. Chairmen Ullman and Dingell and ranking minority members Schneebeli and Brown have been working diligently in their respective committees to formulate a comprehensive energy program. After extensive hearings and discussions, their efforts to date embody some elements of the energy proposals which I sent to the Congress as well as several which could be potentially disastrous.

The Senate has also conducted many hearings. Yet the only legislation which has passed is a bill that would impose mandatory restrictions within 60 days on recreational and leisure travel, hours of business operation, and commercial lighting. This bill is ineffective and unrealistic. It would result in unwarranted government control of personal freedoms, and would cause unforeseen economic consequences.

I am hopeful that the weeks ahead can result in agreement between the Congress and the Administration. I believe it can if we are willing to work diligently, honestly, and more rapidly. But I am concerned about the possibility of the Congress passing politically popular legislation which will not only fail to meet our energy needs but which could create serious economic problems for the Nation. From my many years in the Congress, I know how easy it is to become embroiled in endless debate over tough decisions. I also know how easy it is for the Congress to enact legislation full of rhetoric and high sounding purpose, but short of substance. That must *not* happen in this case.

Neither the House nor the Senate has passed one significant energy measure acceptable to the Administration in these past few months. Hence, I must be a realist—since the time before final legislation will be on my desk is very long. I understand that in many ways the timing and substance is beyond the control of the individual committee chairmen. Yet, postponement of action on my part is not the answer. I am, therefore, taking these administration actions at this time:

—First, I have directed the Federal Energy Administrator to implement a program to steadily phase out price controls on old oil over two years, starting June 1, 1975. This program will not proceed until public hearings are completed and a plan is submitted for Congressional review, as required by statute. While I intend to work with the Congress, and have compromised on my original decision to proceed with immediate decontrol, the nation cannot afford to wait indefinitely for this much needed action. I intend to accompany this action with a redoubling of my efforts to achieve an appropriate windfall profits tax on crude oil production with strong incentives to encourage maximum domestic exploration and production.

—Second, I will again defer the second dollar import fee on crude oil and the $.60 per barrel fee on imported petroleum products in order to continue the spirit of compromise with the Congress. However, I will be forced to impose the higher fees in 30 days, or sooner, if the House and Senate fail to move rapidly on the type of comprehensive legislation which is necessary to resolve our critical energy situation. Such legislation must not embody punitive tax measures or mandated, artificial shortages, which could have significant economic impact and be an unwarranted intrusion on individual freedom of choice.

The administrative action that I have set in motion will help achieve energy self-sufficiency by 1985, stem increasing vulnerability during the next few critical years, and accomplish this without significant economic impact. Nevertheless, my actions alone are not enough. The Congress must move rapidly on a more comprehensive energy program which includes broader energy conservation and

actions to expand supply. Action now is essential to develop domestic supplies and protect American jobs. It is my utmost desire in announcing these executive initiatives to balance our overwhelming need to move ahead with an equally important need not to force outright confrontation between the Administration and the Congress.

I pledge to work with the Congress in this endeavor. To the extent comprehensive and effective legislation is passed by the Congress, I stand ready to approve it. What I cannot do is stand by as more time passes and our import vulnerability grows. If this happens, I will not hesitate to impose the higher import fees. Meantime, my administrative actions must fill the gap in this endeavor. The country can afford no less.

Sincerely,

GERALD R. FORD.

THE WHITE HOUSE, *April 30, 1975.*

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BY THE PRESIDENT OF THE UNITED STATES OF AMERICA—A PROCLAMATION

MAY 1, 1975

MODIFYING PROCLAMATION NO. 3279, AS AMENDED, RELATING TO IMPORTS OF PETROLEUM AND PETROLEUM PRODUCTS, AND PROVIDING FOR THE LONG-TERM CONTROL OF IMPORTS OF PETROLEUM AND PETROLEUM PRODUCTS THROUGH A SYSTEM OF LICENSE FEES

WHEREAS, I judge it necessary and consistent with the national security that the Mandatory Oil Import Program maintain flexibility to accommodate evolving programs for discouraging importation into the United States of petroleum and petroleum products in such quantities or under such circumstances as threaten to impair the national security; and

WHEREAS, a temporary deferral of the scheduled increases in oil import license fees is appropriate in order to maintain such flexibility; and

WHEREAS, I intend to act within thirty days to increase the oil import license fees to their originally scheduled levels of $2 and $3 should alternative programs for discouraging imports not be formulated in a timely fashion or should such programs fail to protect adequately United States national security interests;

NOW, THEREFORE, I, GERALD R. FORD, President of the United States of America, acting under and by virtue of the authority vested in me by the Constitution and the laws of the United States, including Section 232 of the Trade Expansion Act of 1962, as amended, do hereby proclaim that, effective as of May 1, 1975, Proclamation No. 3279, as amended, is hereby further amended as follows:

SECTION 1. Clause (iii) of subparagraph (1) of paragraph (a) of Section 3 is amended to read as follows:

"(iii) with respect to imports of crude oil, natural gas products, unfinished oils, and all other finished products (except ethane, propane, butanes, and asphalt) entered into the customs territory of the United States on or after February 1, 1975, there shall be a supplemental fee per barrel of $1.00."

SEC. 2. Clause (viii) of subparagraph (1) of paragraph (a) of Section 3 is amended to read as follows:

"(viii) with respect to licenses issued pursuant to paragraph 3(a)(1)(iii) for imports other than (A) any material imported for refining that qualifies for inclusion in a refiner's crude oil runs to stills under the Old Oil Allocation Program or (B) products refined in a refinery outside of the customs territory as to which crude oil runs to stills would qualify

a refiner to receive entitlements under the Old Oil Allocation Program, the Administrator may by regulation reduce the fee payable for imports entered on or after February 1, 1975, by $1.00 per barrel, except that the Administrator may reduce such fee by such other amounts as he may determine to be necessary to achieve the objectives of this Proclamation and the Emergency Petroleum Allocation Act of 1973."

IN WITNESS WHEREOF, I have hereunto set my hand this 30th day of April, in the year of our Lord nineteen hundred seventy-five, and of the Independence of the United States of America the one hundred and ninety-ninth.

GERALD R. FORD.

THE WHITE HOUSE, *May 1, 1975.*

MESSAGE TO THE HOUSE OF REPRESENTATIVES ON VETOING THE SURFACE MINING AND RECLAMATION ACT OF 1975

MAY 20, 1975

To the House of Representatives:

I am today returning without my approval, H.R. 25, the proposed Surface Mining Control and Reclamation Act of 1975. I am unable to sign this bill because:

1. As many as 36,000 people would lose jobs when unemployment already is too high.
2. Consumers would pay higher costs—particularly for electric bills—when consumer costs are already too high.
3. The Nation would be more dependent on foreign oil—when we are already overly dependent and dangerously vulnerable.
4. Coal production would be unnecessarily reduced—when this vital domestic energy resource is needed more than ever.

America is approaching a more serious domestic energy shortage, and we are not facing up to it.

We can develop our energy sources while protecting our environment. But this bill does not do that. I have supported responsible action to control surface mining and to reclaim damaged land. I continue to support actions which strike a proper balance between our energy and economic goals and important environmental objectives.

Unfortunately, H.R. 25 does not strike such a balance.

Since I submitted my comprehensive national energy program earlier this year—a program which included a tough but balanced surface mining bill—our energy situation has continued to deteriorate. With domestic energy production continuing to drop, we are today more vulnerable to the disruption of oil supplies than we were during the Mid-East oil embargo. We will be even more vulnerable as our economy recovers and energy consumption increases. This vulnerability places us in an untenable situation and could result in new and serious economic problems.

Coupled with this steadily deteriorating situation is the fact that the Congress has yet to act on a comprehensive energy program capable of achieving goals on which we all agree. Several Congressional committees have worked hard to develop solutions. Unfortunately, their proposals are inadequate to achieve the energy objectives I have set.

As the one abundant energy source over which the United States has total control, coal is critical to the achievement of American energy independence. In the face of our deteriorating energy situation, we

must not arbitrarily place restrictions on the development of this energy resource.

It is with a deep sense of regret that I find it necessary to reject this legislation. My Administration has worked hard with the Congress to try to develop an acceptable surface mining bill and other energy programs which could, when taken together, enable us to reduce energy imports and meet environmental objectives. While the Congress accepted in H.R. 25 some of my proposals, it rejected others necessary to reduce the adverse impact on coal production and to clarify various provisions of the legislation to make it precise and more workable.

The Department of the Interior and the Federal Energy Administration now advise me that, if this bill were to become law, a production loss of 40 to 162 million tons would result in 1977. This would mean that six to twenty-four percent of expected 1977 coal production would be lost. Actually, production losses resulting from H.R. 25 could run considerably higher because of ambiguities in the bill and uncertainties over many of its provisions.

The bill I sent to the Congress in February would have also entailed production losses estimated between 33 and 80 million tons. Even though these losses would have been substantial, we could have accepted them if Congress had enacted the comprehensive energy program I proposed. But, now the potential losses of H.R. 25 are intolerable.

The reduction in coal production would mean that the United States will be forced to import more foreign oil. To demonstrate the seriousness of this problem, it is estimated that we would be forced to import an additional 215 million barrels of oil a year at a cost of $2.3 billion for every 50 million tons of coal not mined. At a time when our dependence on Mid East oil is expected to double in just 2½ years, I believe it would be unwise to further increase this dependency by signing into law H.R. 25. This kind of setback in coal production would cause our dependence on Mid-East oil to triple by 1977.

Additional reasons for withholding approval of H.R. 25 are its legislative shortcomings. These include:

—Ambiguous, vague and complex provisions—as the record of Congressional debate indicates. The bill would lead to years of regulatory delays, litigation and uncertainty against the best interests of achieving either our environmental or energy objectives.

—Cumbersome and unwieldy Federal-State regulatory and enforcement provisions. H.R. 25 would inject the Federal Government immediately into a field which is already regulated by most states. Since 1971, 21 states which produce over 90 percent of the nation's surface mined coal have either enacted new environmental legislation governing surface mining or have strengthened laws already on the books.

—H.R. 25's tax provisions which would be excessive and unnecessarily increase the price of coal.

—Its provisions which enable State governments to ban surface mining of coal on Federal lands—thus preventing a national resource from being used in the national interest.

—Its provisions permitting the Federal government to pay private landowners 80 percent or more of the cost of reclaiming previously-

mined land, leaving title to the land in private hands, could provide windfall profits at the expense of coal consumers.

In short, I favor action to protect the environment, to prevent abuses that have accompanied surface mining of coal, and to reclaim land disturbed by surface mining. I believe that we can achieve those goals without imposing unreasonable restraints on our ability to achieve energy independence, without adding unnecessary costs, without creating more unemployment and without precluding the use of vital domestic energy resources.

GERALD R. FORD.

THE WHITE HOUSE, *May 20, 1975.*

ADDRESS BY THE PRESIDENT LIVE ON NATIONWIDE RADIO AND TELEVISION

MAY 27, 1975

Good evening.

Last January 15, I went before your Senators and Representatives in Congress with a comprehensive plan to make our country independent of foreign sources of energy by 1985. Such a program was long overdue. We have become increasingly at the mercy of others for the fuel on which our entire economy runs.

Here are the facts and figures that will not go away. The United States is dependent on foreign sources for about 37 percent of its present petroleum needs. In ten years, if we do nothing, we will be importing more than half of our oil at prices fixed by others, if they choose to sell to us at all.

In two and a half years, we will be twice as vulnerable to a foreign oil embargo as we were two winters ago. We are now paying out $25 billion a year for foreign oil. Five years ago we paid out only $3 billion annually. Five years from now, if we do nothing, who knows how many more billions will be flowing out of the United States.

These are not just American dollars. These are American jobs.

Four months ago, I sent the Congress this 167-page draft of detailed legislation, plus some additional tax proposals. My program was designed to conserve the energy we now have, while at the same time speeding up the development and production of new domestic energy.

Although this would increase the cost of energy until new supplies were fully tapped, those dollars would remain in this country and would be returned to our own economy through tax cuts and rebates. I asked the Congress in January to enact this urgent ten-year program for energy independence within 80 days; that is, by mid-April.

In the meantime, to get things going, I said I would use the standby Presidential authority granted by the Congress to reduce our use of foreign petroleum by raising import fees on each barrel of crude oil by $1.00 on February 1, another $1.00 on March 1, and a third on April 1.

As soon as Congress acted on my comprehensive energy program, I promised to take off these import fees. I imposed the first dollar on oil imports February 1, making appropriate exemptions for hardship situations.

Now, what did the Congress do in February about energy? Congress did nothing.

Nothing, that is, except rush through legislation suspending for 90 days my authority to impose any import fees on foreign oil. Congress needed time, they said.

At the end of February, the Democratic leaders of the House and Senate and other Members concerned with energy came to the White House. They gave me this pamphlet outlining energy goals similar to mine and promised to come up with a Congressional energy program better than mine by the end of April.

I remember one of them saying he didn't see how they could ask the President to do more than postpone the second dollar for 60 days. If the Congress couldn't come up with an energy program by then, he said, go ahead and put it on.

Their request stretched my original deadline by a couple of weeks. But I wanted to be reasonable, I wanted to be cooperative.

So, in vetoing their bill to restrict the President's authority, I agreed to their request for a 60-day delay before taking the next step under my energy plan.

What did the Congress do in March? What did the Congress do in April about energy? Congress did nothing.

In fairness, I must say there were diligent efforts by some Members—Democrats as well as Republicans—to fashion meaningful energy legislation in their subcommittees and committees.

My Administration worked very hard with them to bring a real energy independence bill to a vote. At the end of April, the deadline set by the Congressional leaders themselves, I deferred for still another 30 days, the second $1.00 fee on imported oil. Even then, I still hoped for positive Congressional action.

So, what has the Congress done in May about energy? Congress did nothing and went home for a 10-day recess.

February, March, April, May, as of now, the Congress has done nothing positive to end our energy dependence.

On the contrary, it has taken two negative actions, the first an attempt to prevent the President from doing anything on his own; the second, to pass a strip mining bill which would reduce domestic coal production instead of increasing it; put thousands of people out of work; needlessly increased the cost of energy to consumers; raise electric bills for many, and compel us to import more foreign oil, not less.

I was forced to veto this anti-energy bill last week because I will not be responsible for taking one step backward on energy when the Congress will not take one step forward on energy.

The Congress has concentrated its attention on conservation measures such as a higher gasoline tax. The Congress has done little or nothing to stimulate production of new energy sources here at home.

At Elk Hills Naval Petroleum Reserve, in California, I saw oil wells waiting to produce 300,000 barrels a day if the Congress would change the law to permit it.

There are untold millions of barrels more in our Alaskan petroleum reserves and under the Continental Shelf. We could save 300,000 barrels a day if only Congress would allow more electric power plants to substitute American coal for foreign oil.

Peaceful atomic power, which we pioneered, is advancing faster abroad than at home.

Still, the Congress does nothing about energy. We are today worse off than we were in January.

Domestic oil production is going down, down, down. Natural gas production is starting to dwindle, and many areas face severe shortages next winter.

Coal production is still at levels of the 1940s. Foreign oil suppliers are considering another price increase.

I could go on and on, but you know the facts. This country needs to regain its independence from foreign sources of energy, and the sooner the better.

There is no visible energy shortage now, but we could have one overnight. We do not have an energy crisis, but we may have one next winter. We do have an energy problem, a very grave problem, but one we can still manage and solve if we are successful internationally and can act decisively domestically.

Four months are already lost. The Congress has acted only negatively. I must now do what I can do as President.

First, I will impose an additional $1.00 import fee on foreign crude oil, and 60 cents on refined products, effective June 1. I gave the Congress its 60 days, plus an extra 30 days to do something, but nothing has been done since January.

Higher fees will further discourage the consumption of imported fuel and may generate some constructive action when the Congress comes back.

Second, as I directed on April 30, the Federal Energy Administration has completed public hearings on decontrol of old domestic oil. I will submit a decontrol plan to Congress shortly after it reconvenes. Along with it, I will urge the Congress to pass a windfall profits tax with a plowback provision.

These two measures would prevent unfair gains by oil companies from decontrol prices, furnish a substantial incentive to increase domestic energy production and encourage conservation.

When I talk about energy, I am talking about jobs. Our American economy runs on energy. No energy—no jobs.

In the longrun, it is just that simple. The sudden fourfold increase in foreign oil prices and the 1973 embargo helped to throw us into this recession. We are on our way out of this recession. Another oil embargo could throw us back.

We cannot continue to depend on the price and supply whims of others.

The Congress cannot drift, dawdle and debate forever with America's future.

I need your help to energize this Congress into comprehensive action. I will continue to press for my January program, which is still the only total energy program there is.

I cannot sit here idly while nothing is done. We must get on with the job right now.

Thank you and good night.

GERALD R. FORD.

THE WHITE HOUSE, *May 27, 1975.*

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FACT SHEET

May 27, 1975

PRESIDENT'S ADMINISTRATIVE ENERGY ACTIONS

The President today announced the imposition of an additional $1 per barrel fee on imported crude oil. This is in addition to the $1 per barrel fee already imposed on crude oil February 1, 1975. He also imposed a $0.60 per barrel fee on imported refined products. These fees are effective June 1, 1975. In addition the President also announced that he will send to Congress shortly after they return, a plan to decontrol the price of old oil and he will urge the Congress to pass a windfall profits tax with a plowback provision.

I. BACKGROUND

In his State of the Union Message, the President announced his economic and energy program for the nation. He announced a series of legislative proposals to the Congress and administrative actions that he would take to encourage energy conservation, pending completion of action by the Congress. The principal administrative actions included the imposition of oil import fees and the decontrol of oil prices. He transmitted his legislative proposals, The Energy Independence Act of 1975, to the Congress on January 30, 1975.

The President issued a Proclamation on January 23, 1975, which would have imposed a $1 per barrel fee on crude oil, beginning February 1; the second dollar beginning March 1, and the third dollar beginning April 1. In order to reduce regional hardships a reduced fee was imposed on imported products.

In response to a request from the Congressional leadership, the President announced on March 4 a 60 day delay in the imposition of the second and third dollar import fees. The Congressional leadership had asked for additional time to enact a national energy program. On April 30, in the hope of still getting a positive Congressional energy program, the President announced a further delay in the import fees, of up to 30 days, in order to allow additional time for Congressional action.

Thus far, the Congress has passed only two energy-related bills, both of which would have been counterproductive and had to be vetoed by the President. This includes H.R. 1767, Suspension of Oil Import Tariff Authority which would have suspended the oil import tariff authority and thus restricted the President's authority to impose import fees, and H.R. 25, the Surface Mining Control and Reclamation Act, which would have caused significant losses in coal production, increased oil imports, and increased unemployment.

II. IMPACT OF PRESIDENT'S ADMINISTRATIVE ACTIONS

The President's Administrative Actions are expected to have the following impact:

Action	Conservation: import savings (barrels per day)		Impact on retail prices (cents per/ gallon)
	1975	1977	
2d dollar imposed today	50,000	200,000	1.5
Total fee ($1 plus $1)	100,000	350,000	2.9

III. STATUS OF ACTIONS BY THE PRESIDENT

Since the President's January 15, 1975, State of the Union Message to Congress a number of legislative proposals and administrative actions within his limited statutory authority, have been taken by the President, including:

A. Submission of the Energy Independence Act on January 30, 1975. This encompasses 13 separate titles on supply, demand and emergency measures. (action to date shown in Section VI)

B. Imposition, administratively, of a $1 fee on imported crude oil on February 1, 1975.

C. Imposition of an additional $1 per barrel fee on imported crude oil and a $0.60 fee on refined products, effective on June 1, 1975.

D. Directed the Federal Energy Administration, on April 30, 1975, to take administrative actions to decontrol old oil in two years. FEA held hearings on May 13 and 14 and is now evaluating comments received, prior to submission of a final plan.

E. Energy conservation actions by the major executive branch agencies in the first six months of fiscal year 1975 cut energy use 24 percent below 1973 levels (saving over 45 million barrels)

F. Voluntary compliance with energy efficiency labeling, including:

1. Most 1975 model year autos now comply with FEA/EPA voluntary fuel efficiency labelling program.

2. Most air conditioners now have labels developed by the Commerce Department indicating their efficiency.

G. FEA has issued or will issue by June 30 notices leading to coal conversion orders to 31 power plants. If they all converted, 175,000 barrels of oil per day would be saved.

IV. ACTIONS TAKEN BY CONGRESS

A. Congress passed H.R. 1767, the Suspension of the Oil Import Tariff Authority which:

1. would restrict the President's authority to impose new fees on imported oil and would roll back the $1 crude oil fee imposed by the President on February 1.

2. was vetoed by the President on March 4. Congress has not acted to override the veto.

B. Congress passed H.R. 25, the Surface Mining Control and Reclamation Act which:

1. would regulate surface mining in a way that would cause a major loss of coal production, increased unemployment and greater dependence on imported oil.

2. was vetoed by the President on May 20. Congress voted to delay consideration of an override attempt to June 10.

V. ENERGY OUTLOOK

If no action is taken, domestic oil and natural gas production will continue to decline and oil imports will continue to grow. The administrative actions taken by the President, within the limited authority available to him, will help encourage energy conservation and reduce oil imports. Congressional action is still needed to provide additional incentives for conservation and domestic energy production.

A. Oil Imports

Expected imports of petroleum if current trends continue are contrasted below with the impact of the President's administrative actions and the effect if his total program is enacted.

[Million barrels per day]

	1970	1974	1975	1977	1985
No action	3.4	6.1	6.3	7.6	12.1
President's administrative program ($2 fee plus decontrol)	3.4	6.1	6.2	6.9	9.6
President's legislative program	3.4	6.1	5.6	5.4	4.9

B. Balance of Payments

The above imports would cost the United States:

[In billions of dollars per year]

	1970	1974	1975	1977	1985
No action	3	24.5	25.3	30.5	61.8
President's administrative program	3	24.5	24.9	27.7	49.1
President's legislative program	3	24.5	22.5	21.7	25.0

C. Domestic Oil Production Trends

As indicated below, domestic production of crude oil peaked in 1970 and has been declining since.

Crude production (million barrels per day):

1955	6.8
1960	7.0
1970	9.6
1971	9.5
1972	9.4
1973	9.3
1974	8.8

D. Natural Gas Trends

As indicated below U.S. proven reserves of natural gas have been declining since the mid 1960's and domestic production, which was constant in the early 1970's, has started to drop.

	1955	1960	1965	1970	1971	1972	1973	1974
Reserves (trillion cubic feet)[1]	223.0	262.0	287.0	265.0	253.0	240.0	224.0	211.0
Production	9.4	12.8	16.0	21.9	22.5	22.5	22.6	21.9

[1] Excludes 26 trillion ft³ from Alaskan North Slope.

E. Coal Trends

Coal production has not appreciably changed from levels of 30–40 years ago.

Production (million tons):

1920	658
1940	512
1950	560
1960	434
1970	613
1974	607

VI. STATUS OF PRESIDENT'S PROGRAM IN CONGRESS

A. Title I—Development of Naval Petroleum Reserves and Military Strategic Reserve

House: Interior and Armed Services Committees each reported a bill. However, no floor action is scheduled. Neither bill authorizes production of NPR–4. Use of NPR proceeds for a strategic petroleum reserve program is not authorized.

Senate: Joint hearings held by Armed Services and Interior Committees. No legislation reported.

B. Title II—Civilian Strategic Reserve

House: Reported by Energy and Power Subcommittee but is awaiting full Commerce Committee action.

Senate: Interior Committee held hearings but no legislation reported.

C. Title III—Natural Gas Deregulation

House: The House has scheduled no hearings.

Senate: The Senate Commerce Committee reported out S. 692 on May 6. Floor action is expected in the last two weeks of June. S. 692 would extend rather than reduce federal regulation of natural gas.

D. Title IV—Coal Conversion Amendments

House: Reported by the Energy and Power Subcommittee as part of their omnibus bill.

Senate: Under consideration by the Environmental Pollution Subcommittee of the Senate Public Works Committee. No legislation reported.

E. Titles V and VI— Amendments to the clean Air Act of 1970

House: The Subcommittee on Health and the Environment held hearings and is drafting legislation. No legislation reported.

Senate: The Subcommittee on Environmental Pollution completed Oversight hearings on May 21, 1975. No bill has been reported.

F. Title VII—The Utilities Act of 1975

House: No hearings scheduled.

Senate: A Government Operations Subcommittee held hearings on April 14, 1975. No legislation has been reported.

G. Title VIII—Energy Facilities Planning and Development Act of 1975

House: No hearings scheduled.

Senate: Hearings held in April before Interior Committee on land use and facility siting (S. 984 and S. 619). No legislation reported.

H. Title IX—Energy Development Security Act of 1975

House: No hearings scheduled.

Senate: No hearings have been scheduled.

I. Title X—Building Energy Conservation Standards Act of 1975

House: The Housing Subcommittee of the House Banking and Currency Committee has held hearings but has not reported legislation.

Senate: Was included in the Emergency Housing Act. However, it was later stricken before enactment. No further action anticipated.

J. Title XI—Winterization Assistance Act of 1975

House: The Housing Subcommittee of the House Banking and Currency Committee has had hearings but did not report a bill to full committee.

Senate: Was referred to the Senate Interior, Labor, and Banking Committees, none of which has reported a bill.

K. Title XII—National Appliance and Motor Vehicle Energy Labeling Act of 1975

House: Reported by the Energy and Power Subcommittee, but awaiting action by the full House Interstate and Foreign Commerce Committee. No legislation reported.

Senate: Referred to the Senate Commerce Committee. No legislation reported.

L. Title XIII—Standby Energy Emergency Authorities

House: Reported as part of H.R. 7014 by the Energy and Power Subcommittee for full Commerce Committee consideration. The Standby authorities included are unworkable because of extensive Congressional oversight requirements.

Senate: S. 622 passed and sent to the House, but requires mandatory conservation programs as well as providing standby authorities.

GERALD R. FORD.

THE WHITE HOUSE, *May 27, 1975.*

REMARKS OF THE PRESIDENT UPON SIGNING THE URANIUM ENRICHMENT MESSAGE

JUNE 26, 1975

I will read a statement before signing the message or messages that will go to the Congress.

Because our oil and natural gas resources are fast being depleted, we must rely more and more on nuclear power as a major source of energy for the future.

Today, I am asking the Congress to join me in embarking the Nation on an exciting new course of action which will help to assure the energy independence that we need, and significantly strengthen our economy at home, at the same time.

I am referring to the establishment of an entirely new competitive industry to provide uranium enrichment service for nuclear power reactors. The legislation that I am seeking will reinforce the world leadership we now enjoy in uranium enrichment technology.

It will help insure the continued availability of reliable energy for America. It will move America one big step nearer energy independence.

This legislation will insure that the billions of dollars required for the construction of new enrichment plants will be borne by the private sector, not by the American taxpayer.

But all of us will benefit directly from the service which private enterprise will provide.

I urge the Congress to act swiftly and favorably on this important new energy initiative. With this comprehensive approach, the United States can reopen its uranium enrichment order book, reassert its supremacy as the world's major supplier of enriched uranium, and develop a strong private enrichment industry to help bolster the national economy.

So it is with pleasure and hope that I sign the message to go to both the House and the Senate, and ask the Congress to move as rapidly as possible in order that we can achieve the objectives which are so important.

Thank you very much.

GERALD R. FORD.

THE WHITE HOUSE, *June 26, 1975.*

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MESSAGE TO THE CONGRESS

JUNE 26, 1975

To the Congress of the United States:

Every so often, a Nation finds itself at a crossroads. Sometimes, it is fortunate and recognizes it has a choice. Sometimes, it does not.

We are at such a crossroads in America today.

The course we select will touch the lives of most of us before the end of this century and surely affect the lives of generations of Americans yet to come.

Today, I am asking the Congress to join me in embarking this Nation on an exciting new course which will help assure the energy independence we seek and a significantly strengthened economy at the same time.

I am referring to the establishment of an entirely new private industry in America to provide the fuel for nuclear power reactors—the energy resource of the future. I am referring to uranium enrichment which is presently a Federal Government monopoly.

Without question, our energy future will become more reliant on nuclear energy as the supplies of oil and natural gas diminish.

The questions we must answer are (1) whether the major capital requirements for constructing new uranium enrichment facilities will be paid for by the Federal taxpayer or by private enterprise, and (2) whether a major new and expanding segment of our economy will be under the control of the Federal Government or the private sector.

The private sector has already demonstrated its capability to build and operate uranium enrichment facilities under contracts with the Federal Government. Since it is also willing to provide the capital needed to construct new uranium enrichment plants, I am asking the Congress to enact legislation to enable American industry—with all its financial resources, management capability and technical ingenuity—to provide the enriched uranium needed to fuel nuclear power plants.

I believe this is the proper and correct course for America to take. The alternative is continued Federal monopoly of this service at a cost to the taxpayers of at least $30 billion over the next 15 years.

The enrichment of uranium—which means, in brief, separating the fissionable U-235 in uranium from non-fissionable parts to provide a more potent mixture to fuel nuclear reactors—is an essential step in nuclear power production.

For more than twenty years, the United States Government has supplied the enrichment services for every nuclear reactor in America and for many others throughout the world. Our leadership in this

important field has enabled other nations to enjoy the benefits of nuclear power under secure and prudent conditions. At the same time, this effort has been helpful in persuading other nations to accept international safeguards and forego development of nuclear weapons. In addition, the sale of our enrichment services in foreign countries has returned hundreds of millions of dollars to the United States.

These enrichment services have been provided by plants—owned by the Government and operated by private industry—in Oak Ridge, Tennessee, Portsmouth, Ohio, and Paducah, Kentucky. A $1-billion improvement program is now underway to increase the production capacity of these plants by 60 percent. But this expanded capacity cannot meet the anticipated needs of the next 25 years.

The United States is now committed to supply the fuel needs for several hundred nuclear power plants scheduled to begin operation by the early 1980's. Since mid-1974, we have been unable to accept new orders for enriched uranium because our plant capacity—including the $1-billion improvement—is fully committed.

In short, further increases in enrichment capacity depend on construction of additional plants, with seven or eight years required for each plant to become fully operational.

Clearly, decisions must be made and actions taken today if we are to insure an adequate supply of enriched uranium for the nuclear power needs of the future and if we are to retain our position as a major supplier of enriched uranium to the world.

It is my opinion that American private enterprise is best suited to meet those needs. Already, private industry has demonstrated its willingness to pursue the major responsibilities involved in this effort. With proper licensing, safeguards, cooperation and limited assurances from the Federal Government, the private sector can do the job effectively and efficiently—and at enormous savings to the American taxpayer. In this way, direct public benefits will be provided on a long-term basis by private capital, not by taxpayers.

Accordingly, I am proposing legislation to the Congress to authorize Government assurances necessary for private enterprise to enter into this vital field.

A number of compelling reasons argue for private ownership, as well as operation, of uranium enrichment plants. The market for nuclear fuel is predominantly in the private sector. The process of uranium enrichment is clearly industrial in nature.

The uranium enrichment process has the making of a new industry for the private sector in much the same tradition as the process for synthetic rubber—with early Government development eventually being replaced by private enterprise.

One of the strengths of America's free enterprise system is its ability to respond to unusual challenges and opportunities with ingenuity, vigor and flexibility. A significant opportunity may be in store for many firms—old and new—to participate in the growth of the uranium enrichment industry. Just as coal and fuel oil are supplied to electric utilities by private firms on a competitive basis, enriched uranium should be supplied to them in the same fashion in the future.

The energy consumer also stands to benefit. The production of nuclear power now costs between 25 and 50 percent less than electricity produced from fossil fuels. It is not vulnerable to the supply

whims or unwarranted price decrees of foreign energy suppliers. And based on the past fifteen years of experience, commercial nuclear power has an unparalleled record of safe operation.

The key technology of the uranium enrichment process is secret and will remain subject to continued classification, safeguards and export controls.

But for several years, a number of qualified American companies have been granted access to the Government's technology under carefully controlled conditions to enable them to assess the commercial potential for private enriching plants.

The Government-owned gaseous diffusion enriching plants have run reliably and with ever-improving efficiency for more than a quarter of a century. One private group has chosen this well-demonstrated process as part of its $3.5 billion proposal to build an enrichment plant serving 90 nuclear reactors here and abroad in the 1980's. Others are studying the potential of the newer gas centrifuge process. Though not yet in large-scale operation, the centrifuge process—which uses much less power than the older process—is almost ready for commercial application.

I believe we must move forward with both technologies and encourage competitive private entry into the enrichment business with both methods. A private gaseous diffusion plant should be built first to provide the most urgently needed increase in capacity, but we should proceed simultaneously with commercial development of the centrifuge process.

With this comprehensive approach, the United States can reopen its uranium enrichment "order book," reassert its supremacy as the world's major supplier of enriched uranium, and develop a strong private enrichment industry to help bolster the national economy.

For a number of reasons, a certain amount of governmental involvement is necessary to make private entry into the uranium enrichment industry successful.

The initial investment requirements for such massive projects are huge. The technology involved is presently owned by the Government. There are safeguards that must be rigidly enforced. The Government has a responsibility to help ensure that these private ventures perform as expected, providing timely and reliable service to both domestic and foreign customers.

Under the legislation I am proposing today, the Energy Research and Development Administration would be authorized to negotiate and enter into contracts with private groups interested in building, owning and operating a gaseous diffusion uranium enrichment plant.

ERDA would also be authorized to negotiate for construction of several centrifuge enrichment plants when more definitive proposals for such projects are made by the private sector.

Contract authority in the amount of $8 billion will be needed, but we expect almost no actual Government expenditures to be involved. In fact, the creation of a private enrichment industry will generate substantial revenues for the United States Treasury through payment of Federal income taxes and compensation for use of Government-owned technology.

Under the proposed arrangements, there will be an opportunity for foreign investment in these plants, although the plants will remain firmly under U.S. control. There will be no sharing of U.S. technology

and, there will be limitations on the amount of capacity each plant can commit to foreign customers.

In addition, all exports of plant products will continue to be made pursuant to Governmental Agreements for Cooperation with other Nations. All will be subject to appropriate safeguards to preclude use for other than agreed peaceful purposes.

Foreign investors and customers would not have access to sensitive classified technology. Proposals from American enrichers to share technology would be evaluated separately, and would be subject to careful Government review and approval.

Finally, the plants proposed will be designed and built to produce low enriched fuel which is suitable only for commercial power reactors—not for nuclear explosives.

In the remote event that a proposed private venture did not succeed, this legislation would enable the Government to take actions necessary to assure that plants will be brought on line in time to supply domestic and foreign customers when uranium enrichment services are needed.

I have instructed the Energy Research and Development Administration to implement backup contingency measures, including continuation of conceptual design activities, research and development, and technology assistance to the private sector on a cost-recovery basis.

ERDA would also be able to purchase from a private firm design work on components that could be used in a Government plant in the unlikely event that a venture fails.

Finally, I pledge to all customers—domestic and foreign—who place orders with our private suppliers that the United States Government will guarantee that these orders are filled as needed. Those who are first in line with our private sources will be first in line to receive supplies under this assurance. All contracted obligations will be honored.

I also pledge that cooperative agreements made with private firms under the proposed new authority will fully reflect the public interest. In fact, all contracts will be placed before the Congress in advance of their effectiveness. The Congress will have full and complete review of each one.

In sum, the program I am proposing will take maximum advantage of the strength and resourcefulness of industry and Government. It will reinforce the world leadership we now enjoy in uranium enrichment technology. It will help insure the continued availability of reliable energy for America. It will move America one big step nearer energy independence.

Although the development of a competitive nuclear fuel industry is an important part of our overall energy strategy, we must continue our efforts to conserve the more traditional energy resources on which we have relied for generations. And we must accelerate our exploration of new sources of energy for the future—including solar power, the harnessing of nuclear fusion and development of nuclear breeder reactors which are safe, environmentally sound and reliable.

I ask the Congress for early authorization of this program.

GERALD R. FORD.

THE WHITE HOUSE, *June 26, 1975.*

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June 26, 1975

Office of the White House Press Secretary

THE WHITE HOUSE

SUMMARY FACT SHEET

THE PRESIDENT'S PLAN FOR A COMPETITIVE
NUCLEAR FUEL INDUSTRY

The President's Action

The President today announced administrative actions and a legislative proposal to:

- Increase the United States' capacity to produce enriched uranium to fuel domestic and foreign nuclear power plants.
- Retain U.S. leadership as a world supplier of uranium enrichment services and technology for the peaceful uses of nuclear power.
- Assure the creation, under appropriate controls of a private, competitive uranium enrichment industry in the U.S. -- ending the current Government monopoly.
- Accomplish these objectives with little or no cost to taxpayers and with all necessary controls and safeguards.

Background

- The U.S. capacity for refining or "enriching" uranium to make fuel for nuclear electric generating plants is now fully committed.
- Work on constructing new capacity must begin soon so that plants will be ready to meet domestic and foreign requirements by about 1982.
- Efforts to encourage the creation of a competitive uranium enrichment industry have shown that certain forms of Government cooperation and temporary assurances are necessary to permit private firms to enter the industry.

- The need for added capacity provides the opportunity for specific actions by the Government to encourage private entry.

Highlights of the Plan

The President's plan includes:

- A legislative proposal, the Nuclear Fuel Assurance Act of 1975, which would authorize the Government to enter into certain cooperative arrangements with private industrial firms that wish to finance, build, own and operate plants to provide uranium enrichment services.

- A pledge by the President to foreign and domestic customers that the Government will assure that orders placed with private producers will be fulfilled as services are needed.

- Opportunities for foreign investment, with control of these plants remaining in U.S. hands.

- All necessary controls and safeguards concerned with (a) preventing the diversion of nuclear materials and the spread of sensitive technology, (b) environmental impact, (c) safety, and (d) antitrust.

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June 26, 1975

Office of the White House Press Secretary

THE WHITE HOUSE

FACT SHEET

THE PRESIDENT'S PLAN FOR A COMPETITIVE NUCLEAR FUEL INDUSTRY

THE PRESIDENT'S ANNOUNCEMENT

The President today announced administrative actions and a legislative proposal to (a) increase the United States' capacity to produce enriched uranium in order to meet the needs of domestic and foreign nuclear power plants, (b) retain U.S. leadership as a world supplier of uranium enrichment services and nuclear power plants, (c) assure the creation, under appropriate controls of a private, competitive uranium enrichment industry in the U.S. -- ending the current Government monopoly; and (d) accomplish these objectives with little or no cost to taxpayers and with all necessary controls and safeguards.

BACKGROUND

- Natural uranium from U.S. and foreign mines must be refined or "enriched" before it can be used to make fuel for nuclear power plants which are used in the United States and in many foreign nations to generate electricity.

- U.S. capacity for enriching uranium which now supplies all domestic and most foreign needs, consists of three Government-owned plants, located at Oak Ridge, Tennessee, Paducah, Kentucky; and Portsmouth, Ohio.

- Since mid-1974, the entire capacity of the three plants has been fully committed under long-term contracts. New enrichment capacity must be on "on-line" beginning in about 1983 to meet the growing domestic and foreign demand for nuclear fuel.

- The potential U.S. market abroad has begun to erode as some potential foreign customers have started looking to sources such as the U.S.S.R., France and a West European consortium for uranium enrichment.

- Since 1971, the Executive Branch has followed policies and programs directed toward assuring that private industry -- rather than the Federal Government -- builds the next increments of U.S. uranium enrichment capacity.

- Several industrial firms have sought to enter the uranium enrichment field but all have found that some forms of Government cooperation and temporary assurances are needed to overcome the initial obstacles to private industry involvement.

THE PLAN

Objectives. The plan announced by the President is designed to meet the objectives of assuring that:

- The next increments of U.S. uranium enrichment capacity will be available when needed to meet the growing demand for fuel for nuclear powered generating plants in the U.S. and in other nations.

- The U.S. maintains its leadership role in enrichment technology and its role as a major world supplier of uranium enrichment services and nuclear power plants -- a role that is important to:

  - Our economy and our world trade position.
  - Our efforts to obtain the commitment of additional nations to accept international safeguards and the principle of nuclear non-proliferation.
  - Our cooperation with other major oil consuming nations which are looking to nuclear power to help reduce their dependence on foreign oil imports.
  - Our longer range goal of developing technology and energy resources to supply a significant share of the free world's energy needs.

- All future increments of capacity will be built, financed and operated by private industry -- rather than by the Federal Government -- so that a competitive industry will exist at the earliest possible date.

- There will be little or no cost to the taxpayer and that the Government will receive increased revenue in corporate taxes and compensation for the use of its inventions and discoveries.

- All necessary domestic and international controls over nuclear materials and classified technology will be maintained, as they would be if the Government were to own the new plants.

Principal Elements of the Plan.

. Legislative Authority for Cooperative Arrangements with Private Firms. The President is asking the Congress to enact promptly the Nuclear Fuel Assurance Act to provide the additional legislative authority needed to enable the Energy Research and Development Administration (ERDA) to negotiate and enter into cooperative arrangements with private industrial organizations that wish to build, own and operate uranium enrichment plants.

- Negotiations would be directed toward the arrangements most advantageous to the Government and the public interest and with a degree of risk to the private firm that is consistent with the objective of creating a private, competitive uranium enrichment industry.

- These arrangements would provide for certain forms of Government cooperation and temporary assurances found to be necessary after detailed negotiations with firms submitting proposals. Arrangements could include:

  . Supplying and warranting Government-owned inventions and discoveries in enrichment technology -- for which the Government will be paid.
  . Selling certain materials and supplies on a full cost recovery basis which are available only from the Federal Government.
  . Buying enriching services from private producers or selling enriching services to producers from the Government stockpile to accommodate plant start-up and loading problems.
  . Assuring the delivery of uranium enrichment services to customers which have placed orders with private enrichment firms.
  . Assuming the assets and liabilities (including debt) of a private uranium enrichment project if the venture threatened to fail -- at the call of the private venture or the Government, and with compensation to domestic investors in the private ventures ranging from full reimbursement to total loss of equity interest, depending upon the circumstances leading to the threat of failure.

- The arrangements would be spelled out in a detailed contract, and the basis for arrangements would be subject to Congressional review.

- It is intended that any undertaking by the Government to acquire assets or interest and to assume liabilities of a private venture would end after approximately one full year of commercial operation of a plant. The precise period would be determined in the negotiation of definitive agreements.

- The Government would monitor progress carefully so that it can be sure that the plant will function properly and will be completed on time and within cost estimates.

. Assurances for Customers. The President announced his pledge to domestic and foreign customers who place orders with private U.S. suppliers that the Government will assure that orders will be filled as services are needed. Those first in line with private suppliers will be first in line to receive services from the Government -- if it were necessary for the Government to take over and complete a private project.

. Controls and Safeguards. The President announced that all necessary controls and safeguards will be maintained in all arrangements with private firms. Such controls and safeguards include:

- Preventing the Diversion of Nuclear Materials or Un-Controlled Spread of Sensitive Technology. All necessary measures will be taken to safeguard the use of the products of plants and to protect sensitive classified technology. These measures include:

  . Effective domestic safeguards and physical security measures to the plants and their products.
  . Continued requirements that exports take place pursuant to appropriate international agreements for cooperation and be subjected to safeguards to prevent diversions.

- Continued classification and protection of sensitive enrichment technology.

Foreign Investment. Foreign investment in private enrichment ventures will be encouraged, but control will remain, as required by law, with U.S. interests. Foreign investors would not require or have access to classified information. Any proposals for sharing technology would be considered separately and would be subject to Governmental review and approval.

- Environmental Impact, Safety and Anti-Trust. Private ventures wishing to build plants will have to obtain from the Nuclear Regulatory Commission (NRC) a construction permit and operating license. As a part of its review, the NRC must evaluate environmental, safety and anti-trust considerations as well as assure that control of the proposed new ventures remain in the U.S. -- as now required by the Atomic Energy Act. NRC also will have responsibility for assuring that the plants are appropriately safeguarded. The Justice Department participates in the review of anti-trust considerations.

IMPLEMENTING ACTIONS

The President announced several administrative actions that are being taken now:

- Negotiations for a Diffusion Plant. ERDA is responding formally to a proposal from the Uranium Enrichment Associates (UEA) offering to enter into negotiations which could lead to the construction by UEA of a $3.5 billion (1976 dollars) plant which would make use of gaseous diffusion technology and which would be on line by about 1983.

- Request for Proposal for Centrifuge Plants. ERDA is issuing today a new request for proposals from industrial firms interested in constructing, owning and operating enrichment facilities making use of centrifuge technology.

- Environmental Impact Statement. ERDA will on June 30 issue for public review and comment a draft environmental impact statement concerned with the expansion of uranium enrichment capacity to be attained through ERDA's implementation of this action.

- Contingency Planning. ERDA will continue with backup contingency measures to assure that capacity will be ready in the unlikely event that industrial efforts falter. These measures include continuation of Government conceptual design activities, research and development on enrichment technologies, and technological assistance to the private sector on a cost recovery basis.

- Diffusion Plant Design Work. ERDA plans to purchase from UEA design work on components for the private diffusion plant that could be used in a Government plant -- if the private venture were unable to proceed.

SPECIFICS OF THE LEGISLATIVE PROPOSAL

Authorizing legislation. The basic enabling legislation proposed today by the President would:

- Authorize Cooperative Agreements.

  - It would permit ERDA to negotiate and enter into cooperative arrangements with firms wishing to build, own and operate uranium enrichment facilities.

  - It would provide authorization for contract authority for amounts up to $8 billion as may be approved in an appropriation act -- which is an estimate of the total potential cost to the Government in the unexpected event that all Government assured diffusion and centrifuge ventures were to fail, and it was then necessary for the Government to assume assets and liabilities of these ventures, take over plants, and compensate domestic investors. The Administration's expectation is that none of these funds would have to be appropriated or expended for the assumption of private ventures, but the authorization is necessary to provide assurance to customers and to potential producers of the Federal Government's commitment to create a competitive industry.

- Provide for Congressional Review. Once contracts were negotiated the Joint Committee on Atomic Energy (JCAE) would be notified and a period of 45 days would have to elapse before a contract would be executed -- to allow an opportunity for Congressional review of the basis for ERDA's arrangements with private firms.

Appropriations Request. The President will later request an appropriation of contract authority which is required by the proposed bill before a contract can be executed, in order to cover the estimated maximum Federal Government exposure for specific projects in the event that it were necessary to assume assets and liabilities. Again, expenditure of these funds for assumption of any private venture is not considered likely.

DEVELOPMENTS LEADING TO THE PRESIDENT'S PLAN

U.S. Leadership in Uranium Enrichment Technology. The United States is the recognized world leader in technology for refining or "enriching" natural uranium to a form that can be used to make fuel for nuclear power reactors. Natural uranium contains only a small amount (approximately .7%) of the fissionable isotope U-235. In order to be useful to make fuel for most nuclear reactors, the concentration of U-235 must be increased to about 2-4% through a process of separating off other isotopes. The technology was developed and is owned by the Federal Government. Certain parts of the technology are classified. Principal U.S. technologies are:

- Gaseous Diffusion. This technology which is now used in the three existing government-owned enrichment plants was developed in the 1940's. Over 30 years of large scale operating experience and process improvement have made the technology the most reliable and economical now available for commercial scale operations. The next increment of capacity must make use of this technology.

- Gas centrifuge. The gas centrifuge process of uranium enrichment provides an alternative to gaseous diffusion. Full operation of a Government pilot plant is scheduled for early 1976. If the projected economics of the process are realized, gas centrifuge technology is expected to be used as subsequent increments of commercial capacity are added.

- Laser Separation. ERDA is conducting a basic research program to determine whether this technology is technically or commercially feasible. Even if successful, the technology will not be available in time to be used for the next several increments of needed enrichment capacity.

Existing U.S. Capacity. The three Government-owned uranium enrichment plants will, when currently authorized expansion is completed, have the capacity to produce enriched uranium needed to fuel about 300 large nuclear-powered electric generating plants in the U.S. and foreign countries.

The Growing Market. Current estimates are that the U.S. will require for domestic needs added enrichment capacity by 2000 equal to 6 to 9 plants the size of any one of the three existing plants and that added capacity for the total market served by the U.S. will equal 9 to 12 similar size plants.

Potential Foreign Suppliers. The principal existing capacity for enriching uranium outside the U.S. is in the Soviet Union. A French-led diffusion plant project (Eurodif) is expected to begin production in 1979 and its capacity is reported to be fully committed. A British-German-Dutch consortium (Urenco) plant will also begin expanded operations in 1979. Plans for additional plants are being discussed by France, Canada, South Africa, Japan, Australia and Brazil.

The Program to Develop a Competitive Industry. The Atomic Energy Act of 1954 provides that "the development, use and control of atomic energy shall be directed so as to ... strengthen free competition in private enterprise". An Executive Branch policy to encourage private industry to build the next increments of uranium enrichment capacity was announced in June 1971. Beginning in 1973, the Atomic Energy Commission (AEC) asked private firms to consider building, owning and operating enrichment plants and granted qualified U.S. firms access to classified aspects of the Government's work, under carefully controlled security conditions, in order that they might make their own assessment of the commercial potential for private enriching plants. A number of firms responded to the invitation from which several consortia have emerged which are interested in pursuing the possibility of building enrichment plants.

- Diffusion Plant. One consortium -- the Uranium Enrichment Associates (UEA) -- is interested in constructing a $3.5 billion gaseous diffusion plant equivalent to the expanded capacity of one of the 3 existing Government-owned plants.

- Centrifuge Plants. Other firms and consortia -- Centar, Exxon Nuclear and Garrett Corporation -- have expressed interest in cooperative arrangements with the Federal Government which would lead to demonstration gas centrifuge plants which could be expanded in the future to commercial scale plants. The AEC (predecessor to ERDA) requested proposals from industry to advance the demonstration of centrifuge technology. A modified request for proposals is being issued today by ERDA.

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Obstacles to the Entry of Private Industry. All firms interested in building, owning and operating a private plant have concluded that some form of Government cooperation and temporary assurances are essential to begin the transition to a private competitive industry. Among the factors that have contributed to this conclusion are:

- The complexity of the undertaking, including the Federal ownership and the classification of the technology.
- The large financial commitment required and the difficulty encountered in trying to obtain private financing.
- The inherent difficulties of ending a Government monopoly.
- The recent adverse financial situation of U.S. electrical utilities which are the customers for a plant. (Their long term contracts for uranium enrichment services must provide security for the long term financing required.)
- Some uncertainty as to whether the Government would follow through on its commitment to achieve privatization.

Alternatives to Private Entry. The principal alternatives to an immediate effort to achieve privatization include:

- All future additions to capacity financed, built and owned by the Federal Government, thus continuing indefinitely the existing monopoly.
- Government financing and ownership of one or more additional increments of capacity, followed by another attempt to achieve privatization.

A thorough review indicated that, regardless of the alternative selected:

- The next increment of capacity can be on line when needed (now estimated about 1983).
- Controls and safeguards involving classified technology and non-proliferation of nuclear materials can be maintained.
- Customers for the next increment are expected to be largely foreign.
- Foreign investments in an enrichment plant can be accommodated

This review led to the conclusion that the task of explaining and implementing the plan for achieving a private industry would be difficult and that a substantial effort would be required by both the Congress and the Executive Branch, but that the benefits of privatization justified the effort. The benefits of privatization include:

- Avoiding a cost to taxpayers of $40 to $50 billion for plants that should be on line by 2000, if the Federal Government were to finance and own the plants. (These funds would not be recovered to the Treasury for many years.) Under the President's plan, revenue of about $90 to $100 million per plant per year would flow to the Federal Treasury from industry, principally from taxes and payments for the use of Government inventions and discoveries.

- An early end to the Government monopoly in a type of commercia activity.

- Avoiding expansion of the public sector when industry is willing and able to do the job.

- Competition which would provide incentives for lower costs and additional improvements in technology.

The Proposal from Uranium Enrichment Associates (UEA). Uranium Enrichment Associates is a consortium currently consisting of Bechtel Corporation and the Goodyear Tire and Rubber Company. On May 30, 1975, UEA submitted a revised proposal to ERDA calling for cooperative arrangements with the Federal Government. The principa features of the UEA proposals are summarized in Attachment #1. A contract containing the details of a cooperative agreement would be negotiated by UEA and ERDA.

Centrifuge Enriching Projects -- Request for Proposals.

- In August of 1974 the Government announced a program expected to lead to several relatively small industry constructed demonstration projects.

- Gas centrifuge technology has not yet been applied on a production scale sufficient to permit full industry commitment to large plants. At least three companies are interested in undertaking private centrifuge enriching projects now which would be scaled up progressively from small demonstration modules to a capacity the economies of scale for centrifuge enriching are expected to be largely realized. These are expected to be 1/3 to 1/2 the capacity of the planned diffusio plant.

- Government-industry cooperative arrangements similar to that required for the UEA diffusion project may be required.

- A Request for Proposals for this program which extends and elaborates upon the earlier program is being issued today:

  - Proposals will be due on October 1, 1975 and it is the Government expectation that several proposals could be accepted to proceed more or less in parallel with each other and with the UEA project.

  - Proposers will describe their proposed project in detail, including plant design, size, location and schedules and specify the type and magnitude of Government support necessary to proceed.

  - Small initial modules, perhaps 200-300 thousand units per year could be in operation in the early 1980's with 2-3 million unit commercial scale plants achieved in the mid-1980's on a time frame consistent with the growth of the market.

- Centrifuge technology permits adding small capacity increments as required to closely follow market needs.

- Proceeding with several centrifuge demonstration projects in the same time frame as the gaseous diffusion plant will furthe the objective of developing a private, competitive enriching industry and maintaining U.S. world leadership in this field.

OTHER ACTIONS RELATED TO URANIUM ENRICHMENT CAPACITY

Increasing ERDA's Charge for Uranium Enrichment Services.

- The current price charged by ERDA for uranium enrichment is based on a statutory formula which says that ERDA's charge must be established on the basis of the recovery of the Government's costs over a reasonable period of time. Application of the formula has resulted in a present charge of about $42 to $48 per separative work unit, depending on the type of contract a customer has with ERDA. This price will rise by the end of 1975 to about $53 and $60 per unit. These prices reflect the low cost of construction during the 1940's and 1950's for plants built primarily for military purposes. These prices are much lower than the quoted world market prices of enrichment services of between $75 to $100 per unit.

The President announced in his 1976 Budget his intention to propose legislation to the Congress to permit ERDA to raise the price of enrichment services from its plants. The new price would be established to recover the Government's costs and place the pricing of Government enriching services on a more business-like basis. This step would encourage private sector interest in building enrichment facilities and end an unjustifiable subsidy to both foreign and domestic customers. The new price would include a rate of return on investment more appropriate to the private sector than the Government's rate of return, an allowance equivalent to corporate income taxes and also include other costs typical of private operations. On this basis the new price per separative work unit will be approximately $76.

- This legislation has been submitted to the Congress by ERDA.

Contract Relief for Current ERDA Enrichment Customers.

- Present ERDA enrichment contracts require customers to commit to a fixed delivery schedule and to make prepayments amounting to about $3 million per plant several years prior to the first delivery of enriched fuel. Since these contracts were signed, many nuclear power plants whose fuel was covered by these contracts have been postponed or cancelled.

- As a result, many utilities now face the prospect of having to pay for uranium enrichment services well in advance of the revised completion dates for the reactors.

- In order to free both ERDA and the enrichment customers from unrealistic commitment, ERDA, after notifying the Joint Committee on Atomic Energy (JCAE), has announced that it will:

  - Grant customers the right within a 60-day period to serve notice that they wish to terminate their contract with no cancellation fee and with refund of any payments.

  - Permit those wishing to defer deliveries (rather than terminate contracts) to have a one-time adjustment of contract commitments without penalty.

  - Permit a similar one-time adjustment of the rate at which uranium feed should be sent to the enriching plants to coincide in part with the slipped enrichment requirements.

- These actions would:

  - Result in a larger U.S. stockpile of enriched uranium for use as an inventory to support the new private uranium enrichment plants with backup supplies of enriched material, should any delays occur in their initial operation.

  - Establish a more realistic data base for evaluating future domestic and foreign enrichment requirements.

  - Grant needed short-term financial relief to the utility industry.

ERDA Conditional Contracts for Enrichment Services.

- Some customers placing orders with AEC (predecessor to ERDA) in mid-1974 were given conditional contracts; i.e., contracts contingent upon the approval by U.S. regulatory authorities (now the Nuclear Regulatory Commission) of the use of recycled plutonium as a nuclear reactor fuel. These conditional contra were backed up by announcement that the U.S. would have expand capacity available that could fulfill requirements, if needed.

- The expanded U.S. capacity that will result from the President plan will provide sources of supply that can be tapped by the holders of conditional contracts.

ATTACHMENT #1

SUMMARY OF THE URANIUM ENRICHMENT
ASSOCIATES (UEA) PLAN AND PROPOSAL TO ERDA FOR
A COOPERATIVE ARRANGEMENT

Physical Description of the Project.

- A 9 million separative work unit per year gaseous diffusion plant would be built near Dothan, Alabama on a 1720 acre site on the Chattahoochee River.
- When in full operation the plant could provide enriching services for about 90 large nuclear power reactors.
- The plant will require about 2500 megawatts of electrical power which will be supplied from a dedicated nuclear power facility located nearby.
- Project cost estimate (exclusive of the power project) has been estimated by UEA to be $3.5 billion in 1976 dollars.
- UEA projects continuation of design work now underway on the project during the next several years with construction scheduled to commence in 1977.
- Full production from the plant is projected in 1983 with limited production starting in 1981.
- Nearly 50 million construction manhours are estimated for the project. A peak construction labor force of about 7000 workers will be reached in 1979-80 and the permanent operating staff of the project is expected to be about 1100.
- The plant will be processing and upgrading natural uranium and thus will have essentially no radiation hazard. It will be similar to a large materials handling plant except that the product material will be much more valuable.

Financial Structure of UEA Project.

- UEA expects that two to six companies in addition to Bechtel and Goodyear will comprise the consortium that will undertake the project. These companies are expected to be identified within the next few months.

- Based upon marketing efforts to date, UEA projects that about 40 percent of plant capacity will be taken by U.S. domestic utilities and the balance by non-U.S. organizations in countries with which the United States has Agreements for Cooperation permitting the transfer or disposition of enriched uranium. (Under the Atomic Energy Act voting control for such a project must remain in the hands of the United States investors at all times and the project is so structured. The secrecy of the process will be protected and foreign customers or investors will not have access to classified technology or information.)

- Project financing using an 85 percent debt, 15 percent equity ratio is contemplated for the project.

- The equity corresponding to the domestic portion of plant output will be supplied by UEA and the debt financing will be raised in the commercial market primarily on the basis of the security of long-term (25 year) non-cancelable enrichment service contracts with domestic utilities.

- Both equity and debt for the foreign share of plant output is to be supplied from the foreign customers' own sources of capital.

- Pricing of product from the plant is based upon the recovery of all operating costs, servicing of debt and an after-tax return of approximately 15 percent on equity.

- A 3 percent payment, based on gross sales would be paid to the Government for use of taxpayer-developed technology.

Customers.

- A number of United States' utilities have executed contingent letters of intent with UEA to purchase uranium enriching services from the new plant and a number of additional utilities are now evaluating their requirement for services.

- UEA has made extensive marketing contacts overseas and anticipates that foreign orders will be forthcoming.

Cooperative Arrangements.

- Due to the unique nature of the project, the very large capital requirements, and long payout periods, UEA has concluded that it would not be possible to move ahead without certain forms of Government backup assistance.

- UEA has proposed that the Government:

  - Supply, at cost, essential components presently produced exclusively by the Government.
  - Supply the Government's gaseous diffusion technology and warrant its satisfactory operation.
  - Buy enriching services from UEA or sell enriching services to UEA from the Government stockpile to accommodate plant start-up and loading problems.

- UEA has also proposed that:

  - The Government provide standby financial backup assistance lasting for the critical construction period plus approximately one additional year to offset the current weak credit position of the U.S. utility industry. The Government provide financial backup if UEA cannot complete the plant or bring it into commercial operation. A call on this financial backup is made at the risk of loss to UEA of its equity interest. In this event, the Government has the right to acquire UEA's domestic equity position and the obligation to assume UEA's liabilities and debt.
  - The Government may also require UEA to release the project to the Government if the Government's interest so demands. In this event, the Government would be obligated to assume UEA's liabilities and debt.
  - The consideration for acquisition of UEA's domestic equity position in either case can range from loss of equity for uncorrected gross mismanagement of UEA to full fair compensation for causative events outside UEA's reasonable control.

All of the above forms of backup assistance would be subject to contract negotiations between ERDA and UEA. UEA believes that the plant can be completed within the private sector with no net expenditure of Government funds.

ATTACHMENT #2

Uranium Enrichment as Part of the Nuclear Fuel Cycle

The attached chart depicts the nuclear fuel cycle for Light Water Reactors (the type of reactors most commonly used in the U.S.). About 97% of the reactors obtaining enrichment services from the ERDA gaseous diffusion plants are Light Water Reactors a similar fuel cycle exists for the other present reactor type -- the High Temperature Gas Cooled Reactor.

Prior to the enrichment step, uranium ore is mined from the earth's crust and sent to a mill where uranium concentrate is produced. This concentrate is often referred to as yellowcake, or by the chemical symbol, U_3O_8. There are 14 mills presently operating in the U.S. The uranium concentrate is then sent to a converter where it is converted to uranium hexafluoride, or UF_6. This is the only simple form of uranium that can be gaseous at conditions near room temperatures and pressures. There are two UF_6 conversion plants operating in the U.S.

The uranium hexafluoride is then sent to a uranium enrichment plant. There are two processes under consideration for commercial use in the U.S. - the established gaseous diffusion process, used in the ERDA plants, and the gas centrifuge process. The UEA will use the gaseous diffusion process. In the process, the uranium hexafluoride gas is pumped through a semipermeable membrane. The desirable fissionable isotope, U 235, diffuses through the membrane more readily than the nonfissionable isotope U 238. A stream depleted in U 235 is collected from the plant and sent to storage. A stream enriched in U 235 is collected from the plant and sent to a fuel fabrication plant. In this plant, the uranium hexafluoride is converted to uranium dioxide UO_2, formed into pellets, and placed in zirconium tubes. The tubes are assembled into bundles and sent to nuclear power plants. Seven U.S. companies are involved in the fabrication of nuclear fuel.

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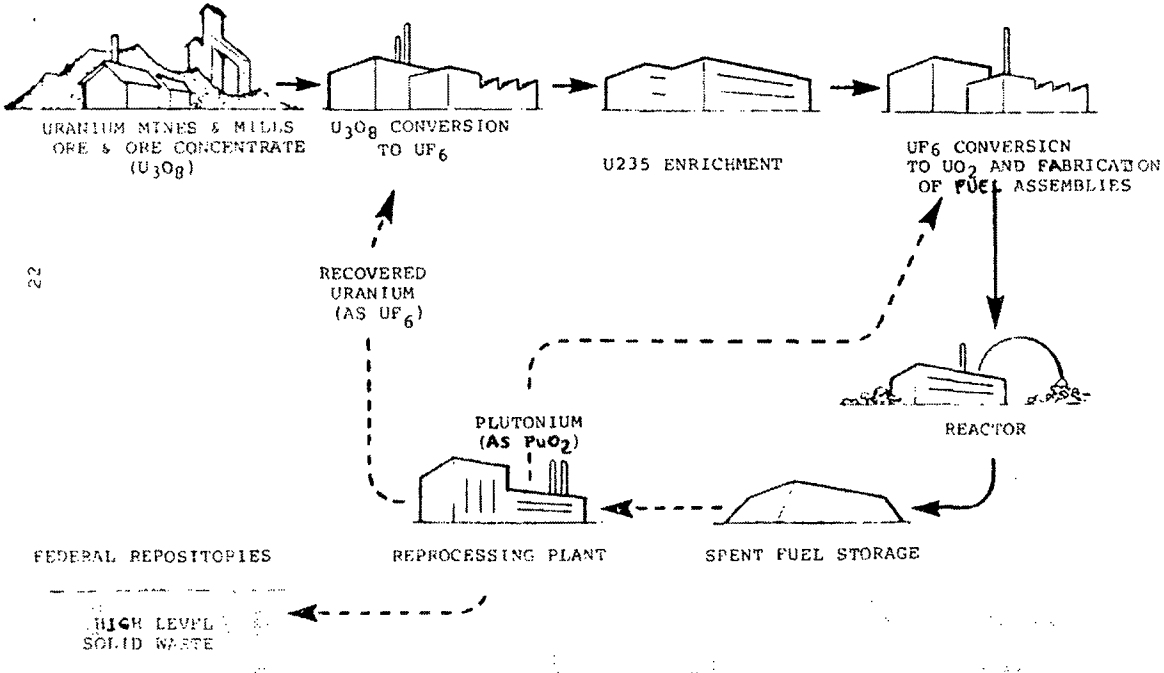
After the fuel is used in the nuclear power plant, it is discharged and allowed to cool in a large water basin at the plant. The spent fuel will then be sent to a chemical reprocessing plant. In this step, the uranium and reactor-produced plutonium will be separated from the highly radioactive fission products generated while the fuel is in the nuclear power plant. The radioactive wastes in proper form will be sent to a repository. The recovered uranium will be converted again to the hexafluoride and reinserted into the enrichment plants for reenrichment. Plutonium is also a fissionable material that can be used as fuel in a nuclear power plant. If use of the plutonium is granted by the Nuclear Regulatory Commission, it would be sent to the fuel fabrication plants; there it would be mixed with the uranium and formed into pellets for nuclear power plant fuel. There are currently no commercial chemical reprocessing plants operating in the U.S.; one plant is shut down for modification and another is under construction.

The Light Water Reactor Nuclear Fuel Cycle



June 26, 1975

Office of the White House Press Secretary

THE WHITE HOUSE

TEXT OF LETTERS FROM THE PRESIDENT TO THE
SPEAKER OF THE HOUSE OF REPRESENTATIVES
AND THE PRESIDENT OF THE SENATE

June 26, 1975

Dear Mr. Speaker: (Dear Mr. President:)

I have today sent to the Congress a message describing my plan for securing the construction of additional uranium enrichment plants in the United States by private industry to meet the growing needs of the expanding nuclear power industry.

A critical element of this plan is legislation to authorize the Administrator of the Energy Research and Development Administration to enter into cooperative agreements with private firms to foster, through Government cooperation and temporary assurances, the creation of a competitive private uranium enrichment industry. I am enclosing a proposed bill, the Nuclear Fuel Assurance Act of 1975, which would provide the authority needed to achieve the objectives described in my message. A brief analysis of the bill is also enclosed.

I urge the Congress to pass this legislation at the earliest possible date so that we can take a major step toward our goal of energy independence.

Sincerely,

GERALD R. FORD

A BILL

To authorize cooperative arrangements with private enterprise for the provision of facilities for the production and enrichment of uranium enriched in the isotope 235, to provide for authorization of contract authority therefor, and for other purposes.

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Nuclear Fuel Assurance Act of 1975."

Sec. 2. Chapter 5. PRODUCTION OF SPECIAL NUCLEAR MATERIAL of the Atomic Energy Act of 1954, as amended, is amended by adding at the end thereof the following Section:

"Sec. 45 Cooperative Arrangements for Private Projects to Provide Uranium Enrichment Services --

"a. The Energy Research and Development Administration is authorized, without regard to the provisions of Section 169 of this Act, to enter into cooperative arrangements with any person or persons for such periods of time as the Administrator of the Energy Research and Development Administration may deem necessary or desirable for the purpose of providing such Government cooperation and assurances as the Administrator may deem appropriate and necessary to encourage the development of a competitive private uranium enrichment industry and to facilitate the design, construction, ownership and operation by private enterprise of facilities for the production and enrichment of uranium enriched in the isotope 235 in such amounts as will contribute to the common defense and security and encourage development and utilization of atomic energy to the maximum extent consistent with the common defense and security and with the health and safety of the public; including, inter alia, in the discretion of the Administrator,

(1) furnishing technical assistance, information, inventions and discoveries, enriching services, materials, and equipment on the basis of recovery of costs and appropriate royalties for the use thereof;

(2) providing warranties for materials and equipment furnished;

(3) providing facility performance assurances;

(4) purchasing enriching services;

(5) undertaking to acquire the assets or interest of such person, or any of such persons, in an enrichment facility, and to assume obligations and liabilities (including debt) of such person, or any of such persons, arising out of the design, construction, ownership, or operation for a defined period of such enrichment facility in the event such person or persons cannot complete that enrichment facility or bring it into commercial operation: Provided that any undertaking, pursuant to this subsection 5, to acquire equity or pay off debt, shall apply only to individuals who are citizens of the United States, or to any corporation of other entity organized for a common business purpose, which is owned or effectively controlled by citizens of the United States; and

(6) determining to modify, complete and operate that enrichment facility as a Government facility or to dispose of the facility at any time, as the interest of the Government may appear, subject to the other provisions of this Act.

"b. Before the Administrator enters into any arrangement or amendment thereto under the authority of this section, or before the Administrator determines to modify, or complete and operate any facility or to dispose thereof, the basis for the proposed arrangement or amendment thereto which the Administrator proposes to execute (including the name of the proposed participating person or persons with whom the arrangement is to be made, a general description of the proposed facility, the estimated amount of cost to be incurred by the participating person or persons, the incentives imposed by the agreement on the person or persons to complete the facility as planned and operate it successfully for a defined period, and the general features of the proposed arrangement or amendment), or the plan for such modification, completion,

operation or disposal by the Administrator, as appropriate, shall be submitted to the Joint Committee on Atomic Energy, and a period of forty-five days shall elapse while Congress is in session (in computing such forty-five days, there shall be excluded the days on which either House is not in session because of adjournment for more than three days) unless the Joint Committee by resolution in writing waives the conditions of, or all or any portion of, such forty-five day period: Provided, however, that any such arrangement or amendment thereto, or such plan, shall be entered into in accordance with the basis for the arrangement or plan, as appropriate, submitted as provided herein."

Sec. 3. The Administrator of the Energy Research and Development Administration is hereby authorized to enter into contracts for cooperative arrangements, without fiscal year limitation, pursuant to Section 45 of the Atomic Energy Act of 1954, as amended, in an amount not to exceed in the aggregate $8,000,000,000 as may be approved in an appropriation Act. In the event that liquidation of part or all of any financial obligations incurred under such cooperative arrangements should become necessary, the Administrator of the Energy Research and Development Administration is authorized to issue to the Secretary of the Treasury notes or other obligations up to the levels of contract authority approved in an appropriation Act pursuant to the first sentence of this section in such form and denomination, bearing such maturity and subject to such terms and conditions as may be prescribed by the Administrator with the approval of the Secretary of the Treasury. Such notes or other obligations shall bear interest at a rate determined by the Secretary of the Treasury, taking into consideration the current average market yield on outstanding marketable obligations of the United States of comparable maturity at the time of issuance of the notes or other obligations. The Secretary of the Treasury shall purchase any notes or other obligations issued hereunder and, for that purpose, he is authorized to use as a public debt transaction the proceeds from the sale of any securities issued under the Second Liberty Bond Act, as amended, and the purposes for which securities may be issued under that Act, as amended, are extended to include any purchase of such notes and obligations. The Secretary of the

Treasury may at any time sell any of the notes or other obligations acquired by him under this section. All redemptions, purchases and sales by the Secretary of the Treasury of such notes or other obligations shall be treated as public debt transactions of the United States. There are authorized to be appropriated to the Administrator such sums as may be necessary to pay the principal and interest on the notes or obligations issued by him to the Secretary of the Treasury.

Section 4. The Administrator of the Energy Research and Development Administration is hereby authorized to initiate construction planning and design activities for expansion of an existing uranium enrichment facility. There is hereby authorized to be appropriated such sums as may be necessary for this purpose.

Bill Analysis

Section 1 of the proposed bill cites the Act as the "Nuclear Fuel Assurance Act of 1975."

Section 2 of the proposed bill would amend Chapter 5, Production of Special Nuclear Material, of the Atomic Energy Act, as amended, by adding a new Section 45 entitled "Cooperative Arrangements for Private Projects to Provide Uranium Enrichment Services."

Subsection a. of the new Section 45 would authorize the Administrator of the Energy Research and Development Administration (ERDA) to enter into cooperative arrangements with private enterprise to facilitate the development of a competitive private industry for the enrichment of uranium to make fuel for nuclear power plants. This subsection would enable the Administrator to promote private investment in the construction, ownership and operation of uranium enrichment plants by providing such Government cooperation and assurances as are determined to be necessary and in the best interests of the Government after detailed negotiation with selected individual proposers of enrichment services. Such negotiations would be directed toward obtaining arrangements most advantageous to the Government and the public interest and with a degree of risk to the private entrepreneurs consistent with the objective of creating a private competitive uranium enrichment industry.

Cooperative arrangements authorized by Section 45a could include such Government cooperation and assurances as enumerated in the bill, including the specific authority provided in subsection 45a(5), for the Government to acquire the assets or interests and assume the liabilities (including debt) of a private enrichment firm in the event -- which is highly unlikely -- that private industry could not complete a plant or bring it into operation. It is intended that any undertaking by the Government under subsection 45a(5) to acquire assets or interest and to assume liabilities of a private venture would terminate after approximately one year of commercial operation of a plant. The precise period would be defined during the negotiations of defined agreements. Any obligations to pay off debt and to acquire equity interest would be limited to citizens of the United States.

Subsection b. of the new Section 45 would provide for review by the Joint Committee on Atomic Energy of the basis for any cooperative arrangement, or amendment

thereof, which the Administrator proposes to undertake, including the basis for acquiring assets or interests, or assuming liabilities of any private venture, and any plan the Administrator may have for modifying, completing operating, or disposing of any plant built under a cooperative agreement.

Section 3 of the proposed Nuclear Fuel Assurance Act would authorize the Administrator of ERDA to enter into contracts, pursuant to the new subsection 45a, in an amount not to exceed $8 billion, as may be provided in appropriation Acts. This amount is an estimate of the total potential cost to the Government in the unexpected event that all private ventures covered by cooperative arrangements were to fail and it was then necessary for the Government to assume assets and liabilities of the ventures, take over plants and compensate domestic investors. It is not expected that any of these funds would be expended for the assump tion of private ventures, but the authorization is necessary to provide assurance, to customers and sources of debt financing for private producers, of the Federal Government's commitment to create a competitive industry.

Section 3 would also provide that, in the event of Government assumption of the debts, interests and lia bilities of a private venture, the Administrator is authorized to secure funds through the Secretary of the Treasury to liquidate contract authority, up to the levels previously provided in an appropriations Act.

Section 4 of the proposed bill would authorize the Administrator of ERDA to initiate preliminary engineering design and planning for expansion of a Government-owned uranium enrichment facility for contingency purposes.

# # # #

REMARKS OF THE PRESIDENT REGARDING HIS COMPROMISE ON OIL DECONTROL

JULY 14, 1975

The PRESIDENT. I have a short statement I would like to read.

To reduce our growing dependence on foreign oil, I will send to the Congress a compromise plan to phase out remaining Government price controls on domestic oil by January 1978.

During this period of decontrol, a price ceiling will be placed on all domestically produced oil to insure that American crude oil prices cannot be dictated by foreign oil producers.

By removing Government controls, production of oil here at home can be stimulated and energy conserved. Decontrol and the import fees I imposed earlier will reduce our dangerous reliance on foreign oil by almost 900,000 barrels a day in just over two years.

There is no cost-free way to reduce our dependence on increasingly expensive foreign oil. Gradual decontrol will result in a price increase on all petroleum products less than one and one-half cents per gallon by the end of this year, and 7 cents by 1978.

This is a small price to pay for our national independence from the costly whims of foreign suppliers.

If the Congress acts on this compromise on my proposed energy taxes, including the tax on excessive profits of oil companies, and on my proposed refunds to the American consumer to make up for higher energy costs, then the burden of decontrol will be shared fairly, our economic recovery will continue and we will be able to protect American jobs.

The problem is 60 percent of all domestic production is still price controlled at about $5.25 per barrel. This price discourages the use of new and more expensive production techniques. It encourages wasteful use of the limited domestic resource.

But, the powers that I possess under the current law to phase out controls are limited. Either the Senate or the House of Representatives can prevent gradual decontrol from going into effect.

This morning, I held a meeting on this subject with the Democratic and Republican leaders of the House and the Senate. It was recognized that this is a very complicated matter. There seems now to be an agreement that the Nation must have both a short-range and long-range solution to energy problems, and as anyone knows who has seriously studied the matter and who is honest with himself, there is no option or alternative available that is free.

I would hope the Congress would give this important matter the very serious consideration that it deserves and not take hasty action.

I will continue to urge the Congress to accept this reasonable compromise. If it does not, one alternative to insure continued progress toward energy independence would be to veto an extension of the present oil price control law, which will expire in August.

But, the plan I prefer will gradually lift price restrictions on controlled oil and place a ceiling on all domestic rude oil prices.

We still have the choice of acting in our own best energy interests instead of reacting to decisions made by foreign countries. We must start thinking of the energy crisis in terms of American jobs, homes, food and financial security.

Our economic well being and our national security depend upon American control of the American economy. We cannot jeopardize our country's future by ducking the tough energy choices today. We must pay whatever the price is that is necessary to give us command of our own economic destiny.

Thank you very much.

QUESTION. Mr. President, did you run into any opposition at the meeting this morning?

The PRESIDENT. We had a minimum of opposition. We had a greater understanding of the complexity of this problem. It was a very beneficial meeting in that there was this understanding and recognition that the energy problem had to be faced very squarely if we were to solve the problem of American independence and to get our own house in order so that we could protect ourselves from the vulnerability of foreign producers.

Thank you very much.

The PRESS. Thank you, Mr. President.

July 14, 1975

Office of the White House Press Secretary

THE WHITE HOUSE

FACT SHEET

The President's Compromise Oil Decontrol Plan

THE PRESIDENT'S ANNOUNCEMENT

The President today announced administrative actions to gradually decontrol the price of old oil (oil now under federal price controls) over a 30-month period. In addition, the President announced for the same period a ceiling on the price of all uncontrolled domestic oil (other than from wells which produce less than 10 barrels per day which are currently exempted from controls) equal to the price of uncontrolled domestic crude oil in January, 1975, plus two dollars a barrel to account for the import fees already in place. This will be approximately $13.50.

The President also called for enactment of energy taxes including a windfall profits tax (with appropriate plow-back provisions) and extension of the Emergency Petroleum Allocation Act to implement the decontrol plan. These actions will result in substantial energy savings, provide an incentive for expanding domestic production, and ultimately remove a complex and counter-productive set of regulations.

Under the President's plan imports will be reduced and prices will increase gradually, but consumers will receive energy tax rebates. Phased decontrol will thus not impede economic recovery.

BACKGROUND

-- The price of old oil is currently controlled at an average of about $5.25 per barrel, while the average price of new domestic oil is now uncontrolled and is about $13.00.

-- Controlled oil currently represents about 60 percent of domestic oil production. New, released, and stripper well oil account for the remainder.

-- Domestic oil production has been declining since 1970 (it is down 11% since early 1973) and is now about 8.4 million barrels per day (MMB/D), a decline of more than 500,000 barrels per day from last year (see chart 1).

-- Imports are predicted to average about 6.5 million B/D, but are expected to rise to up to 7 MMB/D by the end of this year, which is about 40% of domestic consumption.

-- Imports are expected to grow to an average of more than 7.5 MMB/D in 1977, if no action is taken to reduce demand or increase supply. The added imports in the next two years are expected to come mainly from Arab nations and could double our vulnerability to an embargo (see chart 2).

-- The Emergency Petroleum Allocation Act of 1973, which requires the control of prices and distribution of oil expires on August 31, 1975.

-- None of the measures requested by the President almost 6 months ago in his State of the Union Address has been enacted by the Congress.

-- The President originally proposed in his State of the Union Address immediate and total decontrol in April, 1975. In response to concerns expressed by some Members of Congress, on April 30, 1975, the President directed FEA to develop a 25-month compromise decontrol plan. The Federal Energy Administration held public hearings on this proposal in May.

-- Under provisions of the Emergency Petroleum Allocation Act, either House of Congress has five working days in which to disapprove a decontrol plan by majority vote.

OBJECTIVES OF THE PLAN

The plan announced by the President is designed to meet the following objectives:

-- Achieve a major reduction in imports by providing an incentive to increase domestic production and by cutting demand through increased conservation.

-- Reduce the power of foreign oil cartels to control the prices Americans pay for energy.

-- Provide a compromise decontrol plan acceptable to the Congress.

-- Remove over a 2-1/2 year period the complex, counter-productive, and administratively burdensome government regulations.

-- Eliminate excessive oil company profits and minimize consumer and economic impact by rebating energy taxes.

PRINCIPAL ELEMENTS OF THE PLAN

Today's proposal by the President would gradually remove price controls from all currently controlled oil over a 30-month period beginning August 1 of this year and ending in January 1978. Each month the amount of oil under controls is decreased by an additional 3.3% of a decontrol base production level (which is the average monthly production of old oil during April, May and June of this year).

The 30-month ceiling on prices for domestic crude oil proposed by the President would be equal to the highest price charged for a particular uncontrolled domestic crude oil in the month of January 1975, plus $2.00 per barrel -- the current import fee -- for a total of approximately $13.50 per barrel.

Prices of domestic oil produced from stripper wells -- wells producing less than 10 barrels per day -- are not now controlled nor would they be under the President's proposal.

The President also announced that along with the decontrol plan, he would urge the Congress to enact his proposed energy taxes including a windfall profits tax with appropriate plowback provisions and to extend the Allocation Act with appropriate modifications to cover this 30-month decontrol period.

IMPACT OF THE PLAN

On Prices:

The President's phased decontrol plan will increase the average petroleum product price (such as gasoline) by a cumulative amount of approximately:

End of		
1975	-	1¢/gal.
1976	-	4¢/gal.
1977	-	7¢/gal. (Total)

On Import Savings:

	(barrels per day)	
End of	Phased decontrol	Phased decontrol and existing $2 import fee
1975	25,000	175,000
1977	300,000	900,000

CHART 1

DOMESTIC PRODUCTION OF CRUDE OIL

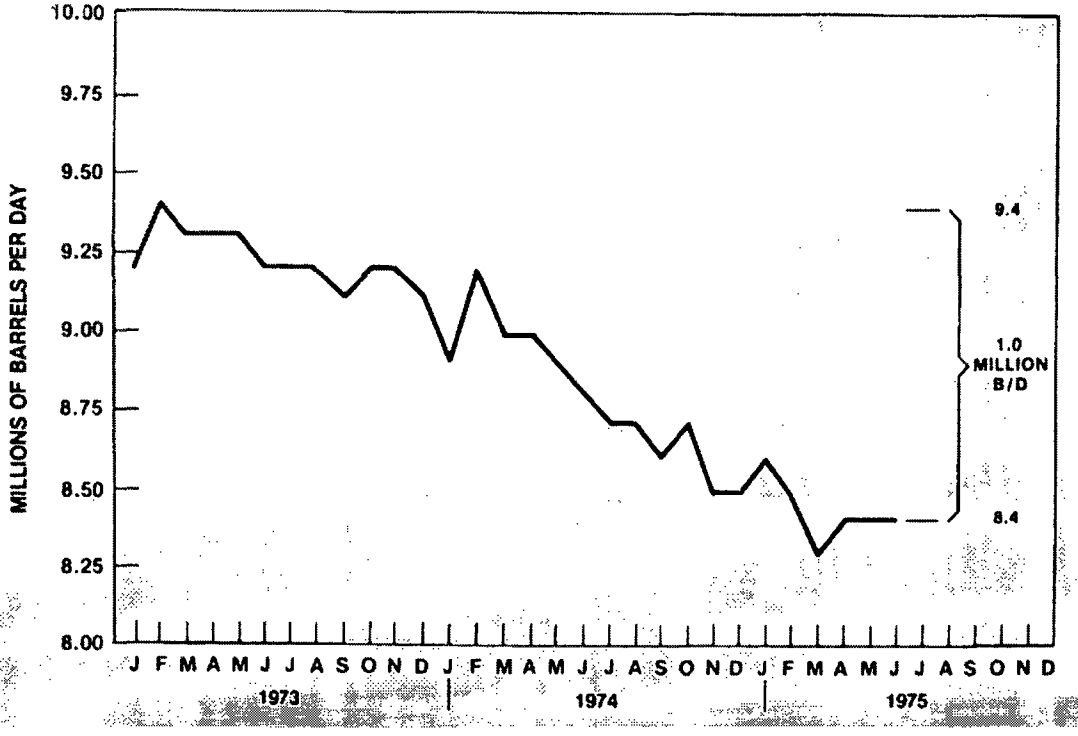


CHART 2

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS

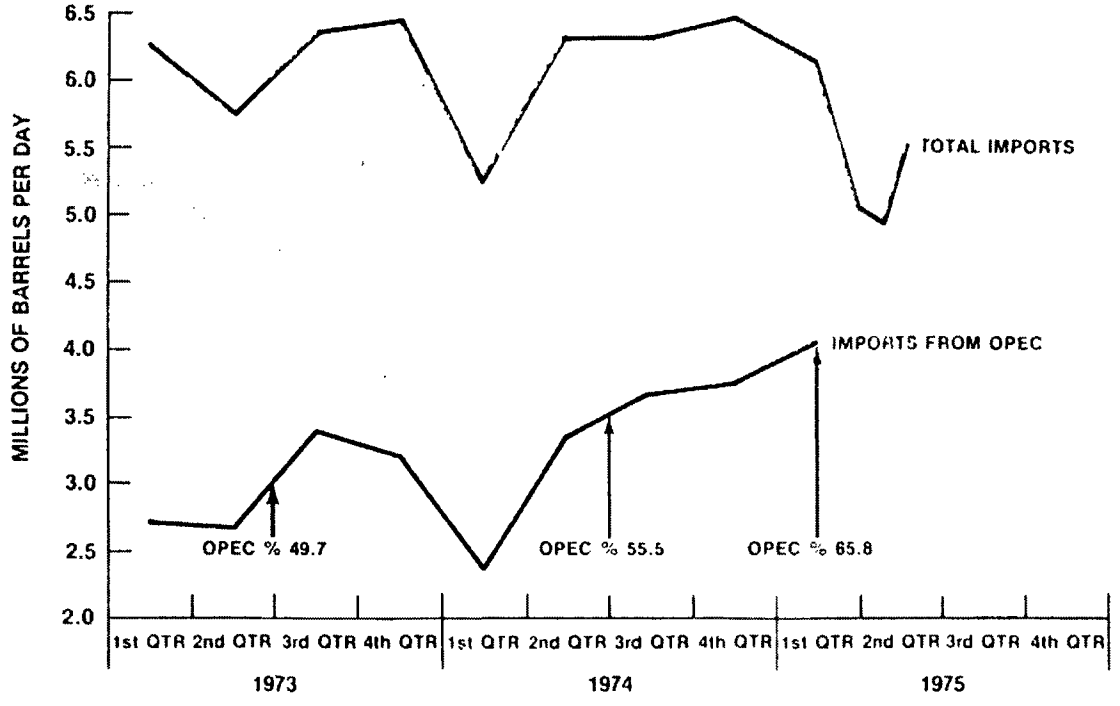
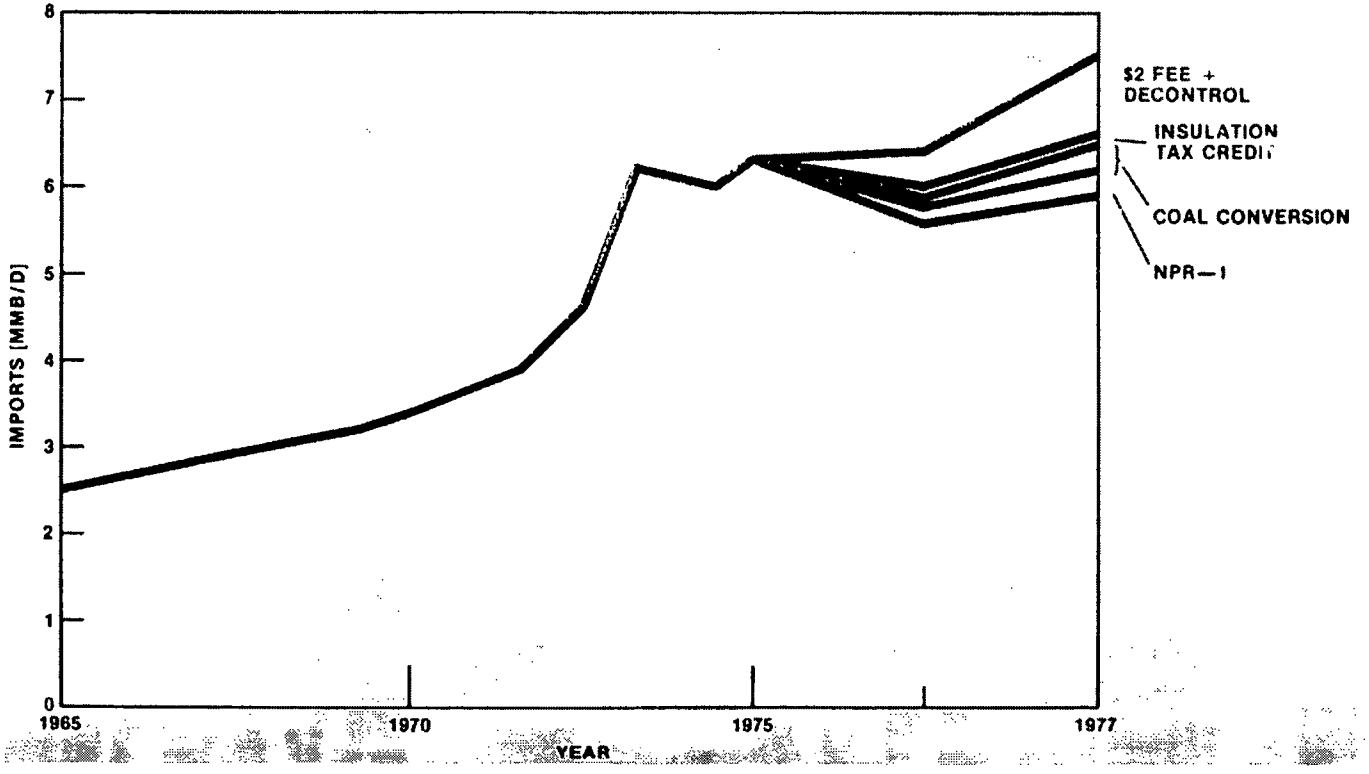


CHART 3

EFFECTS OF PRESIDENT'S PROPOSALS



MESSAGE TO THE HOUSE OF REPRESENTATIVES UPON VETOING H.R. 4035

JULY 21, 1975

To the House of Representatives:

I am returning without my approval H.R. 4035, the Petroleum Price Review Act, because it would increase petroleum consumption, cut domestic production, increase reliance on insecure petroleum imports and avoid the issue of phasing out unwieldy price controls.

H.R. 4035 would go counter to the Nation's need to conserve energy and reduce dependence on imported oil. It would increase petroleum imports by about 350,000 barrels per day in 1977, compared to import levels under my phased decontrol plan. It would even increase imports by about 70,000 barrels per day over continuation of the current system of mandatory controls through 1977.

The provisions in this bill to roll back the price of domestic oil not now controlled, to repeal the "stripper well" exemption from price controls and to establish a three-tier price system which would require even more complex regulations would be counterproductive to the achievement of energy independence.

The bill does contain an Administration requested provision which would continue the coal conversion program through December 31st. Since coal conversion authorities authorized last year in the Energy Supply and Environmental Coordination Act expired June 30th, I urge rapid enactment of a simple one year extension of these authorities.

Last Wednesday, July 16, I submitted to Congress a compromise plan to phase out price controls on crude oil over a thirty-month period. Coupled with administratively imposed import fees, this plan will reduce the Nation's imports by 900,000 barrels per day by 1977. It will reduce our vulnerability to another embargo by adding slightly over one cent per gallon to the price of all petroleum products by the end of 1975 and seven cents by 1978.

If Congress acts on this compromise and on other Administration proposed energy taxes, including the "windfall profits" tax and energy tax rebates to consumers, the burden of decontrol will be shared fairly, and our economic recovery will continue.

I veto H.R. 4035, because it increases our vulnerability to unreliable sources of crude oil and does not deal with the need to phase-out rigid price and allocation controls enacted during the embargo. I urge Congress not to disapprove my administrative plan of gradual decontrol. If it is accepted, I will accept a simple extension of price and allocation authorities. If decontrol is not accepted, I will have no choice but to veto the simple six-month extension of these authorities now being considered by Congress.

For too long, the Nation has been without an energy policy, and I cannot approve a drift into greater energy dependence.

GERALD R. FORD.

THE WHITE HOUSE, *July 21, 1975.*

VETO OF LEGISLATION EXTENDING OIL PRICE CONTROL

SEPTEMBER 9, 1975

To the Senate of the United States:

I am today vetoing S. 1849, which would extend price controls on domestic oil another six months. I am taking this action because:

1. An extension of price controls would increase our dangerous and growing dependence on imported oil.
2. It would increase the export of jobs and dollars from our economy.
3. It would jeopardize our future economic stability and national security.
4. It would retard conservation of energy.
5. It would postpone the badly needed development and production of new domestic energy.
6. It would negate the possibility of long-range compromise on this problem because of expected Congressional reluctance to tackle the issue of higher oil prices in an election year.

Since 1971, America's bill for imported oil has climbed from just over $3 billion annually to $25 billion today—a 700 percent increase. This $25 billion could provide more than one million jobs for Americans here at home. We cannot delay longer.

Last January in my State of the Union Message, I proposed to the Congress a comprehensive energy program to make the United States independent of foreign oil by 1985.

The need for such a program grows with each passing day. Right now, the United States is dependent on foreign oil for almost 40 percent of its current needs. If we do not act quickly to reverse this trend, within 10 years, we will import more than half of the oil we need at whatever price is demanded by foreign producers who can cut off our supply any time they want to.

The more foreign oil we import, the more dollars and the more jobs we lose from our economy. And as American jobs and dollars flow out of the country, so does our economic and national security.

The 1973 embargo cost us more than $15 billion in Gross National Product and threw hundreds of thousands of persons out of work. It dramatically showed our vulnerability. Another disruption would be even more costly in dollars and jobs—and could throw us into a new recession.

The detailed legislative program I sent to the Congress last winter involved tough measures to put us immediately on the road to energy

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independence. It would have conserved the energy we now have and accelerated development and production of more energy here at home.

Because this program would have increased energy prices somewhat until new domestic supplies were developed, I also proposed tax legislation to prevent undue profit-taking by oil companies and to return energy tax dollars to American consumers to offset the slightly higher prices they would pay.

Since I could not gamble with our Nation's security while waiting for the Congress to act on my comprehensive program, I raised the import fees on each barrel of foreign crude oil in February as an interim measure to reduce imports.

The Congress still has not acted. Throughout these months, I have compromised again and again and again to accommodate Congressional requests.

I delayed putting the second dollar fee on imported oil for 90 days, finally imposing it June 1. I delayed the third dollar indefinitely. Still, the country has seen no Congressional action.

In my State of the Union Message last January, I announced a decision to remove the ceiling on price-controlled domestic oil April 1, permitting it to rise from $5.25 per barrel to the free market price. This action would have immediately stimulated production and development of needed additional energy supplies and also encouraged conservation. At the request of Congressional leaders, I postponed such action to give them time to work out a different solution.

After nearly six months without Congressional passage of a decontrol bill or any other positive legislation, I proposed in early July a compromise 30-month phased oil decontrol plan. This program represented an effort to meet the concerns raised by many members of Congress and showed the Administration's willingness to compromise. The House of Representatives rejected this plan.

I made another effort to reach a solution before the August Congressional recess by submitting another decontrol plan, which would have gradually phased out price controls over a 39-month period and put a price ceiling on all domestic oil.

I believe this decontrol plan went more than halfway to meet concerns raised by the Congress. Although it would achieve energy objectives more slowly than warranted, I offered it in the spirit of compromise, because action was desperately needed.

Instead, the House also rejected this compromise attempt and Congress passed this bill which would simply extend the pricing and allocation authorities for another six months. This proposed action would only insure the continued growth of our dependence on foreign oil.

I cannot approve six more months of delay—delay which would cost needed jobs and dollars and compound our energy and economic problems.

From my experience in the Congress, I am well aware that it will be easier to pass the tough legislation needed to begin solving the energy problem this year rather than during the 1976 election year. The six-month price controls extension contained in the bill I am vetoing would postpone possible action until at least the Spring of 1976 and in all likelihood would mean an indefinite delay in our efforts to begin solving this problem.

Despite last minute attempts made in good faith by the Democratic and Republican leadership, their effort to achieve a compromise in the Congress has failed. It is clear that too many Members of the Congress have not come to grips with the decontrol issue—much less the overall energy problem.

We must have a national energy program before we have a national energy emergency. Our time to act instead of react grows shorter with each day and with each delay.

Without price controls on domestic oil, we can reduce dependence upon imported oil by reducing domestic consumption by more than 700,000 barrels per day within two years. We can reduce dependence in the long run by increasing domestic production by nearly one and one-half million barrels per day by 1985. By continuing controls, imports will increase because of a lack of incentives to spur domestic production and the energy problem will get worse and worse.

If my veto is sustained, I still will accept a 45-day extension of price controls to provide time to work with the Congressional leaders who have assured me that they will seek an acceptable compromise during this period. If this further compromise fails, however, I will take the following actions to insure an orderly transition from government controls to the free market:

I will remove the previously imposed $2 per barrel import fees on crude oil and a 60 cents fee on petroleum products.

I will again press the Congress to enact a windfall profits tax with plow back provisions and to return the money collected to the American consumer.

I will propose legislation to provide a gradual transition from price controls for small and independent refiners.

I will propose legislation to provide authority to allocate liquefied petroleum gases, such as propane, to supply these important fuels at reasonable prices to farmers, rural households and curtailed natural gas users.

I will seek authority to provide retail service station dealers legal remedies to protect their interests against unwarranted actions by the major oil companies.

Since January, I have gone more than halfway in order to reach a responsible compromise. Obviously, we have talked and delayed long enough. We must act now to protect not only ourselves, but future generations of Americans. I urge Members of the Senate and the House to sustain my veto and get on with the job of meeting this problem head-on.

The continued failure of Members of the Congress to enact a national energy program puts us increasingly at the mercy of foreign oil producers and will certainly result in Americans paying substantially higher prices for their fuel.

GERALD R. FORD.

THE WHITE HOUSE, *September 9, 1975.*

REMARKS UPON SIGNING THE EMERGENCY PETROLEUM ALLOCATION ACT

SEPTEMBER 29, 1975

I am today signing H.R. 9524, a bill extending until November 15 the Emergency Petroleum Allocation Act, which expired on August 31.

This extension of controls on domestic petroleum for 47 days carries out my part of an understanding with the leaders of the House and Senate and will provide more time for the Congress to act on a sound and mutually acceptable plan for phased decontrol or, alternatively, to pass the emergency legislation necessary to cushion the effect of immediate decontrol on certain elements of our domestic economy.

Last week's decision by the OPEC foreign oil cartel to raise their prices to American consumers by 10 percent provides beyond any further argument the urgent need for the United States to reduce its growing dependence on imported fuel at prices arbitrarily set by others.

Since my State of the Union Message last January, I have been constantly urging the Congress to move rapidly on a comprehensive energy independence program for this country's future security and prosperity. I have offered to compromise again and again.

A majority of the Members of this Congress thus far have refused to do anything that will increase domestic energy production. Price controls on domestic oil production have been in effect for 4 years. During that time, our domestic oil production has declined and our expenditures for foreign oil have increased more than 700 percent.

We are now sending more than $25 billion a year out of the United States to import foreign oil, enrich foreign producers, and provide foreign jobs. This dollar outflow will grow larger and larger under the latest OPEC price hike.

If spent at home, $25 billion would employ one million American workers and speed our economic growth. Letting the OPEC oil cartel dictate America's economic growth is absurd. Yet a majority in the Congress does nothing to reverse our growing oil dependence and increasing vulnerability to this obvious threat.

When the price of gasoline goes up at the service station, I want the American people to know exactly where the blame lies. Until Congress acts, there is nothing this country can do about arbitrary OPEC oil price hikes, and there may still be another fuel price increase next June.

The rhetoric of those in the Congress who are delaying action on long-range energy independence asserts that they are trying to hold fuel prices down to protect the American consumer. This is nonsense.

Obviously, the Congress cannot hold OPEC oil prices down. They are going up. And we are already dependent on foreign oil for about 40 percent of our total needs in the United States. The only way Congress can really protect the American consumer is to enact a long-range energy program that encourages Americans to produce our own energy with our own workers from our own resources and at our own prices.

By going along with this temporary extension of our expired controls law, I am giving Congress another 47 days to take its first significant step in solving our energy problem. The Congress has two immediate choices: first, to enact a mutually acceptable plan for phased decontrol of domestic price controls on crude oil; or, two, to pass the cushioning legislation I have recommended.

I propose to protect propane gas users, including farmers and millions of people who live in rural areas and in mobile homes. I propose to protect independent retail service station and heating oil dealers from arbitrary curtailment and cutoffs. I propose to protect independent refiners from loss of their supplies of crude oil at reasonable prices. And I propose to protect all consumers from undue loss of purchasing power through a windfall profits tax on domestic oil companies with a consumer refund provision.

If your Congressmen and Senators cannot take one or the other of these commonsense courses before November 15, then a majority in the Congress will have failed their responsibility to the American people.

I am serving notice as I sign this temporary extension that a majority in the Congress have already temporized far too long.

If the latest OPEC price increase hasn't awakened them to the peril our country faces, only an aroused citizenry will. Congress must face up the the hard, tough decisions which will restore America's energy independence, reinvigorate America's economy, and save American jobs before it is too late. They have failed thus far. I stand ready to cooperate fully to make this long overdue start in the right direction.

Thank you very much.

GERALD R. FORD.

THE WHITE HOUSE, *September 29, 1975.*

STATEMENT ON SIGNING THE ENERGY POLICY AND CONSERVATION ACT

DECEMBER 22, 1975

For nearly a year the American people and many of our friends abroad have been waiting to see whether the executive and legislative branches of our Government could reach agreement on the basic framework of a national energy policy. It has long been apparent that further delays and indecision would only prolong our Nation's vulnerability to foreign energy producers. Since the oil embargo of 1973, we have in fact become more dependent upon foreign oil, and our total payments to foreign producers have continued to increase at an intolerable rate.

The single most important energy objective for the United States today is to resolve our internal differences and put ourselves on the road toward energy independence. It is in that spirit that I have decided to sign the Energy Policy and Conservation Act.

This legislation is by no means perfect. It does not provide all the essential measures that the Nation needs to achieve energy independence as quickly as I would like. However, after balancing the inadequacies and the merits, I have concluded that this bill is in the national interest and should be enacted into law. There are three factors that I have found persuasive in reaching this decision.

First, this bill will enable the United States to meet a substantial portion of the midterm goals for energy independence that I set forth in my first State of the Union Address. Among the measures I requested in January which are provided in this legislation are authorities for a strategic storage system, conversion of oil and gas fired utility and industrial plants to coal, energy efficiency labeling, emergency authorities for use in case of another embargo, and the authorities we need to fulfill our international agreements with other oil consuming countries.

Second, the pricing provisions of this legislation, properly implemented, will permit the gradual phasing out of controls on domestic oil. The bill seeks to lower retail prices in the short term and runs the risk of creating a false impression that we can have all the energy we want at cheaper prices. But, over time, this legislation removes controls and should give industry sufficient incentive to explore, develop, and produce new fields in the Outer Continental Shelf, Alaska, and potential new reserves in the lower 48 States. I fully intend to use the flexibility which is granted to me by this legislation to expedite the decontrol of crude oil in order to increase domestic production. I do not expect the Congress to stand in the way of such actions.

I know there are some who fear that this legislation could mean that the energy industry will be subjected indefinitely to governmental controls which would create further distortions and inefficiencies. As one who believes that minimizing governmental interference in the marketplace is essential to a strong economy and more jobs, I share those concerns. Accordingly, I pledge that I will work to ensure that by the end of 40 months, governmental controls over domestic oil prices will be fully phased out. We will begin immediately, as authorized by the legislation, to remove all current price and allocation regulations except those on crude oil prices.

Third, I am also persuaded that this legislation represents the most constructive bill we are likely to work out at this time. If I were to veto this bill, the debates of the past year would almost surely continue through the election year and beyond. The temptation to politicize the debate would be powerful, and the Nation could become further divided. The most responsible action now is to set the best course we can and stick to it.

On balance, therefore, I find that this legislation is constructive and puts into place the first elements of a comprehensive national energy policy. It permits me to remove the $2 per barrel oil import fee. It provides a foundation upon which we can build together toward our goal of energy independence.

Now we should move forward to complete the legislative tasks I set before the Nation last January. Specifically, we still need natural gas legislation to deal with immediate shortages and to increase our supply of natural gas over the long run. The only solution is to deregulate the price of new natural gas. The Senate has acted favorably on such legislation. I urge the House to act expeditiously so that, by the end of January, deregulation of the price of new natural gas will have become law. But this isn't the only new legislation we need. For example, our Nation needs prompt Congressional action to permit production of oil from the Naval Petroleum Reserves, to ensure greater energy efficiency in our homes and buildings, to stimulate the commercial development of synthetic fuels, and to permit greater use of nuclear power for generating electricity. I will continue to press in 1976, as I have done in 1975, to see that all these programs and other elements of my comprehensive energy programs are enacted. Having now built a foundation, we must maintain our determination to achieve energy independence.

GERALD R. FORD.

THE WHITE HOUSE, *December 22, 1975.*

MESSAGE TO THE CONGRESS PROPOSING ENACTMENT OF LEGISLATION TO PROVIDE FOR ENERGY NEEDS

FEBRUARY 26, 1976

To the Congress of the United States:

A little over 2 years ago, the Arab embargo proved that our Nation had become excessively dependent upon others for our oil supplies. We now realize how critical energy is to the defense of our country, to the strength of our economy, and to the quality of our lives.

We must reduce our vulnerability to the economic disruption which a few foreign countries can cause by cutting off our energy supplies or by arbitrarily raising prices. We must regain our energy independence.

During the past year, we have made some progress toward achieving our energy independence goals, but the fact remains that we have a long way to go. However, we cannot take the steps required to solve our energy problems until the Congress provides the necessary additional authority that I have requested. If we do not take these steps, our vulnerability will increase dramatically.

In my first State of the Union Address last year, I pointed out that our vulnerability would continue to grow unless a comprehensive energy policy and program were implemented. I outlined these goals for regaining our energy independence:

First, to halt our growing dependence on imported oil during the next few critical years.

Second, to attain energy independence by 1985 by achieving invulnerability to disruptions caused by oil import embargoes. Specifically, we must reduce oil imports to between 3 and 5 million barrels a day, with an accompanying ability to offset any future embargo with stored petroleum reserves and emergency standby measures.

Third, to mobilize our technology and resources to supply a significant share of the free world's energy needs beyond 1985.

In pursuing these goals, we have sought to provide energy at the lowest cost consistent with our need for adequate and secure supplies. We should rely upon the private sector and market forces since it is the most efficient means of achieving these goals. We must also achieve a balance between our environmental and energy objectives.

These goals were reasonable and sound a year ago and they remain so today.

Since January of 1975, this Administration has initiated the most comprehensive set of energy programs possible under current authority. This includes actions to conserve energy, to increase the production of domestic energy resources, and to develop technology necessary to produce energy from newer sources.

During this time I have also placed before the Congress a major set of legislative proposals that would provide the additional authority that is needed to achieve our energy independence goals.

Thus far, the Congress has completed action on only one major piece of energy legislation—the Energy Policy and Conservation Act—which I signed into law on December 22, 1975. That law includes four of the original proposals I submitted to the Congress over a year ago. Eighteen other major legislative proposals still await final action by the Congress.

Natural Gas

The need for Congressional action is most critical in the area of natural gas. We must reverse the decline in natural gas production and deal effectively with the growing shortages that face us each winter.

Deregulating the price of new natural gas remains the most important action that can be taken by the Congress to improve our future gas supply situation. If the price of natural gas remains under current regulation, total domestic production will decline to less than 18 trillion cubic feet in 1985. However if deregulation is enacted, production would be about 25 percent higher by 1985. Natural gas shortages mean higher costs for consumers who are forced to switch to more expensive alternative fuels and means, inevitably, an increasing dependence on imported oil. Curtailment of natural gas to industrial users in the winters ahead means more unemployment and further economic hardships.

Therefore, I again urge the Congress to approve legislation that will remove Federal price regulation from new natural gas supplies and will provide the added short-term authorities needed to deal with any severe shortages forecast for next winter.

I also urge prompt action by the Congress on a bill I will be submitting shortly which is designed to expedite the selection of a route and the construction of a transportation system to bring the vast supplies of natural gas from the north slope of Alaska to the "lower 48" markets. This legislation would make possible production of about 1 trillion cubic feet of additional natural gas each year by the early 1980's.

We expect imports of liquefied natural gas (LNG) to grow in the next several years to supplement our declining domestic supply of natural gas. We must balance these supply needs against the risk of becoming overly dependent on any particular source of supply.

Recognizing these concerns, I have directed the Energy Resources Council to establish procedures for reviewing proposed contracts within the Executive Branch, balancing the need for supplies with the need to avoid excessive dependence, and encouraging new imports where this is appropriate. By 1985, we should be able to import 1 trillion cubic feet of LNG to help meet our needs without becoming overly dependent upon foreign sources.

Nuclear Power

Greater utilization must be made of nuclear energy in order to achieve energy independence and maintain a strong economy. It is likewise vital that we continue our world leadership as a reliable supplier of nuclear technology in order to assure that worldwide

growth in nuclear power is achieved with responsible and effective controls.

At present 57 commercial nuclear power plants are on line, providing more than 9 percent of our electrical requirements, and a total of 179 additional plants are planned or committed. If the electrical power supplied by the 57 existing nuclear power plants were supplied by oil-fired plants, an additional one million barrels of oil would be consumed each day.

On January 19, 1975, I activated the independent Nuclear Regulatory Commission (NRC) which has the responsibility for assuring the safety, reliability, and environmental acceptability of commercial nuclear power. The safety record for nuclear power plants is outstanding. Nevertheless, we must continue our efforts to assure that it will remain so in the years ahead. The NRC has taken a number of steps to reduce unnecessary regulatory delays and is continually alert to the need to review its policies and procedures for carrying out its assigned responsibilities.

I have requested greatly increased funding in my 1977 budget to accelerate research and development efforts that will meet our short-term needs to:

make the safety of commercial nuclear power plants even more certain;

develop further domestic safeguards technologies to assure against the theft and misuse of nuclear materials as the use of nuclear-generated electric power grows;

provide for safe and secure long-term storage of radioactive wastes;

and encourage industry to improve the reliability and reduce the construction time of commercial nuclear power plants.

I have also requested additional funds to identify new uranium resources and have directed ERDA to work with private industry to determine what additional actions are needed to bring capacity on-line to reprocess and recycle nuclear fuels.

Internationally, the United States in consultation with other nations which supply nuclear technology has decided to follow stringent export principles to ensure that international sharing of the benefits of nuclear energy does not lead to the proliferation of nuclear weapons. I have also decided that the United States should make a special contribution of up to $5 million in the next five years to strengthen the safeguards program of the International Atomic Energy Agency.

It is essential that the Congress act if we are to take timely advantage of our nuclear energy potential. I urge enactment of the Nuclear Licensing Act to streamline the licensing procedures for the construction of new power plants.

I again strongly urge the Congress to give high priority to my Nuclear Fuel Assurance Act to provide enriched uranium needed for commercial nuclear power plants here and abroad. This proposed legislation which I submitted in June 1975, would provide the basis for transition to a private competitive uranium enrichment industry and prevent the heavy drain on the Federal budget. If the Federal Government were required to finance the necessary additional uranium enrichment capacity, it would have to commit more than

$8 billion over the next 2 to 3 years and $2 billion annually thereafter. The taxpayers would eventually be repaid for these expenditures but not until sometime in the 1990's. Federal expenditures are not necessary under the provisions of this Act since industry is prepared to assume this responsibility with limited government cooperation and some temporary assurances. Furthermore, a commitment to new Federal expenditures for uranium enrichment could interfere with efforts to increase funding for other critical energy programs.

Coal

Coal is the most abundant energy resource available in the United States, yet production is at the same level as in the 1920's and accounts for only about 17 percent of the Nation's energy consumption. Coal must be used increasingly as an alternative to scarce, expensive or insecure oil and natural gas supplies. We must act to remove unnecessary constraints on coal so that production can grow from the 1975 level of 640 million tons to over 1 billion tons by 1985 in order to help achieve energy independence.

We are moving ahead where legislative authority is available.

The Secretary of the Interior has recently adopted a new coal leasing policy for the leasing and development of more coal on Federal lands. To implement this policy, regulations will be issued governing coal mining operations on Federal lands, providing for timely development, and requiring effective surface mining controls which will minimize adverse environmental impacts and require that mined lands be reclaimed. As a reflection of the States' interests, the Department proposes to allow application on Federal lands of State coal mine reclamation standards which are more stringent than Federal standards, unless overriding National interests are involved.

I have directed the Federal Energy Administration and the Environmental Protection Agency to work toward the conversion of the maximum number of utilities and major industrial facilities from gas or oil to coal as permitted under recently extended authorities.

We are also stepping up research and development efforts to find better ways of extracting, producing and using coal.

Again, however, the actions we can take are not enough to meet our goals. Action by the Congress is essential.

I urge the Congress to enact the Clean Air Act amendments I proposed which will provide the balance we need between air quality and energy goals. These amendments would permit greater use of coal without sacrificing the air quality standards necessary to protect public health.

Oil

We must reverse the decline in the Nation's oil production. I intend to implement the maximum production incentives that can be justified under the new Energy Policy and Conservation Act. In addition, the Department of the Interior will continue its aggressive Outer Continental Shelf development program while giving careful attention to environmental considerations.

But these actions are not enough. We need prompt action by the Congress on my proposals to allow production from the Naval Petroleum Reserves. This legislation is now awaiting action by a House-Senate Conference Committee.

Production from the reserves could provide almost 1 million barrels of oil per day by 1985 and will provide both the funding and the oil for our strategic oil reserves.

I also urge the Congress to act quickly on amending the Clean Air Act auto emission standards that I proposed last June to achieve a balance between objectives for improving air quality, increasing gasoline mileage, and avoiding unnecessary increases in costs to consumers.

Building Energy Facilities

In order to attain energy independence for the United States, the construction of numerous nuclear powerplants, coal-fired powerplants, oil refineries, synthetic fuel plants, and other facilities will be required over the next two decades.

Again, action by the Congress is needed.

I urge Congress to approve my October, 1975 proposal to create an Energy Independence Authority, a new government corporation to assist private sector financing of new energy facilities.

This legislation will help assure that capital is available for the massive investment that must be made over the next few years in energy facilities, but will not be forthcoming otherwise. The legislation also provides for expediting the regulatory process at the Federal level for critical energy projects.

I also urge Congressional action on legislation needed to authorize loan guarantees to aid in the construction of commercial facilities to produce synthetic fuels so that they may make a significant contribution by 1985.

Commercial facilities eligible for funding under this program include those for synthetic gas, coal liquefaction and oil shale, which are not now economically competitive. Management of this program would initially reside with the Energy Research and Development Administration but would be transferred to the proposed Energy Independence Authority.

My proposed energy facilities siting legislation and utility rate reform legislation, as well as the Electric Utilities Construction Incentives Act complete the legislation which would provide the incentives, assistance and new procedures needed to assure that facilities are available to provide additional domestic energy supplies.

Energy Development Impact Assistance

Some areas of the country will experience rapid growth and change because of the development of federally owned energy resources. We must provide special help to heavily impacted areas where this development will occur.

I urge Congress to act quickly on my proposed new, comprehensive, Federal Energy Impact Assistance Act which was submitted to the Congress on February 4, 1976.

This legislation would establish a $1 billion program of financial assistance to areas affected by new Federal energy resource development over the next 15 years. It would provide loans, loan guarantees and planning grants for energy-related public facilities. Funds would be repaid from future energy development. Repayment of loans could be forgiven if development did not occur as expected.

This legislation is the only approach which assures that communities that need assistance will get it where it is needed, when it is needed.

Energy Conservation

The Nation has made major progress in reducing energy consumption in the last two years but greatly increased savings can yet be realized in all sectors.

I have directed that the Executive Branch continue a strong energy management program. This program has already reduced energy consumption by 24 percent in the past two years, saving the equivalent of over 250,000 barrels of oil per day.

We are moving to implement the conservation authorities of the new Energy Policy and Conservation Act, including those calling for State energy conservation programs, and labeling of appliances to provide consumers with energy efficient information.

I have asked for a 63 percent increase in funding for energy conservation research and development in my 1977 budget.

If the Congress will provide needed legislation, we will make more progress. I urge the Congress to pass legislation to provide for thermal efficiency standards for new buildings, to enact my proposed $55 million weatherization assistance program for low-income and elderly persons, and to provide a 15 percent tax credit for energy conservation improvements in existing residential buildings. Together, these conservation proposals can save 450,000 barrels of oil per day by 1985.

International Energy Activities

We have also made significant progress in establishing an international energy policy. The United States and other major oil-consuming nations have established a comprehensive long-term energy program through the International Energy Agency (IEA), committing ourselves to continuing cooperation to reduce dependence on imported oil. By reducing demand for imported oil, consuming nations can, over time, regain their influence over oil prices and end vulnerability to abrupt supply cutoffs and unilateral price increases.

The International Energy Agency has established a framework for cooperative efforts to accelerate the development of alternative energy sources. The Department of State, in cooperation with FEA, ERDA, and other Federal agencies, will continue to work closely with the IEA.

While domestic energy independence is an essential and attainable goal, we must recognize that this is an interdependent world. There is a link between economic growth and the availability of energy at reasonable prices. The United States will need some energy imports in the years ahead. Many of the other consuming nations will not be energy independent. Therefore, we must continue to search for solutions to the problems of both the world's energy producers and consumers.

The U.S. delegation to the new Energy Commission will pursue these solutions, including the U.S. proposal to create an International Energy Institute. This Institute will mobilize the technical and financial resources of the industrialized and oil producing countries to assist developing countries in meeting their energy problems.

1985 and Beyond

As our easily recoverable domestic fuel reserves are depleted, the need for advancing the technologies of nuclear energy, synthetic fuels, solar energy, and geothermal energy will become paramount to sustaining our energy achievements beyond 1985. I have therefore proposed an increase in the Federal budget for energy research and development from $2.2 billion in 1976 to $2.9 billion in the proposed 1977 budget. This 30-percent increase represents a major expansion of activities directed at accelerating programs for achieving long-term energy independence.

These funds are slated for increased work on nuclear fusion and fission power development, particularly for demonstrating the commercial viability of breeder reactors; new technology development for coal mining and coal use; enhanced recovery of oil from current reserves; advanced power conversion systems; solar and geothermal energy development; and conservation research and development.

It is only through greater research and development efforts today that we will be in a position beyond 1985 to supply a significant share of the free world's energy needs and technology.

Summary

I envision an energy future for the United States free of the threat of embargoes and arbitrary price increases by foreign governments. I see a world in which all nations strengthen their cooperative efforts to solve critical energy problems. I envision a major expansion in the production and use of coal, aggressive exploration for domestic oil and gas, a strong commitment to nuclear power, significant technological breakthroughs in harnessing the unlimited potential of solar energy and fusion power, and a strengthened conservation ethic in our use of energy.

I am convinced that the United States has the ability to achieve energy independence.

I urge the Congress to provide the needed legislative authority without further delay.

GERALD R. FORD.

THE WHITE HOUSE, *February 26, 1976.*

STATEMENT ON SIGNING THE NAVAL PETROLEUM RESERVES PRODUCTION ACT OF 1976

APRIL 5, 1976

In my first State of the Union Message more than a year ago, I set forth goals for regaining energy independence for the United States. I also outlined a comprehensive and ambitious national program needed to achieve our energy goals. The first goal is to reduce our growing reliance on imported oil.

We have launched energy programs that are possible within existing authorities, and I have asked the Congress for the additional legislative authority that we must have. My proposed Energy Independence Act of 1975 contained 13 specific programs to encourage energy conservation and increase domestic energy production. More recently, I sent to the Congress proposals dealing with nuclear energy, investment in energy facilities, and other measures needed to achieve our goals.

One of the original 13 proposals was especially important because it permitted immediate action to produce more oil here in the United States. There are only a very few steps like this that are possible. Generally, it takes 3 years or more to bring new oil production on line.

Actions to increase domestic oil productions are critical, because oil imports have grown to the point where they now account for almost 40 percent of the petroleum we are using. We are even more dependent now than we were a little over 2 years ago, when we experienced the disruption of an oil embargo.

I am, therefore, pleased to sign into law today the Naval Petroleum Reserves Production Act of 1976, which puts in place one more element of our program to reduce dependence on foreign oil.

The naval petroleum reserves had special importance when they were established over 50 years ago to guarantee an adequate supply of oil for the U.S. Navy. Today, the reserves have even greater importance to the whole Nation because they can help reduce our dependence on imported oil and help stem the outflow of American dollars and jobs.

This new act directs the Secretary of the Navy to commence a vigorous production program from the three naval petroleum reserves located in California and Wyoming. The act also redesignates the fourth naval petroleum reserve in Alaska as a national petroleum reserve and transfers the jurisdiction to the Department of the Interior in June 1977. Production from the Alaskan reserve is not authorized at this time, but the act specifically calls upon the President to submit

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a development plan and appropriate legislation to the Congress. Work has already begun on those measures.

The new act also makes it possible for production from the naval reserves to contribute directly to the creation of the strategic petroleum reserve, authorized in the Energy Policy and Conservation Act which I signed on December 22, 1975. Once established, the strategic reserve will provide both a deterrent to future embargoes and a significant means to offset the effects of any future supply interruption. The strategic reserve will permit us to have needed petroleum much more readily available in the case of an emergency for our Armed Services and other critical national needs.

When in full production, the three naval petroleum reserves in California and Wyoming will provide more than 300,000 barrels of oil per day. The development and production of Naval Petroleum Reserve No. 1 in Elk Hills, California, will make the biggest contribution.

The U.S. share of this production, about 80 percent, may be sold at auction, and up to 25 percent of that amount could be set aside for sale to small refiners. At the President's discretion, all or part of the U.S. share may be used to build up the strategic petroleum reserves. The act authorizes use of revenues from the sale of petroleum for work on the naval petroleum reserves, for the national reserve in Alaska, and for the strategic petroleum reserve.

This act is an important step toward reversing our declining domestic oil production, and it is another sign that we are making progress. Four of my original 13 proposals were included in the Energy Policy and Conservation Act which I signed into law on December 22, 1975.

The Congress still has before it 17 major energy proposals, including those remaining from the original 13 I submitted in January 1975 and others I have submitted since then. We need those measures to conserve energy and to increase domestic production. Congress must act on those measures so that we can achieve our national goals for energy independence.

GERALD R. FORD.

THE WHITE HOUSE, *April 5, 1976.*

VETO OF THE FEDERAL COAL LEASING AMENDMENTS BILL

JULY 3, 1976

To the Senate of the United States:

I am returning to the Congress today without my approval S. 391, the Federal Coal Leasing Amendments Act of 1975.

This bill addresses two essential issues: the form of Federal assistance for communities affected by development of federally owned minerals, and the way that Federal procedures for the leasing of coal should be modernized.

On the first of these issues, I am in total agreement with the Congress that the Federal Government should provide assistance, and I concur in the form of assistance adopted by the Congress in S. 391. Specifically, I pledge my support for increasing the State share of Federal leasing revenues from 37½ percent to 50 percent.

Last January I proposed to the Congress the Federal Energy Impact Assistance Act to meet the same assistance problem, but in a different way. My proposal called for a program of grants, loans and loan guarantees for communities in both coastal and inland States affected by development of Federal energy resources such as gas, oil and coal.

The Congress has agreed with me that impact assistance in the form I proposed should be provided for coastal States, and I hope to be able to sign appropriate legislation in the near future.

However, in the case of States affected by S. 391—most of which are inland, the Congress by overwhelming majority has voted to expand the more traditional sharing of Federal leasing revenues, raising the State share of these revenues by one third. If S. 391 were limited to that provision, I would sign it.

Unfortunately, however, S. 391 is also littered with many other provisions which would insert so many rigidities, complications, and burdensome regulations into Federal leasing procedures that it would inhibit coal production on Federal lands, probably raise prices for consumers, and ultimately delay our achievement of energy independence.

I object in particular to the way that S. 391 restricts the flexibility of the Secretary of the Interior in setting the terms of individual leases so that a variety of conditions—physical, environmental and economic—can be taken into account. S. 391 would require a minimum royalty of 12½ percent, more than is necessary in all cases. S. 391 would also defer bonus payments—payments by the lessee to the

Government usually made at the front end of the lease—on 50 percent of the acreage, an unnecessarily stringent provision. This bill would also require production within 10 years, with no additional flexibility. Furthermore it would require approval of operating and reclamation plans within three years of lease issuance. While such terms may be appropriate in many lease transactions—or perhaps most of them—such rigid requirements will nevertheless serve to set back efforts to accelerate coal production.

Other provisions of S. 391 will unduly delay the development of our coal reserves by setting up new administrative roadblocks. In particular, S. 391 requires detailed antitrust review of all leases, no matter how small; it requires four sets of public hearings where one or two would suffice; and it authorizes States to delay the process where National forests—a Federal responsibility—are concerned.

Still other provisions of the bill are simply unnecessary. For instance, one provision requires comprehensive Federal exploration of coal resources. This provision is not needed because the Secretary of the Interior already has—and is prepared to exercise—the authority to require prospective bidders to furnish the Department with all of their exploration data so that the Secretary, in dealing with them, will do so knowing as much about the coal resources covered as the prospective lessees.

For all of these reasons, I believe that S. 391 would have an adverse impact on our domestic coal production. On the other hand, I agree with the sponsors of this legislation that there are sound reasons for providing in Federal law—not simply in Federal regulations—a new Federal coal policy that will assure a fair and effective mechanism for future leasing.

Accordingly, I ask the Congress to work with me in developing legislation that would meet the objections I have outlined and would also increase the State share of Federal leasing revenues.

GERALD R. FORD.

THE WHITE HOUSE, *July 3, 1976.*

MESSAGE TO THE CONGRESS ON ENERGY LEGISLATION

JANUARY 7, 1977

To the Congress of the United States:

Three years have now passed since the Arab oil embargo demonstrated that the Nation had become overly dependent on other countries for our energy supplies. We have made progress in dealing with our energy problems but much more must be done if we are to achieve our objective of assuring an adequate and secure supply of energy at reasonable prices.

Action by the Congress is vitally important in the coming year on a number of matters affecting energy supply and demand. The outcome of that action will affect the Nation's security, economic strength and role in world affairs. Decisions made during this critical period will affect the health, welfare, quality of life and freedom of choice of our people for years to come.

A new Congress and change in Administration provide an appropriate occasion to review our energy situation, to summarize and share the knowledge that has been gained from analysis and debate over the past two years, and to outline the remaining need for action.

I am pleased that we have made a good start toward a comprehensive national energy policy; that we have taken major steps forward on programs to conserve energy; increase domestic energy production, develop strategic petroleum reserves, and develop new technology; and that our imports are less today than they would have been had we not begun taking steps I outlined in my State of the Union address 2 years ago.

But our imports are higher today than they were 3 years ago, and we have not yet as a nation faced up to many of the hard decisions and choices that are necessary before we can achieve our energy objectives.

The lack of better progress is regrettable but I believe the reasons for it are quite clear:

First, the real nature of the Nation's energy problem and the implications of leaving it unresolved are not fully understood or appreciated by many people.

Second, many of those who recognize the problem and the implications of not solving it have looked for easy solutions. This has led often to proposals which

Promise far more than can be delivered; or

Expand significantly the role of the Federal Government.

We are now beginning to recognize more clearly the dangers of a greatly expanded Federal role in energy. We also now realize that other "easy" answers are turning out to be impractical, ineffective, or oversold.

Fundamental Issues and Choices

The decisions which must be made are difficult and the implications of the choices are far reaching. Thus, the Congress and the public should have the best possible understanding of the fundamental issues and choices that are involved in my proposals and in the proposals that will be forthcoming from the new Administration and Congress. There are five matters that deserve special attention:

The high cost to the Nation of delay in solving our energy problem.

The illusions and false hopes that are involved in some of the "easy" answers that have been proposed.

The dangers of expanding the Federal role in energy.

The need to recognize the interdependence of the United States and other consumer nations in energy matters.

The necessity of facing up to the hard choices that must be made in order to achieve a balance among our Nation's security, energy, economic, consumer price, and environmental objectives.

High Cost of Delay in Solving Our Energy Problem

A better understanding of our energy problem and the high cost of delay in solving it should help restore the sense of urgency that was lost when the embargo ended, the gasoline lines disappeared, and an adequate supply of most forms of energy became available—though at higher prices.

Our Energy Problem

The principal energy problem now facing the United States is our excessive and growing dependence on imported oil from a relatively few foreign nations that own the majority of world oil reserves and have the ability to control world oil prices and production. We are also faced with a problem of shortages of natural gas in some areas. This problem will become more serious this winter if unusually cold weather continues and will grow each year as production and interstate sales decline—resulting in job losses and economic dislocation.

Our situation is the result of several factors. For example, our economy and style of life—neither of which can be altered quickly—have been built upon cheap and abundant energy. Low prices, resulting from government regulations and policies, and heightened environmental concerns encouraged excessive reliance on oil and natural gas, rather than coal which we have in plentiful supply. This led to wasteful and inefficient uses of oil and gas.

Our domestic production of oil and natural gas peaked in the early 1970's and has been declining steadily as cheap, easily developed reserves have dwindled. In the early 1980's oil and natural gas from Alaska and the Outer Continental Shelf—our last frontiers—will help offset the decline in production from on-shore areas. But, overall, domestic oil and gas production will again decline precipitously unless

higher prices are available to cover the costs of developing resources which are not now economically feasible to produce.

Meanwhile, our energy demands are increasing to meet the needs of a growing economy. We are not expanding the use of coal and nuclear energy fast enough as substitutes for oil and gas, where this is possible, or to meet growing energy requirements. Instead we have turned to imports, and imports will continue to grow as we face declining production and depletion of oil and gas reserves.

The Costs of Dependence

The real price paid for our growing dependence on imported oil is our vulnerability to significant economic and social disruption from the interruption of oil imports. Apart from the inconvenience experienced by millions of people, the 1973–74 embargo and the resulting higher prices caused a loss of about 500,000 jobs and approximately $20 billion in our Gross National Product. The sudden four-fold increase in OPEC oil prices contributed significantly to inflation. Since 1974 our dependence on imports, particularly from Arab nations, has grown by a million barrels per day, so that an interruption of supply today would be even more disruptive of our economy than the 1973–74 embargo.

Another cost of energy dependence is the outflow of U.S. dollars to pay for imported oil, totalling about $34 billion in 1976 or $160 for each American, eleven times that in 1972.

Still another cost is the limitation on our freedom of action in international affairs due to our vulnerability to the threat of another interruption.

Realistic Energy Goals

In my first State of the Union Message two years ago, I outlined a comprehensive energy program for the Nation with goals of:

Halting our growing dependence on imported oil.

Attaining energy independence by 1985 by achieving invulnerability to disruptions caused by oil embargoes, by reducing oil imports to between 3 and 5 million barrels per day with an accompanying ability to offset any supply interruption with stored petroleum reserves and emergency standby measures.

Mobilizing our technological capability and resources to supply a significant share of the free world's energy needs beyond 1985.

These goals do *not* mean that we should seek to eliminate all energy imports, because generally it will be in the Nation's best interest to continue importing energy when it can be obtained at lower cost—as long as we have the ability to withstand interruptions of supply from insecure sources.

The goals *do* mean that we should reduce and then eliminate our vulnerability. In the longer term, we should better use our resources and technological capability to regain our ability to assure the reasonableness of energy prices.

Whether the date I set for achieving energy independence and the level of imports I proposed are realistic has been the subject of considerable debate. I believe the goals could be attained if the Congress approved the critical legislation I proposed, but that is not the major point. The essential point now is that we recognize that our excessive

dependence and vulnerability are costly and that it is in the Nation's best interest to solve the problem as soon as possible.

AVOIDING ILLUSIONS

A number of well-intentioned proposals have been advanced for dealing with our energy problems which, when evaluated, are found to have far less potential or merit than is claimed by their proponents. Four such proposals warrant special attention: advanced energy technologies, energy conservation in lieu of increased production, abandoning nuclear fission energy or coal, and oil company divestiture. All four are likely to receive Congressional consideration this year.

Contribution of Advanced Technologies

There are repeated claims that fusion, solar or geothermal energy, or some other advanced technology, will soon provide a virtually risk-free answer to our energy needs. Such claims warrant and have been given very careful consideration because new technological developments have helped us solve many problems in the past.

There are three common myths about fusion, solar and geothermal energy:

That major contributions to our energy supplies can be expected soon from these sources.

That there are no serious economic, safety, technological or environmental problems to be overcome before these technologies are available for widespread use.

That the remaining problems can be quickly resolved by greatly increasing Federal funding for R&D.

The facts are that major economic, safety and environmental problems must be solved and major technological breakthroughs are needed before these emerging technologies will be available for widespread commercial use.

Practical and economic applications are already available in the case of energy from geothermal steam. However, geothermal steam resources are geographically limited, and major technical, environmental and economic hurdles must be overcome before other sources of geothermal energy will be available for practical application.

Heating with solar energy is expected to become economically competitive soon in some areas with electrical heating by electricity—but not by oil and gas. Costs will have to be reduced substantially before solar heating and cooling systems will be competitive for widespread use. Major breakthroughs are needed before fusion and solar energy will produce economical electric power. Costs must be reduced and problems of safety and environmental impact must be solved.

Advanced technologies cannot contribute significantly to our energy supply in the near or mid-term. Even with intensive efforts to achieve necessary breakthroughs, solar, geothermal and fusion energy are expected to provide no more than one percent of our total energy supplies by 1985 and no more than five-seven percent by the year 2000. Until these advanced technologies are available and are acceptable from the standpoint of cost, safety and environmental impact, we must rely on resources and technologies which are available.

Federal funding for the development of advanced technologies has been increased substantially over the past two years in my budgets—to the point where Congressional add-ons above my requests generally cannot be used productively. When major breakthroughs are required, the necessary ingredients are ideas and time. Large funding increases are likely to be wasteful and often merely contribute to overly optimistic expectations.

Energy Conservation in Lieu of Production

There are some who believe that our energy needs for a growing population and expanding economy and workforce can be satisfied by eliminating wasteful and inefficient uses of energy. They point out correctly that the ready availability of cheap energy in the past tended to encourage uses of energy which now are wasteful.

There is no question but that energy conservation can and must contribute to the solution of our energy problems. In many cases it will be cheaper, more efficient, and involve less environmental impact, to reduce energy waste than it will be to produce a comparable amount of new energy. We have begun major efforts in energy conservation, and progress is being made in reducing growth in energy consumption. However, it takes time to achieve results from energy conservation because energy-intensive plants and equipment and consumer products (such as automobiles and appliances) will only be replaced gradually as they wear out.

Growth in our energy demands simply cannot be eliminated without severe economic impact. We must have *both* energy conservation and sharply increased energy production if we are to meet the needs for energy in a growing economy. To rely solely on energy conservation would soon mean a lower standard of living for all, and insufficient energy to keep people employed in productive and meaningful work.

Abandoning Coal Energy or Nuclear Fission

Some believe that we should not continue or expand the use of coal and others have the same view about nuclear energy. But a careful look indicates that we do not have a *choice* between increasing the use of coal or nuclear energy. Instead, we must increase the use of *both* coal and nuclear energy until more acceptable alternate energy sources are available. Even with strong efforts to conserve energy, and increased efforts to produce domestic oil and natural gas, we must increase the use of both coal and nuclear energy if we are to meet the demands for energy for a growing economy. The only alternative is to increase our growing dependence on imported oil.

One example will illustrate the point: Nuclear energy now provides about nine percent of our electrical requirements. If this nuclear energy were not available and we substituted imported oil, our imports would increase by about one million barrels of oil per day. If we were to substitute coal for existing nuclear energy, additional annual production of 100 million tons would be required.

Divestiture

Some suggest that our energy problem would be relieved by divestiture of the major oil companies—either by barring investments in other energy sources (horizontal divestiture) or by barring integrated

operations whereby one company engages in production, refining, and marketing activities (vertical divestiture). They claim that divestiture would increase competition and thereby reduce petroleum prices and lead to a more intensive pursuit of alternative domestic energy resources and alternative energy technologies.

Experience has demonstrated important advantages from vertical integration in commercial and industrial activities in terms of efficiency of operation. Vertical divestiture may merely mean that petroleum products pass through the hands of more middle men—resulting in higher consumer costs. Horizontal integration has helped make private capital and managerial talent available to develop other alternative energy resources which will be used to supplement our declining oil and natural gas resources.

Proponents of divestiture have yet to present concrete evidence that divestiture would either increase domestic energy production or provide cheaper and more secure energy supplies. Such evidence should be required and weighed carefully along with the evidence against divestiture before Congress acts.

Dangers of Expanding the Federal Role in Energy

Much of the dispute over energy legislation has resulted from differing views as to the appropriate role of the Federal Government.

The primary responsibility for providing the Nation's energy needs has been and should continue to rest with the private sector. The amount and forms of energy that are produced and used depend upon literally millions of decisions reached daily by individuals and organizations throughout the country. Since energy is such a pervasive component of our economy and our daily lives, special care must be taken to assure that Federal actions affecting energy—including changes in the Federal role—will help solve the problem rather than make it worse or cause new problems.

The Congress should give particular attention to the growing concern throughout the country about the size and cost of Government, the extent of Government intrusion in individuals' activities, and the burden of regulations which restrict freedom of choice. Unfortunately, the people who develop Government rules and regulations often do not understand adequately the conditions they are regulating nor appreciate fully the impact of their decisions on the millions of people who are affected.

The question of the proper role of the Federal Government in energy has become important in the case of:

Controls over decisions that would normally be made in the marketplace.
Mandatory conservation measures.
Resource exploration and energy production.
Energy research, development, and demonstration.

Government Controls or Marketplace Decisions

Many legislative proposals will involve the question of whether there should be greater reliance on decisions made in the marketplace or upon regulations, standards and controls developed by the Federal Government.

Recent experience has again demonstrated that Federal price and allocation controls on energy ultimately work against the best interests of consumers because they reduce incentives to produce new supplies, they reduce competition and they reduce freedom of choice. For example, Federal price controls on natural gas have been a major factor leading to declining production and to wasteful and inefficient use of this resource. Also, controls on crude oil have contributed to a decline in production.

Federal price and allocation controls inevitably mean that the Government must employ people to develop, issue and revise regulations; to sit in judgment on requests for exceptions when the regulations do not fit real world circumstances; and to enforce the regulations. Federal controls mean that millions of decisions by producers, distributors, wholesalers, retailers *and* consumers must conform with Government-developed regulations—even when the people directly involved know that another course of action makes more sense and would still be in the national interest.

The principal alternative to Federal regulation and controls is to allow prices and allocation of energy supplies to be determined in the marketplace—with decisions made by individuals most directly affected. In some cases, avoiding or eliminating price controls can mean somewhat higher consumer prices in the short run. But the higher prices help stimulate new production and cut down on wastefulness. Market decisions are also made faster and more efficiently, and often result in cheaper prices than if the government made the decision. For example, the higher prices that will result from removing price controls from new natural gas would be less costly for consumers than the expense of switching to higher priced alternative fuels.

Mandatory Conservation Measures

Most of the problems resulting from Federal price controls also result from Federal attempts to dictate specific actions by individuals to conserve energy. The prospect of higher energy prices already is stimulating major efforts by individuals and organizations throughout the country to use existing products and develop new means to reduce wasteful and inefficient uses of energy. Such voluntary action by consumers is far preferable to mandatory measures selected and enforced by a larger and more obtrusive Government.

Resource Exploration and Energy Production

The Congress will again be faced with the question of whether the Federal Government should be directly involved in energy resources exploration, development, production and refining activities.

Some argue that such activities can be performed better by the Federal Government, that it is necessary to have a Government "standard" to evaluate private industry performance and prices, or that subsidized Government performance is necessary to hold down consumer prices. Others argue that the Government should itself explore Federal lands to better ascertain the value of lands that it leases for the production of energy resources.

In fact, the Federal Government can seldom perform these functions faster, more efficiently or at lower cost than private industry. There is no convincing evidence that the competitive leasing system now

used does not provide a fair return and adequately protect the public interest.

Despite this, proposals undoubtedly will continue to surface which would expand the size and role of the Federal Government to include exploration, production and related activities. Accordingly, the best course of action will be to insist upon hard facts to support the proposal and close scrutiny of each measure to see whether the advantages outweigh the disadvantages.

Energy Research, Development and Demonstration

Still other questions before the Congress involve the Federal role and funding for developing, demonstrating and promoting the use of new technologies for energy production and conservation.

I believe that Federal funding is necessary and appropriate for the development of new energy technologies which show promise of providing a significant and economical way of producing or conserving energy—but only when such technologies would not be developed by the private sector. During the past two years, I have requested major increases in funding for energy R&D to carry out this policy.

However, continued vigilance is needed to prevent the use of Federal funds to duplicate or displace funds which industry would otherwise spend, and to insure that the Federal Government does not fund efforts which industry has rejected for lack of merit.

In addition, new energy technologies must find acceptance and application in the private sector—unlike the situation in military and space exploration programs where the Federal Government is the only customer. This presents a special challenge because those responsible for managing Federal funds for energy R&D often are not in a good position to determine which technologies are likely to meet success in the private sector.

The Federal Government is not well equipped to carry out commercialization, marketing, promotional and technical assistance for particular energy technologies, products and services. Such activities should be left to private industry.

At present, the Federal activities that would contribute most to the resolution of our energy problem are:

Adopting changes in laws, policies and programs that will lead to a framework within which individuals and organizations outside the Federal Government can make efficient, effective and equitable decisions about energy. Laws and policies which discourage energy production or energy conservation should be modified.

Providing carefully targeted support for energy R&D.

Providing incentives and assistance where necessary—such as tax relief—in order to encourage energy conservation and aid low-income people in adjusting to higher energy prices which are necessary to generate new, adequate supplies.

Interdependence of the United States and Other Consumer Nations

The 1973–74 embargo, and the impact of sharply increased prices for OPEC oil, demonstrated clearly that the interests of the United States are tied closely to those of other nations which are net importers

of energy. Events in the last 3 years have demonstrated further that the economies of all nations are interrelated and the no nation can be truly economically independent in the world today. Many of our allies, and particularly the developing countries, do not have major undeveloped energy resources and therefore are even more dependent upon imported energy than is the United States.

Much progress has been made in strengthening energy cooperation among the industrialized nations through the International Energy Agency. Together we have coordinated efforts to reduce our collective vulnerability by establishing a long-term program for conservation and development of new energy sources, and an energy-sharing program to safeguard against supply interruptions. It is in the best interests of the United States to continue to work with and assist other energy-consuming countries in meeting their energy needs—by reinforcing their conservation efforts, accelerating development of conventional and new energy sources, and encouraging the application of practical new energy technologies.

Such efforts will help to achieve our objective over the long term of a better equilibrium between energy supply and demand in the world, so that no one group of nations will be able to impose its will on others. Unless we are willing to cooperate with others, and provide adequate assistance in this area, continued dependence by many nations on a few countries for energy supplies will remain a major source of world political instability, uncertainty, and economic hardship.

At the same time, of course, we must continue our efforts to strengthen relations between oil-importing and exporting nations, recognizing that cooperation is important to the future well-being of both.

Achieving Balance Among Conflicting Objectives

In recent years, we have been faced more and more with the dilemma that actions taken to achieve one important objective conflict with efforts to achieve other objectives. For example, we learned that tough standards and deadlines applied in the early 1970's to reduce pollutions from automobiles and improve air quality resulted in lower gasoline mileage and higher gasoline consumption, poorer vehicle performance and higher consumer costs.

Conflicting objectives are becoming more and more apparent as we recognize that the easy solutions are illusions and that there are major dangers in expanding the Federal role. The Nation must, therefore, face up to the task of achieving a balance among conflicting objectives involving energy.

Low Consumer Price vs. Adequate and Secure Energy Supplies

The reality that must be faced which appears to cause the most difficulty for elected officials is the inevitability of higher energy prices. Energy prices, particularly for consumers, will increase in the future principally because prices in the past have been held artificially low through Government controls, because cheaper domestic energy resources are being depleted, because past energy prices have not reflected the costs of environmental protection, and because foreign nations are charging more for the energy that they export. There

simply are no cheap energy alternatives. Higher prices will continue to be a major factor in obtaining adequate and secure energy supplies.

This difficulty is compounded for elected officials because it takes a long time in energy matters for our actions to show results—a condition that is not readily accepted in a Nation that prefers quick results. The prospect of higher prices will provide the incentive for increased energy production but it then takes up to 5 years, for example, to bring a new off-shore oil well into production and up to 10 years to bring a new nuclear electric generating plant on line.

Environment vs. Energy

An equally difficult problem is that of finding the best possible balance between our energy and environmental objectives. Our environmental objectives are also important in protecting health and welfare, improving our quality of life, and preserving natural resources for future generations. On the other hand, an adequate energy supply is essential to our objectives for a strong economy, national defense and role in world affairs, and in achieving a better life for all.

The conflict between energy and environmental objectives will require attention when the Congress considers amendments to the Clean Air Act, changes in laws governing the development of Federally-owned energy resources, improvements in the processes for siting and approving energy facilities, and controls on domestic energy production activities such as the surface mining of coal.

More specifically, air quality requirements forced shifts away from the use of domestic coal to the use of oil and natural gas which are now in short supply. Some air quality requirements—particularly emission standards set by states—are far tighter than necessary to meet standards which have been set to protect human health.

Efforts are now underway to reverse this trend but it is clear that increased production and utilization of domestic coal in the short term requires either billion dollar investments in controversial control equipment or some relaxation of existing air quality requirements. Most such requirements were set before we were aware of our energy problems, and often without sufficient regard to energy or consumer price impact. They often prevent substitution of coal resources for oil and gas and prevent construction of new coal producing and burning facilities.

As another example, concerns about environmental protection and reclamation requirements for surface mining activities led to legislation—twice vetoed—which would have imposed unnecessarily rigid requirements, cut domestic coal production and employment and led to even greater reliance on imported oil. Under these bills, Federal regulations and enforcement activities—which would contribute to a larger more cumbersome Federal Government—would have supplanted State laws and enforcement activities which are now in place and which require reclamation as a condition of mining.

Limiting Growth

The concept of limiting growth and development is an important ingredient in some efforts to halt increased domestic energy production or to develop and use newer energy technologies. Limits on growth and development may be necessary in particular areas, but I oppose

strongly the concept of limiting growth as an objective in itself. For the Nation, I continue to believe that our best hope for increasing the standard of living and the quality of life for all our people is to expand and strengthen our economy and, in this way, create meaningful and productive jobs for all who are willing and able to work. The energy policies and goals that I have advocated do not require limiting our economic growth below historic rates.

Eliminating Risk

In some cases, attempts to increase domestic energy production—particularly from nuclear energy and coal and oil and gas resources from Outer Continental Shelf—are met with demands that virtually all safety and environmental risks be eliminated.

There should be no disagreement that major efforts are necessary to protect human health and the environment. For example, strong efforts have already been made in the case of nuclear energy and an excellent record of safety and minimum environmental impact has been achieved. However, it must be recognized that there is no practical way of completely eliminating all risks. Further, each additional precaution adds cost in terms of reduced supplies or higher prices. Risk levels that have already been achieved in many energy producing activities are often far lower than those readily accepted in other human activities.

Because different Committees of Congress have responsibility for competing objectives, it is especially difficult to achieve a satisfactory balance among our national objectives in new legislation. This will be a continuing problem in the new Congress and I can only urge that each measure affecting energy supply and demand, which also involves other objectives, be evaluated carefully to assure that the resulting costs, risks and benefits are truly in the national interest.

The Need for Substantive Legislation Affecting Energy

We have made significant progress over the past two years toward establishing the framework of law and policies that are needed to permit decisions and actions that will help solve our energy problem.

Nine of the proposals that I submitted have been enacted into law. However, there remains a long list of requirements for early Congressional action.

Highest Priority

Because of the large number of legislative proposals that need action, I want to make clear that I believe highest priority should be given to measures which:

Remove Federal price regulation from new natural gas supplies. This action is crucial to increasing domestic production and reducing wasteful and inefficient uses.

Revise domestic crude oil price controls to allow greater flexibility in establishing a pricing formula that will encourage increased domestic production and assist in phasing out controls. This action is needed to overcome problems in the current law and to reduce market distortions that have resulted.

Make clear our determination to expand capacity in the United States, principally through the efforts of private industry, to enrich uranium needed to provide fuel for nuclear power plants. This action is necessary to permit increased use of nuclear power in the U.S. and to assure other nations that we will be a reliable supplier of uranium enrichment services—a step that is critical to our nuclear non-proliferation objectives.

Amend the Clean Air Act to:

Change the statutory requirements for meeting auto emission standards so that there can be a better balance among our environmental quality, energy, economic and consumer price objectives.

Provide flexibility in meeting national air quality standards applicable to power plants and major industrial facilities so that the use of coal can be continued and expanded, and so that new energy-producing facilities can be constructed in selected areas that have not yet attained national air quality standards.

Remove the requirement imposed by the courts for preventing significant deterioration of air quality in areas already meeting air quality standards—until information is available on the impact of such actions and informed decisions can be made.

Other Important Proposals

In addition to the above select list, favorable action is needed from the Congress on legislation in all the following areas:

Natural Gas

Temporary emergency legislation to allow pipelines and high priority users to obtain intrastate gas at unregulated prices for limited periods—to help cope with shortages and curtailments.

Oil

Authorization for the President to impose fees and taxes as standby emergency measures to reduce energy consumption in the event of another embargo—to avoid the inefficiencies and burdens of mandatory conservation measures in such emergencies.

An Oil Spill Liability Act—to establish a comprehensive system of liability and compensation for oil spill damage and removal costs.

Authorization for private competitive exploration and development of the National Petroleum Reserve in Alaska.

Coal

Extension of the authority to require utilities and other major fuel-burning installations to convert from oil and gas to coal.

Changes in provisions of the Coal Leasing Amendments Act of 1976 which unnecessarily delay or restrict leasing and development of coal on Federal lands.

Authority for the use of eminent domain in the construction of coal slurry pipelines and authority for the Secretary of the Interior to issue certificates of public convenience and necessary to expedite slurry pipeline construction.

Nuclear Energy

Authority for the Energy Research and Development Administration to enter into cooperative agreements with firms wishing to finance, build, own and operate uranium enrichment plants—to assure the availability of required capacity and avoid the need for billions of dollars in Federal outlays when the private sector can provide the financing.

Authority to increase the price for uranium enrichment services performed in Government-owned plants—to assure a fair return to the taxpayers for their investment, to price services more nearly comparable to their private sector value, and to end the unjustified subsidy by taxpayers to both foreign and domestic customers.

Criteria for the control of nuclear exports which is necessary to round out the comprehensive nonproliferation, export control, reprocessing evaluation and waste management program I outlined in my October 28, 1976, statement on nuclear policy.

Reform the nuclear facilities licensing process by providing for early site review and approval and encouraging standardization of nuclear facility design.

Building Energy Facilities

Establishment of an Energy Independence Authority (EIA), a new government corporation, to assist private sector financing of new energy facilities.

Legislation to encourage states to develop comprehensive and coordinated process to expedite review and approval of energy facilities siting applications, and to assure the availability of sites.

Energy Conservation

Tax credit for homeowners to provide up to $150 for purchasing and installing insulation in existing residences.

Reform of rate setting practices applicable to public utilities—to expedite consideration of proposed rate changes and assure that rates reflect full costs of generating and transmitting power.

1978 Budget Requests

My 1978 Budget which will soon be forwarded to the Congress will include major new funding to:

Continue and expand our extensive program of energy research and development in cooperation with private industry which is directed toward new technologies for conserving energy and for producing energy from fossil, nuclear, solar and geothermal sources.

Implement the Early Storage Program as part of the Strategic Petroleum reserves which will provide up to 500 million barrels of oil for use in emergency situations such as an embargo.

Implement my comprehensive nuclear policy statement issued on October 28, 1976.

Continue ERDA's development program on the liquid metal fast breeder reactor—to resolve any remaining environmental, safety and safeguards questions—so that this technology will be

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available to bridge the gap until advanced technologies can make their contribution to our energy needs.

Provide increased operating funds for other Federal energy activities.

I urge the Congress to approve these funding requests.

Reorganization of Federal Energy Activities

Under the provisions of the Energy Conservation and Production Act of August 1976, I am called upon to make recommendations to the Congress with respect to the reorganization of Federal energy and natural resource activities. At my direction, a major study of alternatives had already been undertaken in May 1976 under the leadership of the Energy Resources Council and the Office of Management and Budget.

I have reviewed the findings and recommendations from the study. Within the next few days, I will forward my recommendations to the Congress.

Time To Act

The Nation has waited far too long for completion of a sound and effective national energy policy. In many cases, the issues are complex and controversial, the decisions are tough to make—particularly because the right decisions will be unpopular in the short run. The costs of continued energy dependence are far too great for further delay.

The Congress *can* act. It is a matter of organizing itself to make the tough decisions and choices and moving ahead with the task. I urge the Congress to weigh the alternatives carefully and proceed promptly.

Gerald R. Ford.

The White House, *January 7, 1977.*

STATEMENT ANNOUNCING INITIATIVES TO DEAL WITH THE ENERGY CRISIS

JANUARY 21, 1977

As many Americans know from direct personal experience, this Nation is confronted by near-critical shortages in natural gas supplies. This has been one of the coldest winters in our history. Electric utilities are experiencing record demand. Great stress has been placed on supplies of alternative fuels for heating.

Plants have been forced to close down in a number of States currently affecting over 200,000 workers. An equal number of children have been turned out of their schools because of natural gas shortages. As a former governor, I know firsthand the extent of the problem facing State governments which are presently attempting to deal with the crisis. I am even more concerned about the growing cost in human suffering that will increase if severe winter weather continues.

In order to deal with this situation in a prompt and coordinated fashion, Dr. Schlesinger, as my personal representative, Senator Adlai Stevenson and Representative John Dingell, the Chairmen of the respective Senate and House Subcommittees having jurisdiction over natural gas, Chairman Richard Dunham and the members of the Federal Power Commission, and consumer representative Lee White have today met with representatives of the Nation's interstate pipelines to obtain a current measure of the shortage and to identify the options available to deal with the situation on an emergency basis.

The industry indicated willingness to work cooperatively with the Government in dealing with the crisis. I can pledge that the Government will use the full measure of its authority to respond forthrightly to minimize the adverse affects of this situation. I have instructed Dr. Schlesinger to work with congressional leaders to develop emergency legislation that will augment our legal means to distribute equitably our available supplies to protect property and safeguard the health and safety of our people.

Some affirmative action has already been undertaken to help alleviate the situation. The Federal Power Commission has extended emergency orders to allow more intrastate natural gas to enter the interstate system. The Canadian Government has agreed to make additional natural gas available on an emergency basis. The Federal Energy Administration has been directed to review existing authorities to expedite the use of propane to supplement natural gas supplies and to assure that fuel oil supplies will be available to prevent localized spot shortages.

I recognize the critical need for the legislative and the executive branches to work together to put all the instrumentalities of Government to work to help alleviate this crisis. Today, we are beginning this effort. But the most important short-term priority will be to save energy. We can secure additional supplies and put an energy allocation program in place. But without public conservation, there may not be enough energy to allocate. I am calling on all Americans, whether their homes are heated by natural gas, heating oil or some other fuel, to turn their thermostats down to 65 degrees in the daytime and lower at night. By this action, great savings are possible. I am immediately directing that this discipline be observed in all Government installations.

I have great confidence in our ability to respond effectively to deal with this crisis and reduce consumption to manageable levels over the remainder of the winter. If we work together we will accomplish much and our reward will be measured in the jobs we save and the human suffering we alleviate.

Today's crisis is a painful reminder that our energy problems are real and cannot be ignored. This Nation needs a coherent energy policy and such a program of energy action will be formulated promptly.

JIMMY CARTER.

THE WHITE HOUSE, *January 21, 1977.*

REMARKS ON SIGNING THE EMERGENCY NATURAL GAS ACT OF 1977

FEBRUARY 2, 1977

While I was Governor, I signed about, I think, 2,500 bills. But this is my first one to sign as President.

I want to thank, first of all, all the distinguished leaders of the Congress behind me who made possible the passage of this important legislation.

We are now in the midst of a very serious energy crisis brought about not so much by the shortage of natural gas, but an inability to distribute it where it's needed in our country.

I asked the Congress just a few days ago to give emergency powers to me and to the Federal Power Commission and others to provide some reasonable assurance to the American people that natural gas could be placed in our country where it's needed most.

We now have literally thousands of factories closed down, about 500,000 workers out of jobs, because of the natural gas shortage.

And this emergency legislation which was passed just tonight will now be signed into law. I'm very proud to have a chance to sign this first law into being because it's important to our people. And I hope it demonstrates a good example of a close harmony and close working relationship that I can maintain with the Congress in weeks to come.

After signing the act which authorizes emergency powers and action, it's also necessary to sign an Executive order declaring that an emergency does exist. And at this time, I'd like to proclaim and declare that a natural gas emergency does exist within the meaning of Section III of this act and, with this signature, implement the provisions of the act which has just been passed.

The third document that has to be signed is one directing the Chairman of the Federal Power Commission to assume the authorities granted to him in this act and, also, to direct the other members of the Cabinet-level agencies in government to initiate action that will make possible the orderly transfer of natural gas to areas where it's needed.

I might add that last night the President of Mexico, my friend, Mr. Lopez Portillo, notified us that they were transferring large quantities of oil and natural gas to our country. And just a few minutes ago, I had a call from Governor Brown in California, saying that because of very strict conservation measures that had been initiated in California, even though they don't have a severe winter

situation there, that 10 billion cubic feet of natural gas would be diverted from California to the eastern part of our country where the shortage exists. And without this legislation, the transfer of that gas in an efficient way would have been completely impossible. So, immediately, this bill will be beneficial to us all.

By the middle of—I'd say by th 20th of April—we hope to have a much more comprehensive proposal on energy to present to the Congress. And Dr. James Schlesinger, who is Assistant to me here in the White House, will be in charge of developing that new energy policy.

So I'd like to thank all of you again for being so helpful to me and to the country, which is typical of the great attitude that the Congress has always maintained.

Thank you again.

JIMMY CARTER.

THE WHITE HOUSE, *February 2, 1977.*

A PROCLAMATION ON NATURAL GAS EMERGENCY

FEBRUARY 2, 1977

DECLARING A NATURAL GAS EMERGENCY

Abnormal weather conditions have caused prevailing temperatures in the United States, particularly in the East and Midwest, to be well below normal for the past three months. Many interstate natural gas pipelines and local natural gas distribution companies do not have sufficient supplies of flowing or stored gas to meet current demand. The shortage of natural gas available to some interstate pipelines and local distribution companies has been so severe as to cause them to curtail or to be in imminent danger of curtailing natural gas supplies to residences, small commercial establishments and other high priority users, so as to endanger life or health, and risk damage to plant or other facilities.

Other interstate pipelines and distribution companies, however, have more than adequate supplies of natural gas to meet the needs of residences, small commercial establishments and other high priority users.

In light of the severe shortage of natural gas supplies available to some firms and the disparity of natural gas supplies in various regions of the United States, the exercise of extraordinary authority for emergency deliveries and transportation of natural gas pursuant to Section 4 of the Emergency Natural Gas Act of 1977 is necessary to assist in meeting the requirements of natural gas for residences, small commercial establishments, and other high priority users in the United States or regions thereof. No measures other than those authorized by Section 4 of the Emergency Natural Gas Act of 1977 are adequate to assist in meeting the requirements of natural gas for residences, small commercial establishments, and other high priority users in the United States or regions thereof.

NOW, THEREFORE, I, JIMMY CARTER, President of the United States of America, by virtue of the authority vested in me by the Constitution and statutes of the United States, including the Emergency Natural Gas Act of 1977, do hereby proclaim and declare that a natural gas emergency exists within the meaning of Section 3 of said Act.

IN WITNESS WHEREOF, I have hereunto set my hand this second day of February, in the year of our Lord nineteen hundred seventy-seven, and of the Independence of the United States of America the two hundred and first.

JIMMY CARTER.

THE WHITE HOUSE, *February 2, 1977.*

REMARKS ON PROPOSED DEPARTMENT OF ENERGY LEGISLATION

MARCH 1, 1977

I'm going to give a brief outline, and then Dr. Schlesinger is going to explain the details of the proposal.

Today we sent to the Congress a proposal for the creation of a new and comprehensive Department of Energy. This is long overdue. We now have more than 50 different Federal agencies who have divided among themselves the responsibilities for the evolution and the carrying out of an energy policy for our country.

I think that you can see from the two charts on my left and right the difference between what we presently have and what is being proposed. This is just a block diagram of the departments that now are involved in the energy question, and on my left, is the proposal that we have presented to the Congress.

This morning, Dr. Schlesinger met with a number of key Members of Congress who are interested in the energy field and began to brief them. And of course, ever since last summer, we've been working with the Members of Congress for this purpose.

This department will make it possible for us to evolve very quickly a comprehensive energy policy which we've missed. It will give us an opportunity to regulate the production and distribution of energy along with the pricing concepts clearly and, I believe, cohesively.

It will also permit us to channel research and development funds in a way that would be consistent with the long-range needs of our country. It will let us insure to a maximum degree that the data that we obtain concerning energy reserves are accurate and, also that the American people might trust the information provided to them about how much energy we have available in different forms. And it will greatly simplify the bureaucracy.

Dr. James Schlesinger, who is energy adviser to me, will now proceed with the briefing and will answer your specific questions on this department. I hope that the Congress will act expeditiously in this matter because it is so important to our country.

On April 20, we will present to the Congress our presentation on a comprehensive energy policy. And this is the first time, I believe, that this has yet been attempted. And I believe that because of Dr. Schlesinger's ability and my interest and the enthusiasm of the Congress and the great need for the American people, it will be a successful effort.

JIMMY CARTER.

THE WHITE HOUSE, *March 1, 1977.*

Department of Energy

To the Congress of the United States:

I hereby transmit to the Congress proposed legislation which will create a new Cabinet Department of Energy.

This legislation is a major step in my Administration's program for a comprehensive reorganization of the Executive Branch.

Nowhere is the need for reorganization and consolidation greater than in energy policy. All but two of the Executive Branch's Cabinet departments now have some responsibility for energy policy, but no agency, anywhere in the Federal government, has the broad authority needed to deal with our energy problems in a comprehensive way.

The legislation I am submitting today will bring immediate order to this fragmented system:

It will abolish the Federal Energy Administration, the Energy Research and Development Administration, and the Federal Power Commission, thereby eliminating three agencies whose missions overlap and sometimes conflict, and whose specialized perspectives have impeded progress toward a unified energy policy.

It will allow us, for the first time, to match our research and development program to our overall energy policies and needs. This is particularly important if we are to make use of renewable energy sources such as solar power.

It will enable us to move more quickly toward effective energy conservation by combining conservation programs which are now split between FEA and ERDA. And, to make certain that we will see results, the legislation creates an Assistant Secretary for Conservation, who will be personally responsible for seeing that the conservation program is carried out.

It will place under one roof the powers to regulate fuels and fuel distribution systems, powers which are now shared by the FEA and the FPC along with the Securities and Exchange Commission and the Interstate Commerce Commission. An institutional structure built on the premise that fossil fuels are abundant and cheap no longer serves well in an era of fuel scarcity.

As this winter has shown us, uncoordinated regulatory policies can have serious impacts on our economic and social well-being. This reorganization can help us bring currently fragmented policies into a structure capable of both developing and implementing an overall national energy plan. At the same time, we must guard the quasi-judicial aspects of the regulatory process against improper influence. The legislation meets this concern by establishing a Board of Hearings and Appeals within the Department which is free from the control of the Secretary of Energy.

In addition to abolishing the FEA, ERDA, and the FPC, the legislation submitted today will transfer into the new Department several significant energy-related authorities and programs which now belong to other departments. These include the building thermal efficiency standards from Housing and Urban Development, the voluntary industrial compliance program from Commerce, and the Navy petroleum and oil shale reserves from Defense. The legislation provides for

consultation between the Energy Department and the Department of Transportation on auto fuel efficiency standards, and establishes a role for the Energy Secretary in the REA loan program at Agriculture. Where it is appropriate, these departments will still carry out the program, but the new Energy Department will give them the policy guidance needed to bring unity and rational order to our energy program.

Finally, this legislation transfers certain parts of the Interior Department—those concerning fuels data collection and analysis, and coal mine research and development—into the new Department. Coal mine health and safety research will not be transferred. This will leave the Department of Interior still in charge of leasing energy resources under Federal control. We are leaving those functions in Interior because we believe that the responsibility for multiple-use of public lands, and for their environmental protection, belongs in one department—Interior—that can reflect a broad spectrum of concern. The Energy Department, however, will set long-term production goals and will have policy control over economic aspects of the leases. This will help us foster competition within the energy industries and encourage production of leased resources as expeditiously as possible.

This reorganization will also bring together our energy data gathering and analysis capabilities. More than twenty executive departments and agencies now operate more than 250 energy data programs. The FEA, ERDA, FPC and the Interior Department's Bureau of Mines together have more than 100 such programs. This fragmentation is not only uneconomic and frustrating; it can also have serious consequences. We have seen in recent weeks that, under our present system, we have no single source of information about where natural gas shortages were greatest and where supplies were still available to help make up those shortages. Consolidating these major data programs in an Energy Information Administration within the new department will now give us the ability to compile information which is complete, accurate and *believable*.

There are many things this legislation does not try to do.

I believe that health, safety and environmental regulation relating to energy—unlike economic regulation—should not be brought into the new Energy Department. Because public concerns about the safety of nuclear power are so serious, we must have a strong, independent voice to ensure that safety does not yield to energy supply pressures. Therefore, the Nuclear Regulatory Commission will remain as an independent body. For similar reasons, the Environmental Protection Agency should remain independent to voice environmental concern.

Even with a new Department of Energy, problems of interdepartmental coordination will remain, since virtually all government activity affects energy to some extent. Establishing this department, however, will give us one government body with sufficient scope and authority to do the massive job that remains to be done. Thus this legislation will abolish the Energy Resources Council. I intend to establish by Executive Order a non-statutory interdepartmental coordinating body, with the Secretary of Energy as its chairman to manage government-wide concerns involving energy.

This legislation contains no new substantive authorities. Instead, by eliminating three agencies and uniting a variety of existing energy authorities, the legislation I am submitting today will help reorganize the Executive Branch in a rational, orderly way. It is long overdue. I hope to work with the Congress to achieve our initial goal of a realistic and effective energy policy.

JIMMY CARTER.

THE WHITE HOUSE, *March 1, 1977.*

NOTE: On the same day, the White House issued the following release:

MAJOR PROVISIONS OF LEGISLATION TO CREATE A DEPARTMENT OF ENERGY

I. COMPONENTS OF DEPARTMENT

The bill proposes creation of a Department of Energy, with the following major structural components:

The Federal Energy Administration;

The Energy Research and Development Administration;

The Federal Power Commission;

Certain programs and functions from the Interior Department.

The four regional power marketing Administrations (Bonneville, Alaska, Southwest, and Southeast) and the power marketing functions of the Bureau of Reclamation.

Certain programs of the Bureau of Mines—i.e., the fuels data program (which collects and analyzes data principally on fossil fuels) and research and development programs related to improvements in coal mining extraction technology, coal preparation and analysis, and technology development for equipment for surface mining.

Certain responsibilities relating to leasing of energy minerals onshore and offshore, as outlined further in III below.

Policy control over the rate of the exploration program, to be conducted by Interior, in the Naval petroleum reserve in Alaska.

The existing statutory authorities for the thermal efficiency standards program, now vested in the Secretary of HUD (these authorities related to development by late 1979 of standards for commercial and residential buildings; implementation of these standards, pursuant to Energy Department policy guidelines, would continue in HUD.

Existing Commerce Department programs to promote voluntary industrial energy conservation.

The jurisdiction over and administration of the three Naval petroleum reserves in California and Wyoming, and three Naval oil shale reserves in Colorado and Utah, currently in the Defense Department.

The authorities vested in the SEC through the Public Utility Holding Company Act of 1935 to regulate mergers in the electric utility industry.

The authorities currently vested in the ICC to regulate oil pipelines, including valuation and ratemaking.

In addition, the Energy Department will have an advisory role in recommending goals in the automobile efficiency standards program to the Secretary of Transportation, who will continue to have primary

responsibility for the program, and willl have a right of concurrence on approval of REA loans and loan guarantees for generating and transmission facilities to ensure their coordination with national energy policy.

II. INTERNAL STRUCTURE OF DEPARTMENT

Creates as Presidentially appointed statutory officers subject to Senate advice and consent the Secretary, a Deputy Secretary, two Under Secretaries, an Assistant Secretary for Conservation, an Assistant Secretary for Environment, an Assistant Secretary for Energy Technology, a General Counsel, and five other Assistant Secretaries.

Creates a statutory Economic Regulatory Administration and an Energy Information Administration, both headed by Presidential appointees subject to Senatorial advice and consent.

Creates a Board of Hearings and Appeals (see III below).

Vests all powers of the Department in the Secretary, with the exception of the functions vested in the FEA Office of Energy Information, which are vested directly in the Administrator of the Energy Information Administration.

Provides that the Department will be established 120 days after enactment of the legislation to provide for necessary administrative work to be accomplished.

III. REGULATORY FUNCTIONS

Functions of Economic Regulatory Administration

The Regulatory Administration will carry out informal rulemaking and issuance of policy statements covering the economic regulatory areas within the Department.

At the present time, this principally includes coverage of FEA regulatory activities (pricing and allocation of petroleum and petroleum products) and national wellhead pricing of natural gas by the Federal Power Commission.

In addition, in the future, the Secretary or the Economic Regulatory Administration will be able to issue prospective rules to simplify procedures now conducted by formal rulemaking or adjudicatory proceedings (i.e., proceedings on the record in which an opportunity for oral argument and cross-examination is afforded).

These prospective rules will aid integration of policy for oil and natural gas and should simplify procedures in those areas (see below) in which current procedures are conducted in a formal on-the-record, trial-type situation.

Composition and Functions of Hearings and Appeals Board

The Hearings and Appeals Board is made up of three Presidential appointees, subject to Senate advice and consent, serving 4-year terms and removable only for specified causes. They are insulated from control of the Secretary by virtue of these protections.

Initially, the functions of the Hearings and Appeals Board would in practical terms extend to all matters now decided on the record in formal proceedings.

This includes, principally, FPC matters pertaining to interstate wholesale electricity sales, natural gas transportation (pipeline) charges, and hydroelectric facilities licensing.

The Board may hear these cases initially, or may give them initially to Administrative Law Judges, whose decisions could then be appealed to the Appeals Board.

The actions of the Board would be a final departmental action, subject to review only in the courts.

Over time, as the Secretary or the Administrator of the Economic Regulatory Administration issued more rules of general applicability, the complexity of the individual cases handled by the Board should be reduced, as the number of issues which must be tried in individual case is reduced, thereby expediting action.

IV. PUBLIC LANDS LEASING

In the area of public leasing, a process arrangement between the Department of Energy (DOE) and the Department of the Interior (DOI) will be proposed. Under this arrangement, the actual leasing of resources will remain in the Interior Department, but control over broad economic and energy supply goals of the process, and specific controls over certain procedures within the process, will reside in the Energy Department.

(a) Each year the Energy Secretary will develop long-term production goals for federally controlled onshore and offshore energy resources, resource by resource, with input from the Interior Secretary. The goals will be set taking into account reasonable lead times for the particular resource involved. If the Interior Secretary concludes a particular goal is unrealistic, the matter will be decided by the President. (This relationship will be established by Executive order.)

(b) General regulations governing the leasing program will be issued by DOI. However, regulations covering economic terms and conditions of leases, as specified below, will be established by DOE.

Competitive relationships among energy companies (such as restrictions on joint venture bidding by major oil companies).

Use of alternative bidding systems.

Mandatory rates of production.

General due diligence regulations.

Procedures for acquiring and distributing that portion of the resources allowed by law to be acquired in-kind by the Federal Government.

(c) Issuance of specific lease terms and conditions will be done by DOI, with DOE approval required only for those areas of lease terms and conditions covered by the general regulations set by DOE in (b), above.

(d) In the post-lease period, DOE will fix production rates for the energy resources.

(e) DOE will have authority to recommend cancellation or forfeiture of the lease to the Interior Secretary for failure to meet those production rates, in accordance with applicable law and terms of the lease. If the Interior Secretary determines that the lease will not be cancelled or forfeited, his reasons for that determination must be published in the Federal Register within 90 days. (This will be established by Executive order.)

(f) A leasing Liaison Committee will be established, with a Presidential designee as its head (coming from the Energy Department) and membership from the Energy Department. The Committee will act as a vehicle for DOE to be fully informed at all stages of the leasing process, and will enable the Secretary of Energy to make recommendations to the Secretary of the Interior on matters relating to leasing, with a right of referral by the Secretary to the President if he feels that actions or failure to act by DOI on matters recommended to it are adverse to the responsibilities of DOE.

JIMMY CARTER.

THE WHITE HOUSE, *March 1, 1977.*

STATEMENT ON DECISIONS FOLLOWING A REVIEW OF U.S. NUCLEAR POWER POLICY

APRIL 7, 1977

There is no dilemma today more difficult to resolve than that connected with the use of nuclear power. Many countries see nuclear power as the only real opportunity, at least in this century, to reduce the dependence of their economic well-being on foreign oil—an energy source of uncertain availability, growing price, and ultimate exhaustion. The U.S., by contrast, has a major domestic energy source—coal—but its use is not without penalties, and our plans also call for the use of nuclear power as a share in our energy production.

The benefits of nuclear power are thus very real and practical. But a serious risk accompanies worldwide use of nuclear power—the risk that components of the nuclear power process will be turned to providing atomic weapons.

We took an important step in reducing the risk of expanding possession of atomic weapons through the Non-Proliferation Treaty, whereby more than 100 nations have agreed not to develop such explosives. But we must go further. The U.S. is deeply concerned about the consequences for all nations of a further spread of nuclear weapons or explosive capabilities. We believe that these risks would be vastly increased by the further spread of sensitive technologies which entail direct access to plutonium, highly enriched uranium, or other weapons usable material. The question I have had under review from my first day in office is how can that be accomplished without forgoing the tangible benefits of nuclear power.

We are now completing an extremely thorough review of all the issues that bear on the use of nuclear power. We have concluded that the serious consequences of proliferation and direct implications for peace and security—as well as strong scientific and economic evidence—require

—a major change in U.S. domestic nuclear energy policies and programs; and

—a concerted effort among all nations to find better answers to the problems and risks accompanying the increased use of nuclear power.

I am announcing today some of my decisions resulting from that review.

First, we will defer indefinitely the commercial reprocessing and recycling of the plutonium produced in the U.S. nuclear power programs. From our own experience, we have concluded that a viable and economic nuclear power program can be sustained without such reprocessing and recycling. The plant at Barnwell, South Carolina, will

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receive neither Federal encouragement nor funding for its completion as a reprocessing facility.

Second, we will restructure the U.S. breeder reactor program to give greater priority to alternative designs of the breeder and to defer the date when breeder reactors would be put into commercial use.

Third, we will redirect funding of U.S. nuclear research and development programs to accelerate our research into alternative nuclear fuel cycles which do not involve direct access to materials usable in nuclear weapons.

Fourth, we will increase U.S. production capacity for enriched uranium to provide adequate and timely supply of nuclear fuels for domestic and foreign needs.

Fifth, we will propose the necessary legislative steps to permit the U.S. to offer nuclear fuel supply contracts and guarantee delivery of such nuclear fuel to other countries.

Sixth, we will continue to embargo the export of equipment or technology that would permit uranium enrichment and chemical reprocessing.

Seventh, we will continue discussions with supplying and recipient countries alike, of a wide range of international approaches and frameworks that will permit all nations to achieve their energy objectives while reducing the spread of nuclear explosive capability. Among other things, we will explore the establishment of an international nuclear fuel cycle evaluation program aimed at developing alternative fuel cycles and a variety of international and U.S. measures to assure access to nuclear fuel supplies and spent fuel storage for nations sharing common non-proliferation objectives.

We will continue to consult very closely with a number of governments regarding the most desirable multilateral and bilateral arrangements for assuring that nuclear energy is creatively harnessed for peaceful economic purposes. Our intent is to develop wider international cooperation in regard to this vital issue through systematic and thorough international consultations.

JIMMY CARTER.

THE WHITE HOUSE, *April 7, 1977.*

[Presidential Documents: Jimmy Carter, 1977, Volume 13, Number 15]

QUESTION-AND-ANSWER SESSION, APRIL 7, 1977

THE PRESIDENT. Good morning, everybody. I have two items to discuss with you this morning. Then I'd like to answer a few questions.

ECONOMIC STIMULUS PACKAGE

One relates to the economy and the need for continuing emphasis on the stimulation package. Based on the best information available to us now, we'll have an accumulated spending shortfall for this current fiscal year, fiscal year 1977, plus revenue collections in excess of the anticipated amount, of about $10 billion. In other words, we have collected about $10 billion more from the American taxpayers than we anticipate spending in 1977.[1]

[1] Later in the day, the White House Press Office issued the following clarification of the President's statement: "The Federal deficit is expected to be $10 billion less than anticipated this year, because we are collecting more in taxes and spending less than we anticipated."

I feel very strongly that this money should go back to the American taxpayers. We need it for the economy to maintain its present strength. And the only equitable way that I see is through the already prepared tax refund which would average about $50 per person which, as I have said before, would be about 30 percent of the 1976 income taxes paid by a family making about $10,000 a year.

Nuclear Power Policy

The second point I'd like to make before I answer questions is concerning our Nation's efforts to control the spread of nuclear explosive capability. As far back as 30 years ago, our Government made a proposal to the United Nations that there be tight international controls over nuclear fuels and particularly those that might be made into explosives.

Last year during the Presidential campaign, both I and President Ford called for strict controls over fuels to prevent the proliferation -- further proliferation of nuclear explosive capability.

There is no dilemma today more difficult to address than that connected with the use of atomic power. Many countries see atomic power as their only real opportunity to deal with the dwindling supplies of oil, the increasing price of oil, and the ultimate exhaustion of both oil and natural gas.

Our country is in a little better position. We have oil supplies of our own, and we have very large reserves of coal. But even coal has its limitations. So, we will ourselves continue to use atomic power as a share of our total energy production.

The benefits of nuclear power, particularly to some foreign countries that don't have oil and coal of their own, are very practical and critical. But a serious risk is involved in the handling of nuclear fuels—the risk that component parts of this power process will be turned to providing explosives or atomic weapons.

We took an important step in reducing this risk a number of years ago by the implementation of the nonproliferation treaty which has now been signed by approximately a hundred nations. But we must go further.

We have seen recently India evolve an explosive device derived from a peaceful nuclear powerplant, and we now feel that several other nations are on the verge of becoming nuclear explosive powers.

The United States is deeply concerned about the consequences of the uncontrolled spread of this nuclear weapon capability. We can't arrest it immediately and unilaterally. We have no authority over other countries. But we believe that these risks would be vastly increased by the further spread of reprocessing capabilities of the spent nuclear fuel from which explosives can be derived.

Plutonium is especially poisonous, and, of course, enriched uranium, thorium and other chemicals or metals can be used as well.

We are now completing an extremely thorough review of our own nuclear power program. We have concluded that serious consequences can be derived from our own laxity in the handling of these materials and the spread of their use by other countries. And we believe that there is strong scientific and economic evidence that a time for a change has come.

Therefore, we will make a major change in the United States domestic nuclear energy policies and programs which I am announcing today.

We will make a concerted effort among all other countries to find better answers to the problems and risks of nuclear proliferation. And I would like to outline a few things now that we will do specifically.

First of all, we will defer indefinitely the commercial reprocessing and recycling of the plutonium produced in U.S. nuclear power programs.

From my own experience, we have concluded that a viable and adequate economic nuclear program can be maintained without such reprocessing and recycling of plutonium. The plant at Barnwell, South Carolina, for instance, will receive neither Federal encouragement nor funding from us for its completion as a reprocessing facility.

Second, we will restructure our own U.S. breeder program to give greater priority to alternative designs of the breeder other than plutonium, and to defer the date when breeder reactors would be put into commercial use.

We will continue research and development, try to shift away from plutonium, defer dependence on the breeder reactor for commercial use.

Third, we will direct funding of U.S. nuclear research and development programs to accelerate our research into alternative nuclear fuel cycles which do not involve direct access to materials that can be used for nuclear weapons.

Fourth, we will increase the U.S. capacity to produce nuclear fuels, enriched uranium in particular, to provide adequate and timely supplies of nuclear fuels to countries that need them so that they will not be required or encouraged to reprocess their own materials.

Fifth, we will propose to the Congress the necessary legislative steps to permit us to sign these supply contracts and remove the pressure for the reprocessing of nuclear fuels by other countries that do not now have this capability.

Sixth, we will continue to embargo the export of either equipment or technology that could permit uranium enrichment and chemical reprocessing.

And seventh, we will continue discussions with supplying countries and recipient countries, as well, of a wide range of international approaches and frameworks that will permit all countries to achieve their own energy needs while at the same time reducing the spread of the capability for nuclear explosive development.

Among other things—and we have discussed this with 15 or 20 national leaders already—we will explore the establishment of an international nuclear fuel cycle evaluation program so that we can share with countries that have to reprocess nuclear fuel the responsibility for curtailing the ability for the development of explosives.

One other point that ought to be made in the international negotiation field is that we have to help provide some means for the storage of spent nuclear fuel materials which are highly explosive, highly radioactive in nature.

I have been working very closely with and personally with some of the foreign leaders who are quite deeply involved in the decisions that

we make. We are not trying to impose our will on those nations like Japan and France and Britain and Germany which already have reprocessing plants in operation. They have a special need that we don't have in that their supplies of petroleum products are not available.

But we hope that they will join with us—and I believe that they will—in trying to have some worldwide understanding of the extreme threat of the further proliferation of nuclear explosive capability.

I'd be glad to answer a few questions.

QUESTIONS

Q. Mr. President, in the last administration there was some proposal to have regional reprocessing centers which seem, to some people, to put the emphasis on the wrong thing. Does this mean that you are going to not favor regional reprocessing centers? And, secondly, would you be prepared to cut off supplies of any kind of nuclear material to countries that go nuclear?

The President. Well, I can't answer either one of those questions yet. I have had detailed discussions with Prime Minister Fukuda, with Chancellor Schmidt, and also with Prime Minister Callaghan, for instance, just in recent days about a joint approach to these kinds of problems.

Obviously, the smaller nations, the ones that now have established atomic powerplants, have to have someplace either to store their spent fuel or to have it reprocessed. And I think that we would very likely see a continuation of reprocessing capabilities within those nations that I have named and perhaps others.

We in our own country don't have this requirement. It's an option that we might have to explore many, many years in the future.

But I hope that by this unilateral action we can set a standard and that those countries that don't now have reprocessing capability will not acquire that capability in the future. Regional plants under tight international control obviously is one option that we would explore. No decision has been made about that.

If we felt that the provision of atomic fuel was being delivered to a nation that did not share with us our commitment to nonproliferation, we would not supply that fuel.

Q. Mr. President, this carries an assurance, which you had said earlier, for an assured and adequate supply of enriched uranium to replace the need for plutonium. Do you foresee any kind of price guarantees also for underdeveloped and poorer countries so that the supply would not only be assured but at a reasonable price in case lack of reprocessing drove prices up?

THE PRESIDENT. I don't know what the future prices of uranium might be. At the present time, of the enriched uranium that we produce, about roughly a third of it is exported, roughly a third of it is used for our domestic needs, and about a third of it is put in storage.

There has been an attenuation in recent years of the projected atomic powerplant construction in our own country. Other nations, though, are moving more and more toward atomic-powerplants. But I can't tell you at this point that we will guarantee a price for uranium fuel that's less than our own cost of production, and that would be a matter of negotiation, perhaps even on an individual national basis.

I think that a standard price would probably be preferable, but then we might very well give a particular nation that was destitute or a very close friend of ours or who cooperated with us in this matter some sort of financial aid to help them with the purchase.

Q. You also said last year a couple of times that you hoped to call a world energy conference to discuss this as well as a lot of other things. Do you foresee that happening any time in the near future?

The PRESIDENT. The item of nuclear powerplants and the handling of spent nuclear fuels and the curtailment of the possibility of new nations joining us in their capability for explosives will be on the agenda in the discussions in London early in May. And this will be a continuing process for us.

I might add that Secretary Vance also discussed this question with the Soviet authorities on his recent visit to Moscow and asked them to join in with us in enhancing the nonproliferation concept. Their response was favorable. But it will entail a great deal of negotiation, and I can't anticipate what the results of those negotiations might be. We obviously hope for it to apply to all the nations in the world.

Q. Mr. President, does your change in the domestic program mean that you will not authorize building the Clinch River breeder reactor in Tennessee?

The PRESIDENT. The Clinch River breeder reactor will not be terminated as such. In my own budget recommendations to the Congress, we cut back—I can't remember the exact figure—about $250 million out of the plutonium breeder reactor—the liquid metal fast breeder reactor program.

I think that we would continue with the breeder reactor program on an experimental basis, research and development, but not move nearly so rapidly toward any sort of commercial use.

We also, obviously, are concerned about the adverse economic impact of these changes. And in the areas that would lose employment that was presently extant, as we increase our capacity for producing nuclear fuels, even using new techniques, other than gaseous diffusion, like centrifuge and laser beam use, then we would try to locate those facilities over a period of time—it's a very slowmoving process—in areas like Clinch River where they might be adversely affected.

Q. Mr. President, does this mean that Canada selling nuclear power equipment to France and others, and France selling to others—does this mean that we will supply those other countries so that they won't make more power?

The PRESIDENT. Well, I might say that the two countries that most nearly share our commitment and even moved ahead of us in this field have been Canada—perhaps because of their unfortunate experience with India—and Australia. Both those countries, along with us, have substantial supplies of nuclear fuel themselves.

I would hope that we could develop an interrelationship with other countries to remove the competitive aspect of reprocessing itself. There is obviously going to be continued competition among our own Nation, Canada, France, Germany, England, in the selling of atomic powerplants themselves. It ought to be a clearly drawn distinction between the legitimate and necessary use of uranium and other enriched fuels

to produce electricity, on the one hand, and a prohibition against the use of those fuels for explosives.

It would be impossible, counterproductive, and ill-advised for us to try to prevent other countries that need it from having the capability to produce electricity from atomic power. But I would hope that we and the other countries could form an alliance that might be fairly uniform in this respect. I know that all the other countries share with us this hope.

The one difference that has been very sensitive, as it relates to, say, Germany, Japan, and others, is that they fear that our unilateral action in renouncing the reprocessing of spent fuels to produce plutonium might imply that we prohibit them or criticize them severely because of their own need for reprocessing. This is not the case. They have a perfect right to go ahead and continue with their own reprocessing efforts. But we hope they'll join with us in eliminating in the future additional countries that might have had this capability evolve.

Q. Mr. President, is it your assessment, sir, that some of the smaller nations that are now seeking reprocessing technology are doing so in order to attain nuclear weapon capability as well as or in addition to meeting their legitimate energy needs?

The PRESIDENT. Well, without going into specifics—I wouldn't want to start naming names—I think it's obvious that some of the countries about whom we are concerned have used their domestic nuclear powerplants to develop explosive capability. There is no doubt about it.

India, which is basically a peaceful nation, at least as far as worldwide connotations are concerned, did evolve an explosive capability from supplies that were given to them by the Canadians and by us.

And we feel that there are other nations that have potential capacity already for the evolution of explosives. But we are trying to make sure that from this point on that the increasing number of nations that might have joined the nuclear nations is attenuated drastically.

We can't undo immediately the mistakes that have been made in the past. But I believe that this is a step in the right direction.

ADDRESS TO THE NATION ON THE ENERGY PROBLEM

APRIL 18, 1977

Good evening: Tonight I want to have an unpleasant talk with you about a problem that is unprecedented in our history. With the exception of preventing war, this is the greatest challenge that our country will face during our lifetime.

The energy crisis has not yet overwhelmed us, but it will if we do not act quickly. It's a problem that we will not be able to solve in the next few years, and it's likely to get progressively worse through the rest of this century.

We must not be selfish or timid if we hope to have a decent world for our children and our grandchildren. We simply must balance our demand for energy with our rapidly shrinking resources. By acting now we can control our future instead of letting the future control us.

Two days from now, I will present to the Congress my energy proposals. Its Members will be my partners, and they have already given me a great deal of valuable advice.

Many of these proposals will be unpopular. Some will cause you to put up with inconveniences and to make sacrifices. The most important thing about these proposals is that the alternative may be a national catastrophe. Further delay can affect our strength and our power as a Nation.

Our decision about energy will test the character of the American people and the ability of the President and the Congress to govern this Nation. This difficult effort will be the moral equivalent of war, except that we will be uniting our efforts to build and not to destroy.

Now, I know that some of you may doubt that we face real energy shortages. The 1973 gas lines are gone and with this springtime weather, our homes are warm again. But our energy problem is worse tonight than it was in 1973 or a few weeks ago in the dead of winter. It's worse because more waste has occurred and more time has passed by without our planning for the future. And it will get worse every day until we act.

The oil and natural gas that we rely on for 75 percent of our energy are simply running out. In spite of increased effort, domestic production has been dropping steadily at about 6 percent a year. Imports have doubled in the last 5 years. Our Nation's economic and political independence is becoming increasingly vulnerable. Unless profound changes are made to lower oil consumption, we now believe that early in the 1980's the world will be demanding more oil than it can produce.

The world now uses about 60 million barrels of oil a day, and demand increases each year about 5 percent. This means that just to stay

even we need the production of a new Texas every year, an Alaskan North Slope every 9 months, or a new Saudi Arabia every 3 years. Obviously, this cannot continue.

We must look back into history to understand our energy problem. Twice in the last several hundred years, there has been a transition in the way people use energy.

The first about 200 years ago, when we changed away from wood—which had provided about 90 percent of all fuel—to coal, which was much more efficient. This change became the basis of the Industrial Revolution.

The second change took place in this century, with the growing use of oil and natural gas. They were more convenient and cheaper than coal, and the supply seemed to be almost without limit. They made possible the age of automobile and airplane travel. Nearly everyone who is alive today grew up during this period, and we have never known anything different.

Because we are now running out of gas and oil, we must prepare quickly for a third change—to strict conservation and to the renewed use of coal and to permanent renewable energy sources like solar power.

The world has not prepared for the future. During the 1950's, people used twice as much oil as during the 1940's. During the 1960's, we used twice as much as during the 1950's. And in each of those decades, more oil was consumed than in all of man's previous history combined.

World consumption of oil is still going up. If it were possible to keep it rising during the 1970's and 1980's by 5 percent a year as it has in the past, we could use up all the proven reserves of oil in the entire world by the end of the next decade.

I know that many of you have suspected that some supplies of oil and gas are being withheld from the market. You may be right, but suspicions about the oil companies cannot change the fact that we are running out of petroleum.

All of us have heard about the large oil fields on Alaska's North Slope. In a few years, when the North Slope is producing fully, its total output will be just about equal to 2 years' increase in our own Nation's energy demand.

Each new inventory of world oil reserves has been more disturbing than the last. World oil production can probably keep going up for another 6 or 8 years. But sometime in the 1980's, it can't go up any more. Demand will overtake production. We have no choice about that.

But we do have a choice about how we will spend the next few years. Each American uses the energy equivalent of 60 barrels of oil per person each year. Ours is the most wasteful nation on earth. We waste more energy than we import. With about the same standard of living, we use twice as much energy per person as do other countries like Germany, Japan, and Sweden.

One choice, of course, is to continue doing what we've been doing before. We can drift along for a few more years.

Our consumption of oil would keep going up every year. Our cars would continue to be too large and inefficient. Three-quarters of them would carry only one person—the driver—while our public transporta-

tion system continues to decline. We can delay insulating our homes, and they will continue to lose about 50 percent of their heat in waste. We can continue using scarce oil and natural gas to generate electricity and continue wasting two-thirds of their fuel value in the process.

If we do not act, then by 1985 we will be using 33 percent more energy than we use today.

We can't substantially increase our domestic production, so we would need to import twice as much oil as we do now. Supplies will be uncertain. The cost will keep going up. Six years ago, we paid $3.7 billion for imported oil. Last year we spent $36 billion for imported oil—nearly 10 times as much—and this year we may spend $45 billion.

Unless we act, we will spend more than $550 billion for imported oil by 1985—more than $2,500 for every man, woman, and child in America. Along with that money that we transport overseas, we will continue losing American jobs and become increasingly vulnerable to supply interruptions.

Now we have a choice. But if we wait, we will constantly live in fear of embargoes. We could endanger our freedom as a sovereign nation to act in foreign affairs. Within 10 years, we would not be able to import enough oil from any country, at any acceptable price.

If we wait and do not act, then our factories will not be able to keep our people on the job with reduced supplies of fuel.

Too few of our utility companies will have switched to coal, which is our most abundant energy source. We will not be ready to keep our transportation system running with smaller and more efficient cars and a better network of buses, trains, and public transportation.

We will feel mounting pressure to plunder the environment. We will have to have a crash program to build more nuclear plants, strip mine and burn more coal, and drill more offshore wells than if we begin to conserve right now.

Inflation will soar; production will go down; people will lose their jobs. Intense competition for oil will build up among nations and also among the different regions within our own country. This has already started.

If we fail to act soon, we will face an economic, social, and political crisis that will threaten our free institutions. But we still have another choice. We can begin to prepare right now. We can decide to act while there is still time. That is the concept of the energy policy that we will present on Wednesday.

Our national energy plan is based on 10 fundamental principles. The first principle is that we can have an effective and comprehensive energy policy only if the Government takes responsibility for it and if the people understand the seriousness of the challenge and are willing to make sacrifices.

The second principle is that healthy economic growth must continue. Only by saving energy can we maintain our standard of living and keep our people at work. An effective conservation program will create hundreds of thousands of new jobs.

The third principle is that we must protect the environment. Our energy problems have the same cause as our environmental problems—wasteful use of resources. Conservation helps us solve both problems at once.

The fourth principle is that we must reduce our vulnerability to potentially devastating embargoes. We can protect ourselves from uncertain supplies by reducing our demand for oil, by making the most of our abundant resources such as coal, and by developing a strategic petroleum reserve.

The fifth principle is that we must be fair. Our solutions must ask equal sacrifices from every region, every class of people, and every interest group. Industry will have to do its part to conserve just as consumers will. The energy producers deserve fair treatment, but we will not let the oil companies profiteer.

The sixth principle, and the cornerstone of our policy, is to reduce demand through conservation. Our emphasis on conservation is a clear difference between this plan and others which merely encouraged crash production efforts. Conservation is the quickest, cheapest, most practical source of energy. Conservation is the only way that we can buy a barrel of oil for about $2. It costs about $13 to waste it.

The seventh principle is that prices should generally reflect the true replacement cost of energy. We are only cheating ourselves if we make energy artificially cheap and use more than we can really afford.

The eighth principle is that Government policies must be predictable and certain. Both consumers and producers need policies they can count on so they can plan ahead. This is one reason that I'm working with the Congress to create a new Department of Energy to replace more than 50 different agencies that now have some control over energy.

The ninth principle is that we must conserve the fuels that are scarcest and make the most of those that are plentiful. We can't continue to use oil and gas for 75 percent of our consumption, as we do now, when they only make up 7 percent of our domestic reserves. We need to shift to plentiful coal, while taking care to protect the environment, and to apply stricter safety standards to nuclear energy.

The tenth and last principle is that we must start now to develop the new, unconventional sources of energy that we will rely on in the next century.

Now, these 10 principles have guided the development of the policy that I will describe to you and the Congress on Wednesday night.

Our energy plan will also include a number of specific goals to measure our progress toward a stable energy system. These are the goals that we set for 1985:

To reduce the annual growth rate in our energy demand to less than 2 percent;

To reduce gasoline consumption by 10 percent below its current level;

To cut in half the portion of U.S. oil which is imported—from a potential level of 16 million barrels to 6 million barrels a day;

To establish a strategic petroleum reserve of one billion barrels, more than a 6-months supply;

To increase our coal production by about two-thirds to more than one billion tons a year;

To insulate 90 percent of American homes and all new buildings;

To use solar energy in more than 2½ million houses.

We will monitor our progress toward these goals year-by-year. Our plan will call for strict conservation measures if we fall behind. I can't tell you that these measures will be easy, nor will they be popular. But I think most of you realize that a policy which does not ask for changes or sacrifices would not be an effective policy at this late date.

This plan is essential to protect our jobs, our environment, our standard of living, and our future. Whether this plan truly makes a difference will not be decided now here in Washington but in every town and every factory, in every home and on every highway and every farm.

I believe that this can be a positive challenge. There is something especially American in the kinds of changes that we have to make. We've always been proud, through our history, of being efficient people. We've always been proud of our ingenuity, our skill at answering questions. Now we need efficiency and ingenuity more than ever.

We've always been proud of our leadership in the world. And now we have a chance again to give the world a positive example.

We've always been proud of our vision of the future. We've always wanted to give our children and our grandchildren a world richer in possibilities that we have had ourselves. They are the ones that we must provide for now. They are the ones who will suffer most if we don't act.

I've given you some of the principles of the plan. I'm sure that each of you will find something you don't like about the specifics of our proposal. It will demand that we make sacrifices and changes in every life. To some degree, the sacrifices will be painful—but so is any meaningful sacrifice. It will lead to some higher costs and to some greater inconvenience for everyone. But the sacrifices can be gradual, realistic, and they are necessary. Above all, they will be fair. No one will gain an unfair advantage through this plan. No one will be asked to bear an unfair burden.

We will monitor the accuracy of data from the oil and natural gas companies for the first time, so that we will always know their true production, supplies, reserves, and profits. Those citizens who insist on driving large, unnecessarily powerful cars must expect to pay more for that luxury.

We can be sure that all the special interest groups in the country will attack the part of this plan that affects them directly. They will say that sacrifice is fine as long as other people do it, but that their sacrifice is unreasonable or unfair or harmful to the country. If they succeed with this approach, then the burden on the ordinary citizen, who is not organized into an interest group, would be crushing.

There should be only one test for this program—whether it will help our country. Other generations of Americans have faced and mastered great challenges. I have faith that meeting this challenge will make our own lives even richer. If you will join me so that we can work together with patriotism and courage, we will again prove that our great Nation can lead the world into an age of peace, independence, and freedom.

Thank you very much, and good night.

JIMMY CARTER.

THE WHITE HOUSE, *April 18, 1977.*

ADDRESS BEFORE A JOINT SESSION OF THE CONGRESS ON THE NATIONAL ENERGY PROGRAM

APRIL 20, 1977

Mr. President, Mr. Speaker, Members of the Congress, and distinguished guests:

The last time we met as a group was exactly 3 months ago today, on Inauguration Day. We have had a good beginning as partners in addressing our Nation's problems.

But in the months ahead, we must work together even more closely to deal with the greatest domestic challenge that our Nation will face in our lifetime. We must act now—together—to devise and to implement a comprehensive national energy plan to cope with a crisis that otherwise could overwhelm us.

This cannot be an inspirational speech tonight. I don't expect much applause. It's a sober and a difficult presentation. During the last 3 months, I have come to realize very clearly why a comprehensive energy policy has not already been evolved. It's been a thankless job, but it is our job. And I believe that we have a fair, well-balanced and effective plan to present to you. It can lead to an even better life for the people of America.

The heart of our energy problem is that we have too much demand for fuel that keeps going up too quickly, while production goes down. And our primary means of solving this problem is to reduce waste and inefficiency.

Oil and natural gas make up about 75 percent of our consumption in this country, but they only comprise about 7 percent in our reserves. Our demand for oil has been rising by more than 5 percent each year, but domestic oil supplies have been dropping more than 6 percent.

Therefore, our imports have risen sharply, making us more and more vulnerable if supplies are interrupted. But early in the 1980's, even foreign oil will become increasingly scarce. If it were possible for world demand to continue rising during the next few years at the rate of 5 percent a year, we could use up all the proven reserves in the entire world by the end of the next decade.

Our trade deficits are growing. We imported more than $35 billion worth of oil last year, and we will spend much more than that this year. The time has come to draw the line.

We could continue to ignore this problem—as many have done in the past—but to do so would subject our people to an impending catastrophe. That's why we need a comprehensive national energy policy. Your advice has been an important influence as this plan has taken

shape. Many of its proposals will be built on the legislative initiatives that you've taken in the Congress in the last few years.

Two nights ago, I spoke to the American people about the principles behind our plan and our specific goals for 1985:

To reduce the annual growth rate in energy consumption by more than 2 percent;

To reduce gasoline consumption by 10 percent;

To cut imports of foreign oil to less than 6 million barrels a day, less than half the amount that we will be importing if we do not conserve;

To establish a strategic petroleum reserve supply of at least a billion barrels, which will meet our needs for about 10 months;

To increase our coal production by more than two-thirds, to over a billion tons a year;

To insulate 90 percent of American homes and all new buildings; and

To use solar energy in more than 2½ million American homes.

Now, I hope that the Congress will adopt these goals by joint resolution as a demonstration of our mutual commitment to achieve them.

Tonight I want to outline specific steps by which we can reach those goals. The proposals fall into these central categories: First, conservation; second, production; third, conversion; fourth, development; and, of course, fairness or equity, which is a primary consideration in all our proposals.

We prefer to reach those goals through voluntary cooperation with a minimum of coercion. In many cases, we propose financial incentives which will encourage people to save energy and will harness the power of our free economy to meet our needs.

But I must say to you that voluntary compliance will not be enough—the problem is too large and the time is too short. In a few cases, penalties and restrictions to reduce waste are essential.

Our first goal is conservation. It's the cheapest, most practical way to meet our energy needs and to reduce our growing dependence on foreign supplies of oil. With proper planning, economic growth, enhanced job opportunities and a higher quality of life can result even while we eliminate the waste of energy.

The two areas where we waste most of our energy are transportation and our heating and cooling systems.

Transportation consumes 26 percent of all our energy—and as much as half of that is waste. In Europe, the average automobile weighs 2,700 pounds; in our country, 4,100 pounds.

Now, the Congress has already taken fuel efficiency steps and set standards which will require new automobiles to have an average efficiency or mileage per gallon of 27.5 by 1985, instead of the 18 among new cars today. The entire fleet of cars is only 14 miles per gallon at this time.

To insure that this existing congressional mandate is met, I am proposing first of all a graduated excise tax on new gas guzzlers that do not meet Federal mileage standards. This gas [tax] will start low and then rise each year until 1985. In 1978, for instance, a tax of $180 will be levied on a car getting only 15 miles per gallon, and for an 11-mile-per-gallon car the tax will be $450. That's at the beginning.

By 1985, the taxes on these wasteful new cars with the same low mileage, 15 miles per gallon or 11 miles per gallon, will have risen to $1,600 and $2,500.

All the money collected by this tax on wasteful automobiles will be returned to consumers through rebates on automobiles that are more efficient than the mileage standards. We expect both better efficiency and also more automobile production and sales under this proposal. We will insure that American automobile workers and their families do not bear an unfair share of the burden. And of course, we will also work with our foreign trading partners to see that they are treated fairly.

Now I want to discuss one of the most controversial and most misunderstood parts of the energy proposal—a standby tax on automobile gasoline. Gasoline consumption represents half of our total oil usage.

We simply must save gasoline, and I believe that the American people can meet this challenge. It's a matter of patriotism and a matter of commitment.

Between now and 1980, we expect gasoline consumption to rise slightly above the present level. For the following 5 years, when we have the more efficient cars on the road, we need to reduce consumption each year to reach our targets for 1985.

I propose that we commit ourselves to these fair, reasonable and necessary goals and, at the same time, write into law a gasoline tax of an additional 5 cents per gallon that will automatically take effect each year that we fail to meet our annual targets in the previous year. As an added incentive, if we miss one year, but are back on the track the next year, then the additional tax should come off. Now, if the American people respond to this challenge, we can meet these targets and under these circumstances, this gasoline tax will never have to be imposed. I know and you know that it can be done.

As with other taxes, we must minimize the adverse effects on our economy—we must reward those who conserve and penalize those who waste. Therefore, any proceeds from the tax—if it is triggered by excessive consumption—should be returned to the general public in an equitable manner.

I will also propose a variety of other measures to make our transportation system more efficient. One of the side effects of conserving gasoline, for instance, is that State governments who have a limited amount of tax per gallon collect less money through gasoline taxes. To reduce their hardships and to insure adequate highway maintenance, we should compensate States for this loss through the Highway Trust Fund.

The second major area where we can reduce waste is in our homes and buildings. Some buildings waste half the energy used for heating and cooling. From now on, we must make sure that new buildings are as efficient as possible and that old buildings are equipped, or "retrofitted," with insulation and heating systems that dramatically reduce the use of fuel.

The Federal Government should set an example. I will issse an Executive order establishing strict conservation goals for both new and old Federal buildings—a 45-percent increase in efficiency for new buildings and a 20-percent increase in efficiency for old buildings by 1985.

We also need incentives, though, for those who own homes and businesses so that they will conserve. Those who weatherize buildings to make them more efficient would be eligible for a tax credit of 25 percent of the first $800 invested in conservation and 15 percent for the next $1,400.

If homeowners prefer, they may take advantage of a weatherization service which will be required from all regulated utility companies to offer. The utilities would arrange for contractors and provide reasonable financing to the homeowners. The customer would pay for the improvements through small, regular additions to the monthly utility bills. In many instances, these additional charges would be almost entirely offset by lower energy consumption brought about by energy savings.

Other proposals for conservation in homes and buildings include: First, direct Federal help for low-income residents; next, an additional 10-percent tax credit for business investments in conservation; third, Federal matching grants to nonprofit schools and hospitals; and public works money for weatherizing State and local government buildings.

While improving efficiency in our businesses and homes, we must also make electrical home appliances more efficient. I propose legislation that would, for the first time, impose stringent efficiency standards for household appliances by 1980.

We must also reform our utility rate structure. For many years, we have rewarded waste by offering the cheapest rates to the largest users. It's difficult for individual States to make such reforms because of the intense competition among States for new industry. The only fair way is to adopt a set of principles to be applied nationwide.

I am therefore proposing legislation which would require the following steps over the next 2 years: First, phasing out promotional rates and other pricing systems that make natural gas and electricity artificially cheap for high-volume users and which do not accurately reflect actual costs; next, offering users peak-load pricing techniques which set higher charges during the day when demand is great and lower charges during the day when demand is small. We also need individual meters for each apartment in new buildings instead of one master meter. Tests have shown that this will save 30 percent of the electrical cost in the apartment building.

Plans are already being discussed for TVA—the whole system—to act as a model in implementing such new programs as I have described to conserve energy.

One final step toward conservation is to encourage industries and utilities to expand what's called "cogeneration" projects, which capture the steam which is now wasted from electrical power production. In Germany, for instance, 29 percent of total energy comes from cogeneration. In this country, formerly it was about 19 percent, but now it's only 4 percent in the United States. I propose a special 10-percent tax credit for investments in cogeneration.

Along with conservation, our second major strategy is production and rational pricing. We can never increase our production of oil and natural gas by enough to meet our demand, but we must be sure that our pricing system is sensible, that it discourages waste and encourages exploration and new production.

One of the principles of our energy policy is that the price of energy should reflect its true replacement cost as a means of bringing supply

and demand into balance over the long run. Now, realistic pricing is especially important for our scarcest fuels, oil and natural gas. However, proposals for immediate and total decontrol of domestic oil and natural gas prices would be disastrous for our economy and also for working American families. It would not solve the long-range problems of dwindling supplies.

The price of newly discovered oil will be allowed to rise over a 3-year period to the 1977 world market price, with allowances from then on for inflation. The current return to producers for previously discovered oil, that which already exists, would remain the same, except for adjustments because of inflation.

Because fairness is an essential strategy of our energy policy, we do not want to give producers windfall profits beyond the incentives that they do need for exploration and production. But we are simply misleading ourselves if we do not recognize the replacement costs of energy in our pricing system.

Therefore, I propose that we phase in a wellhead tax on existing supplies of domestic oil, equal to the difference between the present controlled price of oil and the world price, and return that money collected by this tax to the consumers and the workers of America.

We should also end the artificial distortions in natural gas prices in different parts of the country which have caused people in the producing States to pay exorbitant prices, while creating shortages, unemployment, and economic stagnation, particularly in the Northeast. We must not permit energy shortages to divide or balkanize our country.

We want to work with the Congress to give gas producers an adequate incentive for exploration, working carefully toward deregulation of newly discovered gas as market conditions permit.

I propose now that the price limit for all new gas sold anywhere in this country be set at the price of the equivalent energy value of domestic crude oil, beginning next year, 1978. This proposal will apply both to new gas and to expiring intrastate contracts. It would not affect existing contracts that presently are in effect.

We must be sure that oil and natural gas are not wasted by industries that could use coal. Our third strategy will be, therefore, conversion from scarce fuels to coal wherever possible.

Although coal now provides only 18 percent of our total energy needs, it makes up 90 percent of our energy reserves. Its production and use do create environmental difficulties, but I believe that we can cope with them through strict strip-mining and clean air standards.

To increase the use of coal by 400 million tons or about 65 percent—we now use about 600 million tons—in industry and utilities by 1985, I propose a sliding scale tax, starting in 1979, on large industrial users of oil and natural gas. Fertilizer manufacturers, crop dryers, and so forth, which must use gas, would be exempt from the tax. Utilities would not be subject to the tax until 1983, because it will simply take them longer to convert to coal.

I will also submit proposals for expanded research and development in coal. We need to find better ways to mine it safely and to burn it cleanly and to use it to produce other clean energy sources like liquified and gasified coal. We have already spent billions of dollars on research and development on nuclear power, but very little on coal. Investments here can pay rich dividends.

Even with this conversion effort, we still face a gap between the energy we need and the energy that we can produce or import. Therefore, as a last resort, we must continue to use increasing amounts of nuclear energy.

We now have 63 nuclear powerplants producing about 3 percent of our total energy, and we also have about 70 more nuclear powerplants which are licensed for construction. Domestic uranium supplies can support this number of plants, judged by the most conservative estimate, for another 75 years at least. Effective conservation efforts can minimize the shift toward nuclear power. There is no need to enter the plutonium age by licensing or building a fast breeder reactor such as the proposed demonstration plant at Clinch River. We must, however, increase our capacity to produce enriched uranium fuels for light water, nuclear powerplants, using the new centrifuge technology, which consumes only about one-tenth the energy of existing gaseous diffusion plants.

We must also reform the nuclear licensing procedures. New plants should not be located near earthquake fault zones or near population centers. Safety standards should be strengthened and enforced; designs standardized as much as possible. And we need more adequate storage for spent fuel supplies.

However, even with the most thorough safeguards, it should not take 10 years to license a plant. It only takes 3 years to license, design, and build a plant in a country like Japan. I propose that we establish reasonable, objective criteria for licensing, and that plants which are based on a standard design not require extensive, individual design studies before the license is granted.

Our fourth strategy is to develop permanent and reliable new energy sources. The most promising, of course, is solar energy, for which most of the technology is already available. Solar water heaters and solar space heaters are ready now for commercialization. All they need is some initiative to initiate the growth of a large new market in our country.

Therefore, I am proposing a gradually decreasing tax credit, to run from now through 1984, for those who purchase approved solar heating equipment. Initially, it would be 40 percent of the first $1,000 and 25 percent of the next $6,400 invested to provide solar heating for a home.

Increased production of geothermal energy can be insured by providing the same tax incentives as exist for gas and oil drilling operations.

Our guiding principle as we developed this plan was that above all it must be fair. None of our people must make an unfair sacrifice. None should reap an unfair benefit. The desire for equity is reflected throughout our plan:

In the wellhead tax, which encourages conservation but is returned to the public;

In a dollar-for-dollar refund of the wellhead tax as it affects home heating oil, particularly in the Northeast;

In reducing the unfairness of natural gas pricing;

In insuring that homes will have the oil and natural gas they need, while industry turns toward the more abundant coal that can also suit its needs;

In basing utility prices on true cost, so every user pays a fair share;

In the automobile tax and rebate system, which rewards those who save our energy and penalizes those who waste it.

I propose one other step to insure proper balance in our plan. We need more accurate information about the supplies of energy and about the companies which produce energy.

If we are asking sacrifices of ourselves, we need facts that we can count on. We need an independent information system that will give us reliable data about energy reserves and production, emergency capabilities, and financial data from the energy producers.

I happen to believe in competition, and we don't have enough of it right now.

During this time of increasing scarcity, competition among energy producers and distributors must simply be guaranteed. I recommend that individual accounting be required from energy companies for production, refining, distribution, and marketing—separately for domestic and foreign operations. Strict enforcement of the antitrust laws based on this data may prevent the need for divestiture.

Profiteering through tax shelters should be prevented, and independent drillers should have the same intangible tax credits as the major corporations.

The energy industry should not reap large, unearned profits. Increasing prices on existing inventories of oil should not result in windfall gains but should be captured for the people of our country.

Now, we must make it clear from no won to everyone that our people, through their Government, will now be setting the energy policy for our country.

The new Department of Energy, which the Congress is already considering, should be established without delay. Continued fragmentation of Government authority and responsibility of our energy program for this Nation is both dangerous and unnecessary.

Two nights ago, I said that this difficult effort which I have outlined would be the moral equivalent of war. If successful, this effort will protect our jobs, it will protect our environment, it will protect our national independence, it will protect our standard of living, it will also protect our future.

Our energy policy will be innovative, but it will be fair and predictable. It will not be easy; it will demand the best of us—our vision, our dedication, our courage, and our sense of common purpose.

This is a carefully balanced program, depending for its fairness on all its major component parts. It will be a test of our basic political strength and ability.

But we've met challenges before, and our Nation has been the stronger after the challenge was met. That's the responsibility that we face—you in the Congress, the members of my own administration, and all the people of our country. I am confident that together we will succeed.

Thank you very much, and good night.

JIMMY CARTER.

The White House, April 20, 1977.

FACT SHEET ON THE PRESIDENT'S PROGRAM, APRIL 20, 1977

The President tonight addressed a joint session of Congress and presented the outline of a national energy plan to be submitted to the Congress next week.

I. NATIONAL ENERGY POLICY PRINCIPLES, STRATEGIES, AND GOALS

A. PRINCIPLES

The National Energy Plan is based on 10 fundamental principles.

1. We can have an effective and comprehensive energy policy only if the Government takes responsibility for it and if the people understand the seriousness of the challenge and are willing to make sacrifices.

2. Healthy economic growth must continue. Only by saving energy can we maintain our standard of living and keep our people working.

3. We must protect the environment. Our energy problems have the same cause as our environmental problems—wasteful use of resources. Conservation helps us solve both at once.

4. We must reduce our vulnerability to potentially devastating embargoes. We can protect ourselves from uncertain supplies by reducing our demand for oil, making the most of our abundant resources such as coal, and developing a strategic petroleum reserve.

5. We must be fair. Our solutions must ask equal sacrifices from every region, every class of people, every interest group. Industry will have to do its part to conserve, just as consumers will. The energy producers deserve fair treatment, but we will not let the energy companies profiteer.

6. The cornerstone of our policy is to reduce demand through conservation. Our emphasis on conservation is a clear difference between this plan and others which merely encouraged crash production efforts. Conservation is the quickest, cheapest, most practical source of energy.

7. Prices should generally reflect the true replacement cost of energy. We are only cheating ourselves if we make energy artificially cheap and use more than we can really afford.

8. Government policies must be predictable and certain. Both consumers and producers need policies they can depend on so they can plan ahead.

9. We must conserve the fuels that are scarcest and make the most of those that are more plentiful. We cannot continue to use oil and gas for 75 percent of our consumption when they make up only 8 percent of our domestic reserves. We need to shift to plentiful coal while taking care to protect the environment, and to apply stricter safety standards to nuclear energy.

10. We must start now to develop the new, unconventional sources of energy we will rely on in the next century.

B. STRATEGY

1. The objectives of the National Energy Plan are:

a. In the short term, to reduce dependence on foreign oil and to limit supply disruptions.

b. In the medium term, to weather the eventual decline in the availability of world oil supplies caused by capacity limitations.

c. In the long term, to develop renewable and essentially inexhaustible sources of energy for sustained economic growth.

2. The major strategies for reaching these objectives are:

a. Implementation of an effective conservation program for all sectors of energy use so as to reduce the rate of demand growth to less than 2 percent, thereby helping to achieve both the short- and medium-term goals.

b. The conversion of industry and utilities using oil and natural gas to coal and other more abundant fuels to reduce imports and make natural gas more widely available for household use, thereby helping to achieve both the short- and medium-term goals.

c. A vigorous research and development program to provide renewable and essentially inexhaustible resources to meet United States energy needs in the next century, thereby helping to achieve the long term goal.

C. NATIONAL ENERGY GOALS

A national energy plan is not something that can be adopted and then forgotten. There is no quick or easy solution to the energy problem.

The President will propose as part of his comprehensive energy legislation the following energy goals to be achieved between now and 1985. The Congress will be requested to support these goals by enacting a Joint Resolution of the Senate and House committing the Nation to:

Reducing annual growth of United States energy demand to less than 2 percent;

Reducing oil imports from a potential level of 16 million barrels a day to less than 6 million barrels, about one-eighth of total energy consumption;

Achieving a 10 percent reduction in gasoline consumption;

Insulating 90 percent of all residences and other buildings;

Increasing coal production on an annual basis by at least 400 million tons;

Using solar energy in more than 2½ million homes.

II. EFFECTS OF THE PRESIDENT'S ENERGY PLAN

The President's energy plan, if implemented effectively, is projected to save about 4.6 million barrels of oil per day (MMB/D) of oil over the amount of oil we would otherwise require by 1985. These savings would reduce oil imports to about 7 MMB/D by 1985, a 40-percent decrease. The President has established a goal of reducing imports to below 6 MMB/D, which would require voluntary conservation efforts by the American public.

Based on econometric projections, the President's program is forecasted to have small, but generally positive impacts on the economy. The program would stimulate about 100,000 jobs by 1985. It would increase GNP by 0.7 percent in 1978 and about 0.4 percent in 1985. It would increase the GNP deflator by about 0.4 percent annually through 1985. Even if the standby gas tax were triggered, GNP would still increase and the inflation impact would still be small.

III. The President's Energy Program

The elements of the total program are summarized in the pages that follow.

A. CONSERVATION

1. Transportation

a. *Gas guzzler tax and rebate* (legislative): Because present law and regulations are insufficient to assure that needed conservation will take place in this sector, a graduated excise tax would be imposed on new automobiles and light duty trucks whose fuel economy fails to meet the applicable fuel economy standard under existing law. Graduated rebates would be given for automobiles and light duty trucks whose fuel economy is better than the standard.

The tax schedule would be fixed by statute, and taxes would begin in model year 1978, increase each year through 1985, and remain constant thereafter. The rebate schedule will be adjusted each year in advance by the IRS so that total estimated rebate payments will not exceed the estimated tax receipts. The proposed tax and rebate table is attached as Appendix A.

Electric vehicles will be eligible for the maximum rebate. Rebates will be available for vehicles manufactured in the United States and Canada. Rebates would be available for vehicles manufactured in other countries on the basis of treaties or executive agreements entered into between these countries and the United States. The President's Special Representative for Trade Negotiations will work with other nations to develop equitable rebate agreements.

b. *Auto efficiency standards* (administrative): In order to continue the progress made to date on automobile fuel efficiency, the Secretary of Transportation will begin the analysis necessary to exercise his authority to raise mileage standards above 27.5 mpg after 1985.

c. *55 mph speed limit* (administrative): The President has requested that the national 55 mph speed limit be vigorously enforced by States and municipalities. The Secretary of Transportation may, if he finds it necessary, withhold highway trust fund revenues from States not enforcing the limit.

d. *Standby gasoline tax* (legislative): A standby gasoline tax is proposed to go into effect if targets for gasoline consumption are not met. The targets take into account the effects of the gas-guzzler tax and compliance with mandatory fuel economy standards for new cars, and assume some additional reduction in consumption through such items as observing speed limits and more carpooling.

The goals, listed below permit limited increases in gasoline consumption until 1980; from 1980 to 1987, the goal constitutes an achievable reduction in gasoline consumption despite increases in total miles traveled.

If gasoline consumption nationwide in 1978 exceeds the target set for 1978 by one percent or more, a 5-cent-per-gallon tax will be imposed on January 15, 1979. In any subsequent year, the tax will amount to 5 cents per gallon for each percent that consumption in the prior year exceeded the target, except that the tax could not be increased or reduced more than 5 cents per year. The tax will rise, remain the same, or fall, depending on the prior year's record. The cumulative amount of taxes applicable in any one year may not exceed 50 cents per gallon.

Any funds collected would be rebated to the American people progressively through the Federal income tax system and by direct payments to people who do not pay taxes.

e. *Expand use of Highway Trust Fund:* By reducing gasoline consumption, State revenues from gasoline taxes would also be reduced. These funds are used by the States for repair and maintenance of highways. The administration will develop a program which will reduce their hardships and, to insure adequate highway maintenance, will compensate them for this loss through sources such as the Highway Trust Fund.

f. *Efficiency standards for light duty trucks* (administrative): The Secretary of Transportation is authorized under the Energy Policy and Conservation Act to promulgate efficiency standards for trucks weighing 10,000 pounds or less. He is currently in the process of promulgating standards for trucks weighing 6,000 pounds or less. The President has directed the Secretary to commence a proceeding to cover trucks weighing more than 6,000 pounds.

g. *Removal of 10-percent excise tax on intercity buses* (legislative): Since buses, like railroads, are fuel-efficient forms of transportation, the current 10-percent excise tax on intercity buses would be removed to encourage expansion in use of this form of transportation.

h. *Tax on aviation and marine fuel* (legislative): The existing Federal excise tax preferences for general aviation and motorboat fuel would be eliminated. This change would not affect commercial airlines or commercial fishermen. The tax on aviation fuel would increase from 7 to 11 cents a gallon. The current 2 cents rebate for motorboat fuel would be collected and transferred to the Land and Water Conservation Fund.

i. *Federal Energy Management Program*

The President will direct Federal agencies to alter their auto purchasing practices so that new cars purchased by the Government will, on the average, exceed the average fuel economy standard under the EPCA by at least 2 mpg in 1978, and by at least 4 mpg in 1980 and thereafter (administrative).

Legislation will be proposed to initiate a Federal vanpooling program. This program will demonstrate the energy conservation and pollution control potential of this form of commuter transportation by the largest employer in the Nation. About 6,000 vans will be purchased by the Government and made available for use by Federal employees. All costs of the program will be repaid to the Federal Government by the riders (legislative).

2. *Buildings.*

a. *National Residential Energy Conservation Program for Existing Buildings*

Homeowners will be entitled to a tax credit of 25 percent of the first $800 and 15 percent of the next $1400 spent on approved conservation measures. The credits will be available for measures undertaken between April 20, 1977, and December 31, 1984 (legislative).

State public utility commissions will be required to direct utilities to offer their customers a residential energy conservation service performed by the utility and financed by loans repaid

through monthly utility bills. The utilities must also inform customers of other available residential conservation programs and how to obtain financing, materials, and labor to perform residential conservation themselves. Other fuel suppliers would be encouraged to offer similar programs, with the help of their State energy offices (legislative).

The Federal Government will remove the barriers to opening a secondary market for residential energy conservation loans through the Federal Home Loan Mortgage Corporation and the Federal National Mortgage Association. This action should help to ensure that capital is available to homeowners at reasonable interest rates for residential energy conservation through private lending institutions (legislative).

Funding for the existing low-income residential conservation program (weatherization) will be increased to $130 million in fiscal year 1978; and $200 million in FY 1979 and in FY 1980 (budget).

The Secretary of Labor will take all appropriate steps to ensure that recipients of funds under the Comprehensive Employment and Training Act (CETA) will supply labor for the residential conservation program. The CETA program's employment levels, as proposed by the administration, would meet the labor requirements of the program (administrative/budget).

The Secretary of Agriculture will vigorously implement a rural home weatherization program in cooperation with the Nation's 1,000 rural electric cooperatives, with loans provided through the Farmer's Home Administration (administrative).

Businesses will be entitled to a 10-percent tax credit, in addition to the existing investment tax credit, for investments made in approved conservation measures (legislative).

A Federal grants program will assist public and nonprofit schools and hospitals in installing conservation measures, funded at the rate of $300 million per year for 3 years (legislative/budget).

The Secretary of Commerce will encourage State and local governments to include items that will contribute to energy conservation in their proposals under the Department's Local Public Works program (administrative).

Except for participation by electric and gas utilities, the residential energy conservation program is voluntary. However, if the programs described above are insufficient in achieving widespread residential energy conservation, then mandatory measures will be considered; e.g., a requirement that homes must be insulated before they are sold.

b. *Mandatory efficiency standards for new buildings* (administrative/budget): The Secretary of Housing and Urban Development will advance by one year, from 1981 to 1980, the effective date of the mandatory standards required for new residential and commercial buildings by the Energy Conservation and Production Act, with funds to be made available to States to help them in this effort.

c. *Federal buildings* (administrative/budget): The President will direct all Federal agencies to adopt procedures which aim at reducing energy use per square foot by 1985 by 20 percent from 1975 energy consumption levels for *existing* Federal buildings and by 45 percent for *new* Federal buildings. Investments which are not cost-effective

would not be funded under the program. The Director of the Office of Management and Budget and the Administrator of the Federal Energy Administration will implement this program.

d. *Solar energy in Federal buildings* (legislative/budget): The Federal Government will, in addition, spend up to $100 million over the next 3 years to add solar hot water and space heating to suitable Federal structures to help demonstrate the commercial potential of such measures.

3. *Appliances* (legislative): The present appliance efficiency program will be strengthened. Voluntary targets will be replaced by mandatory standards on certain home appliances, such as air conditioners, furnaces, water heaters and refrigerators, as soon as possible. The program under existing law to develop test procedures and to establish labeling requirements for appliances will be continued.

4. *Industrial conservation* (legislative): Legislation will be proposed for a 5-year, 10-percent investment tax credit for investment in approved energy-saving industrial equipment, including solar energy equipment, that could be incorporated in existing plants. This credit would be in addition to the present 10-percent tax credit.

5. *Cogeneration of electricity and process steam* (legislative):

In order to utilize effectively the enormous quantities of heat wasted in the production of electric power, legislation will be submitted to encourage cogeneration—production of electric power and other useful forms of energy (such as heat or process steam) from the same facility.

An exemption from Federal and State public utility regulations would be available to industrial cogenerators.

The Federal Power Commission would be required to establish procedures to assure fair rates for both sale of power by cogenerators and for purchase of backup power.

Industries using cogeneration would be entitled to intertie with utility transmission facilities to sell surplus power and buy backup power at fair prices.

A tax credit of 10 percent, in addition to the current 10-percent tax credit, would be provided for the purchase of cogeneration equipment. Those industries which invest in equipment could be exempted from the requirement to convert from oil and gas in cases where an exemption is necessary to stimulate cogeneration.

6. *District heating* (administrative/budget):

State public utility commissions will be encouraged to use district heating as a criterion in siting certification and rate-making for new generating facilities.

The Administrator of the Energy Research and Development Administration will initiate in FY 1978 a new demonstration program to make use of waste heat generated by ERDA's uranium enrichment plants at Oak Ridge, Tenn., Paducah, Ky., and Portsmouth, Ohio. The recovered waste heat would be used on site and by nearby households, industry, and farms.

7. *Utility rate reform* (legislative): Conventional utility pricing policies discourage conservation. The smallest users commonly pay the highest per unit price due to practices such as declining block rates. Rates often do not reflect the costs imposed on society by the actions of utility consumers. The result is waste and inequity. The

President will therefore submit legislation which contains the following provisions:

State public utility commissions must require their regulated electric utilities to phase out and eliminate promotional, declining, and other rates for electricity that do not reflect cost incidence.

To shift energy use from peak to nonpeak periods, electric utilities would be required to offer daily off-peak rates to each customer who is willing to pay metering costs and to offer lower rates to customers willing to have their power interrupted at times of highest peak demand.

Master metering for electricity would generally be prohibited in new structures.

State public utility commissions would require gas utilities to eliminate declining block rates and to implement such rules as FPC may prescribe with respect to master metering, summer-winter rate differentials, and interruptible rates.

By amendment to the Federal Power Act, the Federal Power Commission would be authorized to require interconnection and power pooling between utilities even if they are not presently under FPC jurisdiction, and to require "wheeling" (the transmission of power between two noncontiguous utilities across a third utility's system).

8. *Taxes on oil and natural gas:* The oil and natural gas pricing and tax policy discussed in Part F will achieve substantial savings in natural gas and petroleum consumption. The oil and gas consumption taxes are directed primarily at industrial and utility use, and will encourage investments by industry to use these scarce fuels more efficiently.

B. MANAGEMENT INFORMATION SYSTEMS

To carry out the President's energy plan and to protect the energy consuming public generally, the Government needs more detailed and reliable information on oil and gas reserves, on oil company operations, and on local energy supplies and demand.

Accordingly, a three-part energy information program will be proposed. They represent the beginning of implementation of a National Energy Information System which will, when fully developed, provide a comprehensive and authoritative source of energy information.

1. *Petroleum Production and Reserves Information System* (administrative/budget): The proposed Department of Energy, upon its creation, would take over the audit and verification roles now performed by the American Gas Association and the American Petroleum Institute. These industry associations and their member companies would be required to open their reserve estimation process to Federal officials, who would supervise the collection and preparation of reserve data. Information collected and submitted through this system would be randomly audited at the company level. Existing law regarding the protection of confidential, proprietary information would not be changed. This system will consolidate the reserves information gathering activities of Government agencies, where possible, and will eliminate redundant reporting which now occurs among the various agencies.

2. *Petroleum Company Financial Data System* (administrative/budget): This system would require all large companies, and a sample of small firms, engaged in crude oil or natural gas production to submit detailed financial information to the Federal Government. Companies would have to conform, ultimately, to a uniform system of accounts and to report capital expenditures and operating results by geographic region and type of fuel. They would be required to submit information relating to functional areas, including refining, production, marketing, and pipelines, and information relating to foreign as well as domestic operations. This comprehensive reporting system would enable the Government to assess the performance of individual firms and the industry as a whole, providing accountability of vertical operations of the integrated companies. Existing law regarding the protection of confidential, proprietary information would not be changed.

3. *Emergency Management Information System* (administrative/budget): This system would provide Government with the information on local energy supplies and demand needed to respond to an oil embargo, a natural gas shortage, or other energy emergency. Examples of potential future shortages include possible electrical power shortages in the West this coming summer and natural gas shortages in future winters. State energy offices, assisted by the Federal Government, would collect and maintain the data.

C. INDUSTRY COMPETITION

Promotion and maintenance of competition is a critical aspect of public policy. Since energy is an essential commodity for all Americans, effective competition in the energy industries is a matter of vital concern. The President's energy plan calls for continuous vigilance to ensure that the structure, behavior, and performance of the energy industries are vigorously competitive.

The Under Secretary for Policy and Evaluation within the proposed Department of Energy would have prime responsibility to ensure that all policies and programs of the Department promote competition. The Department of Energy would seek to preserve the competitive viability of independents in all segments of the energy industry.

In recent years, trends and practices in the energy industries have created substantial public concern. Attention has focused particularly on the oil and natural gas industry, but also on situations in other energy industries, such as coal and uranium, joint ventures, and the international activities of the major multinational firms.

Horizontal diversification by oil and gas producers, particularly into the coal industry, has aroused fears that the major firms will be able to restrict the development of alternative fuel sources. The existence of such power could be very detrimental to the Nation as it increases its reliance on coal, uranium, and renewable energy sources. The trend of oil and gas company entry into coal mining merit continuous close attention.

From information available at the present time, it does not appear that new laws mandating either vertical or horizontal divestiture are required in order to promote or maintain competition in the energy industries. That conclusion is subject to change. If it should appear

that there are anti-competitive problems in the energy industries that cannot be reached under current laws, new legislation would be proposed.

D. STATE AND LOCAL GOVERNMENT PARTICIPATION

A National Energy Plan can be built only on a foundation of partnership and understanding among the Federal Government, the States, local governments, and the Nation's Indian tribes, which own a substantial part of the Nation's energy resources.

The President is committed to ensuring that no State, local community, or Indian tribe suffers as a result of energy development. In order to assess the adequacy of existing impact assistance programs and make certain that there are no gaps, he has ordered that his Assistant for energy and the Director of OMB undertake a careful review of such programs. If gaps are found to exist in coverage, legislation to remedy those problems will be proposed.

E. ASSISTANCE FOR LOW-INCOME PERSONS

Government at all levels has the responsibility for protecting low-income citizens from the most severe effects of the energy crisis. The Plan contains several programs to carry out the responsibility.

The weatherization program, by insulating large numbers of low-incomes homes, would protect low-income people not only from the cold but also from rising fuel bills. The rebate system for the wellhead tax on oil and the standby gasoline tax would distribute funds to low-income persons in a progressive manner. The price controls on natural gas and the allocation of high cost sources to industry will protect low-income consumers whose homes are heated with natural gas. The price controls on oil and the rebate system to exempt home heating oil from the impact of taxes on oil will protect low-income consumers whose homes are heated with oil. For the longer run, protection for low-income people from the gradually increasing cost of energy lies in a reformed welfare system on which the administration is at work.

The remaining major problem is the possibility that the Nation will experience future supply disruptions, such as the natural gas shortage last winter or another oil embargo. Such events could cause temporary, but sharp increases in the cost of basic energy in some regions, or to users of particular fuels. Such increases are particularly harmful to low-income people, who have little or no discretionary income with which to meet energy price rises. Present programs have deficiencies in meeting these emergency needs. The President has, therefore, directed the Secretary of Health, Education, and Welfare to complete work on a revised emergency assistance program for prompt submission to the Congress.

F. OIL AND NATURAL GAS

Oil and natural gas account for three-quarters of the Nation's energy needs, yet constitute less than 8 percent of current domestic energy reserves. These fuels are priced domestically below their marginal replacement costs; as a result, the Nation uses them wastefully with little regard to their true value.

The Federal Government must provide for prices that provide adequate incentives for producers while preventing industry from receiving windfall profits. Price controls will protect consumers from profiteering by producers, while taxes on utility and industrial use of oil and gas will encourage conservation and conversion to coal. The residential sector is sheltered as the Plan would keep natural gas prices to residential users down and provide tax rebates for home oil use.

1. *Oil pricing* (legislative): The President is committed to the retention of domestic oil price controls for the foreseeable future to prevent windfall profits for oil producers who would otherwise be able to charge the OPEC-determined world price of oil. The basic pricing mechanism adopted by the Energy Policy and Conservation Act would be revised and extended to create a new long-range oil pricing system which would:

Continue indefinitely the current price ceilings of $5.25 and $11.28 per barrel for previously discovered oil, subject only to escalation at the general rate of inflation;

Allow newly discovered oil to rise over a 3-year period to the current world price (adjusted for the rate of inflation); thereafter, newly discovered oil would continue to be priced at the 1977 world price with adjustments for any domestic increases in the general rate of inflation;

Define newly discovered oil as oil from a well drilled more than 2½ miles from an existing onshore well as of April 20, 1977, or more than 1,000 feet deeper than any well within any 2½ mile radius. New oil offshore will be limited to oil from lands leased after April 20, 1977;

Any price increases for any tier in excess of the increases in the general rate of inflation recommended by the executive branch would be subject to congressional disapproval before becoming effective;

Incremental tertiary recovery from old fields and stripper oil would be free of price controls,

2. *Oil taxes* (legislative): All domestic oil would become subject to a crude oil equalization tax applied in three equal stages beginning on January 1, 1978. When fully phased in, the tax per barrel would equal the difference between the controlled domestic price and the world price. The second tax installment in 1979 would bring all domestic crude prices up to the $11.28 tier, and the third increment would bring it to the world price in 1980. Once the tax is fully in place, it would rise with world oil prices, except that atuhority would exist to discontinue an increase if the world price increased significantly faster than the general level of inflation. The net funds collected as a result of this tax would be returned to the public, on a per capita basis, in the form of tax credits or direct payments for those who have no tax liability.

The oil tax would provide no net gain to the Treasury and no net loss to consumers as a group, while establishing a more realistic energy pricing system. Once the tax is fully in effect, all domestic oil would have approximately the same price (after tax) as the world price, the entitlements program would be terminated, and certain related regulatory activities could be phased out.

3. *Natural gas pricing* (legislative): Current pricing policy evolved at a time when gas was a surplus byproduct of oil. As a result it is now the Nation's most underpriced and oversold fuel. By helping bring natural gas supply and demand back into balance, this pricing proposal is an important first step toward deregulation. If the oil and gas pricing and taxing initiatives in this Plan succeed, it may be possible to return to market-determined price for new natural gas.

The new gas pricing policy provides prices for new gas that will reflect future costs and risks associated with finding new supplies, recognizes that the United States constitutes a single market for natural gas, and continues controls on old gas.

Specifically, this proposal would:

Subject all new gas, sold anywhere in United States, to a price limitation of the BTU equivalent of the average refiner acquisition cost (before tax) of all domestic crude oil. That price limitation would be approximately $1.75 per Mcf at the beginning of 1978; the interstate-intrastate distinction would disappear for new gas;

Define new natural gas using the same standards as are used to define newly discovered oil (2½ miles, 1,000 feet, new leases);

Guarantee price certainty at current levels for currently flowing gas, with adjustments to reflect inflation;

Authorize the establishment of higher incentive pricing levels for specific categories of high cost gas;

Allow gas made available at the expiration of existing interstate contracts or by production from existing reservoirs in excess of contracted volumes to qualify for a price no higher than the current $1.42 Mcf ceiling adjusted for inflation; gas made available under the same circumstances from existing intrastate production would qualify for the same price as new gas; i.e., $1.75 per Mcf at the beginning of 1978;

Allocate the cost of the more expensive new gas to industrial users, not to residential and commercial users;

Extend Federal jurisdiction to SNG facilities guaranteeing them a reasonable rate of return.

This pricing mechanism would not affect the existing intrastate contracts. Because the Nation will remain vulnerable to natural gas supply emergencies during the coldest months of the year, the President will propose the emergency gas allocation authority be extended for 3 years.

4. *Other oil and gas measures:*

a. *Alaskan crude pricing* (legislative): Inclusion of North Slope oil in the domestic composite price under the current provisions in EPCA would introduce a degree of unnecessary uncertainty into domestic crude oil pricing. This is because of the large volume of new Alaskan oil that would initially be moving into the composite average at a wellhead price anticipated to be considerably below the current average. Under the proposed amendments and extension of EPCA, this problem would be eliminated. The $5.25, $11.28, and new oil pricing tiers, adjusted for inflation, would be substituted for the composite average limitation. Alaskan oil would be subject to an $11.28 wellhead ceiling price, but would be treated as foreign oil for

purposes of the entitlements program. New Alaskan oil finds would be subject to the new oil wellhead price.

b. *Elk Hills production* (legislative): Legislation will be sought to limit production from Elk Hills Naval Petroleum Reserve to a ready reserve level at least until the West-to-East transportation systems for moving the Alaskan oil surplus are in place and until California refiners have completed a major refinery retrofit program to enable more Alaskan oil to be used in California.

c. *Shale oil* (administrative): Because of the high risks and costs involved in shale oil development, shale oil will be entitled to receive the world price of oil in the United States.

d. *Oil stockpile* (administrative/budget): We plan to expand the Strategic Petroleum Reserve to one billion barrels from the currently projected 500 million barrels. Such a reserve would enable the United States to withstand a serious supply interruption for 10 months. In addition, rationing and conservation contingency plans will be submitted to the Congress for its review. The FEA will undertake an analysis of additional contingency plans which would be placed into effect during a severe supply interruption.

e. *Liquified natural gas (LNG)* (administrative): The limitation on the importation of LNG imposed by the previous administration is being replaced by a more flexible policy that will provide for a case-by-case analysis of each project. Strict siting criteria would foreclose the location of future tanker docks in densely populated areas.

f. *Synthetic natural gas (SNG)* (administrative): Current policy discourages construction of SNG facilities. A Federal task force will be established to identify areas where additional SNG plants should be built. The FEA will ensure that plants built in those areas will receive priority for SNG feedstocks.

g. *Gas development* (administrative): Federal research and development programs on gas from geopressurized zones will be greatly accelerated. Efforts to develop gas from Devonian shale will also be expanded.

h. *Outer Continental Shelf* (administrative): The Congress is now considering amendments to the OCS Lands Act which would provide additional authorities to ensure that OCS development is consistent with national energy policies, particularly by providing for a flexible leasing program using bidding systems that enhance competition, assure a fair return to the public, and promote full development of OCS resources. The administration supports these amendments.

i. *Gasoline decontrol* (administrative): Gasoline prices have never reached their allowable controlled ceilings, and marketers have contended for some time that deregulation of gasoline would increase competition by allowing them to shop among suppliers.

In order to assure the maintenance of such competition, the administration will support legislation similar in concept to the current "Dealer Day in Court" statute that protects service station dealers from arbitrary cancellation of their leases by major oil suppliers.

In addition, the administration currently hopes to eliminate gasoline price controls and allocation regulations at the end of the peak driving season this coming fall. Gasoline prices and market competition will be closely monitored and controls will be reimposed if prices rise above a predetermined trigger level. If this action is taken, it would permit the elimination of controls while protecting consumers.

j. *Tax change* (legislative): A competitive problem has resulted from an effect of the Tax Reform Act of 1976, which changed the tax treatment of intangible drilling costs. Some independent oil and gas producers have been deprived of a portion of the tax reduction for such expenses, while the major corporate producers continue to enjoy the full deduction. This anomaly should be removed. As part of the President's program for extending oil and gas price controls, the administration would urge that independent oil and gas producers receive the same tax treatment of intangible drilling costs as their corporate competitors, the major oil companies. Investors who finance oil and exploration in order to obtain a tax shelter for income earned in other occupations should not, however, receive such a benefit.

G. COAL, NUCLEAR, AND HYDROELECTRIC POWER

Even with vigorous conservation, America's demand for energy will continue to grow for the next decade. Although the United States will eventually make extensive use of solar and other nonconventional energy sources, it will have to rely, for at least the next two decades, on the conventional sources now at hand: oil, natural gas, coal, nuclear power, and hydroelectric power.

1. *Oil and natural gas users tax* (legislative): In order to stimulate the shift away from oil and gas toward coal and the conservation of oil and gas used by utilities and industry, legislation will be submitted which would do the following:

Beginning in 1979, each industrial user of natural gas (except fertilizer manufacturers and certain agriculture users) would be taxed an amount equal to the difference between his average cost of natural gas and a price target keyed to current price of distillate oil. The target level for the first year's tax in 1979 would be $1.05 below the BTU equivalent price of distillate. The target price would rise to equal the distillate price in 1985 and beyond. Thus, in 1979, an industrial user who paid $1.65 per Mcf would pay a tax of $.30 per Mcf to bring the total cost of gas up to the target level of $1.95 per Mcf, assuming the BTU equivalent of distillate is $3.00. By 1985, the target level would rise to approximately $3.30 per Mcf, resulting in an average tax of $1.10 per Mcf based on a projected actual gas cost of $2.20 per Mcf.

Utility users of natural gas would be similarly taxed, starting in 1983 at an amount that would bring the cost of gas to them to a level of $.50 per Mcf below the BTU equivalent price of distillate. The tax would rise so that by 1988 the cost of gas to them would equal the cost of an equivalent amount of distillate. The later starting date for the tax on utility use of natural gas reflects the longer lead time required by utilities to convert to coal.

Industrial and utility users of petroleum would be taxed at a flat rate since, unlike natural gas prices, petroleum prices are relatively uniform nationwide. Beginning in 1979, industrial use would be taxed $.90 per barrel; the tax would rise to $3.00 per barrel by 1985. A tax on utility use of petroleum would begin in 1983 at $1.50 per barrel and remain at that level thereafter.

Industry would be eligible for either an additional 10-percent investment tax credit for conversion expenditures or a rebate of

any natural gas or petroleum taxes paid, up to the amount of any expenditures incurred for conversion to coal or other fuels. The rebate in any year could not exceed the amount of taxes paid. However, there would be a carry-forward provision for conversion expenditures that exceeded the tax payments.

Oil and gas taxes collected from utilities would be set aside to help utilities accelerate the retirement of their oil and gas burning capacity.

With tax liability delayed until 1979 for industry and 1983 for utilities, prudent investors undertaking an aggressive conversion program should be able to accumulate enough conversion credits to eliminate, or minimize, the actual amounts of tax collected. As a practical matter only those industrial firms and utilities which lagged behind in conversion would be subject to the tax.

2. *Coal conversion regulatory policy* (legislative): In order to assure the great possible conversion of utilities and industrial installations to coal and other fuels, while ensuring compliance with applicable environmental standards, legislation will be submitted to:

Prohibit industry and utilities from burning natural gas or petroleum in new boilers with only limited environmental and economic exceptions; industry could also be prohibited from burning gas or petroleum in facilities other than boilers, by regulations applicable to types of installations, or on a case-by-case basis;

Prohibit existing facilities with coal-burning capability from burning gas or oil, by regulations applicable to categories or on a case-by-case basis; with limited temporary exceptions, no utility will be permitted to burn natural gas after 1990;

Require facilities burning coal to obtain approval to shift to petroleum or natural gas;

Require utilities burning natural gas to obtain a permit to shift to petroleum;

Allow any industrial firm or utility prohibited from using natural gas to sell its contract to purchase gas at a price that would provide adequate compensation.

3. *Environmental policy for coal:*

The administration supports a strong, but consistent and certain, environmental policy to protect the environment and provide the confidence industry requires to make investments in energy facilities. That policy would:

Require the installation of the best available control technology in all new coal-fired plants, including those that burn low-sulfur coal;

Protect areas where the air is still clean from significant deterioration;

Encourage States to classify lands to protect against significant deterioration within 3 years after enactment of Clean Air Act Amendments;

Require Governors to announce intent to change the classification of the allowable air quality for a given area within 120 days after an application is made to construct a new source in that area;

Require States to approve or disapprove the application within 1 year thereafter.

The President believes that further study is needed with regard to the Environmental Protection Agency's current policies allowing offsetting pollution trade-offs for new installations and therefore requests that Congress not write into law a definitive formula for a nonattainment policy until this analysis is completed.

The President will appoint a special committee to study the health effects of increased coal production and use, and the environmental constraints on coal mining and on the construction of new coal-burning facilities. The Committee will report to the President by October 1977 (administrative).

The President will request almost $3 million to study the long-term effects of carbon dioxide from coal and other hydrocarbons on the atmosphere (budget).

The President reiterated his support for tough, uniform national strip mine legislation.

4. *Coal research and development* (budget):

The President has directed ERDA, EPA, and the Department of the Interior to undertake a major expansion of the Government's coal research and development program. The program will focus primarily on meeting environmental requirements more effectively and economically, and will seek to expand the substitution of coal for gas and petroleum products.

The program will include research on—

More effective, economical methods to meet air pollution control standards, including flue gas desulfurization systems ("scrubbers");
Fluidized bed combustion systems;
Coal cleaning systems;
Solvent refined coal processes;
Low BTU gasification processes;
Synthetic crude technology; and
Coal mining technology.

In the long run, synthetic high BTU gas produced from coal may provide a substitute for declining natural gas supplies. The Government does not plan to subsidize existing technologies. The administration will pursue an active R&D program for advanced high BTU coal gasification. The program will be conducted with the urgency required to ensure that the new technology will be ready when needed.

5. *Nuclear power:*

a. *Plutonium economy:*

The United States will make a concerted effort, in association with other countries, to find answers to the problems of nuclear proliferation. As part of this effort, the United States will defer indefinitely commercial reprocessing and recycling of spent fuels produced in United States civilian nuclear powerplants (administrative).

In addition, the President has decided to defer indefinitely construction of the Clinch River Liquid Metal Fast Breeder Reactor Demonstration Project and to cancel all component construction, commercialization, and licensing efforts. The

United States breeder program will redirect efforts toward evaluation of alternate breeders, fuels, and advanced converter reactors with emphasis on nonproliferation and safety concerns (administrative).

The United States has asked other countries to join in examining alternate methods of meeting future needs for nuclear power. As part of this program, the United States must restore confidence in its ability and willingness to supply enriched uranium services. The United States is, therefore, taking three steps to restore that confidence.

The United States is reopening the order books for uranium enrichment services (administrative).

The President is proposing legislation, in a separate submission, to guarantee the sale of enrichment services to any country which agrees to comply with our nonproliferation objectives and is willing to accept certain conditions (legislative).

The United States will expand its enrichment capacity. Current capacity consists of gaseous diffusion plants. A centrifuge plant uses only 10 percent as much electrical power as a diffusion plant of equivalent capacity. Accordingly, the next plant that the United States will build, for which funds are already in the proposed fiscal 1978 budget, will be a centrifuge plant (administrative/budget).

To resolve uncertainties about the extent of domestic uranium resources, ERDA will modify its National Uranium Resources Evaluation program to improve its uranium resource assessment and to include thorium (administrative).

b. *Domestic nuclear safety and storage:*

Light water reactors, the type now being built, are not a proliferation hazard.

Although light water nuclear reactors have had a good safety record, the President will request the Nuclear Regulatory Commission to expand its audit and inspection staff, to increase unannounced inspections, and to assign a permanent inspector to every nuclear site (administrative budget).

The President will request the NRC to make mandatory the current voluntary reporting of minor mishaps and component failures (administrative).

The President also will request the NRC to develop firm siting criteria that contain guidelines to prevent siting in densely populated areas, under potentially hazardous or valuable natural areas (administrative).

The current licensing process is unsatisfactory to utilities, intervenors, and the Government. Therefore, the President will direct a thorough review of the entire process. As part of this review, he has proposed that reasonable and objective criteria be established for licensing and that plants which are based on a standard design not require extensive individual licensing administrative).

The President will direct a review of ERDA's waste disposal program (administrative).

6. *Hydroelectric power*

The President has directed the Corps of Engineers to report within 3 months on the potential for additional hydropower installations at existing dams throughout the country—especially at small sites. Any recommendation will be subject to a thorough environmental and budget review before final decisions are made (administrative).

H. NON-CONVENTIONAL SOURCES OF ENERGY

America's hope for long-term economic growth beyond the year 2000 rests on renewable and virtually inexhaustible sources of energy, such as solar and geothermal energy. The Government will promote aggressively the development of renewable resources.

1. *Solar energy:*

a. *Solar tax credits* (legislative): To stimulate the development of a large solar market, a tax credit of 40 percent of the first $1,000 and 25 percent of the next $6,400 (maximum of $2,000) paid for the installation of qualifying solar equipment would be provided. The credit would decline over time to 25 percent of the first $1,000 and 15 percent of the next $6,400. The credit, available between April 20, 1977, and December 31, 1984, would be supported by a federally supported joint Federal/State program of standards development, certification, training, information gathering, and public education.

b. *Business investment tax credit* (legislative): The solar industry will be aided further by the inclusion of investments in solar equipment for industrial and commercial purposes among the approved conservation measures eligible for the proposed 10-percent tax credit for energy-saving investments.

c. *Federal Energy Management Program* (administrative budget): The Federal Government will demonstrate its confidence in solar technology by undertaking a 3-year solar program for Federal buildings with up to $100 million.

d. *State support:* States are urged to amend their property tax laws to exempt solar installations from assessments, to enact legislation to protect access to the Sun, and to promote consumer education in the solar field. State public utility commissions would be required to develop guidelines to prevent utilities from discriminating against users of solar energy or other alternative energy sources.

2. *Geothermal energy:*

a. *Tax deductions* (legislative): To stimulate geothermal drilling, the President will propose a tax deduction for intangible drilling costs comparable to that now available for oil and gas drilling.

b. *Procedural streamlining* (administrative): The Departments of Interior and Agriculture will streamline their leasing and environmental review procedures to remove unnecessary barriers to development of geothermal resources.

I. RESEARCH DEVELOPMENT AND DEMONSTRATION OF DECENTRALIZED SYSTEMS

1. *Reorganization* (administrative/budget): A new Office of Small-Scale Technology is proposed within the Department of Energy in order to tap more fully the great potential of the Nation's individual inventors and small business firms.

2. *Solar, geothermal, and other technologies* (budget): The Government will provide increased funding for photovoltaic systems, solar space cooling and other solar buildings technologies, small wind energy conversion systems, and demonstration projects on wood-derived biomass. The Government will also fund programs for additional work on gas-fired heat pumps and small fuel cells for residential and commercial heating and cooling. Additional funding will be provided to identify new hydrothermal sources which could be tapped for near-term generation of electricity and for direct thermal use. The Government will also support demonstration of direct, nonelectric uses of geothermal energy for residential space conditioning and industrial and agricultural process heat in area where this resource has not previously been exploited.

J. TRANSPORTATION STUDY

During the era of cheap energy, the United States developed a national energy transportation system principally for moving oil and natural gas from the South and the Texas Panhandle to the North and Northeast. With growing prospects for increased supplies of oil and gas from Alaska and the Outer Continental Shelf, as well as the possibility of increases in Western coal production, the Nation urgently needs to reassess its energy transportation system. The President will establish a commission to study and make recommendations concerning the national energy transportation system.

JIMMY CARTER.

THE WHITE HOUSE, *April 20, 1977.*

APPENDIX A

TAX AND REBATE SCHEDULE FOR NEW CAR SALES

Miles per gallon		Tax or rebate							
At least—	But less than—	1978	1979	1980	1981	1982	1983	1984	1985
	12.5		*	*	935	*	1,524	*	2,488
12.0	13.0	449	553	666	*	1,159	*	1,819	*
12.5	13.5	*	*	*	774	*	1,294	*	2,146
13.0	14.0	345	436	538	*	972	*	1,559	*
13.5	14.5	*	*	*	637	*	1,098	*	1,854
14.0	15.0	356	339	428	*	812	*	1,336	*
14.5	15.5	*	*	*	519	*	929	*	1,603
15.0	16.0	179	258	333	*	674	*	1,143	*
15.5	16.5	*	*	*	416	*	782	*	1,384
16.0	17.0	112	176	249	*	553	*	974	*
16.5	17.5	*	*	*	325	*	653	*	1,192
17.0	18.0	52	111	176	*	446	*	825	*
17.5	18.5	*	*	*	245	*	539	*	1,021
18.0	19.0	0	52	111	*	351	*	693	*
18.5	19.5	*	*	*	174	*	437	*	869
19.0	20.0	−47	0	52	*	266	*	574	*
19.5	20.5	*	*	*	110	*	345	*	733
20.0	21.0	−89	−47	0	*	189	*	467	*
20.5	21.5	*	*	*	52	*	262	*	610
21.0	22.0	−128	−90	−47	*	120	*	371	*
21.5	22.5	*	*	*	0	*	188	*	499
22.0	23.0	−163	−129	−90	*	57	*	283	*
22.5	23.5	*	*	*	−47	*	119	*	397
23.0	24.0	−195	−165	−130	*	0	*	203	*
23.5	24.5	*	*	*	−91	*	57	*	304
24.0	25.0	−224	−197	−166	*	−52	*	129	*
24.5	25.5	*	*	*	−131	*	0	*	219
25.0	26.0	−251	−227	−199	*	−101	*	62	*
25.5	26.5	*	*	*	−168	*	−52	*	140
26.0	27.0	−276	−255	−230	*	−145	*	0	*
26.5	27.5	*	*	*	−202	*	−101	*	67
27.0	28.0	−299	−281	−259	*	−187	*	−57	*
27.5	28.5	*	*	*	−234	*	−147	*	0
28.0	29.0	−321	−305	−285	*	−225	*	−111	*
28.5	29.5	*	*	*	−264	*	−189	*	−62
29.0	30.0	−341	−327	−310	*	−261	*	−161	*
29.5	30.5	*	*	*	−291	*	−228	*	−121
30.0	31.0	−359	−348	−333	*	−295	*	−207	*
30.5	31.5	*	*	*	−317	*	−265	*	−176
31.0	32.0	−377	−367	−354	*	−326	*	−251	*
31.5	32.5	*	*	*	−340	*	−299	*	−227
32.0	33.0	−393	−385	−374	*	−335	*	−292	*
32.5	33.5	*	*	*	−363	*	−331	*	−275
33.0	34.0	−408	−402	−393	*	−383	*	−330	*
33.5	34.5	*	*	*	−385	*	−361	*	−320
34.0	35.0	−423	−416	−411	*	−409	*	−366	*
34.5	35.5	*	*	*	−405	*	−390	*	−362
36.0	36.0	−436	−433	−428	*	−433	*	−400	*
35.5	36.5	*	*	*	−423	*	−417	*	−403
36.0	37.0	−449	−448	−444	*	−456	*	−433	*
36.5	37.5	*	*	*	−441	*	−442	*	−440
37.0	38.0	−461	−461	−459	*	−478	*	−463	*
37.5	38.5	*	*	*	−458	*	−467	*	−476
38.0	39.0	−473	−474	−473	*	−499	*	−492	*
38.5	39.5	*	*	*	−474	*	−490	*	−493
39.0		−473	−474	−473	*	−499	*	−492	*
Electric cars		−473	−474	−473	−474	−499	−490	−492	−493

STATEMENT ON SIGNING APPROPRIATIONS FOR NON-NUCLEAR PROGRAMS OF THE ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

JUNE 3, 1977

I am pleased to sign S. 36, a bill which will authorize $1.639 billion for the Energy Research and Development Administration's non-nuclear programs in fiscal year 1977.

There are, however, two programs authorized in S. 36 which cause me some concern.

The National Energy Plan stated my belief that we should avoid Federal subsidy of existing energy technologies. I believe that our energy research and development dollars should be spent on technologies which are not yet demonstrated rather than on projects or technologies which have been shown to be successful at a commercial or near commercial scale. In the important area of using municipal waste to generate power or fuel, we have already had five federally assisted demonstration projects. Several other facilities of this type have been brought on line without any Federal support. I seriously question the need for price supports for these types of facilities since a significant body of experience and demonstrated technology is already available.

My second concern is with the timing and scope of the Energy Extension Service program. While I applaud the Congress for its prodding in developing the energy extension service concept and see considerable merit in such a program, I am concerned that we not move into a full-scale, nationwide program before we have had a chance to evaluate and learn from the pilot program which is now underway.

We are receiving preliminary results from the four pilot projects now in operation and are learning that some types of programs work better than others. Before we ask the States to use their scarce staff and fiscal resources to develop plans for these programs, I feel we should be sure that the requirements for these plans are as well-designed as possible. My Energy Advisor will be working with the Congress and the relevant committees to try to revise the timetable for full-scale implementation of the extension service concept in order that the program we develop is one which is most responsive to our State and local as well as national energy needs.

JIMMY CARTER.

THE WHITE HOUSE, *June 3, 1977.*

24-112 O - 78 - 27

VETO OF DEPARTMENT OF ENERGY AUTHORIZATION BILL

NOVEMBER 5, 1977

To the Senate of the United States:

I am returning, without my approval, S. 1811, the Department of Energy Authorization Act of 1978—Civilian Applications.

This bill authorizes fiscal year 1978 appropriations for the Department of Energy's nuclear and non-nuclear energy research, development, and demonstration projects; however, funds for most of these programs, except the Clinch River Breeder Reactor Demonstration Plant, already have been appropriated and made available to the Department.

I cannot approve this legislation because:

It mandates funding for the Clinch River Breeder Reactor Demonstration Plant, that will result in a large and unnecessarily expensive project which, when completed, would be technically obsolete and economically unsound. This decision could channel scarce and much needed effort away from a broad-based breeder reactor development program into a production model which will not be required or economical for many years.

It seriously inhibits the President from pursuing effectively an international policy to prevent the proliferation of nuclear weapons and nuclear explosive capability.

It puts burdensome limitations on the President and the new Department of Energy in exercising necessary judgment to provide an effective energy research and development program.

It puts unwise limitations on our ability to implement the new spent fuels policy which I recently announced, to aid our non-proliferation goals.

It limits the constitutional authority of the President through three one-House veto provisions. One of these provisions could also limit the Administration's ability to recover a fair price for the uranium enrichment service provided by the Federal government.

S. 1811 severely limits the flexibility of the Executive Branch in expending funds appropriated for the Clinch River project pursuant to this authorization. This is inconsistent with my strong belief that proceeding beyond completion of the systems design phase of the Clinch River facility would imperil the Administration's policy to curb proliferation of nuclear weapons technology. Further, completion of the Clinch River facility would cost American taxpayers an additional $1.4 billion on a facility that is technically and economically unnecessary.

In 1970, when the Clinch River facility was first authorized it was estimated to cost $450 million. Its total cost estimate now exceeds $2.2

billion. The Federal government's share of the cost of the project has risen from $250 million to $2 billion. Yet current projections of the increase in the need for nuclear-generated electric power in the year 2000 are only one-third of estimates made in 1970. The breeder reactor will, therefore, not be needed in the early 1990's, as had been projected when the Clinch River facility was first authorized.

The Administration is committed to a strong research and development program for advanced nuclear technologies, including base program research on the liquid metal fast breeder, research into alternative breeder cycles, and an accelerated research and development program for advanced non-breeder technologies. These programs are vital to ensure that energy is available to make the transition over the decades ahead from oil and natural gas to other energy sources. All of these programs will be maintained in the absence of S. 1811. Construction of the Clinch River facility in no way is necessary to ensure continued development of nuclear technologies, including liquid metal fast breeder technology.

In vetoing S. 1811, I intend to pursue the authority at my disposal to terminate construction of the Clinch River facility. Further expenditure on the Clinch River facility should be ended in an orderly fashion, and I intend to analyze all available options, including those under the Congressional Budget and Impoundment Control Act of 1974, to ensure that no further unnecessary expenditures on this facility are made.

In addition to those features relating to the Clinch River Breeder Reactor, S. 1811 also contains additional provisions which are not consistent with Administration policies and the national interest.

The bill would further impede our nonproliferation goals by imposing limitations on the ability of the United States to provide for the storage of spent fuel from foreign reactors in those instances where such an action would serve those goals.

It permits a one-House veto over the criteria and prices which the Administration can adopt, infringing on the Administration's ability to recover the full cost of those enrichment services.

S. 1811 would impede the ability of the Secretary of Energy to organize effectively the research and development activities of the new Department of Energy, in contravention of legislation passed in August establishing the Department.

Finally, it would impose a variety of specific and unnecessary technical restrictions on energy research and development programs, establish one-House veto provisions relating to geothermal facilty loan guarantees, and impose a six-month requirement for a recommendation on the purchase and/or operation of the Barnwell reprocessing facility.

I am committed to a vigorous energy research and development strategy to ensure maximum progress on shifting the energy base of the United States away from oil and natural gas. However, I am also concerned about the risk of introducing the plutonium economy through an unnecessary commercial demonstration facility. I believe that we should continue our research and development program without large, unnecessary expenditures for a technologically obsolete project and without imperiling our shared desire for halting the uncontrolled spread of nuclear weapons capability.

JIMMY CARTER.

THE WHITE HOUSE, *November 5, 1977.*

ADDRESS TO THE NATION ON THE NATIONAL ENERGY PLAN

NOVEMBER 8, 1977

GOOD EVENING: More than 6 months ago, in April, I spoke to you about a need for a national policy to deal with our present and future energy problems, and the next day I sent my proposals to the Congress.

The Congress has recognized the urgency of this problem and has come to grips with some of the most complex and difficult decisions that a legislative body has ever been asked to make.

Working with Congress, we've now formed a new Department of Energy, headed by Secretary James Schlesinger. We have the ability to administer the new energy legislation, and congressional work on the national energy plan has now reached the final stage.

Last week the Senate sent its version of the legislation to the conference committees, where Members of the House and Senate will now resolve differences between the bills that they've passed. There, in the next few weeks, the strength and courage of our political system will be proven.

The choices facing the Members of Congress are not easy. For them to pass an effective and fair plan, they will need your support and your understanding—your support to resist pressures from a few for special favors at the expense of the rest of us, and your understanding that there can be no effective plan without some sacrifice from all of us.

Tonight, at this crucial time, I want to emphasize why it is so important that we have an energy plan and what we will risk, as a nation, if we are timid or reluctant to face this challenge. It's crucial that you understand how serious this challenge is.

With every passing month, our energy problems have grown worse. This summer we used more oil and gasoline than ever before in our history. More of our oil is coming from foreign countries. Just since April, our oil imports have cost us $23 billion—about $350 worth of foreign oil for the average American family.

A few weeks ago, in Detroit, an unemployed steelworker told me something that may reflect the feelings of many of you. "Mr. President," he said, "I don't feel much like talking about energy and foreign policy. I'm concerned about how I'm going to live. . . . I can't be too concerned about other things when I have a 10-year-old daughter to raise and I don't have a job and I'm 56 years old."

Well, I understand how he felt, but I must tell you the truth. And the truth is that you cannot talk about economic problems now or in the future without talking about energy.

Let me try to describe the size and the effect of the problem. Our farmers are the greatest agricultural exporters the world has ever known, but it now takes all the food and the fiber that we export in 2 years just to pay for 1 year of imported oil—about $45 billion.

This excessive importing of foreign oil is a tremendous and rapidly increasing drain on our national economy. It hurts every American family. It causes unemployment. Every $5 billion increase in oil imports costs us 200,000 American jobs. It costs us business investments. Vast amounts of American wealth no longer stay in the United States to build our factories and to give us a better life.

It makes it harder for us to balance our Federal budget and to finance needed programs for our people. It unbalances our Nation's trade with other countries. This year, primarily because of oil, our imports will be at least $25 billion more than all the American goods that we sell overseas.

It pushes up international energy prices because excessive importing of oil by the United States makes it easier for foreign producers to raise their prices. It feeds serious inflationary pressures in our own economy.

If this trend continues, the excessive reliance on foreign oil could make the very security of our Nation increasingly dependent on uncertain energy supplies. Our national security depends on more than just our Armed Forces; it also rests on the strength of our economy, on our national will, and on the ability of the United States to carry out our foreign policy as a free and independent nation. America overseas is only as strong as America at home.

The Secretary of Defense said recently, "The present deficiency of assured energy sources is the single surest threat . . . to our security and to that of our allies."

Yesterday, after careful consideration, I announced the postponement of a major overseas trip until after Christmas because of the paramount importance of developing an effective energy plan this year. I have no doubt that this is the right decision, because the other nations of the world—allies and adversaries alike—await our energy decisions with a great interest and concern.

As one of the world's largest producers of coal and oil and gas, why do we have this problem with energy, and why is it so difficult to solve?

One problem is that the price of all energy is going up, both because of its increasing scarcity and because the price of oil is not set in a free and competitive market. The world price is set by a foreign cartel—the governments of the so-called OPEC nations. That price is now almost five times as great as it was in 1973.

Our biggest problem, however, is that we simply use too much and waste too much energy. Our imports have more than tripled in the last 10 years. Although all countries could, of course, be more efficient, we are the worst offender. Since the great price rise in 1973, the Japanese have cut their oil imports, the Germans, the French, the British, the Italians have all cut their oil imports. Meanwhile, although we have large petroleum supplies of our own and most of them don't, we in the United States have increased our imports more than 40 percent.

This problem has come upon us suddenly. Ten years ago, when foreign oil was cheap, we imported just 2½ million barrels of oil a day,

about 20 percent of what we used. By 1972, we were importing about 30 percent. This year, when foreign oil is very expensive, we are importing nearly 9 million barrels a day—almost one-half of all the oil we use. Unless we act quickly, imports will continue to go up, and all the problems that I've just described will grow even worse.

There are three things that we must do to avoid this danger: first, cut back on consumption; second, shift away from oil and gas to other sources of energy; and third, encourage production of energy here in the United States. These are the purposes of the new energy legislation.

In order to conserve energy, the Congress is now acting to make our automobiles, our homes, and appliances more efficient and to encourage industry to save both heat and electricity.

The congressional conference committees are now considering changes in how electric power rates are set in order to discourage waste, to reward those who use less energy, and to encourage a change in the use of electricity to hours of the day when demand is low.

Another very important question before Congress is how to let the market price for domestic oil go up to reflect the cost of replacing it while, at the same time, protecting the American consumers and our own economy.

We must face an unpleasant fact about energy prices. They are going up, whether we pass an energy program or not, as fuel becomes more scarce and more expensive to produce. The question is, who should benefit from those rising prices for oil already discovered? Our energy plan captures and returns them to the public, where they can stimulate the economy, save more energy, and create new jobs.

We will use research and development projects, tax incentives and penalties, and regulatory authority to hasten the shift from oil and gas to coal, to wind and solar power, to geothermal, methane, and other energy sources.

We've also proposed, and the Congress is reviewing, incentives to encourage production of oil and gas here in our own country. This is where another major controversy arises.

It's important that we promote new oil and gas discoveries and increased production by giving adequate prices to the producers.

We've recommended that the price, for instance, of new natural gas be raised each year to the average price of domestic oil that would produce the same amount of energy. With this new policy, the gross income of gas producers would average about $2 billion each year more than at the present price level. New oil prices would also rise in 3 years to the present world level and then be increased annually to keep up with inflation. This incentive for new oil production would be the highest in the whole world.

These proposals would provide adequate incentives for exploration and production of domestic oil and gas, but some of the oil companies want much more—tens of billions of dollars more. They want greatly increased prices for "old" oil and gas—energy supplies which have already been discovered and which are being produced now. They want immediate and permanent deregulation of gas prices, which would cost consumers $70 billion or more between now and 1985. They want even higher prices than those we've proposed for "new"

gas and oil, and they want the higher prices sooner. They want lower taxes on their profits.

These are all controversial questions, and the congressional debates, as you can well imagine, are intense. The political pressures are great because the stakes are so high, billions and billions of dollars. We should reward individuals and companies who discover and produce new oil and gas, but we must not give them huge windfall profits on their existing wells at the expense of the American people.

Now the energy proposal that I made to Congress last April has three basic elements to ensure that it is well balanced. First, it's fair both to the American consumers and to the energy producers, and it will not disrupt our national economy. Second, as I've said before, it's designed to meet our important goals for energy conservation, to promote a shift to more plentiful and permanent energy supplies and encourage increased production of energy in the United States. And third, it protects our Federal budget from any unreasonable burden. These are the three standards by which the final legislation must be judged. I will sign the energy bills only if they meet these tests.

During the next few weeks, the Congress will make a judgment on these vital questions. I will be working closely with them. And you are also deeply involved in these decisions. This is not a contest of strength between the President and the Congress, nor between the House and the Senate. What is being measured is the strength and will of our Nation—whether we can acknowledge a threat and meet a serious challenge together.

I'm convinced that we can have enough energy to permit the continued growth of our economy, to expand production and jobs, and to protect the security of the United States—if we act wisely.

I believe that this country can meet any challenge, but this is an exceptionally difficult one because the threat is not easy to see and the solution is neither simple nor politically popular.

I said 6 months ago that no one would be completely satisfied with this National Energy Plan. Unfortunately, that prediction has turned out to be right. There is some part of this complex legislation to which every region and every interest group can object. But a common national sacrifice to meet this serious problem should be shared by everyone—some proof that the plan is fair. Many groups have risen to the challenge. But, unfortunately, there are still some who seek personal gain over the national interest.

It's also especially difficult to deal with long-range, future challenges. A President is elected for just 4 years, a Senator for 6, and our Representatives in Congress for only 2 years. It's always been easier to wait until the next year or the next term of office, to avoid political risk. But you did not choose your elected officials simply to fill an office. The Congress is facing very difficult decisions, courageously, and we've formed a good partnership. All of us in Government need your help.

This is an effort which requires vision and cooperation for all Americans. I hope that each of you will take steps to conserve our precious energy and also join with your elected officials at all levels of government to meet this test of our Nation's judgment and will.

These are serious problems, and this has been a serious talk. But our energy plan also reflects the optimism that I feel about our ability

to deal with these problems. The story of the human race is one of adapting to changing circumstances. The history of our Nation is one of meeting challenges and overcoming them.

This major legislation is a necessary first step on a long and difficult road. This energy plan is a good insurance policy for the future, in which relatively small premiums that we pay today will protect us in the years ahead. But if we fail to act boldly today, then we will surely face a greater series of crises tomorrow—energy shortages, environmental damage, ever more massive Government bureaucracy and regulations, and ill-considered, last-minute crash programs.

I hope that, perhaps a hundred years from now, the change to inexhaustible energy sources will have been made, and our Nation's concern about energy will be over. But we can make that transition smoothly—for our country and for our children and for our grandchildren—only if we take careful steps now to prepare ourselves for the future.

During the next few weeks, attention will be focused on the Congress, but the proving of our courage and commitment will continue, in different forms and places, in the months and the years, even generations ahead.

It's fitting that I'm speaking to you on an election day, a day which reminds us that you, the people, are the rulers of this Nation, that your Government will be as courageous and effective and fair as you demand that it be.

This will not be the last time that I, as President, present difficult and controversial choices to you and ask for your help. I believe that the duties of this office permit me to do no less. But I'm confident that we can find the wisdom and the courage to make the right decisions—even when they are unpleasant—so that we might, together, preserve the greatness of our Nation.

Thank you very much.

JIMMY CARTER.

THE WHITE HOUSE. *November 8, 1977.*

REMARKS ON SIGNING THE ALASKA NATURAL GAS TRANSPORTATION SYSTEM

NOVEMBER 8, 1977

THE PRESIDENT. This joint resolution to approve the construction of the major natural gas pipeline from Alaska down through Canada to our country is a very important demonstration of our Nation's commitment to provide adequate energy supplies in the future, to protect the quality of the environment in our two nations, to work harmoniously in one of the most complicated and most expensive engineering projects ever undertaken by human beings.

I'm very proud that the House and Senate have approved the route that was chosen by ourselves and the Canadians for this major project. This will provide, when it's fully in operation, about 3.6 billion cubic feet of natural gas per day. It's the largest single project ever undertaken for the provision of energy and, perhaps, the largest single engineering project ever undertaken of any kind.

Over a period of 25 years, which is the estimated life of this pipeline—it will probably be longer—it would save the American people more than $6 billion, compared to the alternative route assessed.

But this is just the first very minor step in what's going to be a long journey in engineering, planning, financing, designing and construction and operation of this tremendous pipeline project.

Tonight I will talk to the American people about the energy problem and the enormity of it now and in the future. This is roughly a $14 billion project. Natural gas makes up about 25 percent of our energy needs. This project, in spite of its enormous size, will provide about 5 percent of our Nation's natural gas. So, what we are talking about here, to show you the size of the energy problem and the energy industry, is about 1 percent of the energy supplies of just one nation.

I'm particularly glad that the Ambassador for Canada is here. I hope that he will relay directly to Prime Minister Trudeau my deep gratitude at the cooperative attitude that has been taken by the Canadians in working with us on this project.

I particularly want to thank the Alaskan delegation who are here, the Congress Members who have been so instrumental in the passage of this resolution. Many of them are the same Members of Congress who are now working on the energy conference committee—Senator Jackson, Congressmen Udall, John Dingell, Congressmen Staggers, Roncalio, and others. I want to thank them again for their timely and very effective approval of this project.

Dr. Schlesinger, the Secretary of Energy, will now begin his detailed work along with Cecil Andrus, the administrator of the Interior Department—the Secretary—and also other agencies of the Federal Government. So, I think, this is a good time for our country, for Canada, and for the future of the American people.

Again, I want to congratulate the Members of Congress for doing such a good job in helping to make this possible.

[*At this point, the President signed H.J. Res. 621 into law.*]

Now, Jim, you can go ahead and start working.

Secretary SCHLESINGER. I think what the President has said underscores the close relationships that we should maintain with Canada in regard to what are common problems. This will help restore an era of good feelings between the two countries and, that this project, large as it is, is a splendid symbol of that cooperation.

The PRESIDENT. Mike?

Senator GRAVEL. I think that it's not only of benefit to the Nation but, I think, it does lay aside the differences that have arisen in the context of where the line would go—our differences with Canada. I think if there's any nation that we have a proximity to, it's that great country. I think the gas that we've been blessed with in Alaska we've brought more efficiently and effectively through this pipeline.

We are grateful to the leadership of the Executive, under you, Mr. President, Mr. Schlesinger, and with the alacrity that the Congress acted in seeing that this resolution got to your desk as soon as possible.

The PRESIDENT. Thank you. I don't think there were any dissenting votes. It was a voice vote. I didn't hear any——

Senator GRAVEL. There were none.

The PRESIDENT. Congressman Staggers?

Representative STAGGERS. I'd say that it's a red-letter day for America and our future.

The PRESIDENT. Ted?

Senator STEVENS. Mr. President, I think this is just the first of a series of transportation systems to bring Alaska's resources to what we call the South 48. We have a lot more oil and gas and we'll hopefully get on to those other areas, too, soon. So, I congratulate you. I think this is the first time that the Vice President and I have been on the same side. We both lost. He favored the Arctic route, and I favored the El Paso route. But we're both happy today. [Laughter.]

OTHER SPEAKER. Mr. President, the Vice President did not lose on this issue. [Laughter.]

The PRESIDENT. I think all Americans won. Although we don't look on Canada as coming under the purview of the Foreign Relations Committee, Frank—because they are so much a part of our country—would you like to say just a word?

Senator CHURCH. Thank you, Mr. President. I think the route that's been chosen is the correct one. It happens that the first leg of that route will be built into my State, which may have some influence. [Laughter.] But I commend you for another milestone, and I think this bill will serve the country well.

The PRESIDENT. Jim?

Mr. MCMILLIAN. It's my pleasure. This is my project. I want to thank you for choosing it, the confidence you had in us. We're going to

uphold that confidence of both yourself and the Congress and do what we said to bring this energy source to you as quickly and reasonably as we can.

The PRESIDENT. We worked very closely with Jim, in preparing this, and I want to thank you for it.

Mr. MCMILLIAN. Thank you, sir.

Representative DINGELL. Mr. President, I just look forward to being back with you when you sign the energy bill very shortly. [Laughter.]

JIMMY CARTER.

THE WHITE HOUSE, *November 8, 1977*.

ALASKA NATURAL GAS TRANSPORTATION SYSTEM

STATEMENT ON SIGNING HOUSE JOINT RESOLUTION 621 INTO LAW, NOVEMBER 8, 1977

The energy crisis presents an unprecedented challenge that calls for creative solutions. That is why I take special pride in signing today the joint resolution of the Senate and House of Representatives approving my choice of the Alcan project to carry Alaskan natural gas through Canada to the lower 48 States.

This pipeline project will span almost 5,000 miles across the North American Continent. It will be the largest privately financed energy project ever undertaken. It will deliver an additional 1 trillion cubic feet of reasonably priced natural gas to American markets every year. It will save American consumers $6 billion over what other routes would cost during a 20-year period.

But despite the scope of this project, it is sobering to realize that it will add only 5 percent to the Nation's supply of natural gas. And natural gas itself will account for only 25 percent of our total energy supply. Even with the Alcan project we will continue to be gravely dependent on imported oil to meet our energy needs. Later this evening I will discuss with the Nation in more detail the enormous challenge which lies ahead, and the consequences of our failure to act on a comprehensive national energy program.

I want to compliment the Congress on their swift response to my recommendation in the midst of their consideration of the National Energy Plan. I also want particularly to thank Senator Jackson, the floor leader in the Senate, and chairmen Morris Udall and Harley Staggers in the House, as well as subcommittee chairmen John Dingell and Teno Roncalio for their efforts in securing early approval of the resolution.

I am asking Ambassador Towe to convey to Prime Minister Trudeau the proud sense of partnership we feel today at embarking upon this new joint venture. As the Prime Minister and I observed when our agreement was announced, the two countries working together can transport more energy more efficiently than either working alone. The United States will gain the use of our Alaskan gas reserves at the lowest possible cost, and Canada will benefit through access to its frontier gas reserves and the economic activity of constructing and operating this project.

Ultimately, it will be our willingness to consider solutions like this that may well determine this Nation's ability to survive the threats posed by the energy crisis, I will talk more about that tonight. Alcan is just one step in a long series of steps—represented in part by the National Energy Plan—that we must take. We should be both proud of the progress we mark today, and humbled by the task that lies ahead.

JIMMY CARTER.

THE WHITE HOUSE, *November 8, 1977.*

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7/26/71 Cred to NYS Atomic

LIBER 7006 PAGE 298

DEED

THIS INDENTURE, made the 26th day of July, nineteen hundred and seventy-one, between CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., a corporation, party of the first part, and NEW YORK STATE ATOMIC AND SPACE DEVELOPMENT AUTHORITY, party of the second part:

WITNESSETH, that the party of the first part, in consideration of ten dollars and other valuable consideration paid by the party of the second part, does hereby grant and release unto the party of the second part, its successors and assigns, forever,

ALL that certain plot, piece or parcel of land, and under-the-water land, together with all improvements thereon erected, situate, lying and being in the Village of Buchanan, Town of Cortlandt, County of Westchester, State of New York, bounded and described as follows:

Beginning at the center point of Consolidated Edison Company of New York, Inc.'s Indian Point Generating Station No. 1 Containment Sphere and then on a course North 51° 43' 04" West, a distance of 722.12 feet to a point in the Hudson River, and thence from said point on a course South 38° 16' 56" West, 1,015.00 feet to a point on a sheet pile wall which point is further described as being at coordinates North 462362.364 and East 603569.490 on the United States Coast and Geodetic Survey Grid System, and which point is the point of beginning for the following described parcel:

Beginning at said point and then running along a line of sheet piling South 38° 16' 56" West, 256.98 feet to a point; thence along a line of sheet piling South 51° 43' 04" East, 70.00 feet to a point; thence the following courses and distances:

TAX STAMPS ATTACHED $ [illegible] / AUG 13 1971

14973

002171225

N 31° 20' 39" E 88.35' N 42° 44' 48" E 94.95'
N 71° 46' 19" E 39.42' N 34° 54' 24" E 41.80'
N 51° 43' 04" W 86.00 to the point of place of beginning.

The aforedescribed parcel lies wholly within the limits of lands, now or formerly under the waters of the Hudson River, conveyed to the Consolidated Edison Company of New York, Inc. by the State of New York by Letters Patent dated October 27, 1959, recorded on December 14, 1959 in the Office of the Clerk of the County of Westchester (Division of Land Records) in Liber 5973, of Deeds, at Page 289.

TOGETHER with the appurtenances and all the estate and rights of the party of the first part in and to said premises; TO HAVE AND TO HOLD the premises herein granted unto the party of the second part, its successors and assigns forever.

AND the party of the first part, in compliance with Section 13 of the Lien Law, covenants that the party of the first part will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

IN WITNESS WHEREOF, the party of the first part has

caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer the day and year first above written.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
Party of the first part

By W R Grant
Executive Vice President - Finance

[Corporate Seal]

Attest:

C. [illegible] Jr.
Assistant Secretary

WESTCHESTER COUNTY 047621 REAL ESTATE TRANSFER TAX Dept. of Taxation & Finance AUG 13'79 STATE OF NEW YORK ★ 00.00 ★

STATE OF NEW YORK)
COUNTY OF NEW YORK) ss:

On the 26 day of July 1971, before me personally came Walter R. Grant to me known, who, being by me duly sworn, did depose and say that he resides at No. 7 Orchard Drive, Greenwich, Connecticut, that he is the Executive Vice President - Finance of Consolidated Edison Company of New York, Inc., the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the board of trustees of said corporation, and that he signed his name thereto by like order.

Thomas Love
Notary Public

[illegible]
Notary Public, State of New York
[illegible]
[illegible] New York County
Commission Expires March 30, 1973

LIBER 7006 PAGE 302 71W Cryst 14595 99.

Deed.

Consolidated Edison Company Of New York, Inc.

To

New York State Atomic and Space Development Authority

LIBER 7006 PAGE 303

VILLAGE OF BUCHANAN ← Section 24 Block 33 P/o Lot 1

TOWN OF CORTLANDT → Section 24 Block 38 P/o Lot 1

COUNTY OF WESTCHESTER

WESTCHESTER COUNTY CLERK'S OFFICE
DIVISION OF LAND RECORDS

RECEIVED
WESTCHESTER COUNTY CLERK
1971 AUG 13 PM 12:03

8.50 B --CPa 00194 8-13-71

RECORD AND RETURN

DEBEVOISE PLIMPTON LYONS & GATES
320 PARK AVENUE
NEW YORK, NY 10022
ATTN JOHN H. HALL, ESQ.

CHICAGO TITLE INSURANCE CO.

The foregoing instrument was endorsed for record as follows: The property affected by this instrument is situate in the TOWN OF CORTLANDT County of Westchester, N. Y. A true copy of the original DEED recorded AUGUST 13, 1971 at 12:03 PM

EDWARD N. VETRANO, County Clerk.