

# Accelerate Construction and Repair



The Task Force recognizes the opportunity to accelerate the repair and construction of the electric and gas systems in New York, with the dual benefits of improving environmental safety and reliability, while also stimulating economic development in the State. Some of these projects can also lead to immediate consumer benefits in terms of reduced fuel costs, reductions in emissions, and increased storm resilience. The Task Force called for the following actions in the Blueprint:

- Accelerate investments in electric generation, transmission, and distribution to strengthen reliability, safety, and storm resilience
- Accelerate investments in natural gas distribution to reduce costs to consumers and promote reliability, safety, and emission reductions



**ACTION → Accelerate investments in electric generation, transmission, and distribution for reliability, safety, and storm resilience**

**STEPS TAKEN**

**NYPA program approved by its Board**

**ASSIGNED AGENCY**

**New York State Department of Public Service, New York Power Authority**

**PARTNERS**

**Investor-Owned Utilities**

**INITIATE**

**Early 2013**

**ESTIMATED COMPLETION DATE**

**By the end of 2017**

**ESTIMATED INVESTMENT POTENTIAL**

**\$800 million over five years**

**Introduction**

In the Blueprint, the Task Force encouraged the acceleration of cost-effective initiatives or projects to create near-term jobs and improve the electric generation, transmission, and delivery systems, suggesting DPS work within existing and new rate cases and other proceedings to help accelerate specific utility projects that would improve reliability and/or safety. The Task Force recommended that NYPA, with the consent of its Board of Trustees, consider accelerating spending in its 10-year capital plan and operations and maintenance budget over the next five years.

In late October, Superstorm Sandy impacted service to many downstate customers. The Governor appointed four Commissions to review utility preparation and performance and to develop actions to prepare for future events. The Commissions' recommendations are in line with, and expand upon, the identified acceleration of investments.

**Steps taken since Blueprint issuance**

As the initial implementation for electric utilities, the PSC issued an Order on March 15, 2013 (Case 12-E-0201) approving National Grid's electric rate plan, and will also address this initiative as part of the Con Edison (Case 13-E-0030) rate case and the Central Hudson-Fortis (Case 12-M-0192) merger case, both pending before the PSC.



**Replacement of older pipes reduces potential for leaks, improves safety, and leads to reduced emissions of methane, a contributor to global warming when it is leaked into the environment.**

NYPA has updated their budget plan to include increased investments in several infrastructure projects, with a primary emphasis on NYPA's aging transmission system. NYPA's Board of Trustees approved investments relating to the Transmission Life Extension and Modernization Project as part of this initiative. NYPA has initiated select projects and is on track with plans to move forward with accelerating \$300 million in electric generation and transmission investments over the next five years.

**Current Status**

On Schedule

**Path Forward**

In each upcoming rate case, and as other opportunities arise outside of rate cases, DPS will address the initiative. DPS will reassess the current stated scope of incremental utility capital spending in light of the recommendations from the recently appointed Commissions. NYPA will continue to implement this initiative with additional projects going forward.

**ACTION → Accelerate investments in natural gas distribution to reduce costs to customers and promote reliability, safety, and emission reductions**

STEPS TAKEN

**PSC Order issued concerning investments in natural gas**

ASSIGNED AGENCY

**New York State Department of Public Service**

PARTNER

**Investor-Owned Utilities**

INITIATE

**By the end of 2012, DPS to issue notice on natural gas expansion policies**

ESTIMATED COMPLETION DATE

**By the end of 2017**

ESTIMATED INVESTMENT POTENTIAL

**\$500 million over five years**

**Introduction**

The Task Force called for DPS to work with regulated natural gas utilities

managing the natural gas distribution system to identify and implement near-term investments in construction and repair to help reduce costs to consumers, enhance safety, improve reliability, and reduce emissions.

**Steps taken since Blueprint issuance**

The PSC issued an Order on November 30, 2012 (Case 12-G-0297) instituting a proceeding to examine policies regarding the expansion of natural gas service, and facilitated a technical conference on January 9, 2013. Written comments were received on March 12, 2013 from over 100 parties. DPS staff has convened a series of working group meetings, including one focusing on New York City and how expansion of the natural gas system can be coordinated with New York City's Clean Heat Program.

Additional acceleration of capital expenditures for gas (e.g. leak-prone pipe replacement) will be addressed in the context of rate cases and other proceedings. As the initial implementation for natural gas utilities, the PSC issued an Order on March 15, 2013 (Case 12-G-0202) approving National Grid's gas rate plan.

**Current Status**

On Schedule

**Path Forward**

DPS staff plans to continue work to address any identified barriers as well as issues surrounding natural gas vehicles and the use of compressed and liquefied natural gas in New York State. DPS staff will continue to address the acceleration of capital expenditures in pending or upcoming rate cases and as other opportunities arise. This initiative will initially be addressed as part of the Con Edison (Case 13-G-0031) rate case, the Central Hudson-Fortis (Case 12-M-0192) merger case, and the National Grid (Case 12-G-0544) earnings case, all of which are currently pending before the PSC.



**ESTIMATED INVESTMENT POTENTIAL**

**\$2.2 billion to \$2.7 billion**

**POTENTIAL CAPACITY INSTALLED**

**Up to 1,020 MW of renewable and repowered resources**

**EXPECTED BENEFITS**

**Reduce emissions; increase use of in-state clean resources**

# Support Clean Energy



The Energy Highway Blueprint called for the support of clean energy as an essential component to an environmentally sustainable future for New York State. While the restructured markets are geared towards delivering electricity at the lowest cost to consumers, the Task Force recognizes the need for the State to undertake additional measures to facilitate a more environmentally sustainable future within the restructured energy market. In the Energy Highway Blueprint, the Task Force called for action to continue New York's commitment to growing the renewable energy industry and improving environmental quality:



- Conduct a competitive solicitation for new renewable energy resources as part of the New York State Renewable Portfolio Standard (RPS)
- Initiate transmission upgrades in Northern New York and other areas as needed to help facilitate renewable energy development
- Characterize offshore wind resources
- Initiate process for repowering of inefficient power plants on Long Island
- Require utilities to evaluate repowering as an alternative to power plant retirements when the power plant is needed for reliability
- Establish a Community Support Plan and Greenhouse Gas Emissions Reduction Program in the electricity sector

**ACTION → Conduct a competitive solicitation for new renewable energy resources in New York as part of the State's Renewable Portfolio Standard**

**STEPS TAKEN**

**RFP issued under RPS program**

**ASSIGNED AGENCY**

**New York State Energy Research and Development Authority**

**PARTNERS**

**New York State Department of Public Service, Private Sector**

**INITIATE**

**By the end of 2012**

**ESTIMATED COMPLETION DATE**

**Announce awards by Summer 2013, new projects expected to be in-service by end of 2014**

**ESTIMATED INVESTMENT POTENTIAL**

**Up to \$675 million for 270 MW**

**Introduction**

As part of New York State's continued commitment to the development of renewable resources, the Energy Highway Task Force called for the issuance of a competitive solicitation, or Request for Proposals (RFP), for \$250 million, which is expected to leverage a total investment of \$675 million and result in approximately 270 MW of new renewable resources. Technologies eligible to participate in the RPS program include wind, hydroelectric, solar, biomass, and other clean-energy resources, and will not only help expand the State's renewable energy portfolio, but will assist the State in reducing its carbon footprint.

**Steps taken since Blueprint issuance**

The Request for Proposals (RFP) was finalized and was issued on December 20, 2012, and then reissued on January 4, 2013 to reflect the extension of the federal production tax credits. Application packages and provisional certification applications were received by January 28, 2013. Bid proposals were received on February 14, 2013.

**Current Status**

On Schedule



### **Path Forward**

Responses to the RFP will be evaluated based on expected economic benefits to the State and bid price. Awards are expected to be announced by Summer 2013.<sup>2</sup>

### **ACTION → Initiate transmission upgrades in Northern New York to help facilitate renewable energy development**

#### **STEPS TAKEN**

**Article VII permit filing in progress for transmission upgrades**

#### **ASSIGNED AGENCIES**

**New York Power Authority, New York State Energy Research and Development Authority**

#### **PARTNER**

**New York State Department of Public Service**

#### **INITIATE**

**By the end of 2012**

#### **ESTIMATED COMPLETION DATE**

**Ongoing; Pending the timely receipt of approvals, it is anticipated that the Moses-Willis upgrades can be completed by the end of 2013; If other upgrades are deemed cost-effective it is expected that design and construction could occur in the 2014–2015 time period**

#### **ESTIMATED INVESTMENT POTENTIAL**

**\$35 million**

### **Introduction**

In order to facilitate further development of upstate renewable energy projects, the Task Force recommended that cost-effective targeted investments in transmission infrastructure in Northern New York be undertaken to reduce bottlenecks affecting energy from renewable resources.

### **Steps taken since Blueprint issuance**

The NYISO's Growing Wind report identified up to four potential upgrades in transmission infrastructure owned by NYPA in the Clinton and Franklin

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2. NYSERDA filed a petition with the PSC on December 14, 2012 requesting a change to the RPS rules; NYSERDA will make awards under the current RFP only after a PSC determination on this petition is provided.

counties of Northern New York that would alleviate existing renewable energy bottlenecks. NYPA has begun preparations for upgrades on the Moses-Willis transmission line, and has filed an Article VII Amendment application. NYPA has conducted outreach efforts with local elected officials in Massena, NY. NYPA is currently drawing up plans to evaluate the cost-effectiveness of undertaking the remaining suggested upgrades.

**Current Status**

On Schedule

**Path Forward**

Pending all necessary approvals (including PSC approval) work on the Moses-Willis line is scheduled to start in the Fall of 2013. In addition to the Moses-Willis line upgrades, NYPA plans to evaluate the cost-effectiveness of the other projects identified in the NYISO study. This evaluation will be undertaken in the Fall of 2013 with design and construction activities following as needed.

**ACTION → Characterize offshore wind resources**

**STEPS TAKEN**

**Development of offshore wind study scope in progress**

**ASSIGNED AGENCY**

**New York State Energy Research and Development Authority**

**PARTNERS**

**New York State Department of Environmental Conservation, New York State Department of State, New York Power Authority, Long Island Power Authority, Private Sector**

**INITIATE**

**By the end of 2012**

**ESTIMATED COMPLETION DATE**

**Conduct studies in 2013 - 2014**

**ESTIMATED INVESTMENT POTENTIAL**

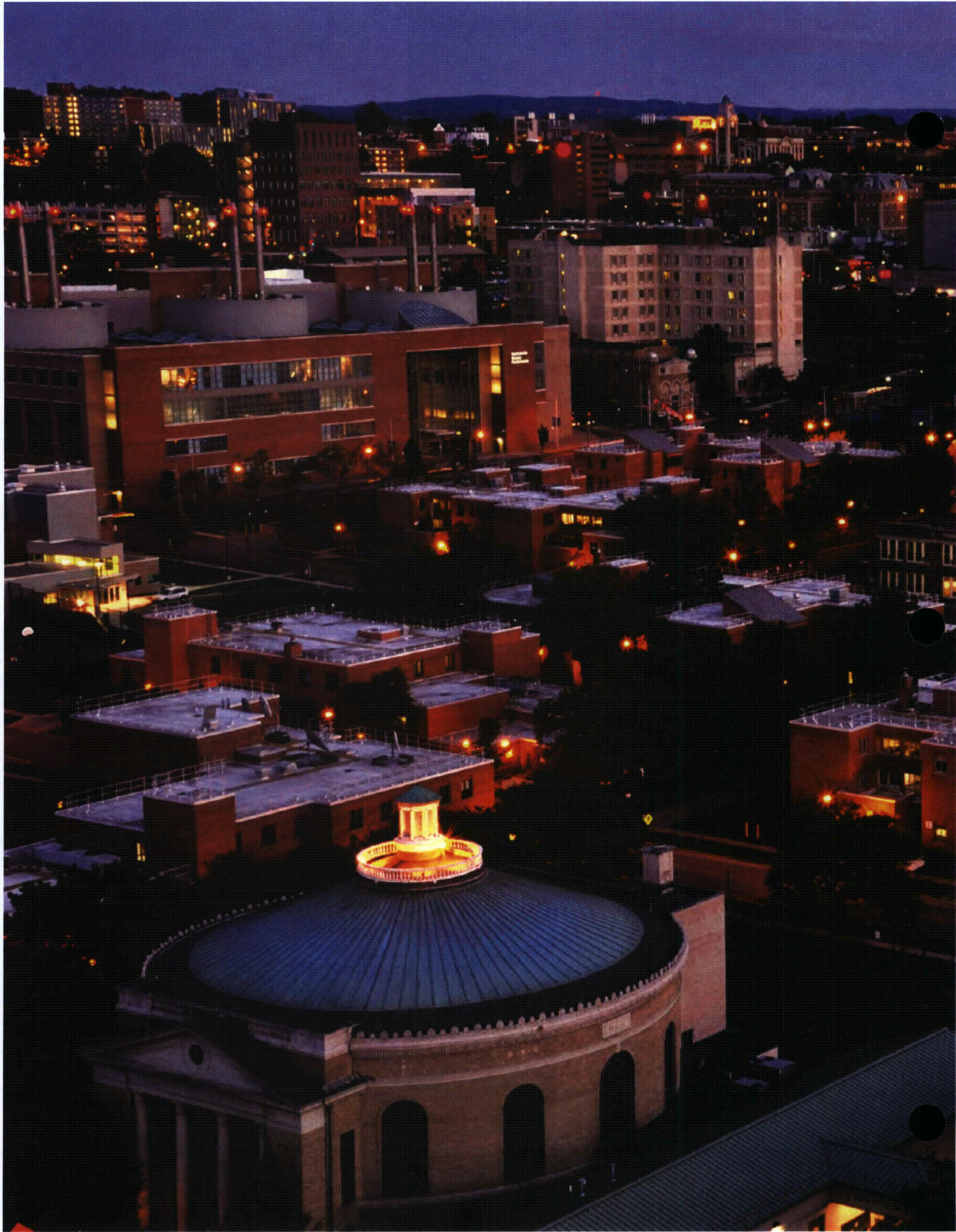
**\$2 million to \$5 million**

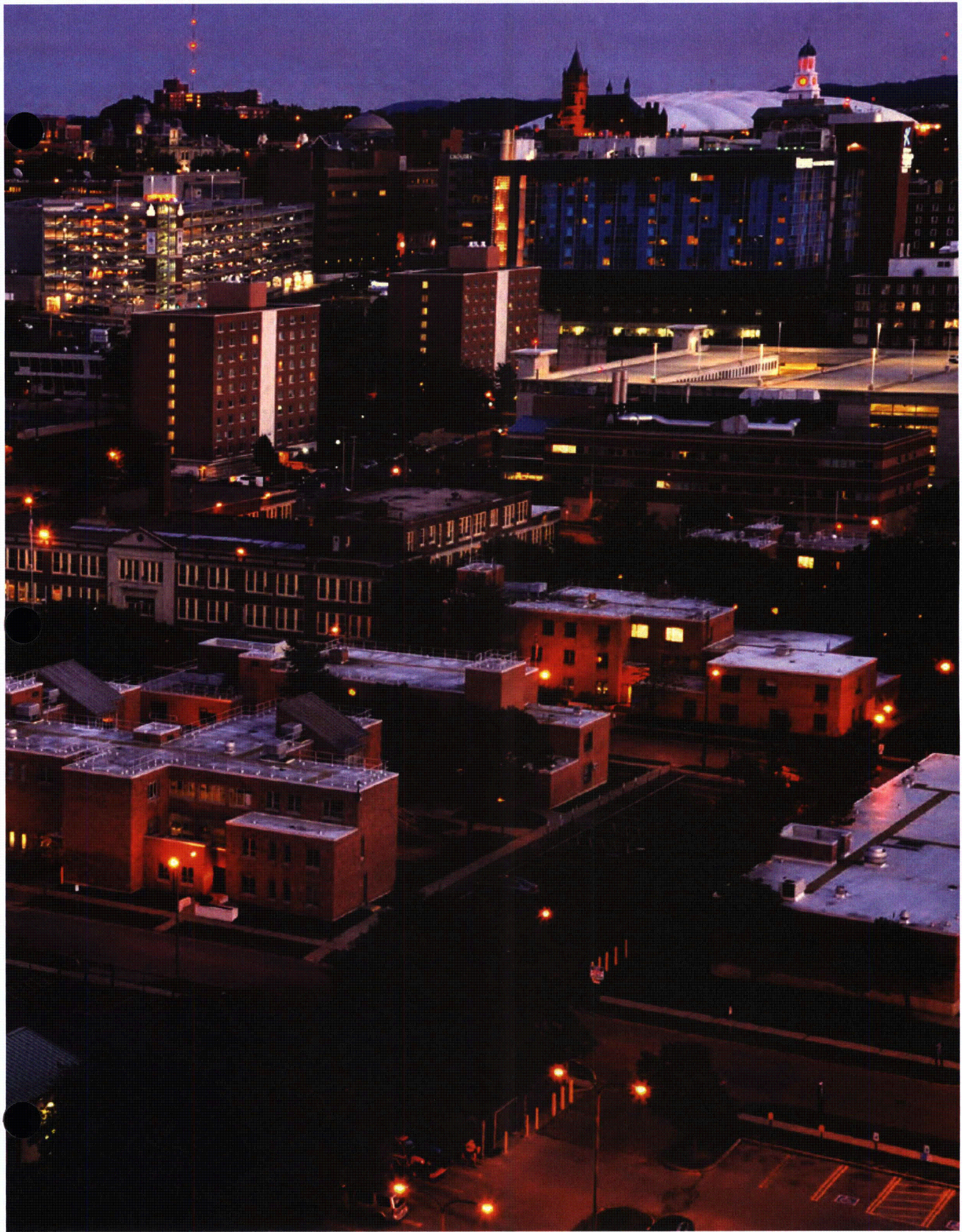
**Introduction**

In the Energy Highway Blueprint, the Task Force recommended building upon earlier preliminary site assessments of the offshore region bordering



**The Task Force  
recommended targeted  
investments in Northern  
New York to reduce  
bottlenecks affecting  
energy from renewable  
resources.**





New York and pursuing more targeted site assessments through field studies to gauge suitability for wind power, while assembling vital data for the successful development of projects along New York's Atlantic coast.

### **Steps taken since Blueprint issuance**

Meetings have been held between NYSERDA, New York State Department of State (DOS), and NYPA to discuss roles and responsibilities and to interface with federal government agencies involved with offshore wind. NYSERDA is working with DOS, DEC, NYPA, and DPS to develop a biological, environmental, meteorological, and geological research plan that is complementary with the United States Department of Interior's Bureau of Ocean Energy Management (BOEM)<sup>3</sup> requirements under the lease process underway for the New York-Long Island Wind project.

NYSERDA plans to hold workshops and meetings with stakeholders (State and Federal regulators, scientists, industry, and environmental groups) to facilitate collaborative agreement regarding wildlife issues relating to the orderly development of marine wind energy off New York's coast. NYSERDA is developing plans with the Biodiversity Research Institute to facilitate the coordination of wildlife issues.

### **Current Status**

On Schedule

### **Path Forward**

Federal agencies involved will be invited to meetings to discuss roles, responsibilities, and current projects, which will be essential to prevent duplication of effort and ensure wise use of funds. Uncertainties associated with the Federal sequestering may require adjustments in project schedule or approach. The Biodiversity Research Institute has identified steering committee members and other project participants for the biological research. NYSERDA, DOS, DEC, NYPA, and DPS will next 1) identify research into what physical characteristics (meteorological and geological) and human use (fishermen and recreational) would provide the least harmful impact, 2) determine how such research should be performed, 3) decide on jurisdiction/responsibility, and 4) accordingly contract to execute the plan.

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3. Siting and permitting of offshore wind energy resources in federal waters fall under the jurisdiction of the United States Department of Interior's Bureau of Ocean Energy Management (BOEM).

**ACTION → Initiate process for repowering of inefficient power plants on Long Island**

**STEPS TAKEN**

**LIPA Board approved Power Supply Agreement**

**ASSIGNED AGENCY**

**Long Island Power Authority**

**PARTNERS**

**Private Sector**

**INITIATE**

**Summer 2013, initiate the process and issue Request for Proposals working with National Grid Generation LLC**

**ESTIMATED COMPLETION DATE**

**One or more legacy power plants could be repowered by 2019 to 2020**

**ESTIMATED INVESTMENT POTENTIAL**

**\$1.5 billion to \$2 billion for approximately 750 MW of repowered generating capacity**

**Introduction**

As one of the Task Force's action items to further facilitate a more environmentally sustainable future in New York, this initiative recommended that LIPA, working in public-private partnership with National Grid, issue a Request for Proposals to initiate the repowering process for aging power plants on Long Island.

**Steps taken since Blueprint issuance**

In October, LIPA's Board of Trustees approved an amended 15-year power supply agreement with National Grid that would enable it to continue to meet the electricity needs of its customers. A key component of the agreement establishes procedures to perform an economic study on the feasibility of a potential repowering of the Port Jefferson, E.F Barrett (Island Park), and Northport steam plants, as well as the Barrett and Holtsville combustion turbine sites.

**Current Status**

On Schedule





**Path Forward**

The Power Supply Agreement is currently pending approvals from the New York State Comptroller and the New York State Attorney General. National Grid is expected to commence the Request for Proposals process for assessing the viability of repowering the E.F. Barrett and Port Jefferson steam plants following the commencement date of the Agreement.

**ACTION → Require utilities to evaluate repowering as an alternative solution for power plant retirements where the power plant is expected to be needed for reliability**

**STEPS TAKEN**

**PSC Order issued to evaluate repowering**

**ASSIGNED AGENCY**

**New York State Department of Public Service**

**PARTNERS**

**Investor-Owned Utilities, Private Sector**

**INITIATE**

**By the end of 2012**

**ESTIMATED COMPLETION DATE**

**Ongoing as power plant retirements are announced or identified**

**Introduction**

As part of the Energy Highway Blueprint, the Task Force recommended that DPS require electric utilities to perform analysis of pending or potential power plant retirements in cases where the plant is needed for reliability reasons, specifically focused on the opportunity to repower the subject plants as an alternative to closure or system upgrades.

**Steps taken since Blueprint issuance**

The PSC issued an Order on January 18, 2013 (Case 12-E-0577) requiring National Grid and NYSEG to conduct an analysis of repowering of Dunkirk and Cayuga facilities. On February 17, 2013, both utilities filed their projected costs of the transmission alternatives that they propose to implement, and solicited bids from the plant owners for the level of out-of-market support required to finance the repowering of their facility. Bid responses were received from the utilities on March 19, 2013.

## **Current Status**

On Schedule

## **Path Forward**

National Grid and NYSEG are expected to file their analysis and recommendations by May 2, 2013.

## **ACTION → Establish a Community Support Plan and Greenhouse Gas Emissions Reduction Program in the electricity sector**

### **STEPS TAKEN**

**RGGI states proposed emissions cap reduction**

### **ASSIGNED AGENCIES**

**New York State Department of Environmental Conservation, New York State Energy Research and Development Authority**

### **PARTNERS**

**New York State Department of Public Service, Empire State Development**

### **INITIATE**

**Early 2013**

### **ESTIMATED COMPLETION DATE**

**Ongoing, open programs for applications by 2014**

## **Introduction**

The Energy Highway Task Force recommended the development of plans to establish a Community Support Plan and a Greenhouse Gas Emissions Reduction Program to address the issue of community impacts from retiring power plants and encourage improvements in operating power plants.

## **Steps taken since Blueprint issuance**

Nine states, including New York, participate in the Regional Greenhouse Gas Initiative (RGGI) CO<sub>2</sub> cap and trade program. On February 7, 2013, the RGGI states proposed lowering the regional CO<sub>2</sub> emissions cap by 45 percent (a reduction of the 2014 regional RGGI cap from 165 million to 91 million tons). The cap would decline 2.5 percent each year from 2015 to 2020. Each RGGI state is expected to complete their state specific processes such that the proposed changes to the program would take effect on January 1, 2014. This reduction is expected to generate addi-

tional revenue for reinvestment, some of which could be available to fund the new programs recommended in the Blueprint to offset the adverse impacts of power plant retirements on host communities and to promote more efficient plant operation.

**Current Status**

On Schedule

**Path Forward**

Rulemaking is expected to complete by the end of 2013. Action from the New York State Legislature is needed to use RGGI auction proceeds to reimburse communities for lost local revenues.



**ESTIMATED INVESTMENT POTENTIAL**

**\$250 million**

**EXPECTED BENEFITS**

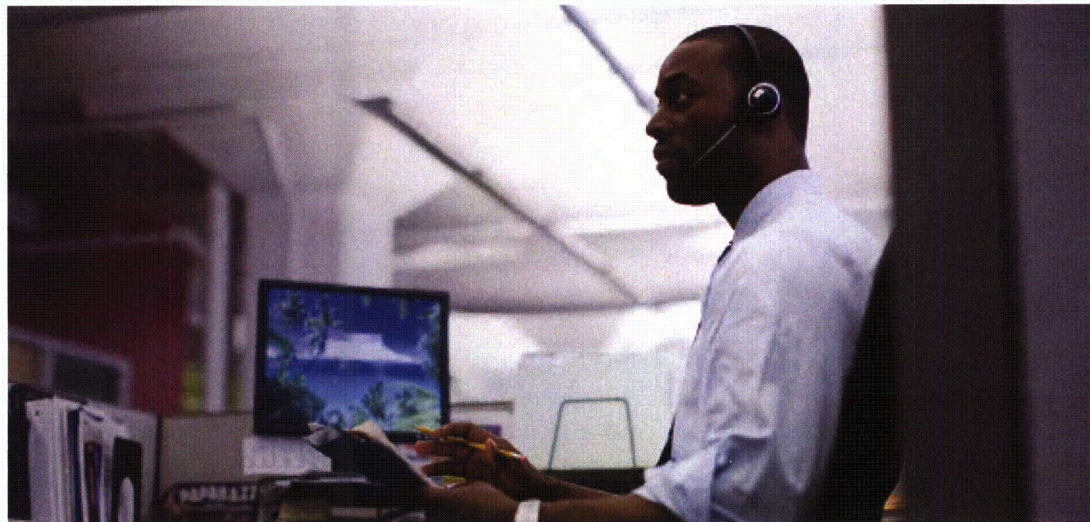
Reduce peak demand strains on the system; integrate intermittent resources, such as wind and solar; enable a smarter grid; improve system reliability and bulk power control capability

# Drive Technology Innovation



Advancements in Smart Grid technologies and other emerging tools for the energy system have the potential to transform the electric system by improving utility operations and providing consumers with the means to better manage their electricity use. The Energy Highway Blueprint works toward the goal of advancing the 21st century grid that best benefits system performance and operations. The Task Force recommended the following actions as part of the Blueprint:

- Fund Smart Grid demonstration projects
- Develop an Advanced Energy Management System Control Center and pursue federal energy research grants



**ACTION → Fund Smart Grid demonstration projects**

**STEPS TAKEN**

**Awarded funding for five projects and initiated solicitation process for additional Smart Grid projects**

**ASSIGNED AGENCY**

**New York State Energy Research and Development Authority**

**PARTNER**

**New York State Department of Public Service, Private Sector**

**INITIATE**

**Early 2013**

**ESTIMATED COMPLETION DATE**

**Ongoing**

**ESTIMATED INVESTMENT POTENTIAL**

**\$190 million**

**Introduction**

In the Energy Highway Blueprint, the Task Force recommended that the Smart Grid Technology and Market Development Program be leveraged to apply advanced technologies to further improve power flows throughout the system and contribute to a more environmentally sustainable power sector.

**Steps taken since Blueprint issuance**

Since the issuance of the Blueprint, NYSERDA awarded nearly \$2.6 million for five projects to support research and engineering studies, product development, and demonstration projects that improve the reliability, efficiency, quality, and overall performance of the electric power delivery system in New York State. Overall in 2012, NYSERDA awarded approximately \$9 million for 17 projects. In addition, the Federal Energy Regulatory Commission (FERC) approved New York State's proposal in the Constellation Energy settlement for \$20 million to be allocated to further Smart Grid demonstration. NYSERDA has met with stakeholders for input, with the objective to improve grid resiliency. NYSERDA worked with DPS and other stakeholders to develop a new round of solicitation(s) in support of Smart Grid R&D, focusing on projects that reinforce the reliability and performance of the bulk transmission system consistent with the Constellation Energy settlement with the FERC.

**Current Status**

On Schedule

**Path Forward**

NYSERDA anticipates issuing a new solicitation in April 2013, with tentative proposal due dates in May and October of 2013.

**ACTION → Develop an Advanced Energy Management System Control Center and pursue federal energy research grants**

**STEPS TAKEN**

**Control center scoping in progress**

**ASSIGNED AGENCIES**

**New York State Energy Research and Development Authority, New York Power Authority**

**PARTNERS**

**New York Independent System Operator, New York State Smart Grid Consortium, United States Department of Energy, Investor-Owned Utilities, Academia, Private Sector**

**INITIATE**

**Early 2013**

**ESTIMATED COMPLETION DATE**

**Ongoing**

**ESTIMATED INVESTMENT POTENTIAL**

**\$60 million, to be leveraged by additional private-sector investments**

**Introduction**

The Task Force recommended that New York State develop an Advanced Energy Management System Control R&D Center and a Smart Energy Utility application program targeted at system operation, including the design and verification of new equipment for use in various power system applications and promoting collaborative development and testing of new technology applications that provide real time data for system applications. The Task Force further recommended the pursuit of federal energy research grants.



**The goal of this large-scale federal research collaborative is to develop technologies to improve operations, reliability, security, and New York State's environmental footprint.**



**Steps taken since Blueprint issuance**

Initial planning is underway for the Advanced Energy Management System Control R&D Center in collaboration with the Electric Power Research Institute (EPRI). Stakeholders in academia and industry have been identified and contacted to complete a thorough benchmarking effort and incorporate any lessons learned into the overall approach for moving forward.

Since 2009, DOE has invested in various Energy Innovation Hubs with funding typically up to \$120 million over five years. These hubs focused on areas of research ranging from energy efficient building systems to the most recent advanced battery and energy storage hub which was awarded to Argonne National Lab. Due to recent federal funding uncertainty, it is unclear if DOE will pursue additional energy hubs at this time.

**Current Status**

On Schedule

**Path Forward**

A high-level technical plan was completed in the first quarter of 2013 that defined the approach and scope for the laboratory. Benchmarking efforts for the Advanced Energy Management System Control Center are close to complete, with plans for a lessons learned document to be issued in the second quarter of 2013. In the coming months, NYPA and NYSERDA will work to determine the Center's space requirements, including outdoor space, indoor lab space, office space, and electrical and telecommunication requirements, as well as develop operating requirements and identify staffing needs for the Center. NYSERDA will continue to monitor DOE and other federal programs for new energy research grant opportunities, and evaluate alternatives for its portion of the designated funding.

# Policy Recommendation Update

The Task Force included a number of policy recommendations in the Blueprint to further advance New York's leadership in the energy industry. In many cases, initial steps have been taken to advance these policy recommendations.

In November 2012, Governor Cuomo convened three Commissions—New York State Ready, Respond, and 2100—to evaluate opportunities to improve emergency preparedness, response, and infrastructure. These Commissions reported their findings to the Governor in early January and made several recommendations consistent with the Energy Highway Blueprint, including:

- Further workforce development and training for the energy industry (NYS 2100)
- Support energy efficiency and demand-side management (NYS 2100)



- Advance renewable energy development including solar distributed generation (NYS 2100)
- Quantify the benefits associated with natural disaster mitigation in Smart Grid investments in cost-effectiveness analyses (NYS 2100)

In addition to the work of the Commissions, additional steps have been taken to advance the policy recommendations. NYSERDA and DPS are finalizing plans to conduct a comprehensive evaluation of the Renewable Portfolio Standard (RPS) program in 2013 that will consider the continuation of New York's commitment to renewable energy beyond 2015, the current policy achievement year of the RPS. NYSERDA will also be conducting an assessment of the market structure as well as the policy and cost recovery mechanisms necessary to support offshore wind.

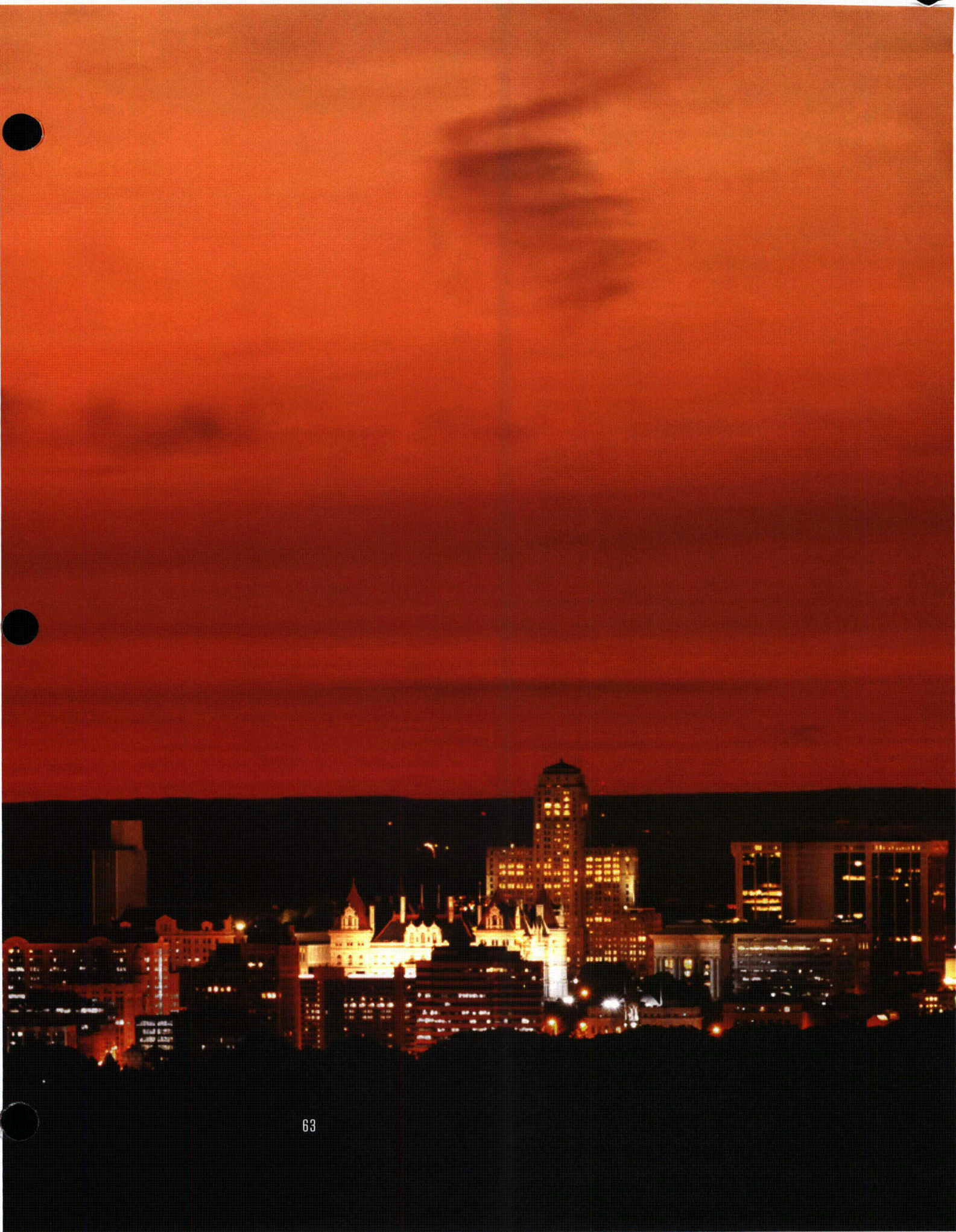
The DPS has been reviewing capital expenditure programs for cost-effective Smart Grid technologies in various forums, including quarterly capital project meetings and rate case analysis. DPS has been working with the Investor-Owned Utilities to identify potential storm hardening projects which include various automation technologies. NYPA and NYSERDA have begun working with Investor-Owned Utilities, labor organizations, and educational institutions to support workforce development in the energy industry as recommended in the Blueprint.



# Next Steps

Following this update to the Blueprint, the Task Force will disband to allow each agency to focus on its areas of responsibility. Actions will continue to be implemented by the assigned agencies. Each responsible entity should provide periodic status reports to the Governor's Office until its actions are complete.

Information on the individual actions will be available on the websites of the designated Partners for each recommendation in the Blueprint. In addition, the Energy Highway website ([www.NYEnergyHighway.com](http://www.NYEnergyHighway.com)) will maintain general information on the initiative and direct interested parties to the appropriate locations for further information on recent activities.



**PHOTOGRAPHY  
CREDITS**

**Front Cover**

Interior of Center for Computational Research at Norton Hall on North Campus, University at Buffalo, Amherst (University at Buffalo Center for Computational Research)

**Inside Front Cover**

Linemen installing a new instrument transformer for switchyard improvements (New York Power Authority)

**Page 6**

Two engineers review plans (iStock courtesy of New York State Energy Research and Development Authority)

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Installation of solar panels at University at Buffalo, Amherst (New York Power Authority)

**Page 14**

Workers assembling the Heat Recovery Steam Generators (HRSGs) during construction of the New York Power Authority's 500-MW Combined-Cycle Power Plant, Astoria (New York Power Authority)

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Night scene, Main Street, Buffalo.  
Photographer: Nathan Mroz (Buffalo Scenic Prints)

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Switchyard equipment (New York Power Authority)

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Journeyman Lineman working on the installation of a Motor Operated Disconnect (MOD) Switch, Marcy Substation (New York Power Authority)

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An engineer walks past one of the two new natural gas-powered turbines at Cornell University's Combined Heat and Power Plant (Cornell Labs)

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Workers setting up the forms for the turbine foundation of the turbine building during construction of the New York Power Authority's 500-MW Combined-Cycle Power Plant, Astoria (New York Power Authority)

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Journeyman Electrician performs maintenance to power project control system (New York Power Authority)



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Engineer at wind farm. Photographer: Dave & Les Jacobs (Getty Images)

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80-kilowatt solar photovoltaic installation on a school building roof at Casey Middle School, East Amherst (New York Power Authority)

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Syracuse at night (New York Power Authority)

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Solar and wind power demonstration projects at New York Power Authority's Blenheim-Gilboa Visitors Center (New York Power Authority)

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Cold Containment Pod, Turnkey Internet, Latham, (Turnkey Internet courtesy of New York State Energy Research and Development Authority)

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Office worker. Photographer: Todd Warnock (Getty Images)

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Front entry, Experimental Media and Performing Arts Center-Rensselaer Polytechnic Institute, Troy (Rensselaer Polytechnic Institute courtesy of New York State Energy Research and Development Authority)

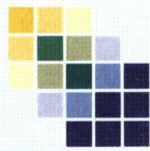
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Albany skyline (New York Power Authority)

**Page 64 – Inside Back Cover**

Rochester at night (New York Power Authority)





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ENERGY HIGHWAY**  
*The time for powerful ideas*



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# African American Environmentalist Association

## Fish Eggs Versus Asthmatic Children In Harlem

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In the Matter of a Renewal and Modification of a State  
Pollutant Discharge Elimination System ("SPDES") Permit  
Pursuant to Article 17 of the Environmental Conservation Law  
And Title 6 of the Official Compilation of Codes, Rules and  
Regulations of the State of New York Parts 704 and 750 *et seq.*  
by Entergy Nuclear Indian Point 2, LLC and Entergy  
Nuclear Indian Point 3, LLC, Permittee,

DEC #3-5522-00011/00004  
SPDES #NY-0004472

and,

In the Matter of the Application by Entergy Nuclear Indian  
Point 2, LLC and Entergy Nuclear Indian Point 3, LLC, and  
Entergy Nuclear Operations Inc., for a Certificate Pursuant  
to Section 401 of the Federal Clean Water Act

DEC #3-5522-00011/00030  
DEC #3-5522-00011/00031

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## EXECUTIVE SUMMARY

The African American Environmentalist Association (AAEA) opposes the Department of Environmental Conservation's (DEC) recommendations to install closed cycled cooling towers and summer outages for the Indian Point 2 and 3 facilities. To the extent the permit seeks to limit or otherwise inhibit power production by Indian Point 2 and 3, our contention is that it represents an environmental injustice and favors fish eggs over human health and welfare..

The fundamental issue AAEA will prove is that if the New York DEC requires the Indian Point Energy Center (IPEC) to install cooling towers or shut down during summer months, then Entergy will shut down the facility and asthmatics in vulnerable communities will suffer additional hospitalizations and deaths. These increases in illness and mortality will happen because fossil fuel replacement power in the Hudson Valley Area (HVA) by its very nature will increase emissions and a large percentage of attempted replacement electricity generating capacity could be located in these same vulnerable communities.

The wedgewire screen proposal is the best technology available (BTA) to achieve the goals of the Clean Water Act. This is also a retrofit that the facility owner is perfectly willing to implement. To require the facility owner to implement shutdown scenario recommendations represent an environmental injustice. The injustice is that vulnerable communities will be heavily impacted by the removal of 2,000 megawatts (MW) of emission free electricity from the New York grid.

AAEA is concerned about losing the 2,000 megawatts of emission free electricity that is provided by IPEC. Entergy closed its Vermont Yankee plant after winning all legal and regulatory battles because of negative market forces. AAEA is concerned that the same market forces could ultimately lead to the closure of IPEC. DEC should be encouraging IPEC to continue to operate this environmentally beneficial facility. AAEA is baffled by any action that might close a facility that does not contribute to nonattainment under the Clean Air Act.

## Introduction

AAEA intends to show that cooling tower and closure requirements will represent a disproportionate impact on vulnerable communities. We will identify plants that could attempt to repower or provide replacement power to replace a closure of IPEC and we will identify the sources of negative impacts on air quality. The Administrative Law Judge (ALJ) and the DEC Commissioner clearly set forth the parameters of our inquiry:

The ALJ granted AAEA's petition for full party status and consolidated AAEA's three issues into one: "whether the draft SPDES permit has considered adequately the impacts on air quality if a closed-cycle cooling system is installed at the Stations."

AAEA has raised an issue with respect to potential negative impacts on air quality in environmental justice communities that is adjudicable in the SEQRA portion of the hearing. These impacts relate to circumstances when, pursuant to the conditions in the draft SPDES permit, the Stations will be offline or will be required to reduce their generating capacity. Accordingly, AAEA shall have full party status in this proceeding.

In addressing this issue in the adjudicatory proceeding, generalized and nonspecific arguments will not be sufficient. AAEA should present evidence regarding air quality impacts on specific environmental justice communities, and should address the extent to which such impacts on those communities are disproportionate. In support of its contentions, AAEA should identify those power plants that would be expected to provide replacement energy during offline or reduced generation periods and that would be the sources of negative impacts on air quality. AAEA should also identify the specific air pollutants of concern.<sup>1</sup>

In essence, it is fish eggs versus asthmatic children in Harlem. Of course, Harlem is not the only vulnerable community that will be impacted by the closure of IPEC. Communities in the Bronx, Brooklyn and Queens will also be heavily impacted by the closure of IPEC.

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<sup>1</sup> NY DEC, Interim Decision of the Assistant Commissioner, August 13, 2008, p. 46.

Our assessment that IPEC will close before it implements closed cooling retrofits or close during summer months is not based on speculation, but on Entergy's closure of Vermont Yankee even though it prevailed on all regulatory, environmental, legal and legislative challenges. The same could happen at IPEC. Thus, DEC should be supportive of IPEC instead of inadvertently supporting shutdown through its unreasonable demands.

### The DEC Should Not Put the Interests of Fish Eggs Over People

Our analysis will show that closing IPEC, particularly during summer months, or for construction of cooling towers, will lead directly to at least one or more asthma deaths and significant additional suffering from asthma attacks in vulnerable communities. This is an unintended consequence of the DEC's position on recommending cooling towers. Moreover, the fact that DEC did not examine this environmental justice area in making this recommendation is unfortunate. Fortunately, DEC can amend its oversight by accepting the status quo of Ristroph Screens or wedgewire screens as the best technologies to protect fish in the Hudson River.

The Indian Point 2 and 3 facilities, located in the affluent and predominantly white Westchester County, have a combined generating capacity of 2,000 MW. The facilities provide approximately 20-30% of the electricity for New York City and its northern suburbs. And, unlike New York's fossil-fuel burning facilities, Indian Point 2 and 3 do not pollute the air.

How many African American children should suffer from asthma in order to marginally improve the level of fish egg mortality in the Hudson River? A somber calculation, indeed, but one the DEC refused to explore, but has put the onus on AAEEA to represent vulnerable populations.

AAEEA is committed to protecting the environment and supports DEC's efforts to preserve the rich habitat of the Hudson River – but to implement

policies to protect the River without even considering the serious health effects that shutting down Indian Point or limiting Indian Point's production will have on low-income and minority communities in New York amounts to nothing more than disregarding environmental justice issues.

AAEA believes the refusal to accept environmental justice considerations in this adjudication represents implicit bias. The DEC is working to overcome this sort of bias by including AAEA in the adjudication, establishing an environmental justice policy for the agency and in establishing an Office of Environmental Justice. Riverkeeper, et al, has objected to AAEA's participation in this adjudication and does not appear to take the environmental justice issue in this case seriously. Recently, counsel for Riverkeeper suggested that these issues could and should be discussed, dismissed and AAEA had no need to participate in the adjudication. A more in-depth description of implicit bias is warranted:

### **Defining Implicit Bias**

Also known as implicit social cognition, implicit bias refers to the attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner. These biases, which encompass both favorable and unfavorable assessments, are activated involuntarily and without an individual's awareness or intentional control. Residing deep in the subconscious, these biases are different from known biases that individuals may choose to conceal for the purposes of social and/or political correctness. Rather, implicit biases are not accessible through introspection.

The implicit associations we harbor in our subconscious cause us to have feelings and attitudes about other people based on characteristics such as race, ethnicity, age, and appearance. These associations develop over the course of a lifetime beginning at a very early age through exposure to direct and indirect messages. In addition to early life experiences, the media and news programming are often-cited origins of implicit associations.

### **A Few Key Characteristics of Implicit Biases**

- Implicit biases are **pervasive**. Everyone possesses them, even people with avowed commitments to impartiality such as judges.

- Implicit and explicit biases are **related but distinct mental constructs**. They are not mutually exclusive and may even reinforce each other.
- The implicit associations we hold **do not necessarily align with our declared beliefs** or even reflect stances we would explicitly endorse.
- We generally tend to hold implicit biases that **favor our own ingroup**, though research has shown that we can still hold implicit biases against our ingroup.
- Implicit biases are **malleable**. Our brains are incredibly complex, and the implicit associations that we have formed can be gradually unlearned through a variety of debiasing techniques.

It is our opinion that this implicit bias will not relegate the AAEA position to one of not being important or perceived as being illegitimate. We believe that 'adverse environmental impacts,' in relation to clean water regulations, will include serious consideration of an unintended consequence: hurting asthmatic children in Harlem in an effort to protect fish eggs.

DEC Policy Statement CP-29: Environmental Justice and Permitting

The DEC expressed its commitment to environmental justice in DEC Commissioner Policy (CP)-29: Environmental Justice and Permitting, issued on March 19, 2003. In Policy Statement CP-29, DEC stated:

It is the general policy of DEC to promote environmental justice and incorporate measures for achieving environmental justice into its programs, policies, regulations, legislative proposals and activities. This policy is specifically intended to ensure that DEC's *environmental permit process promotes environmental justice.*<sup>2</sup>

AAEA is concerned that the DEC has not only placed the onus on us to do the work it should have conducted in the Final Environmental Impact Statement (FEIS) and in the Draft SPDES permit, but it appears that the agency has a reluctance to embrace its own environmental policy. In the August 13, 2008 Interim Decision of the Assistant Commissioner, DEC stated:

To the extent that AAEA is relying on Commissioner's Policy 29 (Environmental Justice and Permitting) ("CP-29"), that reliance is misplaced. CP-29 applies to permit applications received after its effective date, and in this instance, the SPDES permit application was received years prior to the effective date of CP-29. Notwithstanding the foregoing, an environmental justice issue that is raised by a party that is entitled to party status and meets the standard for an adjudicable issue (see 6 NYCRR 624.4[c] & 624.5[d]) may be considered.<sup>3</sup>

Although we are not 'relying' on CP-29 to make our case, it is our hope that the DEC will respect the spirit of the policy. We also hope that DEC appreciates the fact that we are doing our best to provide the information that DEC should have produced itself via its environmental justice office.

We are partially relying on the DEC definition and description of vulnerable communities, what they describe as Potential Environmental Justice Areas (PEJA):

As established in DEC Commissioner Policy 29 on Environmental Justice and Permitting (CP-29), Potential EJ Areas are 2000 U.S. Census block groups of 250 to 500 households each that, in the 2000 Census, had populations that met or exceeded at least one of the following statistical thresholds:

1. At least 51.1% of the population in an urban area reported themselves to be members of minority groups; or
2. At least 33.8% of the population in a rural area reported themselves to be members of minority groups; or
3. At least 23.59% of the population in an urban or rural area had household incomes below the federal poverty level.

Urban and rural designations for census block groups were established by the U.S. Census Bureau.<sup>4</sup>

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<sup>2</sup> DEC Policy Statement CP-29: Environmental Justice and Permitting, issued on March 19, 2003

<sup>3</sup> NY DEC, Interim Decision of the Assistant Commissioner, August 13, 2008, p. 44.



### Selected Tower Type

The type of cooling tower that is recommended is irrelevant because Entergy is not going to retrofit the facility with any type of cooling tower. It will close down if required to retrofit IPEC with any type of closed loop cooling system. We also disagree with Entergy that such a retrofit is feasible. Moreover, the DEC completely failed to consider environmental justice issues in proposing closed-loop cooling as a best technology available (BTA) for the purposes of meeting the requirements of the SPDES permit and water quality certification.

Specifically, nowhere in the FEIS or the Draft SPDES permit does the DEC recognize these critical environmental justice issues. For instance, in the FEIS, the DEC finds that closed-cycle cooling is the BTA to minimize adverse environmental impacts at the Indian Point 2 and 3 stations, even when weighed against the need to minimize or avoid “other impacts ‘... to the maximum extent practicable ...’ to satisfy SEQRA as well as CWA § 316(b).” But nowhere in its discussion of these “other impacts” is there any acknowledgement by the DEC of the air impacts its water quality decision will have on minority communities. This omission is egregious, particularly in light of the DEC’s numerous environmental justice policy pronouncements.

### Construction Outages

AAEA understands that, under conservative estimates, it would take approximately 10 months of Indian Point 2 and 3 being offline for a closed-cycle cooling system to be installed. AAEA further understands that the costs of installing cooling towers are sufficiently prohibitive so that Indian Point 2 and 3’s owners may elect to shut down the plants rather than invest in the retrofit. Either way, the results will be devastating in terms of the pollution-related health effects when New York’s non-clean burning plants scramble to replace the power lost by

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<sup>4</sup> <http://www.dec.ny.gov/public/899.html>

Indian Point 2 and 3. And since most of these plants are in African American and minority communities, the bulk of the adverse health effects – including asthma and other respiratory diseases, cardiovascular disorders, and even infant mortality – will be borne by these communities. For this reason, AAEEA objects to any provision of the SPDES Permit for Indian Point 2 and 3 that imposes any significant limit on the facilities' ability to generate clean-burning electricity

### Summer Outages

We strongly object to the DEC Staff's and Riverkeeper's recommendation to use summer outages as the site-specific best technology available for the Indian Point Energy Center. The summer outage proposal was not raised as an issue for adjudication because DEC rejected it as a BTA for Indian Point. The DEC also did not raise the summer outage issue in its draft WQC denial because closed cycle cooling was the only BTA being considered.

The summer outage recommendation, like the cooling tower recommendation, violates all of the environmental justice considerations related to adverse environmental impacts we presented at the issues conference. We strongly recommend that the summer outage recommendation should not be included in the adjudication. Again, if it is considered and approved, it is a shut down scenario for IPEC.

Any requirement that reduces electricity generation by Indian Point 2 and 3, whether by requiring the units to be taken offline for several months or causing the facility to close, undoubtedly will shift electricity generation to other existing facilities in the Westchester and New York City region. These other facilities are fossil-fuel facilities in or near minority communities, with the result that increasing generation at these plants may increase air pollution in communities particularly at risk from fossil-fuel emissions. The New York City region is already a nonattainment area for ozone. DEC should not directly cause any situation that

would increase smog formation in this region. AAEA asks that the DEC not compromise the health of New York's minority and low-income citizens to obtain what appear to be marginal benefits to fish eggs and larva in what has been characterized as the thriving fish population of the Hudson River.

The DEC's failure to consider and appropriately account for adverse air quality and related impacts, including the serious impacts to the health of citizens in minority communities, is a major oversight in permitting process.

### Environmental Benefits

Indian Point and James A. Fitzpatrick (JAF) emit virtually no greenhouse gases, such as carbon dioxide (CO<sub>2</sub>), the gas that has been linked to global warming. Emissions of sulfur dioxide (SO<sub>2</sub>) lead to the formation of acid rain. Nitrogen oxide (NO<sub>x</sub>) is a key precursor of both ground level ozone and smog. During 2010, environmental emissions avoided due to nuclear power plant operation in New York included 28,000 tons of sulfur dioxide, 15,000 short tons of nitrogen oxide, and 24 million metric tons of carbon dioxide. Based on Indian Point's and Fitzpatrick's 2010 generation output, these units were collectively responsible for over 54% of the avoided environmental emissions attributed to nuclear plants operations in New York (JAF 15.2%, Indian Point 39%).<sup>5</sup>

These environmental benefits alone should be cause enough to not threaten the operation of IPEC in any way. These environmental benefits are also advantageous for PEJAs. Environmental justice areas do not get much good news in terms of facility siting and exposure to a disproportionate number of pollution sites. IPEC is an asset against such disproportionate impacts. Will the DEC continue to ignore environmental justice considerations, or will it act appropriately to value human health and well being over questionable benefits to

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<sup>5</sup> Entergy Power Marketing, LLC, Response to the New York Energy Highway, Request for Information, p.4, <http://www.nyenergyhighway.com/Content/documents/125.pdf>

fish eggs and larvae.

Air Emissions Impacts

According to Charles River Associates (CRA), if IPEC is closed, it will lead to an incremental increases of nitrogen oxide emissions of 15% if no new generation is installed to replace IPEC, by 9% if a combined cycle plant is constructed in the Lower Hudson Valley, by 8% if a combined cycle plant is constructed in New York City and by 5% if a low carbon facility is constructed. Table 1 shows the air impacts in New York City if IPEC is closed.<sup>6</sup>

Table 1 New York City Incremental Air Emissions Impact<sup>7</sup>

Facility Type	Year	2016	2017	2018	2019	2021	2023	2025	2027	2030
No New Generation	NOx	10%	10%	11%	10%	11%	12%	12%	11%	10%
	SOx	1%	1%	4%	3%	7%	6%	5%	8%	8%
	CO2	13%	13%	12%	12%	12%	13%	13%	12%	10%
Conv. Thermal LHV CC Only	NOx	9%	9%	9%	8%	9%	10%	10%	9%	8%
	SOx	0%	0%	2%	1%	4%	4%	4%	6%	6%
	CO2	14%	14%	13%	13%	13%	14%	14%	12%	11%
Conv. Thermal-CCs in LHV & NYC	NOx	7	8	8	7	8	8	8	8	7
	SOx	0%	0%	2%	2%	3%	3%	4%	5%	5%
	CO2	15%	15%	14%	14%	14%	14%	14%	13%	11%
Low Carbon	NOx	5%	4%	5%	5%	6%	6%	6%	6%	5%
	SO2	0%	-1%	2%	-1%	4%	1%	5%	1%	2%
	CO2	7%	7%	6%	6%	7%	7%	7%	7%	5%

<sup>6</sup> Charles River Associates, Indian Point Energy Center Retirement Analysis, Prepared for New York Department of Environmental Protection, August 2, 2011, p. 27

<sup>7</sup> Id.

## Replacement Power

The electric utilities and load serving entities in New York City are required to meet 80 percent of their peak load requirement with local generation. The New York State Reliability Council (NYSRC) has determined that an Installed Reserve Margin (IRM) of 16% in excess of the NYCA summer peak demand forecast for the Capability Year 2012-13 is required to meet the Northeast Power Coordinating Council (NPCC) and NYSRC resource adequacy criterion. The IRM is established annually by the NYSRC and is subject to state and federal regulatory approval.<sup>8</sup>

AAEA members live and work – and breathe the air –from the Poletti, Astoria and various other New York Power Authority power plants and generators in the New York City area. AAEA is deeply concerned with any policy or measure that impacts the air quality of the communities in which it is based, or which affects the health of its members, the general public and vulnerable communities.

Because nuclear power is emission-free and has a demonstrated safety record, whereas fossil-fuel power contributes to numerous health issues, AAEA also seeks to promote the safe use of nuclear power. AAEA specifically supports the Indian Point 2 and 3 nuclear power facilities because these facilities provide significant electrical capacity to the State of New York and New York City with minimal human, animal, air, water, and land impacts.

According to a report by the Manhattan Institute entitled, "The Economic Impacts of Closing and Replacing the Indian Point Energy Center, "not only would it be very expensive, it will also be very painful:

New York's electric system is highly complex, and IPEC is a critical component of that system. Not only does IPEC provide 30 percent

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<sup>8</sup> NYISO Gold Book 2012, p 6.  
[http://www.nyiso.com/public/webdocs/markets\\_operations/services/planning/Documents\\_and\\_Resources/Planning\\_Data\\_and\\_Reference\\_Docs/Data\\_and\\_Reference\\_Docs/2012\\_GoldBook\\_V3.pdf](http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planning_Data_and_Reference_Docs/Data_and_Reference_Docs/2012_GoldBook_V3.pdf)

of New York City's electricity; it helps ensure that the system operates safely and reliably.

If the plant is to be closed, New York must have alternative resources in place by the time IPEC-3's operating license expires in 2015. Doing nothing to replace IPEC would result in all New York electricity consumers—not just those in southeastern New York and New York City—spending over \$30 billion more for electricity over the subsequent 15 years. It would also increase chances of blackouts, causing the state's system to violate its own standards for reliability.

All alternatives for replacing IPEC are limited and costly. Each comes with its own set of challenges and trade-offs. But each will result in higher electric prices for everyone in New York State. Those higher electric prices will have adverse impacts on the state's economy, resulting in the loss of thousands of jobs. Moreover, the alternatives—whether building new gas-fired generating plants or new transmission lines to bring in power from upstate New York and beyond—would all face major siting and infrastructure issues, as well as opposition from various constituencies.<sup>9</sup>

In the Riverkeeper commissioned report by Synapse, entitled, "Indian Point Energy Center Nuclear Plant Retirement Analysis," one key finding supports our contention that new or replacement electricity capacity will be located in current locations:

There is substantial potential for existing, older natural gas plants in New York City to be repowered or replaced with new efficient combined cycle power plants on the same site. If necessary, new, efficient natural gas combined cycle facilities could also play a role in replacing Indian Point capacity, and would be particularly helpful in providing dispatchable generation and voltage support in the Indian Point region.<sup>10</sup>

These locations are largely in Potential Environmental Justice Areas. Whether repowered or replaced, these facilities will have to increase production to make up for the IPEC capacity. There is also no guarantee these facilities will be

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<sup>9</sup> [http://www.manhattan-institute.org/html/eper\\_11.htm](http://www.manhattan-institute.org/html/eper_11.htm)

<sup>10</sup> <http://www.riverkeeper.org/wp-content/uploads/2011/10/Synapse-Report-Energy-alternatives-to-Indian-Point-10-17-11.pdf>

combined cycle. Utilities appear to favor regular combustion turbines because not many combined cycle facilities are being constructed.

What happens if Entergy decides to close the James A. Fitzpatrick (JAF) generating station? This would neutralize any planned increase in transmission from upstate to downstate. The James A. Fitzpatrick nuclear power plant is a single unit boiling water reactor site. JAF generates 838 MW of virtually carbon free, baseload electricity.<sup>11</sup> Such closer is highly likely considering Entergy's decision to close Vermont Yankee because of negative market conditions.

Of course, Con Ed says it does not need electricity from Indian Point. In 2009, Liberty Consulting Group conducted a comprehensive management audit of Con Edison for the New York Public Service Commission. The audit concluded that: "[Con Edison] has noted that a capacity surplus of about 1,000 MW currently exists in the city. In addition to this "capacity" surplus, the audit explained that Con Edison's management had decided against extending a contract to purchase power from Entergy's Indian Point power plant.<sup>12</sup> Our research indicates that ConEd's purchase of IPEC power is elusive. It appears to be a moving target. Regardless, 2,000 MW of IPEC electrons have to be a comforting insurance policy for ConEd.

Conversely, The Business Council of Westchester, in its report, "An Assessment of Energy Needs In Westchester County," concluded the following if Indian Point were shut down:

- Electricity rates would increase by 6.3 percent or more, with consumers paying an additional \$374 million per year for power.
- By 2020, the probability of power outages would increase by 280 percent.
- Carbon emissions would increase by more than six million tons annually, which is the equivalent of adding 1 million more vehicles.

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<sup>11</sup> Entergy Power Marketing, LLC, Response to the New York Energy Highway, Request for Information, p.2, <http://www.nyenergyhighway.com/Content/documents/125.pdf>

<sup>12</sup> Forbes, 7/08/2011. <http://www.forbes.com/sites/williampentland/2011/07/08/indian-point-pumps-nuclear-nonsense-into-new-york-city/>

- Westchester County would lose more than 3,300 jobs — many of them high-paying — representing over \$200 million per year in lost wages.
- Westchester County would lose \$75 million per year in property taxes and revenue sharing with the state.
- Contributions to local charitable organizations would decline by \$2 million annually.
- The downstate regional economy would be drained by some \$11.5 billion (inflation adjusted).

According to the report, Con Ed's IPEC purchases amounted to 41% of the total output of these plants (based on 2069 MW & 90% capacity factor). It is unknown, but other IPEC purchases could also have been made by competitive suppliers serving the downstate area.<sup>13</sup> (See Note<sup>14</sup>) Again, various reports have various of the purchases of IPEC power by ConEd. The bottom line is that the power is there if ConEd ever needs it.

According to the New York Independent System Operator, which runs the power grid:

- There were 11,087 Megawatts of generating capacity in the New York City/ Westchester power section of the grid in 2012.
- The Final Zone load forecast for New York City in 2012 was 11,500 Megawatts.
- Total electric power generation in the state is 37,416 Megawatts transmitted over 10,877 miles of high voltage lines.

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<sup>13</sup> An Assessment of Energy Needs In Westchester County, p 12.

<http://www.westchesterny.org/downloads/Energy%20Needs%20Assessment%20Final%20version.pdf>

<sup>14</sup> Note: Competitive suppliers who bid for electricity thru the NYISO real time markets pay the market clearing price, but do not know the source of the generation procured. Approximately, one half of all the electricity procured in New York is purchased on the NYISO open market. As a result, Entergy, the owner of IPEC would likely bid any surplus energy not committed under purchase power agreements on the NYISO market. Proximity to NYC and Westchester also limits competitive suppliers from incurring excessive transmission congestion charges.



- The projected peak usage for 2010 was 33,025 Megawatts.<sup>15</sup>

It appears that electricity generating capacity for New York City is a little below electricity use. Normally a reserve margin of 16% is required to assure reliability of the electricity system. We assume this reserve is provided for via electricity imports from around the state.

Indian Point was contracted to provide NYPA with 200 megawatts through 2013. It was contracted to provide Con Ed 875 megawatts through the end of 2010, and 360 megawatts through 2012. New York City and Westchester County use 9,000 to about 13,000 megawatts of electricity during peak periods daily, according to Consolidated Edison, which transmits all of the electricity. Entergy's contract with Con Ed required Indian Point 2 to provide 1,000 megawatts through 2009. The output fell to 875 megawatts through 2010, and drops further to 360 Megawatts for 2011 and 2012, according to Con Ed's 2010 Annual Report.<sup>16</sup>

Con Edison's overall electric use peaked at 11,241 megawatts (MW) at 6 p.m. on July 7, 2013, eclipsing the all-time Sunday record of 10,866 MW on August 14, 2005. The all-time peak record is 13,189 MW, which occurred on July 22, 2011 at 4 pm.<sup>17</sup>

On August 1, 2011, Entergy and Con Ed signed a contract extension for 500 megawatts of power from Entergy out of Indian Point units 2 and 3. While the terms of this power purchase agreement are not public, the date of the contract is contingent on license renewal and goes for a 5-year term through 2017. In addition, the New York Power Authority (which serves government entities including the Metropolitan Transportation Authority or MTA, operator of Metro

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<sup>15</sup> NYISO, Locational Minimum Installed Capacity Requirements Study, Jan. 12, 2012.

[http://www.nysrc.org/pdf/MeetingMaterial/ICSMaterial/ICS\\_Agenda132/LCR\\_OC\\_report\\_V4.pdf](http://www.nysrc.org/pdf/MeetingMaterial/ICSMaterial/ICS_Agenda132/LCR_OC_report_V4.pdf)

<sup>16</sup> New Jersey Newsroom, New York Relying Much Less On Indian Point For Energy, Dec 7, 2010.

<http://www.newjerseynewsroom.com/science-updates/new-york-relying-much-less-on-indian-point-for-energy>

North and the City's subways) said in its 2010 annual report that it has contractual obligations to purchase 200 megawatts from Indian Point. While the mix of physical contract and short-term market sales of Indian Point's electricity has changed, what has not is that more than 2,000 megawatts is continuously provided to the New York system. Today, Indian Point is a "price taker" accepting the hourly market price for more than 1,400 megawatts injected into the grid each hour, thereby displacing higher cost power plants on the supply curve.<sup>18</sup>

If Entergy's electricity is not needed, why are the NYISO, Con Ed, NYPA and others purchasing all of it? We must conclude that they are purchasing it because they need it. So if this 2,000 MW of electricity is eliminated, we believe, as the Riverkeeper-sponsored Synapse report states, that replacement power would come from repowering current plants or running those plants in vulnerable areas more often. It is our contention that this scenario will increase air pollution in vulnerable communities.

The mistake the Synapse Report makes is relying upon the 350 MW of contracted capacity from IPEC to meet New York City's external capacity requirement. IPEC electrons could make up a substantial portion of the electrons that would be available for import into New York City. Competitive suppliers who bid for electricity thru the NYISO real time markets pay the market clearing price, but do not know the source of the generation procured. Approximately, one half of all the electricity procured in New York is purchased on the NYISO open market. As a result, Entergy, the owner of IPEC would likely bid any surplus energy not committed under purchase power agreements on the NYISO market. Also, if IPEC (and Fitzpatrick) represent a substantial portion of the one half of all the electricity purchased on the NYISO open market, the contracted capacity could theoretically be as high as 1,000 or more megawatts.

The Riverkeeper Synapse report states,

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<sup>17</sup> Con Ed News, July 7, 2013. <http://www.coned.com/newsroom/news/pr20130707.asp>

"If Indian Point were to be retired, then New York City would need to find another source of capacity to meet this portion of its external capacity requirement. However, as discussed in the following section, there is currently a surplus of capacity in New York State and the regions near Indian Point. Therefore, New York City should be able to replace its 350 MW of capacity from Indian Point from *existing* capacity in the region. New capacity would not be required until roughly 2020."

This is a flawed assumption given the numerous reports of capacity challenges throughout New York State, particularly in New York City and especially in Harlem. If the past is prologue, electricity upgrades, repowering and replacement power will be produced in the vulnerable communities that are the object of this report.

**Calls For Conservation.** If New York City is relying on imports to meet its 20% import requirements and 16% reserve margin, then there should be sufficient capacity to meet these needs. AAEA is relying upon operating and approved facilities in this analysis and believes reliance upon projects that are not approved is a very dangerous strategy when it comes to assuring reliability in the grid. As far as wheeling power into New York from outside the state, the PJM system is clearly showing signs of strain. This winter, PJM has called for conservation within its service territory in order to ensure grid system reliability:

PJM Interconnection, the electricity grid operator for more than 61 million people in 13 states and the District of Columbia, is asking consumers to conserve electricity on Tuesday. The call for conservation is prompted by another wave of frigid weather that will push up the demand for electricity. The request is being made throughout the entire area served by PJM. The demand for electricity and the need for conservation is expected to be highest Tuesday evening. PJM asks consumers to conserve electricity, if health permits – especially from 6 a.m. to 10 a.m. on Tuesday as well as between 5 p.m. to 9 p.m.<sup>19</sup>

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<sup>18</sup> NYAREA, New York's Electricity Marketplace: Efficient, Regulated, Free Enterprise, Nov 14, 2011, p 4. <http://www.area-alliance.org/documents/FINAL.Wholesale%20Electricity%20Issue%20Brief.pdf>

<sup>19</sup> PJM News Release, PJM ASKS CONSUMERS TO CONSERVE ELECTRICITY ON TUESDAY Record - breaking electricity use possible tomorrow due to extreme cold weather. <http://www.pjm.com/~media/about-pjm/newsroom/2014-releases/20140127-pjm-asks-consumers-to-conserve-electricity-on-tuesday.ashx>

ISO New England laments the pending closure of the Vermont Yankee nuclear power plant:

...the ISO does not have the authority to prevent a resource from retiring. With a maximum capacity of more than 600 megawatts, Vermont Yankee is among the region's largest power plants and is one of four nuclear stations providing baseload power to New England. Overall, nuclear generation produced 31% of New England's electricity in 2012.

Although the ISO, as the administrator of the region's wholesale electricity markets, does not favor any fuel or technology, the retirement of this large nuclear station will result in less fuel diversity and greater dependence on natural gas as a fuel for power generation. The ISO has identified New England's dependence on natural gas for power generation and the potential retirement of generators as key strategic risks, and is developing solutions to address these and other strategic challenges.<sup>20</sup>

ISO New England will clearly be challenged in replacing the emission free electricity from Vermont Yankee. ISO New England is also clearly worried about the region becoming too dependent on natural gas for electricity generation. It is ironic that Riverkeeper and other environmental groups are working to restrict natural gas production via fracking that would provide most of this natural gas. These groups are working to oppose the use of the very source of replacement fuel for replacement power that could be used to replace a dependable, emission free source of electricity that would provide system reliability.

New York should also not place itself in jeopardy or be held hostage to foreign sources of natural gas and electricity. California learned a very important lesson in this regard. New York electricity prices already rival those in California. Becoming dependent on Canada for natural gas and electricity is not a

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<sup>20</sup> ISO New England, Press Release, ISO New England Issues Statement On Entergy's Announcement To Retire Vermont Yankee Nuclear Plant, August 27, 2013. [http://www.iso-ne.com/nwsiss/pr/2013/iso\\_new\\_england\\_issues\\_statement\\_vy\\_retirement\\_final.pdf](http://www.iso-ne.com/nwsiss/pr/2013/iso_new_england_issues_statement_vy_retirement_final.pdf)

dependable scenario for reliability, particularly concerning price. Nor should New York look to other states to provide the additional power it needs. Dependency on imports is a major sign of weakness.

If there is excess capacity in the city and the state, why does NYPA call for conservation measures during summer days to maintain system reliability? Here is a NYPA press release from the summer of 2013:

With temperatures expected to reach close to 100 degrees today, the New York Power Authority (NYPA) again activated a program to reduce electricity use at public-facility locations in New York City in response to anticipated higher energy demand. NYPA has also issued a day-ahead notice of the possible activation of the program tomorrow.

Today is the third consecutive day that NYPA has activated this reliability program, and the sixth time this summer. The longest consecutive number of days in which NYPA has called upon customers to cut back on electricity use under the program is four days, set during the heat wave of August 2001.

The Peak Reduction Program, which can be operated for up to 15 days between June 1 and September 1, features voluntary commitments by the Metropolitan Transportation Authority and the City University of New York to lower electricity use at 20 New York City locations during the highest-demand days of the air-conditioning season to help ensure reliable supplies of electricity.<sup>21</sup>

ConEd might have just enough electricity in the system to meet customer demand, but it appears that infrastructure challenges, among other issues, tax their ability to reliably provide electricity to its customers. In a June 25, 2013 News Release, directed to Brooklyn customers, Con Ed requests:

Con Edison is asking customers in a portion of Brooklyn to conserve energy until crews make equipment repairs. The neighborhoods affected are Flatbush, Prospect Lefferts Gardens,

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<sup>21</sup> New York Power Authority News, "N.Y. Power Authority Calls on Its Large Customers to Cut Back on Electricity Use to Support Reliable Electricity Service in Response to Continued High Temperatures," July 18, 2013. (Link)

Prospect Heights, Canarsie, Flatlands, Mill Basin, Old Mill Basin, Bergen Beach and Georgetown.

Con Edison has reduced voltage by 8 percent in the area to protect equipment until company crews complete equipment repairs. Con Edison asks customers in these neighborhoods not to use appliances such as washers, dryers, air conditioners and other energy-intensive equipment and to turn off lights and televisions when not needed until the equipment problems are resolved.<sup>22</sup>

The infrastructure problems are not limited to summer. A February 5, 2014 News Release from Con Ed states:

Problems on electrical cables supplying power to a portion of Harlem are prompting Con Edison to ask customers to refrain from using non-essential electrical appliances this evening.

The affected area is bounded by West 153rd Street on the north, West 131st Street on the south, Riverside Drive on the west, and Broadway on the east. The area includes about 7,000 customers.

The problems on the cables are caused by road salt and melting snow and ice getting into the underground electrical delivery system. Conservation by customers will help take pressure off the remaining cables in the area until Con Edison is able to make repairs to those that are damaged.<sup>23</sup>

ConEd also appeared to have trouble meeting summer demand in 2011 when it issued this July 21, 2011 News Release:

Con Edison said today that peak use of electricity reached a new high for 2011 and reminded customers to continue conserving energy as the brutal heat socks the New York area.

The company reported that overall customer electric usage peaked at 12,710 megawatts (MW) at 6 p.m. Before today, the high for this year was 12,589 MW at 5 p.m. on June 9. The all-time peak record

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<sup>22</sup> ConEd Newsroom News, "Con Edison Calls for Conservation in Parts of Brooklyn Company Reduces Voltage by 8 Percent," June 25, 2013.  
<http://www.coned.com/newsroom/news/pr20130625.asp>

<sup>23</sup> ConEd Newsroom News, "Con Edison Requests Conservation in Part of Harlem," Feb 5, 2014.  
<http://www.coned.com/newsroom/news/pr20140205.asp>

in the company's New York City and Westchester County service area is 13,141 MW, set at 5 p.m. on Wednesday, August 2, 2006.<sup>24</sup>

If NYPA and ConEd do not need additional capacity to meet such demand, why are they issuing press releases to the public requesting reductions in consumption so that they can reliably provide electricity to their city customers? We are particularly concerned that even if imported electricity is feasible, there appears to be infrastructure distribution challenges that restrict the utilities' ability to provide power. One solution to this problem is to build capacity where the load exists. A historical pattern and practice is that this capacity ends up being built in potential environmental justice areas.

### Racial Demographics

The 2010 Census showed that the United States population on April 1, 2010, was 308.7 million. Out of the total population, 38.9 million people, or 13 percent, identified as Black alone. In addition, 3.1 million people, or 1 percent, reported Black in combination with one or more other races. Together, these two groups totaled 42.0 million people. Thus, 14 percent of all people in the United States identified as Black, either alone, or in combination with one or more other races. New York State is 17.5 percent African American and 18.2 percent Latino.<sup>25</sup>

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<sup>24</sup> ConEd Newsroom News, " CON EDISON CONTINUES TO URGE CONSERVATION AS HEAT WAVE BAKES NEW YORK," July 21, 2011. [http://www.coned.com/newsroom/news/pr20110721\\_2.asp](http://www.coned.com/newsroom/news/pr20110721_2.asp)

<sup>25</sup> U.S. Census, 2010, The Black Population 2010, p. 1.

Racial Demographics Around Power Plants In Vulnerable Communities<sup>26</sup>

<b>Plant</b>	<b>Location</b>	<b>2010 Census % Black/Af. Am. by Zip Code</b>	<b>2010 Census % Hispanic or Latino by Zip Code</b>	<b>County</b>	<b>2010 Census % County Black/Af. Am.</b>	<b>2010 Census Hispanic Or Latino Hispanic</b>	<b>Owner</b>
Harlem River Yards	E. 132 <sup>nd</sup> Street and Pc/Rr/R/R Bronx, NY 10454	31.6	73.5	Bronx	43.4		NYPA
Hell Gate	East 132 <sup>nd</sup> to E 134 <sup>th</sup> Street Locust Ave. to East River Bronx, NY10454	31.6	73.5	Bronx	43.4	54.3	NYPA
Bronx zoo				Bronx			
23 <sup>rd</sup> and 3 <sup>rd</sup> Plant	23 <sup>rd</sup> & 3 <sup>rd</sup> Avenues Brooklyn, NY 11232	7.3	57.8	Kings Brooklyn Borough	35.8	19.8	NYPA
Brooklyn Navy Yard	63 Flushing Ave Brooklyn Navy Yard Bldg 41 Brooklyn, NY 11205	34.4	21.2	Kings Brooklyn Borough	35.8	19.8	Brooklyn Navy Yard Cogeneration Partners
Gowanus	27 <sup>th</sup> Street & Third Ave. Brooklyn, NY 11232	37.3	57.8	Kings Brooklyn Borough	35.8	19.8	ConEd (Astoria)
Hudson Ave [Closed 2011]	1-11 Hudson Ave Brooklyn, NY 11201	15.1	12.4	Kings Brooklyn Borough	35.8	19.8	ConEd
Narrows	53 <sup>rd</sup> Street & First Ave. Brooklyn, NY 11232	37.3	57.8	Kings Brooklyn Borough	35.8	19.8	Astoria Generating Co.

<sup>26</sup> Developed from TRC Report. 2010 Census.



Plant	Location	2010 Census % Black/Af. Am. by Zip Code	2010 Census % Hispanic or Latino by Zip Code	County	2010 Census % County Black/Af. Am.	2010 Census Hispanic Or Latino Hispanic	Owner
North First Street Plant	North 1 <sup>st</sup> Street & River Street Brooklyn, NY 11249	36.4	64.2	Kings Brooklyn Borough	35.8	19.8	NYPA
Warbasse Cogen	2701 West 6 <sup>th</sup> Street Brooklyn, NY 11224	12.6	16.3	Kings Brooklyn Borough	35.8	19.8	Warbasse Houses Inc.
East River	801 East 14 <sup>th</sup> Street New York, NY 10009	23.6	16.3	New York Manhattan Borough	18.4	25.8	ConEd
Waterside [Closed & Destroyed 2006]	700 First Ave. New York, NY 10017 (Manhattan)	3.3	6.5	New York Manhattan Borough	18.4	25.8	ConEd
Danskammer [Closed]	994 River Road Newburgh, NY 12550	22.1	32.8	Orange	11.4	18.8	Central Hudson Gas & Electric (Dynergy)
Roseton	992 River Road Newburgh, NY 12550	22.1	32.8	Orange	11.4	18.8	Central Hudson Gas & Electric (Dynergy)
Astoria	31-01 20 <sup>th</sup> Ave. Long Island City, NY 11105	2.2	19.7	Queens	20.9	27.9	Astoria
Charles Poletti [Dismantled Replaced w/ new plant]	31-03 20 <sup>th</sup> Ave. Astoria, Queens NY 11105	2.2	19.7	Queens	20.9	27.9	NYPA
Far Rockaway	1425 Bay 24 <sup>th</sup> Street Far Rockaway, NY 11691	50.1	25.2	Queens Borough	20.9	27.9	Keyspan

<b>Plant</b>	<b>Location</b>	<b>2010 Census % Black/Af. Am. by Zip Code</b>	<b>2010 Census % Hispanic or Latino by Zip Code</b>	<b>County</b>	<b>2010 Census % County Black/Af. Am.</b>	<b>2010 Census Hispanic Or Latino Hispanic</b>	<b>Owner</b>
JFK Cogeneration	JFK International Airport Bldg. 49 Jamaica, NY 11430 (Queens)	68.5	28.3	Queens	20.9	27.9	Kiac Partners
Ravenswood	38-54 Vernon Blvd., Long Island City, NY 11101	20.8	34.5	Queens	20.9	27.9	ConEd (Keyspan)
Vernon Blvd. Plant	42 – 30 Vernon Blvd. Queens, NY 11101	20.8	34.5	Queens	20.9	27.9	NYPA
Arthur Kill	4401 Victory Blvd. Staten Island, NY 10314	4.3	13.0	Richmond	11.6	17.7	ConEd
Pouch Terminal	Lynhurst Ave. and Edgewater Staten Island, NY 10305	4.4	17.2	Richmond	11.6	17.7	NYPA
Bowline Point	140 Samsondale Ave. West Haverstraw, NY 10993	18.1	42.2	Rockland	12.8	15.7	Southern Energy (Mirant)
Lovett [Demolished]	37 Elm Ave. Tomkins Cove 10986 (Stony Point)	2.8	8.9	Rockland	12.8	15.7	Southern Energy (Mirant)

Plant	Location	2010 Census % Black/Af. Am. by Zip Code	2010 Census % Hispanic or Latino by Zip Code	County	2010 Census % County Black/Af. Am.	2010 Census Hispanic Or Latino Hispanic	Owner
Indian Point	Broadway Buchanan, NY 10511 (Courtlandt)	3.1	15.9	Westchester	15.8	22.8	Entergy
				Village of Buchanan	3.1	16.0	
				Town of Courtlandt	5.4	12.8	

**The Negative Health Effects of Fossil-Fuel Power Are Borne Disproportionately by African Americans and Latinos**

Serious health effects disproportionately fall on the shoulders of low-income and minority communities, including African American and Latino communities. For instance, the percentage of African Americans and Hispanics living in areas that do not meet national standards for air quality is considerably higher than that of whites.<sup>27</sup> Respiratory ailments affect African Americans at rates significantly higher than whites. Asthma attacks, for example, send African Americans to the emergency room at three times the rate of whites (174.3 visits per 10,000 people for African Americans versus 59.4 visits per 10,000 people for whites), and African Americans are hospitalized for asthma at more than three times the rate of whites (35.6 admissions per 10,000 people for African Americans versus 10.6 admissions for every 10,000 people for whites).<sup>28</sup> Similarly, the death rate from asthma for African Americans is twice that of whites (38.7 deaths per million versus 14.2 deaths per million).<sup>29</sup>

<sup>27</sup> See Martha H. Keating, AIR INJUSTICE, at 3 (October 2002).

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

## New York's Minorities Pay the Price for Fossil-Fuel Air Pollution

New York is no exception to this national crisis. In New York City, it is estimated that there are 2,290 deaths, 1,580 hospitalizations, 546 asthma-related emergency room visits, 1,490 cases of chronic bronchitis, and 46,200 asthma attacks yearly attributable to power plant pollution.<sup>30</sup> The New York City area has also been ranked as one of the top five U.S. metropolitan areas for particulate air pollution.<sup>31</sup> And again, these adverse effects disproportionately affect minority communities. In one study, nonwhites in New York City were found to be hospitalized twice as many times as whites on days when ozone levels were high.<sup>32</sup>

That African Americans and other minorities are disproportionately affected by air pollution in New York is not surprising when considering the fact that the majority of air-polluting power plants in the New York metropolitan area are located in African American and other minority communities. For example, of the 23 counties in New York State which fail to meet Federal air pollution standards, 37.7% of them are populated by people of color.<sup>33</sup>

Based on figures from the 2010 U.S. Census, New York State's population is only 17.5 percent African American and 18.2 percent Latino.<sup>34</sup> However, in communities that are predominantly minority, such as Queens, the Bronx, and Brooklyn, there are a disproportionate number of fossil-fuel power plants emitting air pollutants. In the Bronx, which is 43.4% African American and 54.3% Latino, there are two power plants, Harlem River Yards and Hell Gate. In Brooklyn, which is 35.8% African American and 19.8% Latino, there are seven power plants, the 23<sup>rd</sup> and 3<sup>rd</sup> Plant, Brooklyn Navy Yard, Gowanus, Hudson Ave., Narrows, the North First St. Plant, and Warbasse Cogen. In Queens, which is 20.9% African American and 27.9% Latino, there are six power plants, Astoria,

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<sup>30</sup> See Death, Disease & Dirty Power: Mortality and Health Damage Due to Air Pollution from Power Plants, Clean Air Task Force (October 2000).

<sup>31</sup> See New York's Dirty Power Plants, Clear the Air – the National Campaign Against Dirty Power.

<sup>32</sup> See Martha H. Keating, AIR INJUSTICE, at 4 (October 2002).

<sup>33</sup> See Clear the Air: People of Color in Non-Attainment Counties.

Poletti (replacement plant), Far Rockaway, JFK Cogeneration, Ravenswood, and the Vernon Blvd. Plant. In total, there are 24 power plants in the New York metropolitan area, only a handful of which are in areas where minorities do not comprise the majority of the population. One of these is the Indian Point power generating facility.<sup>35</sup>

The racial demographics in the Harlem Rivers Yards / Hell Gate power plant(s) zip code are 31.6% African American and 73.5% Latino. NYPA operates this gas turbine facility, which produces 79.9 megawatts of power. The facility consists of two General Electric LM6000 gas turbines that utilize a selective catalytic reduction unit to minimize emissions of oxides of nitrogen. The gas turbines operate as simple cycle units, employing a spray inter-cooling system to optimize power output. Other on-site equipment includes gas and air compressors, a cooling tower lube oil cooling system, water treatment and storage system, ammonia storage and injection system, raw water storage, and auxiliary electrical systems. There is a facility stack approximately 107 feet tall.<sup>36</sup>

The racial demographics in the 23rd and 3rd plant zip are 7.3% African American and 57.8% Latino. NYPA operates this gas turbine facility that produces 79.9 megawatts of power. The facility consists of two General Electric LM6000 gas turbines that utilize a selective catalytic reduction unit to minimize emissions of oxides of nitrogen. The gas turbine operates as a simple cycle unit, employing a spray inter-cooling system to optimize power output. Other on-site equipment includes gas and air compressors, a cooling tower lube oil cooling system, water treatment and storage system, ammonia storage and injection system, raw water storage, and auxiliary electrical systems. There is a facility stack approximately 107 feet tall.<sup>37</sup>

The racial demographics in the Brooklyn Navy Yard power plant zip code

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<sup>34</sup> U.S. Census, 2010, The Black Population 2010, p. 1.

<sup>35</sup> All population data compiled from 2010 U.S. Census.

<sup>36</sup> DEC

<sup>37</sup> DEC

are 34.4% African American and 21.2% Latino. The facility is a 286-megawatt (MW) gas-fired power plant. The original Title V permit was issued on 12/5/2000 and it was renewed on 1/8/2008. This is a modification to the Title V permit renewal. This modification is to include conditions recently promulgated under the regulations 6 NYCRR Parts 243, 244, 245. These regulations require facilities to obtain/possess at least as many "allocations" of sulfur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>) as they emit into atmosphere during a specified period of time.

The plant consists of two Siemens V84.2 gas turbines, each equipped with a Heat Recovery Steam Generator. Gas Turbine air inlet cooling technology may be installed and operated at the plant on each of the combustion turbines. In addition, two distillate oil-fired emergency generators are provided. The plant supplies electricity to Con Edison and the Navy Yard, and supplies steam to Con Edison, the Navy Yard, and the Red Hook Water Pollution Control Plant.<sup>38</sup>

The racial demographics in the Gowanus power plant zip code are 37.3% African American and 57.8% Latino. Gowanus is a 551 MW fuel oil and natural gas facility consisting of 32 simple cycle combustion turbine units situated equally across four generating barges located in Gowanus Bay in the borough of Brooklyn, New York City. The facility is one of the largest floating generating stations in the world. The Gowanus facility can be controlled remotely and can start with as little as fifteen minutes notice. The units are flexible from an operating perspective and are available year-round to offer system- peaking capacity. With 16 of 32 units equipped for dual-fuel firing, the site has options regarding fuel selection. In addition, the facility was the first generating station to resume operations following the Black Out in August 2003.<sup>39</sup>

The racial demographics in the Hudson Avenue power plant [Closed 2011] zip code are 15.1% African American and 12.4% Latino. The facility is creating future emission reduction credits (ERCs), based on the permanent shutdown of

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<sup>38</sup> [http://www.dec.ny.gov/daradata/boss/afs/permits/261010018500008\\_r1\\_1.pdf](http://www.dec.ny.gov/daradata/boss/afs/permits/261010018500008_r1_1.pdf)

the four (4) very large Combustion Engineering boilers, Boilers Nos. 71, 72, 81 and 82, identified as Emission Sources 00071, 00072, 00081 and 00082; respectively in Emission Unit H-A0001 at the Con Edison - Hudson Avenue Station located at 1 Hudson Avenue in Brooklyn, New York 11201. These four (4) very large boilers were permanently shut down and ceased operation on February 7, 2011. The facility is working on plans to permanently remove the boilers and demolish their stack. All four boilers have been disabled in accordance with the closure plan submitted with the Title V permit application. A new plant could possibly be located here at some point in the future.<sup>40</sup>

The racial demographics in the Narrows power plant zip code are 37.3% African American and 57.8% Latino. The Narrows plant is a floating power station located in Brooklyn about one mile south of Gowanus along the east side of Upper New York Bay. The facility is about half the size of Gowanus (283 MW) and consists of 16 simple-cycle combustion turbine units on two floating power barges. All of the units at Narrows have dual-fuel capability and can be started remotely. The units at Narrows also provide critical system peaking capacity and can be started in fifteen minutes. Throughout the year the units serve as peaking resources.<sup>41</sup>

The racial demographics in the North First Street Plant zip code are 36.4% African American and 64.2% Latino. The facility consists of one simple cycle combustion turbine (GE LM6000) which fires only natural gas. The turbine employs a spray intercooling system to optimize power output. The unit is equipped with selective catalytic reduction to control emissions of oxides of nitrogen and catalytic oxidation to control emissions of carbon monoxide. Other equipment on-site include gas and air compressors, cooling tower lube oil cooling system, water treatment and storage system, ammonia storage and

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<sup>39</sup> <http://www.uspowergen.com/portfolio/astoria-generating/gowanus/>

<sup>40</sup> DEC

<sup>41</sup> DEC

injection system, raw water storage, and auxiliary electrical systems. The stack is approximately 107 feet in height and 144 inches in diameter. The facility generates a maximum 47 megawatts of power. The turbine will not operate below 50 percent load except during periods of start-up or shut down.<sup>42</sup>

The racial demographics in the Warbasse Cogen power plant zip code are 12.6% African American and 16.3% Latino. The facility will consist of two high-pressure steam boilers and three diesel-fired internal combustion engines to provide emergency power. The facility supplies steam heat, hot water, chilled water and electricity to the 8,000 residents of the nearby Amalgamated Warbasse Housing complex. Warbasse was originally built in 1964 and included a cogeneration plant based on three, high pressure, dual-fuel (oil and natural gas) fired boilers; two, 6 MW steam turbine generators and five, one thousand ton absorption refrigeration machines. This plant provides all of the thermal and electric requirements of the complex. Developments in the field of energy generation during the late 1980's offered Warbasse the opportunity to improve the economics of its energy generation.<sup>43</sup>

The racial demographics in the East River power plant zip code are 23.6 African American and 16.3% Latino. Con Edison declared full commercial operation of its East River Repowering Project on April 5, 2005, when the second of two state-of-the-art, natural-gas-fired steam generators began providing power to New York's electricity grid. The first unit had become operational on April 1, 2005. In full operation, the units produce approximately 350 megawatts of electricity. The repowering of Con Edison's East River generating station was undertaken to enhance an already environmentally beneficial steam system, and is capable of producing 3.2 million pounds of steam per hour. Steam is used for heating, hot water, and in some buildings, to power air conditioning chillers. The use of steam-powered chillers reduces the load on the electric system during times of peak summer demand. The two steam-electric generators have up-to-

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<sup>42</sup> DEC



date emission-control technology and burn natural gas 100 percent of -the time, making East River one of the cleanest power generating facilities in New York.<sup>44</sup>

The racial demographics in the Danskammer power plant [closed, proposal to reopen] zip code are 22.1% African American and 32.8% Latino. Danskammer is located on the shore of the Hudson River in the Town of Newburgh, New York, upstream of the larger oil-fired Roseton Generating Station. Danskammer units 1 and 2 burn oil (72 and 73.5 MWe nameplate capacity), whereas units 3 and 4 are coal-fired (147.1 and 239.4 MWe nameplate capacity). All four of these major units can also run on natural gas. Units 5 and 6 are small internal combustion engines of 2.7 MWe nameplate capacity each. The station was built by Central Hudson Gas & Electric in the 1930s, and sold to Dynegy in the 1990s as part of electricity deregulation. It has been the target of a prolonged environmental lawsuit over its cooling system. Danskammer is currently closed but a new owner could reopen the facility.<sup>45</sup>

The racial demographics in the Roseton power plant zip code are 22.1% African American and 32.8% Latino. Dynegy Inc. sold this dual fuel-fired electric power plant in New York to a subsidiary of Castleton Commodities International LLC for \$19.5 million. The 1,210 megawatt Roseton facility is 43 miles north of New York City in the town of Newburgh, Orange County. The plant is capable of running on both natural gas and fuel oil.<sup>46</sup>

The racial demographics in the Astoria power plant zip code are 2.2% African American and 19.7% Latino. Combined-cycle technology enables NYPA's 500-mw power plant to generate 50 percent more electricity from its fuel than it would with a conventional single-cycle power system. Under this dual-

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<sup>43</sup> DEC

<sup>44</sup> DEC

<sup>45</sup> Wikipedia

<sup>46</sup> New York Business Journal, May 2, 2013.

<http://www.bizjournals.com/newyork/news/2013/05/01/castleton-buys-roseton-power-plant.html>

phase system, two combustion turbine-generators operate in conjunction with two heat-recovery steam generators and a steam turbine-generator.

The \$120-million Astoria Energy 575 MW power plant, Phase II is part of a 1,000-MW combined-cycle plant located in Astoria, Queens. The plant consists of two gas turbines and two auxiliary transformers. The project began in February 2009 and was completed last May. Due to a tight working area and schedule, the project required close coordination among all members of the team along with daily planning meetings. The facility is expected to decrease nitrogen oxide air emissions by 1,222 tons per year.<sup>47</sup>

The racial demographics in the Charles Poletti power plant [dismantled, replaced with new plant] zip code are 2.2% African American and 19.7% Latino. In 1974 the NY Power Authority purchased the #6 oil fired unit from Con Edison while it was still under construction. In 1998 it was decided to replace the power plant with a new, state-of-the-art, 500 megawatt combined cycle power plant. The Poletti Power Plant ceased operations on January 31, 2010. The Poletti Power Plant de-commissioning encompasses three separate projects: 1) the de-mineralized water plant, 2) the fuel oil yard and 3) the Unit #6 power plant. These projects were to take place over a five-year period from 2010 – 2014. The first two projects have been completed and planning for the third is underway and scheduled for completion by December 31, 2014.<sup>48</sup>

The racial demographics in the Far Rockaway power plant zip code are 50.1% African American and 25.2% Latino. The Long Island Power Authority proposed to close its power plant in Far Rockaway by 2013, part of a move that the authority claims will save its customers about \$76 million through 2015. LIPA, in a partnership with National Grid, said it would try to close the Far Rockaway plant as well as one in Glenwood Landing, both of which are the least

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<sup>47</sup> New York Power Authority. <http://nypa.gov/facilities/ccp/cchow.htm>

<sup>48</sup> Queens Buzz. <http://www.queensbuzz.com/ny-power-authority-deconstructs-poletti-power-plant-cms->

used facilities in the fleet and account for less than 2 percent of LIPA's total energy requirements, the state authority said. The Far Rockaway plant, which opened in 1953, has one unit, is fueled by natural gas and capable of producing 100 megawatts of electricity.<sup>49</sup>

The racial demographics in the JFK Cogeneration power plant zip code are 68.5% African American and 28.3% Latino. The facility consists of two (2) identical General Electric LM 6000 combustion turbines equipped with supplementary fired duct burners and heat recovery steam generators (HRSGs). The turbines are permitted to fire both natural gas and light distillate fuel oil. The renewal permit covers the upgrades of the two combustion turbines from LM 6000 PA to LM 6000 PC Sprint units. This facility is not a PSD source. Kennedy International Airport Co-generation Partners (KIAC Partners) is located in the middle of the central terminal area of the J.F. Kennedy International Airport, Building No. 49, in Jamaica, New York.

The KIAC co-generation plant supplies electricity to the JFK International Airport and to the Consolidated Edison (Con Ed) Power Distribution Grid, and also supplies steam to the airport's central heating and refrigeration plant. Each gas combustion turbine is equipped with a supplementary fired duct burner and Heat Recovery Steam Generator (HRSG). The gross heat capacity of the co-generation plant is 469 mmBTU/HR for each gas turbine and 718 mmBTU/HR each of the combined gas turbine and duct burner operation, which is based on the higher heating value (HHV) of natural gas. The cogeneration units are individually vented through two exhaust stacks, which vent emissions from each gas turbine and associated duct burner unit. The combustion turbines fire natural gas as the primary fuel with light distillate oil (0.2% sulfur) as the backup fuel. Light distillate oil firing is limited to 4.8 million gal/yr per combustion turbine. The duct burners are limited to natural gas firing. Each of the General Electric

LM6000 PC Sprint gas combustion turbines is designed with water injection as the first level of NOx control and Selective Catalytic Reduction (SCR) as the secondary NOx control system, for both residual combustion turbine NOx and duct burner NOx reduction. The SCR catalyst as the dual function of CO oxidation to CO2 and NOx reduction to N2 and H2O. The KIAC Cogeneration facility operates and maintains Continuous Emission Monitors (CEM) and continuous data recorder NOx, CO Oxygen and Ammonia to monitor the emissions from each combustion turbine/duct burner.<sup>50</sup>

The racial demographics in the Ravenswood power plant zip code are 20.8% African American and 34.5% Latino. Ravenswood was originally built and owned by Consolidated Edison of New York Inc. (Con Edison) in 1963. The first two units constructed in 1963 were Ravenswood 10 and 20, each having a generating capacity of approximately 385 megawatts. Then, in 1965, Ravenswood 30 (commonly called "Big Allis") was commissioned with a generating capacity of nearly 981 megawatts, which at the time was the largest electric generating facility in the world. In the 1970s, multiple combustion turbine units were installed in a simple cycle configuration to meet peak power demands.

Due to deregulation of the energy markets in New York State, Con Edison was required to sell all of its "in-city" generating stations in New York City including Ravenswood. In 1999, Con Edison transferred ownership of Ravenswood to KeySpan Energy (KeySpan) for \$597 million. In 2004, KeySpan constructed a new unit, Ravenswood 40, using combined cycle technology with generating capacity of 250 megawatts.

National Grid acquired KeySpan in 2007, but due to its involvement in electrical transmission the New York Public Service Commission required National Grid to sell Ravenswood to ensure competition in the market. So on

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rockaway-power-plant  
<sup>50</sup> DEC

August 26, 2008, Ravenswood was sold by National Grid to TransCanada Corporation for \$2.9 Billion.<sup>51</sup>

The racial demographics in the Vernon Blvd Plant zip code are 20.8% African American and 34.5% Latino. NYPA operates this gas turbine facility that produces 79.9 megawatts of power. The facility consists of two General Electric LM6000 gas turbine which utilize a selective catalytic reduction unit to minimize emissions of oxides of nitrogen. The gas turbines operate as a simple cycle unit, employing a spray inter-cooling system to optimize power output. Other on-site equipment includes gas and air compressors, a cooling tower lube oil cooling system, water treatment and storage system, ammonia storage and injection system, raw water storage, and auxiliary electrical systems. There is a facility stack approximately 150 feet tall.<sup>52</sup>

The racial demographics in the Arthur Kill power plant are 4.3% African American and 13.0% Latino. Arthur Kill Generating is a gas-fired plant with a design capacity of 931.7 MWe. It has 3 unit(s). The first unit was commissioned in 1959 and the last in 1970. It is operated by NRG Energy.<sup>53</sup>

The racial demographics in the Pouch Terminal power plant are 4.4% African American and 17.2% Latino. NYPA operates this gas turbine facility that produces 44 megawatts of power. The facility consists of a General Electric LM6000 gas turbine which utilizes a selective catalytic reduction unit to minimize emissions of oxides of nitrogen. The gas turbine operates as a simple cycle unit, employing a spray inter-cooling system to optimize power output. Other on-site equipment includes gas and air compressors, a cooling tower lube oil cooling system, water treatment and storage system, ammonia storage and injection system, raw water storage, and auxiliary electrical systems. There is a facility stack approximately 107 feet tall.<sup>54</sup>

The racial demographics in the Bowline Point power plant are 18.1%

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<sup>51</sup> Wikipedia. [http://en.wikipedia.org/wiki/Ravenswood\\_Generating\\_Station](http://en.wikipedia.org/wiki/Ravenswood_Generating_Station)

<sup>52</sup> DEC

<sup>53</sup> Global Observatory. <http://globalenergyobservatory.org/geoid/2169>

African American and 42.2% Latino. Bowline is located on the western shore of the Hudson River approximately 37.5 miles north of the Battery at the southern tip of Manhattan. It consists of two existing units that burn either natural gas or #6 oil to produce a combined output of approximately 1,139 MW. Unit 1 began operation in September 1972 and Unit 2 began operation in May 1974.<sup>55</sup> Bowline is a 1200 megawatt oil-fired power plant located in Haverstraw, New York, formerly owned by Orange and Rockland and purchased by Mirant. Bowline was one of the three plants included in the Hudson River Settlement Agreement (HRSA).<sup>56</sup>

Based on this data, it is clear that if Indian Point 2 and 3 were to be brought offline, forced to close, or if its production was limited, a part of the void in electricity production would need to be filled by power plants located in minority communities, with a corresponding increase in the rates of asthma and other respiratory diseases, cardiovascular diseases, and even infant mortality in those communities. The DEC cannot, in good conscience, permit this to happen without so much as considering the alternatives [wedgewire screens or Ristroph Screens]. To date, however, it appears that the concerns of the African American community have been largely ignored in the DEC's fervent effort to reduce fish egg and fish larvae entrainment in thriving fish populations on the Hudson River.

#### Asthma in New York City

Asthma is a very serious problem in potential environmental justice areas in New York City. According to the Citizen's Committee for Children of New York:

In New York City, over 39,000 children under the age of 15 visited the emergency room because of asthma in 2010. About 7,400

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<sup>54</sup> DEC

<sup>55</sup> DEC. [http://www.dec.ny.gov/docs/permits\\_ej\\_operations\\_pdf/bowlinefs.pdf](http://www.dec.ny.gov/docs/permits_ej_operations_pdf/bowlinefs.pdf)

<sup>56</sup> Riverkeeper. <http://www.riverkeeper.org/campaigns/stop-polluters/power-plants/hudson-river-power-plants/>

children – five out of every 1,000 – had cases that were serious enough that they needed to be hospitalized.

...we know that nearly one-third (32.3 percent) of children who made asthma-related emergency room visits were from the Bronx. Further, certain neighborhoods in the south Bronx and upper Manhattan have much higher rates of asthma hospitalization than the rest of the city. In Hunts Point and Mott Haven in the Bronx, the asthma hospitalization rate is 12.2 per 1,000 children; in East Harlem it's 11.4. Both are more than double the citywide rate of 5 per 1,000 children.

Given the troubling number of children suffering with asthma and high asthma hospitalization rates in many communities, we must do all that we can to protect investments in the asthma prevention and control services children need.<sup>57</sup>

Clearly, no actions by the state should serve to exacerbate already high asthma suffering by children.

According to a 2011 report on 'Brooklyn Community Health,' by the SUNY Downstate Medical Center,

While overall asthma rates have more than doubled since the 1980s, childhood asthma has increased more than 160 percent; the greatest increase is among African American children. Because of their smaller size and developing lungs, children are more vulnerable to the allergens and irritants that can trigger asthma.

In a cluster of neighborhoods known as Asthma Alley in North-Central Brooklyn, the South Bronx, Harlem, and parts of Queens, asthma rates are unusually high. What many of these neighborhoods have in common is that they are near factories, sanitation transfer stations, and busy roadways that produce high levels of air pollution.

As shown in this Health Report on Asthma, several Brooklyn neighborhoods, especially three in North-Central Brooklyn—Bedford Stuyvesant-Crown Heights, East New York, and Williamsburg-Bushwick—have far higher rates of emergency room visits and hospitalizations for asthma than the rest of the borough and New York City. Asthma rates are highest among the very young and the elderly.

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<sup>57</sup> Citizens Committee for Children of New York, 2/28/2013.

<http://www.cccnewyork.org/blog/concentrations-of-risk-asthma-and-poor-housing-conditions/>

Children under the age of 5 in Bedford Stuyvesant-Crown Heights, East New York, and Williamsburg-Bushwick had much higher rates of emergency room visits compared to children in other Brooklyn neighborhoods, Brooklyn as a whole, and the rest of New York City.

Children under 5 in East Flatbush-Flatbush, Bedford Stuyvesant-Crown Heights, East New York, and Williamsburg-Bushwick were hospitalized for asthma at higher rates than those in Brooklyn as a whole and the rest of the city.<sup>58</sup>

Brooklyn has numerous air pollution sources that contribute to asthma attacks. Why would the state consider any situation that might lead to the closure of IPEC, which does not contribute emissions that trigger asthma attacks. IPEC is an electrical anchor for the state and is a godsend for asthmatic children in Brooklyn.

Numerous environmental justice leaders and organizations in New York City have documented disproportionate asthma demographics for decades. We could write a book on this phenomenon in New York City, but we are sure the participants in this adjudication accept that inner city minorities are disproportionately impacted by air and other pollution sources. IPEC electrons not only provide electricity reliably for the rest of the state, but also provides this one of a kind emission free source of power that does not in any way contribute to the suffering of children in potential environmental justice areas.

#### Disproportionate Pollution Sites and Impacts

Environmental justice as a legitimate discipline has been accepted at every level of society. From President Clinton's Executive Order 12898 to the Environmental Protection Agency's Office of Environmental Justice to the New York State Office of Environmental Justice to the New York City Council hearing on environmental justice on February 28, 2014, this issue area has been

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<sup>58</sup> SUNY Downstate Medical Center, 'Brooklyn Community Health: Report On Asthma,' 2011, pp 2-3. <http://www.downstate.edu/bhr/reports/Brooklyn-Health-Report-Asthma-2.pdf>



universally recognized. AAEA recognized the environmental justice significance of IPEC in 2000. The benefits of IPEC were and are obvious to us. IPEC's safety, environmental and electricity production are unmatched anywhere in the state. IPEC is not located in a potential environmental justice area. Yet, for reasons that we simply cannot comprehend, the state wants to limit, restrict, or shut down this major asset to the state. Yet, potential environmental justice areas are inundated with numerous pollution sources, but the state is not acting to limit, restrict or shut down these direct and consistent threats to asthmatics in potential environmental justice areas.

West Harlem Environmental Action (WEACT), the New York City Environmental Justice Alliance, Sustainable South Bronx, the Natural Resources Defense Council, and Environmental Defense Fund, among others, have documented the disproportionate pollution impacts on potential environmental justice communities. Nobody disputes that certain sections of New York City are exposed to more pollution than other areas. From bus depots to wastewater treatment plants to highways, to power plants to hazardous waste sites, communities in the Bronx, Queens, Brooklyn and Harlem, are overly exposed to the regions pollution.

WEACT's Geographic Information Systems (GIS) maps provide numerous examples of the pollution that vulnerable communities are exposed to on a daily basis. WE ACT has produced 31 GIS maps that chronicle such elements as polluting facilities and childhood asthma hospitalizations, the diesel bus pollution correlation, and existing marine waste transfer and handling facilities. The GIS maps, produced in 2000, provide excellent historical references for more recent studies.

One particular map is particularly revealing. This map, entitled, "Asthma Hospitalization Rates By Zip Code Children Aged 0-4, Manhattan 2000," shows that average pediatric asthma rates for Harlem were 245 per 10,000 children.

This rate is much higher than in the rest of the city. The map also shows the location of bus depots, DOT diesel truck depots, marine waste transfer stations, a Port Authority Bus Terminal, department of sanitation facilities, sewage treatment plants, a train yard, and major highways. The map utilizes 96th Street as the demarcation line that distinguishes upper Manhattan from lower Manhattan. The AAEA New York Office is located above this demarcation line at 107th Street. The map lists 15 specific Northern Manhattan facilities and 5 Southern Manhattan facilities.<sup>59</sup>

Another WEACTION map shows the 'Asthma - Diesel Connection.' It shows the eight Northern Manhattan facilities bus and truck depots compared to three Southern Manhattan facilities.<sup>60</sup> There are many other maps that show the disproportionate amount of pollution in vulnerable communities. In addition to air pollution sources, these populations are exposed to numerous other sources of toxic chemicals. The state should not threaten a facility (IPEC) that in no way contributes to the ill health effects that these polluting facilities emit on these vulnerable local communities.

Fuel oil is also utilized throughout New York City. However, according to WEACTION, 1,315 of the 6,630 NYC buildings that burn number 4 and number 6 fuel oil are located in Northern Manhattan. These diesel emissions negatively affect air quality and are an addition to the many other pollution sites in vulnerable communities.<sup>61 62</sup>

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<sup>59</sup> WEACTION, Asthma Hospitalization Rates By Zip Code, Children Age 0-4, Manhattan 2000. <http://www.weaction.org/Portals/7/Map%202.pdf>

<sup>60</sup> WEACTION, The Asthma - Diesel Connection, Diesel Fuel Polluting Facilities, MTA Depot Expansions, 1996 Asthma Hospitalizations For Children 0-4 Years Old in Manhattan. <http://www.weaction.org/Portals/7/Map%203.pdf>

<sup>61</sup> WEACTION, Clean Air. <http://www.weaction.org/Projects/CleanAir/tabid/602/Default.aspx>

<sup>62</sup> NYCCleanHeat.org. <http://www.nyccleanheat.org/spot-the-soot>