

**BUSINESS CASE FOR MERGING  
THE OFFICE OF NEW REACTORS AND  
THE OFFICE OF NUCLEAR REACTOR REGULATION**

**SUMMARY**

This business case is being provided to support the U.S. Nuclear Regulatory Commission's (NRC's) review and approval of the reorganization plan for a merger of the Office of New Reactors (NRO) and the Office of Nuclear Reactor Regulation (NRR) as directed by the Commission in Staff Requirements Memorandum (SRM)-SECY-15-0015, "Project AIM 2020 Report and Recommendations," (Agencywide Document Accession Management System (ADAMS) Accession No. ML15159A234). As part of Project Aim, the staff recommended a consolidation of the two offices as one of many changes that the NRC should pursue to improve in areas such as effectiveness, efficiency, agility, and flexibility. The merging of the offices will be coordinated with other Project Aim initiatives, ongoing changes within NRO and NRR, and other changes being pursued by the NRC in recognition of the dynamic environment that the agency faces.

A team of staff from NRR, NRO, and Region II developed this business case to assess merging the offices and to identify efficiency gains, challenges, and a process for the consolidation. The Commission directed the staff to assess such a merger because of the changing conditions associated with both new and operating reactor business lines. This business case identifies the benefits of the merger, in combination with other changes being made within the NRC. Enclosure 2 presents some challenges and associated mitigation measures to support the consolidation of the offices.

It is important to view the eventual consolidation of NRO and NRR within the context of broader changes within the NRC and the nuclear industry. Establishing the eventual merger as the expected configuration of the offices at some point in the future allows for better planning and integration of activities. Project Aim and ongoing office-level initiatives are intended to improve performance and address shorter-term changes in workload, staffing, and budgets. Ongoing activities to improve the effectiveness and efficiency of NRO and NRR will provide benefits ahead of an eventual merger of the offices. Some of the changes, such as reductions in management and other overhead positions, could be helped by the organizational changes associated with the merger-related reorganization. Other initiatives within the offices are intended to address specific current challenges and improve longstanding practices within the offices. The staff will use performance measures, self-assessments, and external audits to determine if these initiatives are improving the effectiveness and efficiency of activities within NRO and NRR. The success of these initiatives and resulting improvements in flexibility, innovation, and efficiency will be important during and after the consolidation of the offices.

Although it is premature to begin the reorganization process officially, the staff foresees that it will be appropriate to merge NRO and NRR in the not-too-distant future, absent substantial changes in the projected future activities covered by the offices. The assumption of an eventual merger of the offices should be included in the planning processes for the agency as the staff continues to right-size and streamline its organizations. The appropriate time to merge NRO and NRR will be based on various factors that will be considered in an integrated manner. If the Commission approves the plan for the eventual merger of NRO and NRR, the staff will monitor

projected workloads and other factors and prepare for a consolidation of the two offices at an appropriate time. Projected conditions will be reviewed in conjunction with activities such as budget development and routine management meetings. The staff will notify the Commission when projected conditions support beginning the merger-related reorganization. Enclosure 2 contains a reorganization plan to merge the two program offices at the appropriate time.

## **1. PURPOSE**

This enclosure presents a business case for a merger of NRO and NRR, at the appropriate time, as directed in the SRM related to SECY-15-0015. As part of Project Aim, the staff recommended a consolidation of the two offices as one of many changes that the NRC should pursue to improve in areas such as effectiveness, efficiency, agility, and flexibility.

The Commission's SRM provided the following direction to the NRC staff:

The Commission has approved the recommendation for staff to develop a plan to consolidate NRO and NRR, at the appropriate time. The plan is due to the Commission no later than 12 months from the date of issuance of this SRM, and will come to the Commission for its review and approval. The plan should include a business case for the merger, a description of the efficiencies achieved, and any special challenges posed by a merger as well as how the staff intends to address any challenges. The staff's proposed timing for a merger should take into account the need to avoid any detrimental impact to the ongoing and projected work of each organization.

Separate from the merger plan, the staff should look at the agency broadly taking into account the re-baselining to ensure that the right work is being done in the most efficient and effective manner.<sup>1</sup>

In developing the business case, the staff considered the historical and projected workload for both offices, identified factors that can be used to determine the appropriate time for the merger, and evaluated the benefits of consolidation. Although there are benefits to the merger, the staff also recognizes that significant gains in effectiveness, efficiency, agility, and flexibility can be achieved through ongoing activities not explicitly associated with a merger. These activities are important, regardless of a consolidation of the two offices, and will help position the agency for a consolidation of the offices at the appropriate time.

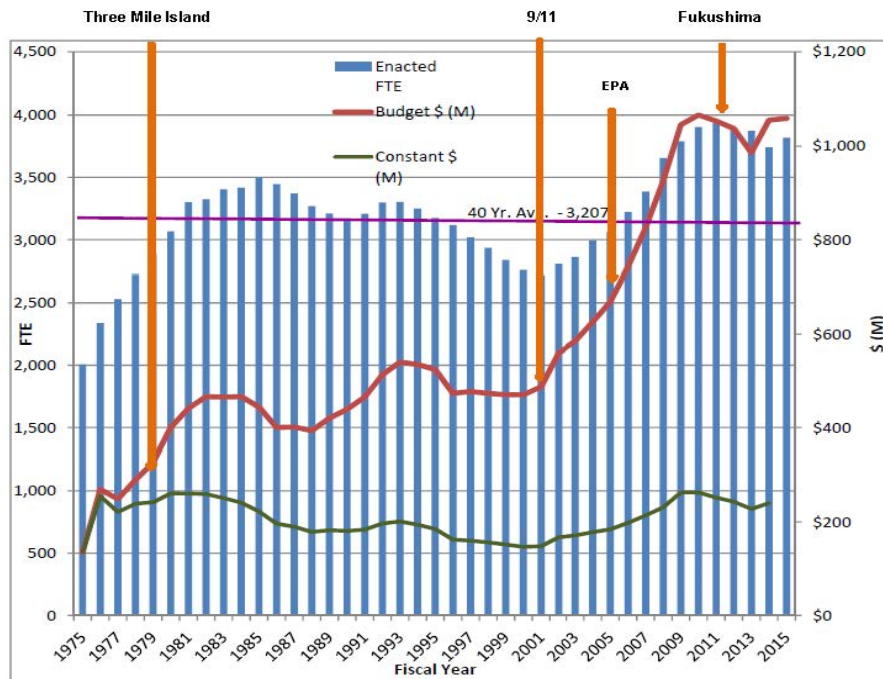
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<sup>1</sup> Although separate from the merger-related reorganization plan, the preparations for the merger during the next few years and the actual merger-related reorganization will be coordinated with and be complementary to other improvement efforts identified by Project AIM 2020, including re-baselining, and ongoing office-level initiatives to improve performance and address changes in workload.

## 2. THE NRC'S CHANGING ENVIRONMENT

### External Factors Motivating Formation of NRO

The licensing and oversight of nuclear power reactors have been prominent activities of the NRC since its creation in 1975. The intervening years have included periods of both increased and decreased interest in the deployment and operation of nuclear power reactors. Figure 1 shows a historical perspective of the agency's budget in relation to several significant events.



**Figure 1 – NRC resources by fiscal year**

The passage of the Energy Policy Act of 2005 (EPA) reflected a potential change to the nuclear landscape in the United States and various U.S. Department of Energy programs contributed to an increased level of interest in nuclear construction and the development of advanced reactor designs. These activities led some to predict a “nuclear renaissance” reminiscent of the period in the 1970s before an economic downturn, and the accident at Three Mile Island, led to the cancellation of many nuclear projects. By 2005, the increase in the new reactor licensing workload, combined with a projected further increase, resulted in the NRC staff recommending a restructuring of NRR in SECY-05-0146, “Proposed Reorganization of the Office of Nuclear Reactor Regulation,” dated August 12, 2005.

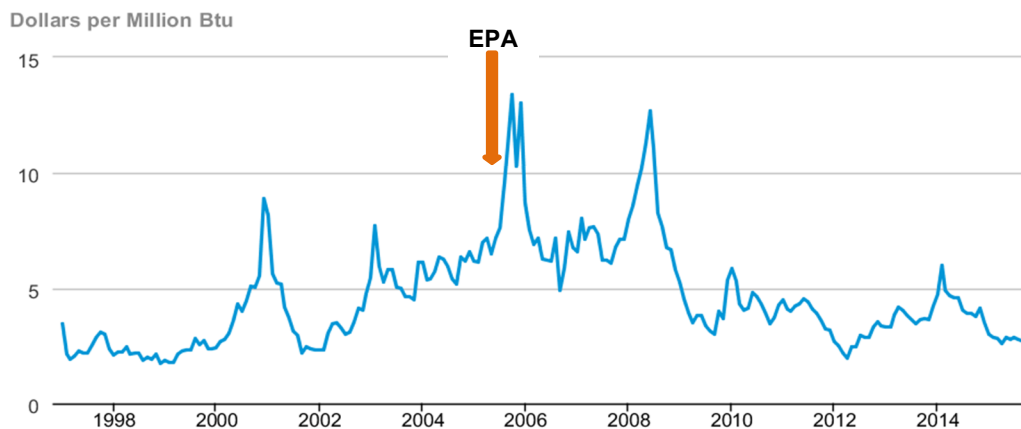
The NRC staff subsequently recommended in SECY-06-0144, “Proposed Reorganization of the Office of Nuclear Reactor Regulation and Region II,” (ADAMS Accession No. ML061770296) that the office be divided to form NRO. The purpose of the reorganization was to better prepare the agency for the anticipated new reactor licensing and construction inspection work while ensuring that the agency maintained an undiminished focus on the safety, security, and emergency preparedness of currently operating facilities. In SRM-SECY-06-0144,

(ADAMS Accession No. ML062050196) the Commission approved the staff's recommendation to reorganize NRR into two offices, leading to the creation of NRO in August 2006. A transition plan was developed and implemented to address the assignment of NRC staff and managers between the offices and the hiring of new staff to meet the expected workload.

The interest in new nuclear power projects was supported by a variety of factors, including the price of fossil fuels and the possible availability of supporting programs at the U.S. Department of Energy (e.g., loan guarantees). The NRC's fiscal year (FY) 2008 budget included estimates of 17 combined license (COL) applications, 2 design certification (DC) applications, 3 early site permit (ESP) applications, the development of the reactor construction inspection program, and support for the licensing of advanced reactor designs. The NRC staff developed appropriate policies and processes to support the new reactor business line, performed technical reviews, and completed work on DC, ESP, and COL applications.

### **External Factors Reducing Reactor Workload**

Changes in the economy and the domestic energy sector subsequently changed the outlook for both operating and new reactors. In particular, a decline in natural gas prices affected the cost-effectiveness of constructing and operating nuclear power plants. Figure 2 provides historical data related to the price of natural gas from the Energy Information Agency (EIA).

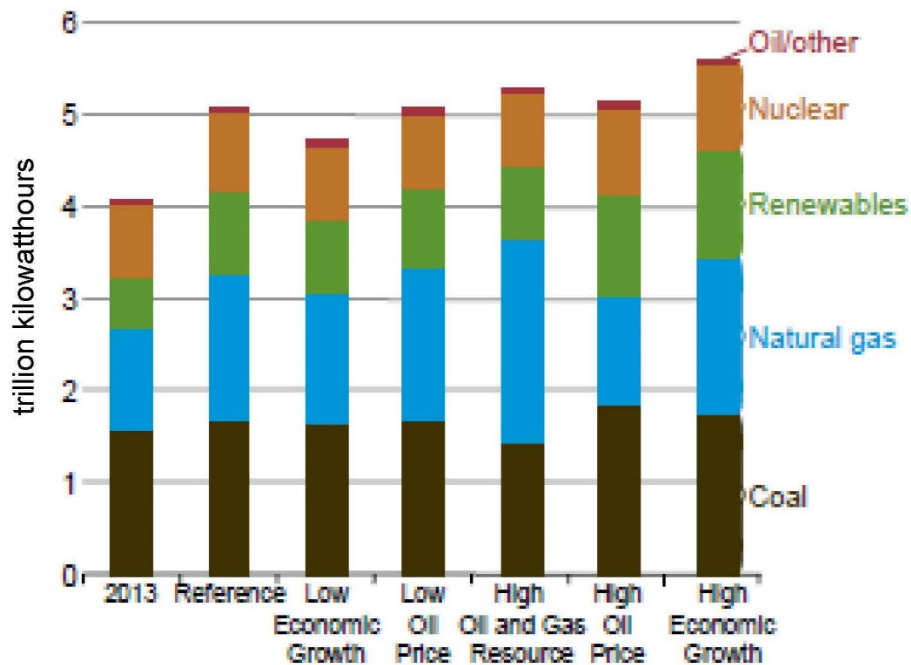


**Figure 2 – Historical natural gas prices (Henry Hub Spot Price)**

Other external factors include the macro environment of the U.S. energy sector. The EIA report, "Annual Energy Outlook 2015," includes the following assessment for nuclear power plants:

High construction costs for nuclear plants limit their competitiveness to meet new demand in the Reference case. In the near term, 5.5 GW of planned additions are put into place by 2020, offset by 3.2 GW of retirements over the same period. After 2025, 3.5 GW of additional nuclear capacity is built, based on relative economics. In the High Economic Growth and High Oil Price cases, an additional 10 GW to 13 GW of nuclear capacity above the Reference case is added by 2040 to meet demand growth, as a result of higher costs for the alternative technologies and/or higher capacity requirements.

EIA’s evaluation of multiple case studies predicted that, based on the price of natural gas and existing energy policies encouraging the deployment of alternative energy sources (e.g., wind and solar), the nuclear contribution to the U.S. energy mix will remain stable or decline through 2040. The EIA projections of the nuclear contributions for several scenarios are shown in Figure 3. Based on its review of this information, the staff did not assume any additional changes to the total nuclear power generation capacity during the period evaluated in this business case.



**Figure 3 – Case studies for electricity generation by fuel (from Annual Energy Outlook 2015)**

These overall energy trends led some new reactor applicants to suspend or withdraw their applications. Conditions related to the economy and changes within the energy sector have also led the owners of several operating reactors to begin decommissioning before the expiration of operating licenses (e.g., Kewaunee, Vermont Yankee) and three additional operating plants, Oyster Creek, Pilgrim, and Fitzpatrick, have announced plans to close by 2019. Recent announcements have indicated that plant owners have identified several other operating plants that may close because of market structures, rising costs, and other issues (e.g., Fort Calhoun, Clinton, and Quad Cities).

**Project Aim**

The NRC established Project Aim in June 2014 to enhance the agency’s ability to plan and execute its mission while adapting in a timely and effective manner to a dynamic environment, such as the external factors described above. In Enclosure 1 to SECY-15-0015, “Achieving Exemplary Nuclear Regulation in the 21st Century,” (ADAMS Accession No. ML15023A579) the staff identified the following four broad areas for improving regulatory efficiency:

- Right-sizing the agency — The NRC must attract, develop, and retain people with the right skills to accomplish the mission efficiently and effectively.
- Streamlining — Agency processes must be leaner, use resources more wisely, and limit overhead in both mission and support functions.
- Timeliness — The NRC must execute its regulatory functions and make decisions in a more timely and effective manner. When external conditions change, the NRC must respond more promptly in an agile and flexible manner.
- Unity — The NRC must establish clearer agencywide priorities that reflect the needs of the Nation and work together with unity of purpose in fulfilling these needs.

The staff considered the business case for a potential merger of NRO and NRR in the context of these areas for change.

### **3. WORKLOAD DRIVERS**

#### **NRR – Current and Future Workload**

The NRR staff supports the major programs of licensing, oversight, incident response, and rulemaking for commercial nuclear power plants, research and test reactors, and isotope production reactors. NRR currently has 43 branches organized into 8 divisions and a program management, policy development, and analysis (PMDA) group.

NRR supports the safe operation of operating reactors by processing license amendment requests and other licensing activities; maintaining the reactor inspection and oversight programs; assessing events, licensee performance, and operating experience; evaluating potential rulemakings; and processing requests to extend license terms. NRR also oversees the regulation and licensing of research and test reactors and proposed reactors for the production of medical isotopes. These core activities within NRR consist of a large number of individual actions, with the level of effort of each action ranging from a small fraction of a full-time equivalent (FTE) up to some actions taking several years and several FTE to complete. The number and diversity of the activities result in a relatively stable environment for estimating needed resources.

Several resource-intensive activities conducted within the operating reactor business line are now complete or nearing completion. For example, the accident in March 2011 at the Fukushima Dai-ichi nuclear plant in Japan resulted in significant reallocations of NRC staff to identify and address lessons learned from that event. The activities related to the Fukushima event were primarily conducted within the operating reactor business line and were centered in NRR with support from other offices, including from NRO in the areas of seismic and flooding hazard reevaluations. The NRC prioritized actions to be taken in response to the Fukushima accident, issued orders imposing additional requirements on operating nuclear plants, issued information requests to licensees to support safety assessments, and evaluated other potential regulatory actions. Most of the Fukushima regulatory actions have been taken, and the NRC is overseeing the licensees' completion of the associated changes to plant systems and

procedures. The staff has completed or nearly completed the longer-term assessments and studies, and expects to see a continual decline in workload for Fukushima lessons-learned activities over the next few years.

The expected closure of operating plants will result in a decrease in NRR oversight and the licensing workload in the long term. This reduction will be somewhat offset by transferring to NRR the work associated with the four AP1000 units currently under construction. Additional early plant closings would result in a further decline in the NRR workload. Industry efforts, including the “Delivering the Nuclear Promise” initiative, to reduce operating costs can also be expected to limit the pursuit of major regulatory initiatives by many licensees. Likewise, a mature and high-performing nuclear industry contributes to stability in regulatory oversight activities. In addition, activities associated with license renewal are declining in the short term as the peak workload for renewing operator reactor licenses from 40 to 60 years has passed. The nuclear industry has expressed interest in a second wave of applications to support operations beyond 60-year license terms (including a letter of intent from one licensee), leading to a potential increase in workload in the longer term. Finally, ongoing initiatives within NRR to clarify review expectations and enhance attention to schedules and resources are also expected to improve efficiency and thereby further reduce the resources needed for the core activities of the office. Performance measures, self-assessments, and external audits will be used to determine if these initiatives are improving the effectiveness and efficiency of activities by improving timeliness and reducing labor rates.

Changing conditions within the operating reactor business line are leading to organizational changes and reductions in needed resources. NRR dissolved branches supporting the licensing of Watts Bar Unit 2 and some Fukushima-related activities in late 2015 because of the progress made in completing activities in those areas. NRR will lose staff to the allegations and rulemaking centers of expertise (COEs) to be created in other offices in upcoming years.

Although these changes have reduced the operating reactor workload, there are additional resource-intensive activities that remain or are anticipated. These include license reviews for at least three radioisotope production facilities, modernizing the regulatory infrastructure for digital instrumentation and controls, and transitioning decommissioning plants into the next phase of licensing and oversight. In the coming years, NRR will continue to focus on these activities, along with its core licensing and oversight activities for operating reactors. NRR also remains ready, as needed, to address emergent technical challenges within the operating fleet.

### **NRO – Current and Future Workload**

The NRO staff supports the major programs of licensing, oversight, and rulemaking for new nuclear reactor designs, including small modular reactors and nonlight-water reactor designs. NRO currently has 28 branches, organized into 5 divisions, plus the PMDA staff.

NRO activities include the review of applications for DCs, ESPs, and COLs; support to hearings associated with the licensing process; processing of license amendment requests and other licensing activities for the seven issued COLs; preparing for new applications; maintaining the vendor inspection and construction inspection programs; assessing events, licensee performance, and construction experience; evaluating potential rulemakings; and enhancing the regulatory framework to efficiently and effectively review non-light water reactor designs.

The NRO licensing workload associated with DCs and COLs is expected to decrease in the upcoming years as reviews currently in-house are completed. Additionally, NRO activities associated with the four AP1000 units under construction will decline as these plants transition to operations. NRO also expects to lose staff to the rulemaking COE in upcoming years. The initial work of the office to develop and implement licensing processes, inspection programs, and other infrastructure for reactors under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," is largely complete. The highest priority reviews related to near-term construction projects, specifically the amendment to the AP1000 DC and the initial licensing of Vogtle Units 3 and 4 and Summer Units 2 and 3 are likewise complete. In addition, NRO is continuing to enhance the effectiveness and efficiency of its future reviews by evaluating lessons learned and employing risk insights; these activities are expected to further reduce the resources needed for core licensing work. Performance measures, self-assessments, and external audits will be used to determine if these initiatives are improving the effectiveness and efficiency of activities by improving timeliness and reducing labor rates.

Although the accomplishments associated with the first round of new reactor applications are reflected in a decreasing workload, new work of significant interest to stakeholders is expected in coming years for the new reactor program. In particular, NRO is currently conducting the Clinch River ESP review, preparing for the NuScale DC review and an unannounced COL review, and developing and implementing a strategy and vision for an enhanced licensing framework for advanced non-light-water reactors.

### **Resource History and Projections**

The historical size of NRR and NRO through 2016 are plotted in Figure 5, along with preliminary workload projections through 2020. These preliminary workload projections are not budget estimates. The budget associated with these preliminary workload projections will be developed in formulating the NRC's budget for FY 2018-2020. The assumptions for the future workload are consistent with other Project Aim initiatives, as described below.

- In SRM-SECY-16-0009, "Recommendations Resulting from the Integrated Prioritization and Re-Baselining of Agency Activities," (ADAMS Accession No. ML16104A158) the Commission approved work to be shed, deprioritized, or performed with fewer resources in the next 6 months that is accounted for in FY 2017 and similar work in the next 12 and 18 months that is accounted for in FY 2018.
- The SRM-SECY-15-0143, "Project Aim and Centers of Expertise," (ADAMS Accession No. ML1653A500) the Commission approved the creation of the allegations COE that is accounted for in FY 2017 and the COE for rulemaking that is accounted for in FY 2018. The other COEs support the reactor program and have no net effect on the combined NRR-NRO office resource totals.
- Projected significant changes in workload through 2020 from Enclosure 2 of SECY-16-0035, "Additional Re-Baselining Products," (ADAMS Accession No. ML16077A184) are included in FY 2018-2020. The specific areas considered are DC and COL reviews, new reactor construction inspection, operating reactor license



renewal, Fukushima lessons-learned activities, the transition of several sites to decommissioning, and the transition of new reactor construction sites to operating reactors. The preliminary workload projections do not account for possible improvements in effectiveness and efficiency from the various office-level initiatives within NRO and NRR.

In Figure 4, the blue columns reflect the NRR workload (in FTE), the gray columns represent the NRO workload, and the orange line is the combination of NRO and NRR. Before 2007, the graph depicts only NRR resources, as NRO had not yet been created, but the NRR workload included numerous new-reactor projects including the certification of the advanced boiling water reactor (ABWR), System 80+, and AP600 designs; activities supporting the later certification of the AP1000 and economic simplified boiling water reactor (ESBWR) design; and the resolution of numerous key technical and policy issues associated with the licensing of new designs.

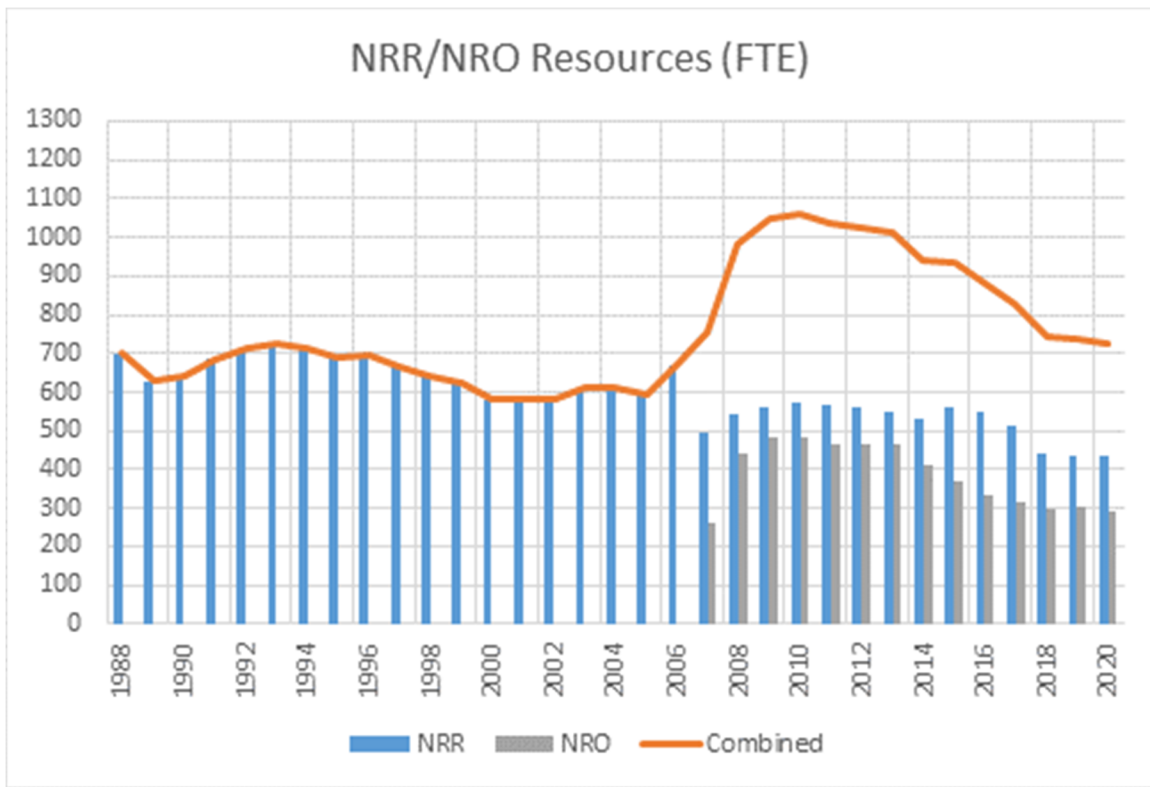


Figure 4 – NRO and NRR resources (FTE)<sup>2</sup>

#### 4. DETERMINING APPROPRIATE TIME FOR MERGER

As shown in Figure 4, over the next several years, the combined resources of NRO and NRR are projected to approach the size of NRR before the creation of NRO. These observations contributed to the Project Aim recommendation to merge the offices at an appropriate time.

<sup>2</sup> The workload projections for FY2018-2020 are not budget estimates. The budget associated with these workload projections will be developed in formulating the NRC's budget for FY 2018-2020.

However, as reflected in the Commission's SRM, the proposed timing for a merger needs to avoid any detrimental effect on the ongoing and projected work of each organization.

As described in SECY-06-0144, NRO was originally formed to "better prepare the agency for the anticipated new reactor licensing and construction inspection work while ensuring that the agency maintain its focus on the safety, security, and emergency preparedness of current operating facilities." In considering the timing of a merger of NRO and NRR, this rationale for creating NRO should be considered—that is, the safety of the operating reactors remains paramount. Therefore, the staff has developed factors that can be used to evaluate the appropriate time to merge the two offices.

Specifically, the staff expects to consider the following factors, along with others that may be appropriate at the time, in an integrated manner to help decide when to proceed with a merger:

- senior management confidence in the ability to consolidate the offices while maintaining the safety and security mission of each business line and reasonable spans of control within the organization
- a manageable number of regulatory issues (e.g., new reactor hearings, resolution of generic issues) projected for both business lines
- a manageable number of policy issues under development for both business lines
- significant benefits observed from other Project Aim and office-level initiatives
- projected flat or declining workloads for the combination of operating-reactor and new-reactor business lines
- projected resources comparable to the historical, pre-NRO size of NRR
- the ability to harmonize practices and processes in NRO and NRR within the reorganization period
- mature processes in place for licensing and oversight for most of the new reactor business line (e.g., light-water reactors)

Uncertainties associated with future workloads preclude determining, at this time, when the above factors will be satisfied and therefore when a merger would be appropriate. Changes to the workloads in either or both offices could accelerate or delay the timing of the merger. For example, the withdrawal or cancellation of a new reactor design or licensing review could significantly reduce the workload within the new reactor business line and accelerate the merger. Conversely, new applications for DCs or COLs or significant interest in advanced-reactor applications needing focused project support might warrant a later merger-related reorganization. Recognizing such uncertainties in our workload, once the merger does occur, the new organization will be established in a scalable manner such that it can readily accommodate workload fluctuations without the need for additional major organizational changes. The coordination of the merger with other Project Aim initiatives, as well as

Commission and Congressional decisions on the agency's budget, could likewise affect the timing for initiating the merger and the associated completion schedule.

When the NRC senior management team believes that conditions would be best addressed by consolidating NRO and NRR, the staff would notify the Commission that it was planning to begin the reorganization. During the period between this paper and the merger-related reorganization, the staff will develop and implement detailed plans related to the consolidation of NRO and NRR.

Even without a specific date for the merger, the staff is requesting Commission approval of plans for an eventual merger of the offices. This approval will provide the staff with certainty in planning and implementing various reactor program activities. As described further in Enclosure 2, many activities are underway to harmonize processes, tools, and practices across NRR and NRO. The staff would expand upon these activities in accordance with Commission direction to improve consistency between the offices in advance of a formal merger, with the active engagement of staff and management throughout the process. The merger itself would provide additional efficiencies (particularly in the reduction of duplicate support functions) that would supplement the effectiveness and efficiency gained through ongoing and planned initiatives.

## **5. COORDINATION WITH REGION II<sup>3</sup>**

The Project Aim recommendation included developing a transitional plan for a merger of NRO and NRR, at the appropriate time, along with any associated organizational changes in Region II. After the issuance of the Watts Bar Unit 2 operating license, Region II put into place an initial phase of its transition plan and associated changes to its organization to address the status of construction programs for Watts Bar Unit 2 and the AP1000 sites.

The Region II reorganization of the construction divisions, which includes oversight of the AP1000 units and mixed oxide fuel facility, will be completed in incremental steps, aligning with the licensees' actual construction schedules to ensure continued effective and efficient inspections. Priorities include ensuring there is adequate knowledgeable staff to conduct construction, preoperational, and operational inspections of the four AP1000 units which will occur concurrently. The construction inspection skills will remain a part of the Region II organizational knowledge base should additional reactor construction occur. Inspection Manual Chapter (IMC) 2504, "Construction Inspection Program – Inspection of Construction and Operational Programs," (ADAMS Accession No. ML12298A106) addresses responsibilities during the transition from construction to operations. There will be both construction and reactor inspectors performing the inspections near the end of each project's completion. Region II will develop a detailed plan, informed by the Watts Bar Unit 2 experiences, which will identify the

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<sup>3</sup> Region II is specifically addressed here because of its close relationship with the construction program for new reactors. The development and implementation plans for the merger will affect other product lines managed by other offices (e.g., research and international cooperation). The reorganization plans will address these product lines and the associated interactions between NRC offices.

skills required during this period and the FTE needed to execute the inspections, which will inform reorganizing efforts as appropriate.

Region II is currently transitioning oversight responsibilities for the Watts Bar Unit 2 project from the construction division to the operations divisions. This transition will occur over an approximate 6-month period during which the previous construction branch, now transitioned into the Division of Reactor Projects (DRP), oversees the final preoperational and startup program oversight as designated by IMC 2517, "Watts Bar 2 Inspection Program," (ADAMS Accession No. ML13136A301) and the existing DRP branch associated with Watts Bar is conducting the IMC 2515, "Light-Water Reactor Inspection Program-Operations Phase," (ADAMS Accession No. ML16006A284) and Reactor Oversight Process activities.

After the transition of Watts Bar Unit 2 into a single DRP branch, the lessons learned from resource usage during the construction, pre-operational, and startup testing inspections will be used to inform the AP1000 construction staffing, and, in particular, the skill sets needed during the concurrent construction, pre-operational, and startup testing phases expected to occur with the four individual AP1000 units. This organizational evaluation will occur in early 2017, and implementation plans will be developed in phases to adjust to the AP1000 construction projects and any additional construction activities that may emerge.

The Region II transition plan is relatively independent from the assessments and likely changes to the headquarters organizations currently within NRO and NRR. The development of the reorganization plan to merge NRO and NRR will include provisions to ensure continued support for the construction program in Region II. The reorganization plan provided in Enclosure 2 and the staff's expected path forward on the consolidation of NRO and NRR does not specifically address organizational changes in Region II.

## **6. BENEFITS OF A REORGANIZATION TO MERGE NRO AND NRR**

The Project Aim report recommended the merger of NRO and NRR as one part of larger efforts to improve the effectiveness and efficiency of the agency. Discussions below on how the merger of NRO and NRR supports the areas for change identified in Project Aim provide the primary basis for the consolidation of the offices. The staff will coordinate the consolidation of NRO and NRR with the other Project Aim activities as well as office-level initiatives. The merger-related reorganization and various initiatives and shorter-term organizational changes are complementary in terms of enabling changes and achieving the desired outcomes.

### **Right-Sizing**

Project Aim determined that a significant challenge for the NRC is ensuring it has the right number of people with the right skills at the right time. Reduced workloads and declining agency budgets in coming years are expected to require reductions in staffing levels. The merger of NRO and NRR can, in concert with initiatives such as re-baselining and increasing staff-to-management ratios, support decreasing staffing levels by reducing duplication and overlap of functions (mostly in corporate support and management functions, with some incremental efficiencies possible in technical areas depending on workload).

The consolidation will also further enable the sharing of staff between the two business lines, so that the agency has the right staff in the right place at the right time. NRR and NRO currently share and move resources when needed to support critical or time-sensitive issues and shifts in workload. The agency demonstrated this capability in its response to the Fukushima accident. In 2015, the agency shifted NRO staff to NRR to support licensing work and more recently NRR staff have been assigned to NRO to support a number of COL-related hearings in 2016–2017. Other examples include the COEs in electrical reviews, the vendor inspection program, and allegation support. These COEs<sup>4</sup> have been effective while providing some efficiencies. The consolidated office can model these proven capabilities to continue to share resources between the new and operating reactor business lines for more routine activities. Enclosure 2 provides a detailed discussion on current initiatives that will enhance the efficiency and effectiveness of the two offices before the consolidation and on how the consolidated office supports a reduction in the number of senior executives, branch chiefs, and other overhead currently supporting the two business lines.

The changes associated with right-sizing the nuclear reactor safety program will introduce some challenges that are discussed in detail in Enclosure 2. Most of these challenges would be faced by the two business lines, whether they are managed by the existing offices or a merged office. For example, both business lines are addressing the challenge of maintaining critical skills at a time of declining budget and workload while also addressing overages in certain areas. The consolidation of NRO and NRR and the development of the reorganization plan provide an opportunity to assess and address many of the issues included in other Project Aim initiatives such as re-baselining and strategic workforce planning.

The reorganization plan in Enclosure 2 envisions reducing the number of branches while supporting both new and operating reactor business lines. The reduced number of branches supports the goal related to increasing staff-to-management ratios and also reduces other overhead such as administrative support positions. In addition, if appropriately managed, the increased collaboration between the staffs involved in the operation of nuclear power plants and the design reviews of future plants would result in more effective regulation in both areas.

### **Streamlining**

Project Aim determined that the agency's processes must be leaner, use resources more wisely, and limit overhead in both mission and support functions. Consistent with this goal, the reorganization plan includes assessing and revising the processes, procedures, and guidance used by the staff in both new and operating reactor business lines. Updating the guidance not only facilitates the consolidation of NRO and NRR by helping the staff assigned to tasks in both business lines but also supports implementing re-baselining efforts by emphasizing consistency and reducing duplication of effort. As identified in other NRO and NRR initiatives, updating such guidance can not only improve efficiencies but will also make the NRC a more effective and safety-focused regulator by applying risk insights to its operating and new reactor reviews. The need to review and revise the internal guidance to support the consolidation provides an excellent opportunity to incorporate best practices and update procedures and guidance

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<sup>4</sup> See vendor inspection program COE self-assessment (ADAMS Accession No. ML13030A266); electrical engineering COE self-assessment (ADAMS Accession No. ML13112A702); and allegation COE self-assessment (ADAMS Accession No. ML13182A235).

documents (e.g., office instructions on requests for additional information or position qualifications). Similarly, evaluating common infrastructure deployment (such as the replacement Reactor Program System) will enhance consistency in workload management and scheduling, as well as reduce costs associated with maintaining two separate information technology infrastructures.

The reorganization period provides the time needed to ensure procedures are changed and the staff receives the appropriate training to support the consolidation. As such, the reorganization plan includes process improvements among the activities to be performed before and during the reorganization period to support the consolidation of NRO and NRR. The staff intends to include resources for these process enhancements in upcoming budget requests.

The organization and infrastructure for the consolidated office will reflect the needed agility to address both operating and new reactor business lines. When establishing the organization, contract support infrastructure, and operational practices of the consolidated office, the staff will consider the readiness to adjust or reorganize the office to changes in the external environment (i.e., scalability), reflecting either increases or decreases in workload in specific areas.

### **Timeliness**

Another area mentioned in the Project Aim report involves the need for the NRC to execute its regulatory functions and make decisions in a more timely and effective manner. When external conditions change, the NRC must respond more promptly in an agile and flexible manner. The ability to more easily change staff assignments not only within but between the new and operating reactor business lines makes the organization more agile, which should support more timely responses to changing conditions. The use of existing common programs like classroom training of project managers and technical reviewers and the implementation of risk-informed approaches will maximize the ability of the staff to support both business lines. While discussed in more detail under the challenges associated with the merger, the reorganization plan will also address past issues with the NRC offices' ability to manage both short- and long-term projects effectively.

As discussed above and throughout the Project Aim report, some activities need to be completed to ensure the reorganization of NRO and NRR results in a more agile and flexible agency. A consolidation of staff into a single office does not, by itself, provide an effectiveness benefit or ensure improved efficiencies. Knowledge management, implementation of COEs, critical skills assessment, and mentoring are some examples of activities that the staff will use to achieve success now and during the reorganization period. Both NRO and NRR currently use such tools to some extent to attract, train, and retain their respective employees. The reorganization plan will include steps to harmonize these practices and support the staff so that the completion of the merger will improve both business lines. New or expanded work assignments in either business line would then be able to benefit more easily from the availability of staff currently in NRO and NRR.

### **Unity**

The Project Aim report notes that the agency must establish clearer agencywide priorities that reflect the needs of the Nation and must work together with unity of purpose in fulfilling these

needs. Since 2006, NRO and NRR have taken steps to promote the sharing of information and the consistency of technical decisions. Some conflicts have occurred, however, partly due to differences in regulatory requirements and review processes between new and operating reactors and partly due to the offices being separate entities. Organizational barriers reduce the agility and flexibility of the staff, as described above, and impede timely resolution of issues where a solution must apply across business lines. First through harmonization activities and then through a formal reorganization, a merger of NRR and NRO would provide a clear path to enhanced unity within the reactor program. Furthermore, increased collaboration between the staffs involved in the operation of nuclear power plants and the design reviews of future plants could result in more effective regulation in both areas. Consolidation of NRR and NRO into one office will not eliminate the potential for conflict, but it will create an organizational structure where challenges are identified and addressed more quickly by a management team with shared programmatic goals.

## **7. CONCLUSION**

The NRC should plan to merge NRO and NRR at an appropriate time. Although premature to begin the merger-related reorganization at this time, it is likely to be appropriate in the future based on workload, external factors, and the additional benefits of a consolidated office. In the meantime, Project Aim activities and ongoing initiatives in NRO and NRR are expected to improve performance and address some of the changes in workload and expected reductions in NRC staffing and budgets. The staff will use performance measures, self-assessments, and external audits to determine if these initiatives are improving the effectiveness and efficiency of activities within NRO and NRR. The eventual merger of the offices will be coordinated with and be complementary to other improvement efforts.