Achieving Exemplary Nuclear Regulation in the 21st Century

Report on Project Aim 2020

Project Aim 2020 Team

Attachment 1
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Contents

Dedication

This report is dedicated to the women and men of the Nuclear Regulatory Commission (NRC) who have made the agency as successful as we are today and have laid the foundation to achieve an even higher performing NRC of the future. In January 2015, the NRC celebrated its 40th anniversary following its founding on January 19, 1975. Over the past 40 years, the NRC has distinguished itself as an accomplished regulator of nuclear safety, security, and safeguards. Through continuous improvement and a positive safety culture, the NRC has improved its performance in regulating civilian nuclear facilities and materials by thoughtfully considering lessons learned and seeking to improve based on these lessons. We are grateful for the dedication, determination, sacrifices, and contributions of our predecessors. The recommendations and strategies in this report are intended to take the performance of the NRC to an even higher level by building on the agency's strengths and successes and achieving exemplary nuclear regulation in service to the Nation.

Acknowledgement

Over the last seven months, the Project Aim 2020 Team has devoted its creativity, outreach, thought, passion, deliberation, and collaboration to produce this report. The team evolved as new members joined and as others transferred into new positions. The team had over 116 years of NRC experience and 158 years of Federal government experience from multiple agencies. In addition, a Guiding Coalition comprised of members with over 229 years of NRC experience and 268 years of Federal government experience guided the team through the project. Finally and most importantly, the Project was inspired and informed by the perspectives of the NRC staff, senior leaders, Commissioners, and external stakeholders. We have greatly valued the insights, wisdom, dedication, commitment, and contributions of all participants in the project.

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Thank you for all you have contributed,
Michael Weber

Executive Summary

The NRC's Executive Director for Operations (EDO) established Project Aim 2020 in coordination with the Chief Financial Officer (CFO) 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. A series of developments converged in the spring of 2014 and precipitated the need for and urgency of this project. The NRC achieves a high level of success in accomplishing the agency's safety and security mission, but its effectiveness, efficiency, agility, flexibility, and performance must improve for the agency to continue to succeed in the future.

The project was conducted by a small team of experienced staff members and guided by a Guiding Coalition beginning in June 2014. The Commission approved the charter for the project team shortly thereafter. After reading relevant literature and reflecting on NRC experience with past initiatives, the team conducted outreach to external stakeholders and other agencies, as well as inreach to the Commission, senior leaders, NRC employees, and Chapter 208 of the National Treasury Employees Union (NTEU). The team also obtained review and advice from the National Academy of Public Administration (NAPA), which commended aspects of the project and offered constructive suggestions for how the project could be improved in the future. The team developed alternative scenarios using foresight methods to assist and inform a gap analysis comparing the current state of the agency and the challenges and trends the agency may need to face between 2014 and 2020. The gap analysis included 23 focus group sessions with NRC employees from throughout the agency, including regional offices and the Technical Training Center (TTC), as well as interviews with office directors and regional administrators, an online survey of NRC employees, and several meetings with the Commission. The gap analysis yielded more than 2,000 recommendations, suggestions, strategies, and observations.

The project team evaluated the results of the gap analysis, characterized the current state, conducted a review of root causes, and identified 140 recommended strategies that could be useful in closing the gap between the current state and the future as envisioned by the team. The team screened these strategies considering relevance, mission value, feasibility, complexity, program risk, and timing, along with consideration of other related initiatives underway within the NRC. The team then prioritized the remaining strategies, sought review and alignment with NRC senior leaders, and coalesced the strategies into a transformational roadmap for consideration by the Commission.

The most transforming themes identified by the team are to:

- Strengthen unity of mission through adopting the concept of "One NRC," in which priorities are established at the agency level and resources are promptly and effectively deployed to accomplish these priorities
- Enhance the culture of the NRC to increase efficiency, effectiveness, agility, and flexibility
- Sharpen NRC focus on achieving desired outcomes in performance management, planning, people, and process

- Improve talent management to ensure the NRC has the right number of people with the right skills at the right time

These transcending themes are reflected in the strategies grouped into people, planning, and process. The team recommends actionable steps to implement successfully the three overarching strategies. For the people strategy, this includes improving talent management to ensure the NRC has the right number of people with the right skills at the right time; enhancing employee agility to reduce the time required to shift resources to meet the demands of a changing environment; and increasing organizational agility and efficiency through a focus on "One NRC" and outcomes. The planning strategy recommendations include streamlining and standardizing the planning and budget formulation process and re-baselining the work of the agency. Included in the process strategy are recommended actions to improve the transparency of fees; improve the operating reactor licensing process; and improve other agency processes by streamlining, standardizing and clarifying roles and responsibilities. Successful implementation of these strategies is expected to play a key role in helping the agency to accomplish the agency's safety and security mission more effectively and efficiently while operating with fewer resources as the agency contracts during the next several years.

The strategies are presented in terms of both a roadmap and a more detailed set of recommendations (Appendix A - Recommendations) that include an implementation plan (Appendix I – Communications and Implementation Plan) for successfully executing the strategies. Execution of the strategies contributes to success, but the themes themselves need to become engrained in the agency's culture and applied boldly to accomplish the transformation expected from Project Aim 2020. After Commission review, the roadmap is intended to be executed by the line organizations, with oversight by the senior leadership team through the agency's performance management system, including the agency Quarterly Performance Reviews (QPR).

Why Does the NRC Need to Change?

The NRC needs to improve efficiency to meet future challenges. For forty years, the NRC has successfully met its safety, security, and safeguards mission and has met or surpassed agency performance measures, but adjustments are necessary for success in the future.

Efficiency is one of the NRC's five Principles of Good Regulation, which were established by the Commission in 1991. The efficiency principle stipulates that the NRC should have the best management and administration, the highest technical and managerial competence, a continual upgrading of its regulatory capabilities, and timely decision-making while minimizing the use of resources. Since the terrorist attacks in 2001, the agency has grown significantly to enhance security and incident response and to prepare for projected growth in the use of nuclear power in the United States (U.S.). That forecast in growth has now been adjusted downward in response to changes in the nuclear industry resulting in fewer new nuclear power plants and earlier decommissioning of some of the existing plants. These adjustments, in turn, are prompting the NRC to adapt its structure, workforce, culture, and regulatory processes to achieve the agency's safety and security mission in an era of constrained resources. The NRC must reposition itself to function as an effective and efficient regulator in this new environment, while retaining the capability to respond in an agile manner to a range of possible futures.

To improve regulatory efficiency, the NRC is changing in four broad areas:

- Right-sizing the agency – The NRC must retain, attract, and develop 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 the needs.

We need to improve our efficiency in accomplishing our safety, security, and safeguards mission.

What Might We Look Like in 2020?

To provide context and help illustrate NRC's vision for the future, the Project Aim 2020 team developed the following description of what the NRC might look like in 2020 as NRC improves efficiency. This projection is based in large part on understanding how the agency has grown and constricted throughout its history, adjusted to resolve national needs, such as the response to the terrorist attacks in 2001, and the projected growth of the nuclear industry in 2005-2009. The analysis that supports this projection is described in Appendix D - NRC Financial Environment. The team recognizes that the future cannot be predicted. Indeed, Project Aim 2020 recognizes the value of using scenario analysis and foresight methods is to enhance the resilience, flexibility, and preparedness of organizations to accommodate a range of futures (see Appendix E – Landscape Assessment and Scenarios). The specific agency attributes will change in response to workload adjustments, changes in the operating environment, and shifts in expectations and requirements established by Congress and the Administration. In addition, the specific attributes will need to be refined on an annual basis through the agency's planning and budget formulation process. Nevertheless, the following projection is useful in guiding NRC's longer-term projections and strategies for changing the agency.

The NRC can expect to continue operating with a safety first mindset and fostering an open, collaborative work environment. Workload will be distributed equitably and with less reliance on functional organizations. The agency functions as "One NRC" where the needs of the Nation are considered above an individual or an office. The NRC is more agile, flexible, and able to adapt quickly to changing workloads and needs to accomplish its mission, not for the sake of doing work. The NRC embraces change as an opportunity to enhance service to the country.

The planning and budgets of the NRC provide the strategies, tools, and resources needed to accomplish the agency mission. The agency accomplishes the mission with a high degree of confidence, without unnecessarily burdening the regulated community. The NRC is prepared for a variety of futures considering workloads, operating environments, technological developments, and national needs. The NRC engages stakeholders and partners in the planning, which is intended to achieve widespread support. When workload or the external environment changes significantly, the agency responds in a prompt, efficient, and agile manner to accomplish the needs of the Nation.

The NRC conducts its work efficiently and effectively in a manner that best achieves the mission, goals, and objectives. The processes that enable this performance are lean, responsive to national and Commission directives, and consistently deliver on desired outcomes. The NRC uses performance management and business performance improvement to drive continuous improvement, streamlining, and standardization of work processes. Processes deliver on expected outcomes.

In 2020, the NRC is smaller by approximately 10% (for example, a budget of 3,400 full-time equivalents (FTE) and $900 million) considering the projected workload, the end of actions related to the Fukushima lessons learned, elimination of the licensing backlog, and the changed

business practices recommended in this report. The agency will manage potential sequestration cuts through 2020 within the reduced resources. The Project Aim 2020 team analyzed the 40-year history of the NRC's enacted budget levels with particular focus on the resources and workload during the past 10 years. Based on this analysis, the staff projects the approximate reduction of 10% for planning purposes, with some uncertainty as a likely scenario. The actual budget will be formulated, justified, and adjusted as necessary, but this target provides a useful aim point for longer term agency planning and a driver for improving efficiency.

Attrition is expected to remain within 4-5% between 2015 and 2020. The agency will be fully staffed at budgeted levels and the number of overages (staff on board over what is approved in a staffing plan) will be minimal. Although resources are expected to contract, adjustments within the budget may be needed as a result of growth in fixed costs, increases in salaries and benefits of Federal employees, and workload changes. Consequently, in real dollars, the agency's budget is expected to decline. The potential reduction is dependent upon policy decisions by the Commission, the President, and Congress.

By 2020, most indications are that the size of the operating nuclear power plant fleet will be about where it is today, around 100 operating nuclear power plants. At the end of 2014, with the permanent shutdown of Vermont Yankee, the number of operating nuclear power plants in the U.S. reduced to 99 units. The Oyster Creek nuclear power plant is expected to shut down in 2019, reducing the number of operating units to 98. If no additional plants shutdown prematurely and the five units currently licensed and under construction begin operations, there would be 103 nuclear power plants operating in 2020.

Most of the work associated with the licensing and construction of new nuclear power plants will have been completed by 2020, including reviews of the Combined Operating License applications, most of the design certification reviews, and the handful of applications to produce medical isotopes without using high-enriched uranium. For operating reactors, the NRC will have completed most of the license renewal reviews for the extension of licenses by 20 years. A small number of renewal applications will remain under review. By 2020, the agency may have received several applications for up to an additional 20 year extension. In 2020, the staff will also be reviewing and overseeing the decommissioning of 10 to 20 reactors.

The materials and waste regulatory programs will be largely similar to their current state. One or two additional Agreement States may be regulating materials licensees. NRC licensing and oversight of the use of radioactive materials will be limited to licensees remaining in non-Agreement States and Federal entities and this total number of licenses will likely be about the same or slightly less than the current number of licenses (2600 to 2800). Most of the operating uranium recovery operations and new applicants will be regulated by the Agreement States, along with all of the operating disposal facilities for low-level radioactive waste. The demand for regulatory services associated with spent fuel storage will remain at about current levels as more reactor licensees transfer spent fuel from spent fuel pools to dry storage containers. Uranium fuel cycle facilities will also remain consistent with currently operating facilities.

Significant shifts are not expected in the numbers of facilities or technologies used to convert and enrich uranium and to produce uranium fuel for use in light water reactors.

More countries will be sharing international operating experience and best practices with the NRC. There will also be increased interest in collaboration and coordination between national nuclear regulatory authorities on existing safety and security issues, and especially in areas such as defense-in-depth and the safety/security interface. Similarly, there is increasing collaboration in research because of factors including the aging of existing research facilities (e.g., hot cells), the prohibitive cost of constructing new experimental nuclear facilities, and the unique equipment and expertise possessed by researchers in particular countries. The interest in uranium recovery assistance (mining, milling, etc.) is expected to remain constant over the next few years. There will continue to be a desire on the part of developing countries for assistance in licensing, operations, environmental protection, and decommissioning of nuclear facilities and radiation sources. The production of and global trade in medical isotopes are going to be a major focus for many countries in the coming years as the need for these isotopes increases and the global supply decreases or, is otherwise constrained in distribution. The U.S. Government initiative to change from high-enriched uranium to low-enriched uranium as targets for medical isotope production will likely have succeeded. Such activities are likely to result in more cooperation activities.

Consequently, NRC workload and resources in 2020 are expected to be similar to where the NRC was before the large projections of new nuclear growth began in the 2005 timeframe, albeit at adjusted levels that reflect increases in expectations and government wide requirements. The composition of this workforce in the regulatory offices is expected to be fairly similar to the numbers, grades, and competencies of the NRC employees in 2005 because the work will be similar with highest attention placed on oversight of safety and security of operating nuclear power plants, other nuclear facilities, and uses of radioactive materials. Over the next five years, gradual shifts in technologies, safety issues, and security threats are expected, which will drive some shifts in the workforce. For example, greater reliance on digital instrumentation and control systems will drive the need for more employees with the associated competencies. Similar growth is expected in the areas of cyber security, risk assessment, criticality safety, fire protection, severe accident specialists, data analytics, project management, and material control and accounting specialists. Such growth will be offset by contractions in other disciplines that are less in demand.

In order to understand what NRC might look like in 2020, it is important to understand how the agency has evolved through time. Over its 40-year existence, the NRC has grown several times, most notably following the accident at Three Mile Island Unit 2 in 1979, the terrorist attacks in 2001, and the passage of the Energy Policy Act in 2005. Following each of these events, the Commission sought, and the President and Congress provided, additional resources for the agency to meet its regulatory needs. In addition to growth, each of these events resulted in changes to the skills mix and competencies of the NRC workforce that reflect the safety and security issues associated with the responses, as well as more permanent changes to the NRC's regulatory framework accomplished through rulemakings and revisions in oversight

programs in the years that followed. As a result, the skills and capabilities of the NRC workforce became firmly established and the composition of the NRC workforce did not generally revert to its pre-existing condition or numbers after the events. Further, through time and increasing expectations from Congress, the Administration, and the American people, new demands and requirements have been imposed on the agency to enhance the level of service provided by the agency, as well as to protect against new and evolving threats, such as cyber-attacks.

In addition to the NRC's Federal workforce, the agency relies upon personnel funded under numerous contracts, interagency agreements, and national laboratories to accomplish its mission and corporate functions directly or through shared services, such as payroll, travel, and financial services. Similar to the forecasts in staffing, the composition of the workforce providing these services and functions is projected to remain fairly constant through 2020, in the absence of cross-government initiatives and mandates.

Following the accident at Fukushima Dai-ichi in 2011, the NRC did not seek additional resources to oversee the enhancements based on the lessons learned from the accident, but rather reallocated resources internally, especially from new reactor licensing and oversight, to accommodate the increased workload. Most of this work will be completed in 2016, so the workload demands associated with these enhancements are expected to subside before 2020.

NRC resource needs have been driven by more than workload increases, particularly in corporate functions. With each passing year, expectations and requirements on the agency from Congress and the Administration have increased. For example, since 2005, expectations have increased significantly for NRC work associated with international nuclear safety and security, emergency preparedness and incident response, safety culture of regulated entities, information technology, and computer security. Similarly, in an effort to improve continuously, the NRC has imposed increased expectations on itself, such as enhancements in public engagement and communications and in organizational culture. Some of these increases have been in response to audits and findings by the Inspector General and the Government Accountability Office (GAO). Many of these increases are reflected in growth in overhead, administrative costs, and infrastructure development, thus increasing staffing needs and program support needs.

The specific allocation of FTE and program support resources to the NRC's six regulatory business lines and the Corporate Support Business Line can be expected to vary somewhat over the next several years. With most of the new reactor workload completed by 2020, it is expected that this regulatory business line will see the largest reduction. Other reductions and adjustments are expected to occur in the workforce, as NRC operations achieve greater effectiveness and efficiency. The composition of the workforce and the functions and services provided under contract in the Corporate Support Business Line will evolve during the next five years in response to government wide and technology trends. These services include storage of information in the cloud, shared services, big data analysis, and demands for greater analysis to support more efficient and effective operations and infrastructure in the Corporate Support Business Line. In 2020, the size, type, experience, knowledge, and skills of the workforce will

have evolved from the current state allowing the agency to be resilient to internal and external changes to better position itself for the future.

There are several specific areas where the agency could expand or contract, and the workforce and program support needs could change, but these areas are heavily driven and influenced by decisions of the President and Congress. For example, if Congress and the President agree to proceed with the licensing review of the proposed repository at Yucca Mountain, the NRC could see an increase in both staff levels and the program support budget. However, as the NRC has been doing during the last five years, employees are being hired and contracts are being let in a manner that preserves flexibility to adjust, as necessary and appropriate, if this and other projects are subsequently terminated, significantly slowed down, restarted, or begun. In addition, progress on this project could draw upon the current NRC workforce with competencies in construction oversight in Region II and in the earth sciences in the Offices of Nuclear Material Safety Safeguards (NMSS), Office Nuclear New Reactors (NRO), and Office of Nuclear Regulatory Research.

Where Are We Now and Where Do We Need to Go?

Background

The NRC's plans and budgets are significantly driven by the projected workload, with the highest priority placed on regulation of the operating nuclear facilities and users of radioactive materials to ensure safety and security, above the priority assigned to new licensing. The greatest priority is assigned to work that directly contributes to safety and security, such as licensing, oversight, and incident response. As a result, workload projections are significantly dependent upon the number and performance of operating nuclear facilities and material licensees and new license applications. Consequently, decreases in the number of operating facilities and new applications, as well as improvements in operations performance generally translate into reduced projections of work and decreased budgets in the out years. Although the agency's use of its Planning, Budget, and Performance Management (PBPM) process has resulted in leaner operations and reduced margins, the NRC's capacity to respond to unplanned shifts in workload (e.g., significant decrease in performance of a few nuclear power plants, return of all or part of an Agreement State program) warrants improvement.

Beginning in the mid-2000s, the NRC began preparing for a projected surge in applications for new nuclear power plants, nuclear fuel cycle facilities, the national geologic repository, and uranium recovery facilities, with heightened interest both domestically and internationally. The Congress enacted the Energy Policy Act of 2005, which provided a variety of incentives for new nuclear power plant construction, as well as imposed additional requirements on the agency related to security enhancements. Based on the projections of new nuclear growth, the NRC's budget nearly doubled to exceed $1 billion for the first time in 2010 and NRC's staffing increased by 25% to approximately 4,000 full time employees in 2010. The projections were based largely on letters of intent to submit license applications from utilities, power companies, and other commercial entities. The NRC also received strong Executive Branch and Congressional support for the regulatory preparations to match the planned workload and to help ensure that the NRC review would not constrain growth in the safe and secure use of nuclear technology.

By 2011, commercial interest in licensing and building new nuclear facilities had begun to wane in response to a number of external drivers including reduction in the price and increase in availability of domestic natural gas. In March 2011, the accident at the nuclear power plants at Fukushima-Daiichi occurred in Japan, further eroding interest in moving forward aggressively with construction and operation of new nuclear facilities in the U.S. and abroad. In 2013, several companies announced the premature termination of reactor operations at the Kewaunee, Crystal River, and San Onofre Nuclear Generation Stations, coupled with announcements of the intent to terminate operations at Vermont Yankee at the end of 2014 and Oyster Creek in 2019. Concurrent with these developments, the commodity cost for uranium continued to slide lower from its high value in 2007 due to a reduction in projected international and domestic demand. Offsetting these negative projections, U.S. utilities pressed forward with licensing and construction of five new nuclear power plants at Vogtle, Summer, and Watts Bar,

and several mining companies continued with licensing and operation of new in-situ recovery projects for uranium. Consequently, as 2014 closed the projected workload for the NRC for new nuclear facilities remained significant, but much less than had been forecast a few years earlier.

The agency has had difficulty in making longer term forecasts because of the extent to which the workload projections are driven by external factors that are outside of the agency's control (e.g., availability and cost of natural gas, foreign nuclear emergencies). Workload changes were the focus of the Senior Staff Leadership Meeting in November 2013. Office Directors, Regional Administrators, and other leaders discussed known and projected workload changes and attempted to formulate an initial projection or "aim point" for the workload expected five years in the future. The senior leaders continued to refine this projection in biweekly strategy sessions in December 2013 and January 2014. In April 2014, the NRC conducted its spring Senior Staff Leadership Meeting and focused on performance management. Both the fall and spring senior leadership meetings were successful in raising awareness among the leaders about necessary improvements in planning, budgeting, and performance management, but time constraints precluded translating this awareness into a concrete set of actions. These discussions, however, established the foundation for Project Aim 2020 by raising awareness among senior staff leaders of the importance of improving efficiency of NRC operations. Similar themes were raised in the gap analysis conducted in this project and in the interviews with external stakeholders as described in Appendix G – Outreach Meetings.

Key Transformational Themes

The Project Aim 2020 Team developed a roadmap consistent with Appendix B – Project Aim Charter and based on the approach outlined in Appendix C – Project Plan, Gap Analysis, and Approach. The roadmap is comprised of strategies that are intended to enhance the effectiveness, efficiency, agility, flexibility, and performance of the NRC. The strategies reflect four transcending and transforming themes, including:

- Strengthening unity of mission through adopting the concept of "One NRC," in which agency-level priorities are established and resources are promptly and effectively deployed to accomplish these priorities
- Enhancing the culture of the NRC to increase efficiency, effectiveness, agility, and flexibility
- Sharpening NRC focus on achieving desired outcomes
- Improving talent management to ensure the NRC has the right number of people with the right skills at the right time

These transcending themes are reflected in strategies that are grouped into the three categories of people, planning, and process. The strategies are presented in terms of both a roadmap and a more detailed set of recommendations (Appendix A - Recommendations) that include an implementation plan (Appendix I – Communications and Implementation Plan) for successfully executing the strategies. Execution of the action items contributes to success, but the themes themselves need to become engrained in the agency's culture and applied boldly to accomplish

the transformation expected from Project Aim 2020. After Commission review and approval, the roadmap is intended to be executed by the line organizations, with oversight by the senior leadership team through the agency's performance management system.

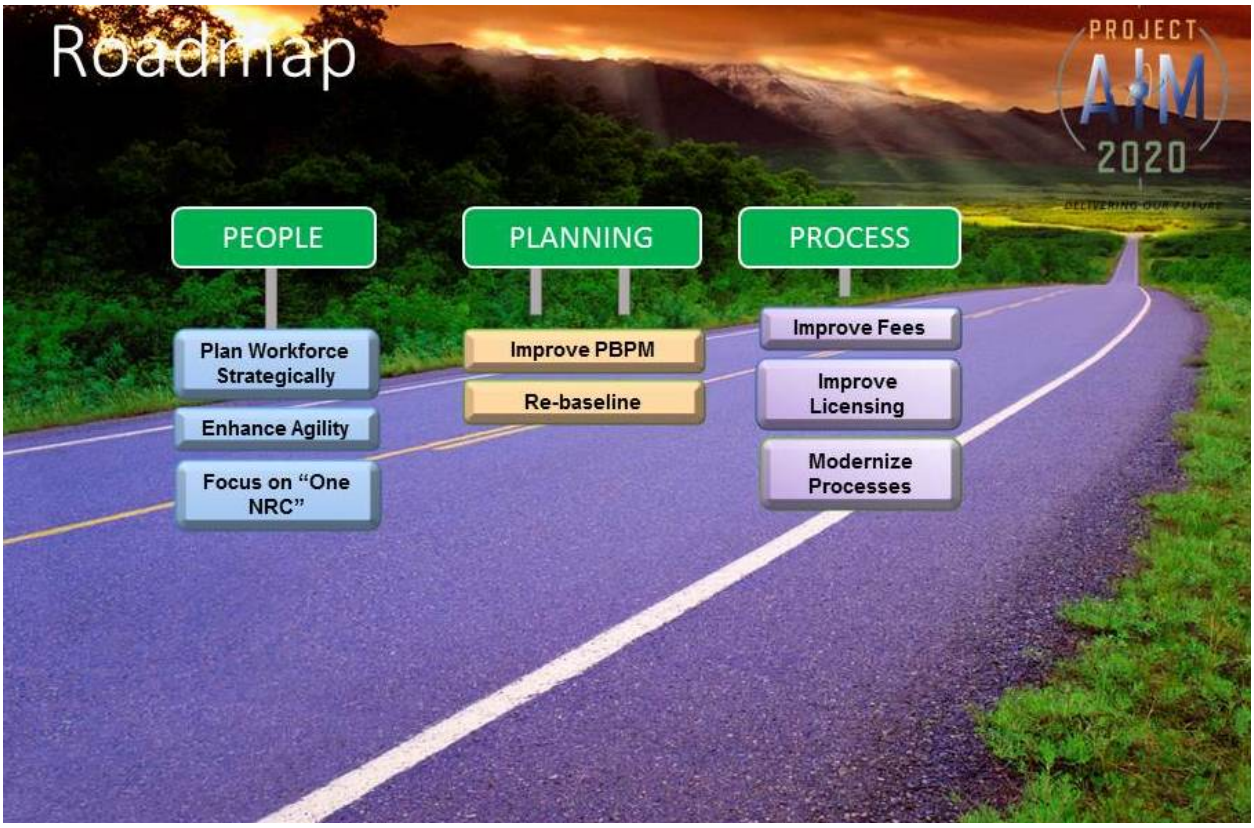

Figure 1. Project Aim 2020 Roadmap

People

Current State

Workforce

Since FY 2000, NRC staffing levels have increased by approximately 1,000 FTE, though the agency 40-year average is about 3,200. While the majority of the growth between FY 2006 and FY 2009 was primarily for workload associated with the review of new reactor applications, there has also been sufficient growth in reactor licensing renewals, new and existing fuel facility applications, security and incident response, the high-level waste repository application review, and corporate costs.

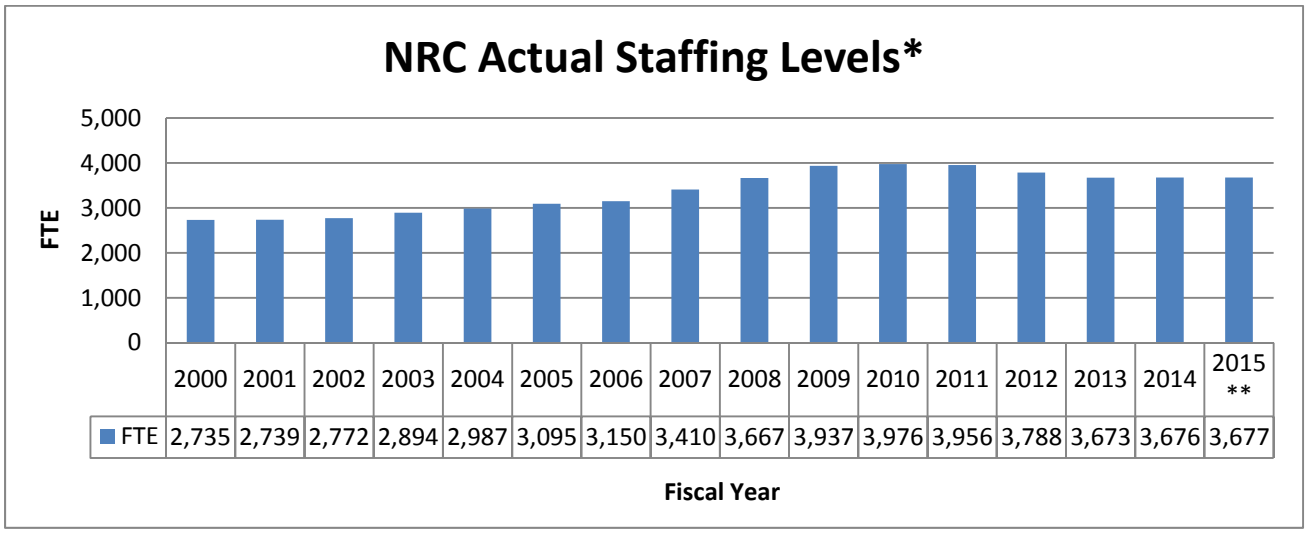

Figure 2 – NRC Staffing Levels
* Excludes the Office of the Inspector General.
** FTE level is projected.

The NRC's strongest asset is its talented and dedicated workforce. In addition to the NRC staff, the agency also benefits from individuals with similar capabilities in contractors, other government agencies, national laboratories, and universities. In FY 2014, the agency's 3,740 on-board employees consisted of 508 (14%) managers and supervisors, 1,784 (48%) engineers and scientists, 1,101 (29%) other professionals, and 347 (9%) paraprofessional and clerical employees. External hiring for FY 2013 and FY 2014 increased, although with continued focus on employee grade levels and skills to ensure that the agency has the human resources necessary to accomplish the mission. The agency's attrition rate has remained within 4-5% for the last five years, with the exception of a rate of almost 6% in FY 2012 due to an increase in retirements. The NRC has the right people to accomplish the mission, including employees, contractors, and national labs, but as the work shifts, there are instances where some offices have vacancies in funded positions and some offices have employees working in unfunded positions.

The agency does not operate with the level of agility and flexibility needed to respond to changes in the workload and priority shifts caused by factors that are beyond the NRC's control. Building organizational capacity is a key objective. The NRC has initiated efforts to train new staff or retrain existing staff to address the changes in workload, but it is taking a significant amount of time for employees to reach full performance capability. Current efforts to improve the agency's agility include the Resource Management Strategic Initiative (RMSI) and the Learning Transformation Initiative (LTI).

Region II implemented the RMSI to anticipate and prepare for potential workload changes. RMSI consists of five components: 1) Workload Projections: better estimate of workload informed by external factors such as economics; 2) Skills Identification: identify skills needed to align with estimated workload; 3) Resource Management: hire strategically including consideration for training and retooling existing staff to meet the need; 4) Individual Development: develop the organization and people that are ready and capable to deal with the future and provide clear management expectations; and 5) Workforce Planning: manage people resources and skills across each business line and among divisions.

The Office of the Chief Human Capital Officer (OCHCO) initiated the LTI to increase training effectiveness, reduce costs, and reduce time to achieve employee qualification. The initiative will also leverage strengths of the changing workforce and provide greater flexibility and reduced disruption of workflow. As part of this broad training transformation project, the agency initiated an occupational Training Needs Assessment (TNA) of several inspection functions in 2014. The purpose of the TNA is to ensure the NRC is training to the skills that are truly needed for the inspection function, and that the way staff is trained is effective at building those needed skills. The staff received a final draft TNA gap analysis report, which contains the recommendations, and a comparison of what was found in the TNA findings report as compared to the existing qualification program. The analysis provided few course specific or qualification activity-specific recommendations as a result of taking such a broad look across multiple qualification programs. However, the analysis helped the NRC develop the process and capability to perform these types of analyses internally on a small scale.

The NRC has been particularly effective in developing and conducting succession planning for its executive corps and developing supervisors. Programs like the Leadership Academy, Leadership Potential Program, Supervisor Development Program, executive coaching, and Senior Executive Service Candidate Development Program have successfully maintained a talented and diverse pool of supervisors and managers to meet the agency's needs. The NRC has also continued to refine these programs to adjust to emerging needs and to enhance diversity and performance of the NRC staff leadership. For example, in 2014, the NRC initiated enhancements to the succession planning process for NRC executives to broaden the fungibility and depth of managerial talent. These programs are executed by OCHCO under the oversight of the Executive Resources Board.

OCHCO assists offices in identifying employees with certain skill sets to address emerging work by providing workforce data from the Federal Payroll and Personnel System. They also provide

recommendations to fill gaps or address overages, as well as facilitate resource discussions with the Human Capital Council or specific Office Directors to address skill gaps resulting from workload shifts. Each year, outreach efforts are refined by OCHCO based on the targeted competencies or degrees that are identified by the offices.

The agency does not have an automated strategic workforce planning (SWP) tool to manage the talent pipeline. Consequently, supervisors rely on past experience and the grapevine to be aware of employees with the skills and talents necessary to accomplish the work. The SWP tool the agency used in the early 2000s was not useful and was time consuming to maintain due to the large number of competencies being tracked in the system. OCHCO has been benchmarking with other agencies with a high percentage of scientific or technical skills to gain best practices on how to design a better SWP tool that will meet agency needs.

The NRC provides many programs that help attract and retain employees by allowing them to balance their work and personal and family life, including alternate work schedules, health and wellness programs (e.g., exercise, medical screening, smoking cessation programs), employee assistance program, child care subsidy program, support groups, and telework, which are the programs rated in the Federal Employee Viewpoint Surveys (FEVS). The 2014 FEVS results show that NRC employees are much more satisfied with NRC's work/life programs compared to the government wide scores, ranging from 76% to 96% compared to 68% to 89%. These benefits have directly contributed to improving the engagement, retention, and recruiting of the talented workforce the agency needs to accomplish its mission. The work/life programs have also contributed to the NRC consistently achieving high ratings in the FEVS and Best Places to Work listings.

Presently, the NRC's Headquarters in Rockville, Maryland resides in four buildings, which will be consolidated into three buildings by the end of 2015. There are four regional offices located in King of Prussia, Pennsylvania; Atlanta, Georgia; Lisle, Illinois; and Arlington, Texas. The NRC TTC, which provides training for the staff in various technical and regulatory disciplines, is located in Chattanooga, Tennessee.

Congress and the Office of Management and Budget (OMB) expect to reduce Federal office space to reduce costs across the Government. The agency is committed to work with OMB, the General Services Administration (GSA) and Congress to meet the agency's space needs consistent with existing law and government directives, which requires an overall utilization rate target of 200 square feet/person at the NRC headquarters complex, which is approximately 55 square feet/person less than the current utilization. The NRC is addressing space needs in two phases; in the short-term, all headquarters employees will be consolidated into the three-building campus at White Flint. Over the longer-term, the agency is examining best practices and planning space needs for 2020 and beyond.

In July 2014, the NRC established the Enhanced Workplace for the Future Working Group. The group, chartered by the Director of the Office of Administration (ADM), which consists of headquarters, regional, and NTEU representatives, has been examining space

management, technology, human resources, security policies, and best practices to provide recommendations for consideration in consolidation of the White Flint Campus, as well as the long-term housing strategy/plan for the NRC. The group is specifically considering work, support, meeting spaces, mobility, and best practices. Gensler, a global-based architectural/engineering firm is assisting the NRC complete this work by June 2015. The long-term housing strategy/plan is to develop a 10-15 year view of NRC's space needs, which will identify and address agency space needs for the future, manage growing government-wide requirements to reduce space, optimize space utilization to support the agency mission, and acquire a replacement lease for the Two White Flint North building.

The NRC currently has 50% of employees participating in the telework program, including a variety of arrangements from full-time remote work to periodic project based telework. Under Flexiplace, employees may work at home or at an offsite location, for up to three days per week. Currently, employees who participate in a part-time telework arrangement still maintain their dedicated workspace at a worksite. The long-term housing strategy will include evaluation and consideration of “alternative officing,” as defined by the GSA Mobility and Telework Policy. Alternative officing is an arrangement in which an employee has no assigned workspace or shares a workspace at a worksite.

Organizational Structure

The NRC is currently comprised of 28 offices located in headquarters and the regions, including 5 major program offices (3 of which are established by legislation), 4 regional offices, and 19 smaller offices. The NRC recently merged two offices, NMSS and the Office of Federal and State Materials and Environmental Management Programs (FSME) to enhance efficiency, following a strategic evaluation of the organizational structure needed for the future of the nuclear materials and waste programs, based on external and internal changes that have occurred over the last several years. The merge combines the two offices, each with a three technical division model to one office with a four technical division model, which increases the staff-to-management ratio from 8.1 (NMSS) and 8.5 (FSME) to 1 to 10.7 to 1. In anticipation of the work associated with the licensing and construction of new nuclear power plants to be completed over the next five years, the staff has developed an integrated plan that identifies regulatory functions necessary to support the transition of new reactors from construction to operation. However, the staff has not begun detailed planning for merging NRO and the Office of Nuclear Reactor Regulation (NRR) at this time.

As a result of the Transforming Assets into Business Solutions (TABS) initiative, many corporate support functions in the agency have been centralized to make the NRC more effective and efficient by reducing duplication, adopting best business solutions, and removing inefficient processes and functions. Actual transfers of staff from the program offices to the corporate offices took place in FY 2013 and FY 2014. Because many of these efficiencies will take years to be fully realized, it is not yet possible to quantify the overall savings achieved. Efforts to centralize corporate support functions have primarily occurred at headquarters.

Currently, the NRC is utilizing centers of expertise at Headquarters in the areas of rulemaking (by business line), vendor inspections, electrical engineering, force on force security inspections, and fire protection. The materials inspection program for Region I and Region II was consolidated into Region I in 2006. In addition, both the fuel cycle facility inspection program and the new construction inspection program were centralized in Region II. The center of expertise organizational model improves efficiency, knowledge sharing, and the application of best practices, which should lead to increased performance. However, effective functioning requires closer collaboration across organizations and clear priorities. While use of the centers has served the NRC well, clearer understanding of the roles and responsibilities and agency priorities would help these centers function effectively and efficiently. Additional centers could also be established.

Culture

The NRC culture is reflected in the Principles of Good Regulation (1991) and Organizational Values (1994). Consistent with the principles and values, the NRC fosters an open collaborative work environment (OCWE) and has multiple processes to encourage employees to freely share their ideas to contribute to the mission and to raise concerns. This culture is consistent with current and past Administration efforts to strengthen organizational culture of employee engagement and mission performance in accordance with priorities established in the President's Management Agenda Cross Agency Priority goal on People and Culture. Employee engagement is a leading indicator of performance and is directly linked to mission success. In December 2014, the agency completed an OCWE Assessment and found that previous surveys demonstrate that the agency made considerable progress in promoting an environment that encourages all employees to raise concerns and different views or opinions, which was the original intent of OCWE. The assessment has identified areas for continued focus, along with recommendations for improving and sustaining a positive environment for raising concerns.

> *Organizational culture includes an organization's expectations, experiences, philosophy, and values that hold it together, and is expressed in its self-image, inner workings, interactions with the outside world, and future expectations. It is based on shared attitudes, beliefs, customs, and written and unwritten rules that have been developed over time and are considered valid. Also called corporate culture, it's shown in (1) the ways the organization conducts its business, treats its employees, customers, and the wider community, (2) the extent to which freedom is allowed in decision making, developing new ideas, and personal expression, (3) how power and information flow through its hierarchy, and (4) how committed employees are towards collective objectives.*[1]

The NRC Safety Culture Policy Statement, issued in 2011, sets forth the Commission's expectations that regulated individuals and organizations establish and maintain a positive safety culture commensurate with the safety and security significance of their activities and the

[1] Businessdictionary.com

nature and complexity of their organizations and functions. Although the policy statement does not currently apply to the activities of the NRC itself, the NRC has many existing processes and practices that support a healthy safety culture. "Safety Culture" often refers to having a "safety-first focus." Some attributes of a strong safety culture are conservative decision-making, procedural adherence, questioning attitude, and "safety conscious work environment" (where employees are encouraged to raise concerns without fear of retaliation and the management effectively responds to them.)

The NRC monitors culture by analyzing the results of the FEVS, along with the outcomes of the Office of the Inspector General (OIG) Safety Culture and Climate Survey action plans. Starting with the 2005 OIG survey, the contractor, International Survey Research Corporation (now Towers-Watson), has hosted post-survey "Results to Action" workshops for NRC staff to aid in the creation of action plans to capitalize on the NRC's strengths and opportunities for improvement.

In the 2014 FEVS, the NRC continued to score high in all indices the Office of Personnel Management (OPM) uses to compare us to employee views in 37 other federal agencies. OCHCO is leading a team comprised of representatives from the Office of Small Business and Civil Rights, NTEU, the Office of Enforcement, and the Office of the Executive Director for Operations (OEDO) to analyze the agencywide FEVS results and identify plans for moving forward with an agency Action Plan for Continuous Improvement. The staff uses the results and recommendations from this assessment to improve the agency's overall environment for raising concerns and internal safety culture. The last OIG Safety and Culture Survey was conducted in FY 2012. The next survey will be conducted in FY 2015. The results will be analyzed against FY 2012 data and action plans will be developed to address areas for improvement.

The NRC has taken targeted actions to improve its organization based on the results of past surveys. For example, Executive Leadership Seminars were held for supervisors that involved presentations from experts in the fields of employee development, management performance, and diversity. In addition, new training for supervisors and employees on developing and implementing Individual Development Plans is offered at the Professional Development Center. The NRC also rolled out the "Behavior Matters" initiative to help develop a shared awareness and understanding of the behaviors that support NRC values. In addition to these agencywide initiatives, many offices and regions developed their own action plans to improve in areas that address their specific results.

As previously mentioned, the NRC has been guided by its Principles of Good Regulation – Independence, Openness, Efficiency, Clarity, and Reliability – five principles that serve as milestones or benchmarks to assist the agency in making regulatory decisions over time. Similarly, in 1994 the agency established its Organizational Values to guide how the agency operates, including Integrity, Service, Openness, Commitment, Cooperation, Excellence, and Respect. The NRC values have stood the test of time and are ingrained into the culture. However, it might be an opportune time to consider the need for increased agility in the organization and perhaps refine those values. Based on research completed by the Institute for

Corporate Performance, high performing agile organizations are ten times more likely to have the following values embedded into their cultures: 1) innovation; 2) transparency; 3) creativity; 4) diversity; and 5) collaboration. These values are also supported by the Corporate Executive Board who identifies three hallmarks of organizational agility: 1) empowerment; 2) innovation; and 3) collaboration. Some of these values are already strongly embedded into the culture. However, innovation, creativity, and empowerment can be strengthened, as reflected in the FEVS results and the end of year synthesis of all the prior year's Organizational Development engagements performed by Suntiva.

The NRC's culture is aligned to support mission success today, but there are certain attributes of leaders in highly agile organizations that need to be more strongly embraced at the NRC. According to the Institute for Corporate Performance, the following leadership traits support agility: 1) open-mindedness; 2) tolerance for ambiguity; 3) willingness to be transparent; 4) comfortable taking risks; 5) approaches change with positivity; 6) stays focused in times of uncertainty; and 7) facilitates teamwork. The Principles of Good Regulation and Organizational Values do not explicitly list these traits shown to be associated with agile organizations.

Highly agile organizations have greater levels of empowerment and allow increased decision making. At the NRC, decision making is typically more hierarchal and reserved for positional leaders, with approval for decisions occurring up each successive level of the hierarchal chain of command. As a result, NRC employees may perceive that innovation and agility are not valued or welcome, which could detract from accomplishing the agility and innovation necessary to fulfill the mission effectively and efficiently.

The NRC can further build on its current culture and the success brought by the principles and values to enhance the concept of "One NRC." A unified organization, or "One NRC," embraces the concept that the agency works to achieve a common and unified vision for the organization. The unified vision will encourage trust, create empowerment, and help managers break out of the "office" mentality and adopt the "One NRC" concept. The leadership team will need to identify the qualitative focus that is shared among them as the top priorities and work together towards achieving those common goals. It is also important that all employees are aware of this objective and understand how they can contribute individually through the accomplishment of meaningful work and influencing important decisions. Effective organizations use empowerment to create a cohesive work environment. The NRC can empower employees by promoting personal responsibility and accountability along with creative thinking, innovation, and informed and controlled risk-taking.

Recommended Strategies

People Strategy *– Improve the efficiency, effectiveness, and agility of the workforce by managing talent as "One NRC."*

Principle: Agility – The ability of the agency to anticipate and respond fluidly and effectively to current and future challenges in a volatile, uncertain, complex, and ambiguous environment. (Source: OPM draft document, July 2014)

- Improving talent management and right sizing the agency
- Strengthening unity of mission, agility, and efficiency through adopting the concept of "One NRC"

The NRC has the right people to accomplish the mission, but the organization sometimes responds slowly when workloads and priorities shift in a changing environment. NRC employees often identify first with their office, and secondarily to the agency, so significant coordination is required to realign and shift priorities. The NRC can improve organizational effectiveness, efficiency, and productivity by improving workload distribution, enhancing collaboration, optimizing interfaces, improving knowledge transfer, and enhancing agility by relying more on organizational structures that promote a more agile and efficient response. Achieving workforce agility requires that the agency continue to develop and enhance our engaged, talented, and diverse employees who apply themselves fully in accomplishing the agency mission. The agency also needs to develop their ability to promptly shift their attention when priorities and needs change. Managing the talent through strategic workforce planning will ensure that the agency retains, attracts, and develops people with the right skills to accomplish the mission efficiently and effectively. It will also lessen overages or shortfalls in each of the skill sets needed, and provide the ability to shift qualified employees or their work assignments to meet the demands of a changing environment with speed, flexibility, and nimbleness.

The following recommendations are made to ensure the NRC succeeds in serving the American public in fulfilling its mission efficiently, effectively, and with agility:

1) Ensure the NRC has the right number of people with the right skills at the right time. This will be accomplished through the development of an agency strategic workforce plan that identifies and defines the functional work and occupations of the current agency workforce and the required functional work and occupations of the future workforce (2020 and beyond) and the planned transformation.

2) Enhance employee agility by reducing the time required to shift employees or their work assignments to meet the demands of a changing environment. This will be accomplished by documenting the competency models needed to execute the job tasks, performing a gap analysis of the existing qualification programs against needed knowledge and skills, and

providing recommendations to revise the qualification/training curriculum to make training and development programs more efficient and effective.

3) Increase organizational agility and efficiency through focus on "One NRC" and on outcomes. The agency can move towards adopting the concept of "One NRC" by understanding, supporting, and refining the agency values and leadership model. Coordination, effectiveness, and efficiency in achieving the mission can be enhanced by the way the agency is organized and how the agency operates to enhance unity of purpose. The agency should look at opportunities to explore greater reliance on centers of expertise, develop an approach to merge NRO and NRR at the appropriate time, consider further consolidation of the regional materials program, and look for opportunities for savings through standardization or centralization of corporate functions in the regions.

Planning

Current State

Strategic Plan and Planning Framework

In response to the enactment of the Government Performance and Results Act (GPRA) of 1993, the NRC implemented its PBPM approach beginning in 1997. The Commission issued its first Strategic Plan for Fiscal Years 1997 – 2002 in 1997 and continues to update the Strategic Plan, as required. The Strategic Plan provides the top tier planning foundation for the development of more detailed plans, budgets, and the performance management framework. The most recent version of the agency's Strategic Plan, for the years 2014 – 2018, was released in September 2014.

Following the passage of GPRA, the NRC joined other agencies of the Federal government in systematically improving the way that it plans its work, formulates budgets to accomplish this work, measures its performance, and adjusts its plans, budgets, and performance to best serve the American public. These changes institutionalized a process for continuous improvement. The NRC began these improvements by conducting a baseline assessment of its programs, plans, and budgets. The baseline assessment consisted of a bottom up analysis of all agency work and resource allocations linked to specific Legislative, Executive, or Judicial mandates, as well as direction from the Commission. The baseline assessment was useful in clarifying the basis for the agency's work, and establishing a foundation to prioritize resource assignments. The review identified numerous activities for which there was no clear statutory, legal, and policy basis. Since that baseline review, the agency has grown considerably in the intervening decades to a budget now in excess of $1 billion and a staff of about 3,700 FTE.

Figure 3 below provides a graphical representation of the NRC's budget and staffing levels over its 40 year history.

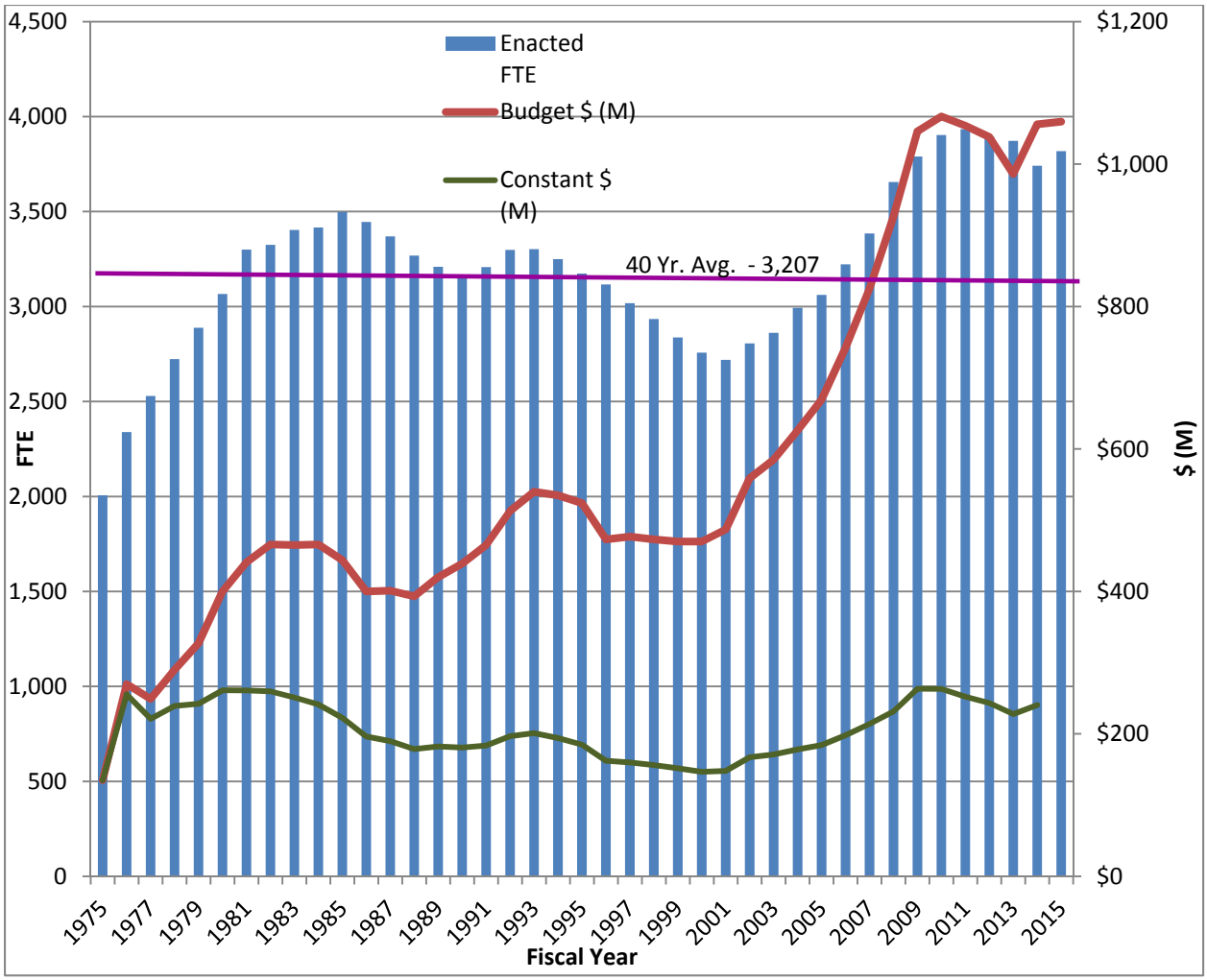

Figure 3 – NRC Historical Budget

Throughout the last 20 years, the NRC has adjusted its Strategic Plan, priorities, and budgets to reflect changes in the agency's workload, while emphasizing continuous improvements to enhance regulatory effectiveness and efficiency. The agency has had difficulty in making longer term forecasts due to the extent to which the workload projections are driven by external factors that are outside of the agency's control (e.g., availability and cost of natural gas, foreign nuclear emergencies,). As a result, the Strategic Plan has largely remained consistent in each update, focusing on the core mission and strategic goals of the agency, while making relatively minor revisions in goals, forecasts, and strategies. With the reduced margin to accommodate surges in workload, increasingly constrained fiscal policies, and vulnerabilities to large shifts in workload prompted by externalities, the NRC needs to plan, budget, and manage its resources in a manner that assures a high level of responsiveness to national needs and increased efficiency, flexibility, and agility to respond. The Strategic Plan and lower tier planning processes can be improved to drive enhancements in effectiveness, efficiency, and agility, while delivering on the NRC's mission.

Budget Structure

The NRC is organized by office, while the budget structure is currently grouped by major program, business line, product line, and product. This structure was developed in 2008, and first implemented with the formulation of the FY 2011 budget cycle. The four major programs are Nuclear Reactor Safety, Nuclear Materials and Waste Safety, Corporate Support, and Office Support. The seven business lines consist of Operating Reactors, New Reactors, Fuel Facilities, Spent Fuel Storage and Transportation, Decommissioning and Low Level Waste, Nuclear Materials Users, Corporate Support, and Office Support.

The product line and product structure are similar across the business lines. This structure achieves an increased level of transparency and consistency. The regulatory product lines include: Event Response; Generic Homeland Security; International Activities; Licensing; Oversight; Research; Rulemaking; State, Tribal, and Federal Programs; Training; and Travel. There are 10 product lines and 66 products in the regulatory or programmatic business lines.

Corporate Support (agencywide) and Office Support (office specific) are both programs, as well as business lines. The overhead product lines include Acquisitions, Administrative Services, Financial Management, Human Resources Management, Information Management, Information Technology, International Activities, Outreach, Policy Support, Support Staff, Training, and Travel. There are 12 product lines and 49 products in the overhead business lines.

Overhead

The intent of the revamped budget structure in 2008 was to make the agency's resources more transparent and consistent. However, it has also had the unintended consequence of artificially elevating the agency's overhead percentage by, among other things, grouping all supervisory FTE in the Office Support Business Line, without making adjustments for those FTE that perform direct work for the regulatory business lines. There is no standard approach across the Federal government to budget and account for overhead resources and expenditures. Additionally, resources have been included in both Corporate and Office Support that would more correctly be categorized as mission-related rather than infrastructure and support. Even though several efforts have been made to reduce overhead over the past several years (reduction of 474 FTE from FY 2011 to FY 2015 in Corporate and Office Support Business Lines), as a percent of the total agency budget, overhead still remains large due to the mis-categorizations mentioned above (see Figure 4 below). In comparison, the First Annual Report for the NRC in 1975 indicates that about 22% of the FTE were devoted to "Program Direction and Administration" and another 10% of the FTE were devoted to the Advisory Committee on Reactor Safeguards, licensing boards, and legal support. For various reasons, it has been easier to classify certain types of resources in the Corporate Business Line rather than budget for them in a more appropriate location within the current structure. Potential changes that could be made include: transferring a portion of Corporate Support Mission Information Technology (IT) to the appropriate program business line, transfer of Corporate Support International Activities to a more appropriate program business line, move a number of

administrative assistants currently included in Office Support to the appropriate program business line, as well as doing away with the Office Support Business Line altogether and incorporating these resources in the regulatory business lines. For the FY 2017 budget formulation process, the Office of the Chief Financial Officer (OCFO) is already considering a number of ways to logically bin resources in order to more accurately budget and report overhead.

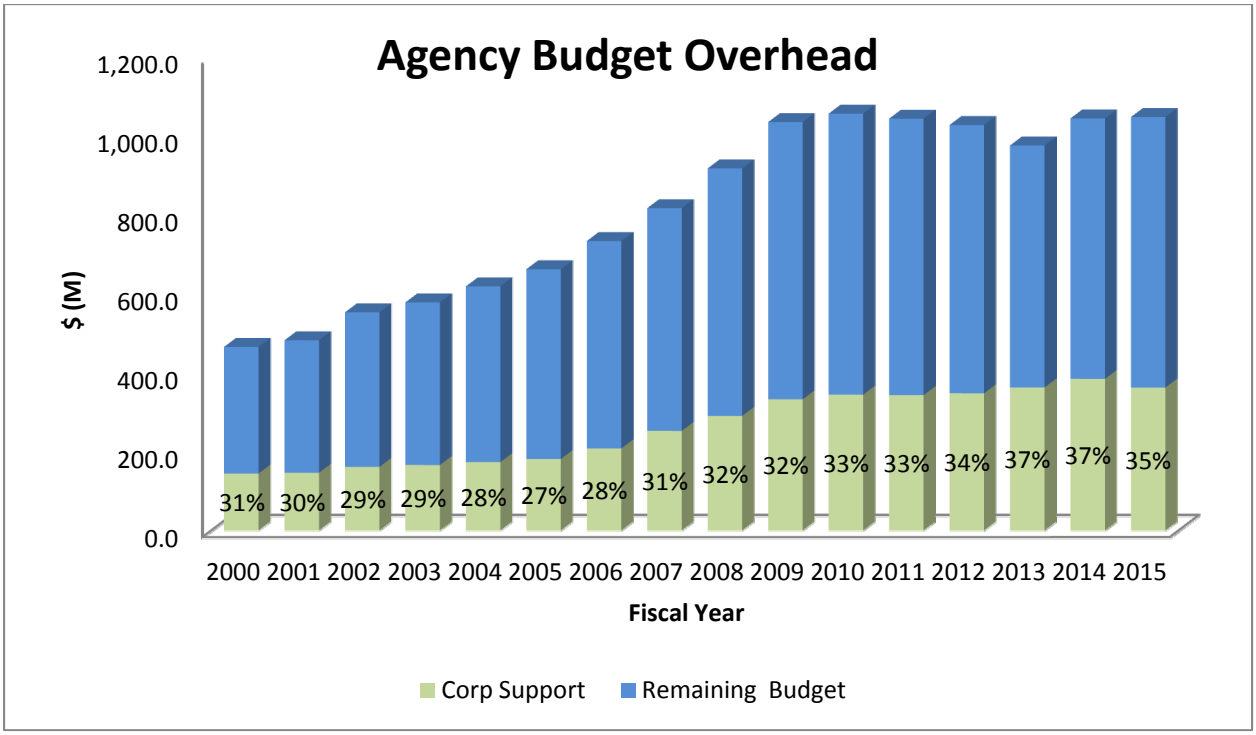

Figure 4 – Overhead as a percent of agency budget
Source: FY 2000 – FY 2015 Congressional Budget Justifications (CBJ)

Budget Formulation

Excluding resources devoted to the OIG, the NRC's FY 2015 President Budget request was $1,047.4 million. As contained in the FY 2015 CBJ, $815.2 million was requested for the Nuclear Reactor Safety Program ($577.3 million for Operating Reactors and $237.9 million for New Reactors) and $232.2 million was requested for the Nuclear Materials and Waste Safety program ($61.1 million for Fuel Facilities, $86.5 million for Nuclear Materials Users, $45.3 million for Spent Fuel Storage and Transportation, and $39.3 million for Decommissioning and Low-Level Waste). By law, the NRC recovers about 90% of its budget authority through fees for service and annual fees. The offsetting fees for FY 2015 are estimated at $925.1 million. As contained in the CBJ Appendix II, Corporate Support, the agency's infrastructure and support costs have been distributed to the programs as a portion of the total program cost. For the FY 2015 President's Budget, $362.0 million (35%) in agency support costs have been allocated to the Nuclear Reactor Safety and Nuclear Materials & Waste Safety Programs. The FY 2015

enacted budget is $1003.2 million, though Public Law 113-235 authorizes the Commission to reallocate the agency's unobligated carryover to supplement its FY 2015 appropriations.

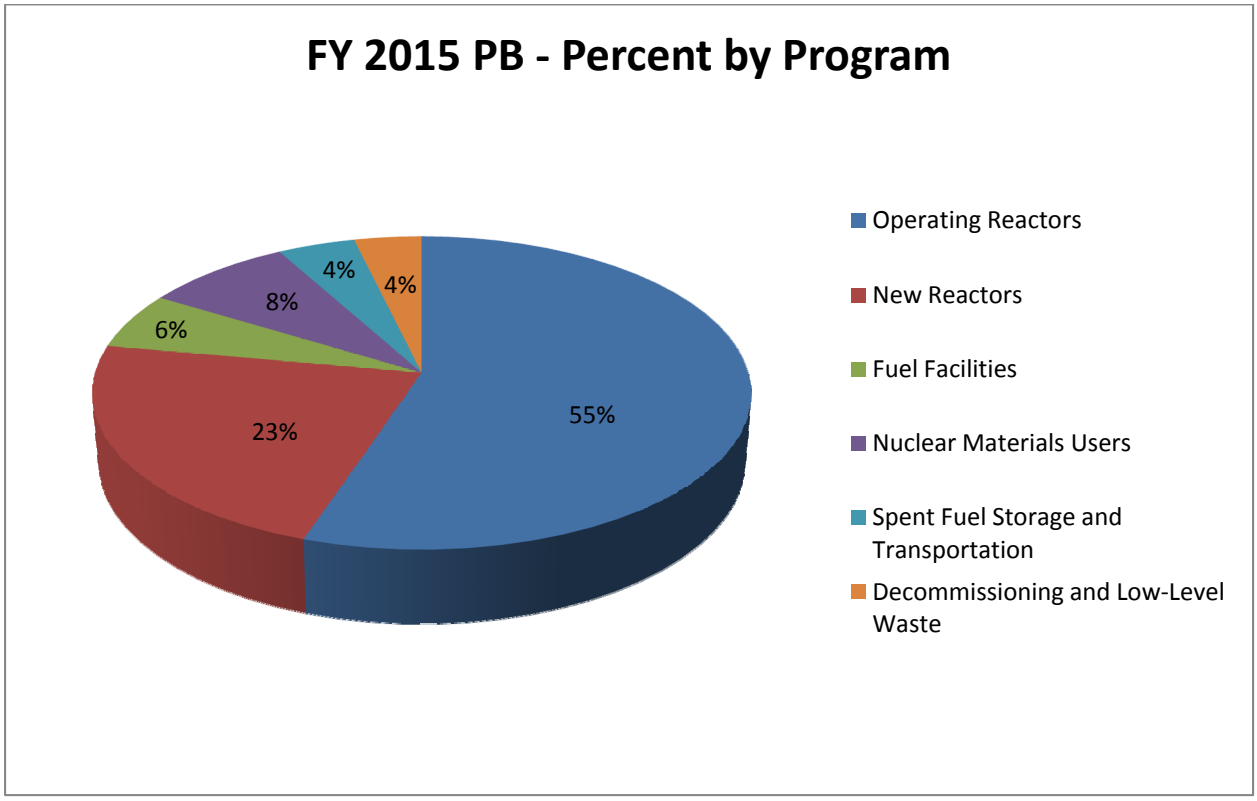

Figure 5– NRC FY 2015 President's Budget as contained in the FY CBJ (full cost)

The agency's budget formulation process mainly relies on input from licensees and the industry to make projections of projected workload two years out, when the NRC begins each budget cycle (i.e., the FY 2016 budget is formulated and reviewed by the Commission in FY 2014). As evidenced by carryover, this has often led the agency to request more resources than have actually been needed in the execution year as projects were delayed and optimistic projections became clarified. These results have sparked some controversy among the agency's external stakeholders. In particular, Congress, the licensees, and the industry have all remarked that the NRC's overhead costs seem to be increasing while workload appears to be decreasing. Because the NRC recovers most of the agency's budget through annual fees and fees for services, excessive budgets, if true, translate into unnecessary and unattractive fees for licensees.

In the past, NRC staff has embarked on several initiatives to improve the agency's budget formulation process including: Chairman's Task Force on Budget Formulation (2008), OCFO Budget Formulation (2011), and Budget Formulation External Benchmarking Project (2012). Although these initiatives have produced some improvement to the agency's PBPM process, they have not succeeded in significantly improving the effectiveness and efficiency of the budget formulation process nor in reducing overhead. This lack of progress is evidenced by the fact that year after year, the same comments and concerns come up as part of the OCFO's lessons

learned review at the end of each budget cycle. Examples of recurring comments include: rework required as a result of late and incomplete guidance, no standardization for collecting information between lead and partner offices, need improved communication, change in direction between the instructions and budget guidance, need guidance much earlier in the process, etc. Further improvement is necessary.

International Planning

International counterparts view the NRC as a world leader in nuclear safety and security regulation. In response to Commission direction, the staff developed the first agencywide 5-year international strategy (5YIS) and submitted it to the Commission for approval. The Commission approved the 5YIS in January 2015. The 5YIS enhances the planning and budget formulation process and will help effectively implement the goal of maintaining a high standard of global and domestic nuclear safety and security.

Recommended Strategies

Planning Strategy *– Transform the planning and budgets of the agency by modernizing the budget formulation process and re-baselining the work of the agency.*

Principle: Efficiency and Agility

- Preparing the agency for a broader range of futures and responding in a prompt and agile manner in a dynamic environment
- Right-sizing and streamlining the agency

Although the agency has successfully used the PBPM process to obtain the resources needed to accomplish the mission, the NRC has mainly relied on input from limited sources to make projections two years out, and has received more resources than have actually been needed due to reductions in the workload from licensees and applicants. In particular, Congress, the licensees, and the industry have all remarked that the agency's overhead costs seem to be increasing while workload seems to be decreasing.

The following recommendations are made to ensure that the planning and budgets of the NRC will allow for the needed flexibility to succeed under a variety of operating environments:

1. Improve the Planning and Budget Formulation Process. This will be accomplished by clearly defining and justifying overhead, clarifying agency priorities, utilizing foresight methods, and enhancing stakeholder engagement.

2. Re-Baseline the work of the Agency. This will be accomplished by conducting a review of the work performed across the agency and confirming the basis for the work (the requirement(s) that the work is intended to fulfill, whether it is required by law (including judicial mandates and regulations), or Commission direction). Work that is not required could be shed to help make the agency more lean and reduce future budgets.

Process

Current State

During the past 40 years, the NRC has developed and refined a wide variety of processes to accomplish its regulatory mission. Despite some notable exceptions, such as the revisions associated with the Reactor Oversight Process in 2000, many of the regulatory processes that are the workhorses of the agency have remained relatively stable. For example, licensing of nuclear facilities is performed in a similar manner today to how it was performed when the agency was established in 1975. Various process improvements have been implemented, such as enhanced consistency using Standard Review Plans. Similarly, inspections are performed and documented today in a similar manner to how they were performed decades ago. Over the past few years, the agency has been experiencing more challenges to its processes. In the midst of the centralizing corporate functions as part of the TABS initiative, the agency responded to the nuclear accident at Fukushima Dai-ichi in Japan, in addition to budget cuts, sequestration, organizational changes, retirement of key personnel, and changes in Senior Leadership, including in the Commission. All of these changes have impacted the business processes to some extent. Throughout these turbulent times, the staff rose to meet the challenges by accomplishing the mission while working to improve processes. However, in some cases process improvements have taken longer than expected and may have caused unanticipated consequences. In some areas of the agency, there are many structured and well-documented processes. However, implementation of some internal controls and IT systems has become cumbersome and restrictive to the agency's ability to be responsive to external and internal changes. In general, there is a lack of standardized practices and processes. This is an obstacle that must be overcome to increase efficiency and agility.

Despite these challenges, reviews performed by the Inspector General, the GAO, and other external groups have generally concluded that the NRC is effective in accomplishing its mission and pointed out opportunities for further improvement. For example, the Convention on Nuclear Safety obliges Contracting Parties to submit reports on the implementation of their obligations for "peer review" at meetings of the Parties to be held at the International Atomic Energy

Agency (IAEA). This mechanism is the main innovative and dynamic element of the Convention. In October 2013, the NRC published *The United States of America Sixth National Report for the Convention on Nuclear Safety*. This report addresses the safety of land-based commercial nuclear power plants in the U.S. It demonstrates how the U.S. Government achieves and maintains a high level of nuclear safety by enhancing national measures and international cooperation, and by meeting the obligations of all the articles established by the Convention.

As another international example, the IAEA's Integrated Regulatory Review Service (IRRS) is designed to strengthen and enhance the effectiveness of the national regulatory infrastructure of member states for nuclear, radiation, radioactive waste and transport safety and security of radioactive sources whilst recognizing the ultimate responsibility of each State to ensure safety in the above areas. In October 2010, at the request of the U.S., an international team of twenty senior safety experts visited the NRC to conduct an IRRS Mission. The purpose of the initial IRRS mission was to review the regulatory framework for safety of the operating nuclear power plants in the U.S. and the effectiveness of regulatory functions implemented by the NRC. An international team of senior safety experts met the representatives of the NRC in February 2014 to conduct a follow-up IRRS mission. The IRRS Team concluded that the recommendations and suggestions from the 2010 IRRS mission have been taken into account systematically. Significant progress has been made in many areas and many improvements were carried out following the implementation of the action plan. The IRRS commended the NRC for effectively addressing 1 of 2 recommendations and 19 out of 20 suggestions made during the 2010 mission.

Since 2007, the agency has conducted 42 business process improvement projects, each of which included a root cause analysis with recommended solutions to enhance business processes (see Appendix F –Root Cause Analysis of Process Improvements for a detailed list of projects). The projects represented a wide variety of processes across the agency, including about three times as many corporate processes as regulatory processes. The Project Team analyzed these results to determine why some of the agency's processes are cumbersome and how the agency may improve efficiency. The analysis identified the following five recurring root causes:

- **Processes not documented or the documentation is not accurate** – Processes that were not well-documented or were not updated caused the process to be less predictable, perform poorly, decrease in quality, frustrate stakeholders, and negatively affect other associated processes. Poor documentation made it difficult and more time consuming to train new participants in the process. For example, the fuel cycle licensing actions project (11/9/2010) found a lack of guidance on how to conduct a kick-off meeting and how to conduct a site visit for a licensing review, detracted from the overall efficiency, effectiveness, and consistency of the licensing review process.

- **Unclear roles and responsibilities** – Processes that did not have clearly defined roles and responsibilities caused significant delays in the implementation of the processes.

Undefined roles and responsibilities caused disruptions in the workflow and the concurrence process. For example, the construction scheduling project (10/1/13) found that unclear roles and responsibilities were causing communication challenges in managing the construction projects, which were detracting from the overall efficiency and effectiveness of scheduling and conducting oversight of new reactor construction.

- **Processes are not standardized** – Many processes lacked standardization resulting in non-value added process steps, unpredictable outcomes, time delays, and difficulty in automating or inhibiting adopting a standardized centralized model. The lack of standardized processes impeded training and added expenses when process participants moved from one office to another. For example, the Enterprise Wide Contract project (12/1/10) found that by not having a standard process, the agency spent excessive time and effort in processing invoices, staff experienced less job satisfaction, offices could not achieve key metrics, and multiple and unnecessary re-work cycles occurred.

- **Process participants are not adequately trained** – In addition to the previously mentioned process training challenges, new participants to a process did not receive adequate training from experienced staff. Poor communication of process changes and a lack of training by the process owner on the changes resulted in poor process performance. For example, the Department of Energy labs procurement process project (5/31/10) found that training was outdated, too short, and not specific to the office.

- **Competing priorities** – Other work, emergent work, or inconsistent management direction reduced the amount of time staff hours dedicated to maintaining a high-performing process. For example, the Freedom of Information Act process improvement project (10/4/12) found that due to competing priorities subject matter experts were challenged to provide requested redacted documents in a timely and efficient manner.

Process improvement can be challenging because it takes time and resources to develop, assess, and implement recommendations. The focus groups, interviews, and survey conducted by Project Aim 2020 identified many processes that need improvement. Some of these processes have recently experienced changes or improvements, yet the feedback received indicates that additional process improvements could further enhance efficiency and engagement of process participants. Licensees, Congress, and industry representatives have expressed concerns about the amount overhead costs, which may be due to ineffective and inefficient work processes.

In a related area, the NRC has received comments during the past several fee rulemakings indicating that increases in fees are surprising, and the process is opaque, and difficult to understand. Specific comments have suggested that the NRC should:

- Follow a more consistent and transparent process for determining and publishing planned fees.

- Revise processes associated with services that are subject to hourly fees to be more efficient.
- Provide a more detailed explanation of the basis for its proposed resource allocations before promulgating a final rule; and that the proposed rule and work papers do not provide sufficient information explaining and supporting the derivation of the annual fee.

The Omnibus Budget Reconciliation Act of 1990, as amended, requires the NRC to recover, through fees, approximately 90% of its current fiscal year budget authority. The fees are assessed in accordance with two parts of the NRC's regulations in Title 10 of the *Code of Federal Regulations*:

- Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services Under the Atomic Energy Act of 1954, as Amended (10 CFR 170)
- Annual Fees for Reactor Licenses and Fuel Cycle Licenses and Materials Licenses, Including Holders of Certificates of Compliance, Registrations, and Quality Assurance Program Approvals and Government Agencies Licensed by the NRC (10 CFR 171)

Improvements in the processes used by the agency to estimate and impose fees could be responsive to the concerns expressed by licensees, applicants, and Congress. The agency has responded to these concerns as part of the rulemaking process. In the fall of 2014, the CFO initiated a project to improve the transparency, timeliness, and predictability of NRC fees.

Another process concern is the backlog in power reactor licensing actions. In the aftermath of the accident at Fukushima, the NRC promptly imposed new requirements and requested information from nuclear power plant licensees in response to the lessons learned from the accident. The NRC reprogrammed resources to support these enhancements in 2012 and 2013, and it took more resources than originally planned. Consequently, the agency identified a growing backlog in licensing actions for the reactor licensees in 2013. The staff has initiated efforts to mitigate and reduce this backlog by transferring staff resources, hiring additional technical support, and by conducting targeted process improvements. However, progress has been slow and impeded by NRC's internal processes for responding to changes by transferring resources.

From 2005—with the passage of the Energy Policy Act—to early 2010, the U.S. was preparing for a "nuclear renaissance." In preparation of this dramatic increase in anticipated regulatory workload, the agency considerably expanded its budget and staff. Corporate support staff also grew and created specific processes, procedures, and technology systems to support their work. Consequently, processes and procedures became less standardized and more decentralized as talented staff moved from the centralized offices to support the program offices. In early 2010, the rapid growth in staff and increasing budgets leveled off, and the NRC moved into a more constrained budget environment. The Office Directors and Regional Administrators agreed that the agency needed to reduce its overhead and become more centralized and efficient. OEDO and OCFO created the TABS initiative to identify efficiencies and improve business practices to facilitate budget and resource savings.

Although the TABS initiative successfully centralized many functions, the lack of standard processes, limitations on staff skills and abilities, and an increase in office-specific technology systems presented challenges to the effective and efficient TABS implementation. The corporate offices in many cases planned the new centralized organizational structure, but did not account for the need to adjust processes, procedures, and for the differences in how the offices performed the activities. The centralizing organization may have lacked the processes, procedures, policies, and in many cases, the technology to support centralization. In other cases, additional effort was needed to fully define processes. In addition, the lack of structure and documented processes made it difficult to train the new staff. OEDO staff documented lessons learned from the TABS initiative in a paper to the Commission in January 2015.

Over the years, NRC internal work processes have become more cumbersome. Although some have been successfully streamlined, other processes have evolved and today impose a larger burden than justified, or transfer this burden to different offices that cannot effectively or efficiently shoulder this burden. The NRC modified processes to address a wide range of conditions, agency growth, and new requirements. Leading public and private sector organizations recognize that well-documented, streamlined, standardized, and automated processes enable the workforce to accomplish the mission and manage the workload efficiently, effectively, adaptively, and flexibly.

Recommended Strategies

Process Strategy *–Improve agility, flexibility, effectiveness, and efficiency by focusing on outcomes and streamlining processes*.

Principle: Efficiency –

- Enhancing agency processes to be streamlined, standardized, and automated
- Sharpening NRC focus on achieving desired outcomes

The following recommendations are made to improve work processes:

1. Improve the transparency of how the NRC calculates and accounts for fees, and improve the timeliness of when the NRC communicates fee changes, and provides a more simple and predictable billing process.

2. Improve licensing by conducting a process improvement review of the operating reactor licensing process and make associated improvements to other regulatory processes to enhance the predictability, timeliness, and efficiency of the reviews, while ensuring and measuring the effectiveness and quality of the reviews.

3. Improve processes by streamlining, standardizing, and clarifying roles and responsibilities:
   a) Evaluate and improve the acquisition process to improve quality and process time.

b) Expand use of mobile IT solutions to enable staff to increase productivity and efficiency.
c) Improve customer service in the Office of Information Services (OIS) and ADM by implementing a “One-Stop-Shop” solution for OIS and ADM requests for services and support.
d) Re-examine the processes and practices associated with the NRC’s assessment of the risks to its information systems in accordance with the Federal Information Security Management Act.

The recommended strategies for people, planning, and process are described in detail in Appendix A – Recommendations.

How Will We Achieve Success?

The need to deliver mission value more efficiently is increasingly important in this time of budget cuts and significant resource reallocation. Project Aim 2020 provides the agency with the opportunity to think differently about the future and to begin to prepare for the future. The next step is to demonstrate the agency's ability to collaborate, move faster, improve planning, and change more adaptively through timely implementation of the recommendations. Every office has the responsibility to support this change through communication, taking action on the recommendations, and measuring progress towards success.

The Project Aim 2020 Team's plan is to transition the implementation of the recommended strategies to the line organizations upon Commission approval. The assigned organizations, actionable steps, anticipated outcomes, metrics, and an estimated schedule are identified in Appendix A- Recommendations. The line organizations assigned to lead the recommendation will use existing resources and partner with other offices to implement the changes. The project team has developed performance indicators for measuring the successful implementation of the strategies for pilot in FY 2015. The progress of implementing Project Aim 2020 recommendations will be monitored continuously and in the QPR.

The implementation plan in contains a communication plan and plan for implementation of the changes as described in Appendix I – Communication and Implementation Plan. Communication is the key to the success of Project Aim 2020. Beyond the overall communication of the project and the strategies roadmap, it is critical for leaders and managers to engage in open and transparent communication regarding changes that may take place in their respective organizations.

The ability to sustain change requires updates to management directives and other documentation to reflect the process improvements and other efficiencies to ensure we embrace and hold ourselves accountable. More detailed communications would occur and be led by the lead offices and partner offices involved in the implementation of the strategies. Where appropriate, more detailed plans would be developed to execute and communicate the strategies.

The intention of Project Aim 2020 was not to be a finite transformation, but rather a foundation to strengthen the NRC's response to change and improve the efficiency of agency operations. Specific aspects of the strategies may need to be refined as they are implemented. Any adjustments to the strategies will be made based on performance information and shifts in the NRC's external or internal environments. While recognizing the benefits of following the original implementation plan, it is necessary to provide flexibility for additional refinements. Lasting change requires 5-10 years and new behaviors need to be rooted in shared values.