U.S. DEPARTMENT OF ENERGY

Departmental Response to the Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories

Report to Congress
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United States Department of Energy
Washington, DC 20585

Message from the Secretary

The Department of Energy (DOE) is, at its core, a science and technology organization that advances critical missions for the American people: nuclear security; scientific leadership and discovery; clean energy innovation and energy security; emergency response; technology transfer; and environmental remediation. DOE's National Laboratories are key to mission success across the broad spectrum of DOE's responsibilities.

The National Laboratories comprise the most comprehensive research network of its kind in the world, and they are essential links in the Nation's innovation chain. Each has distinctive capabilities; together, they are greater than the sum of their parts. Individually and collectively, the Labs conduct cutting-edge fundamental and applied scientific research, develop problem-solving technologies, and are one of the Nation's most effective "on call" resources for tackling unprecedented challenges – from the threat of unsecured nuclear materials as the Soviet Union collapsed, to the Macondo oil spill in the Gulf of Mexico, to the Fukushima nuclear disaster, to deep and rapid scientific analyses for the Iran nuclear negotiations.

The National Laboratories are an indispensable part of the American research enterprise, creating knowledge at the scientific frontier and housing major scientific facilities used by over thirty thousand university, laboratory and industry researchers annually. Core enabling technologies – such as high performance computers and modeling of complex physical systems and particle accelerators – are continuously pushed to new heights. In addition, completely new directions are established for the research community, such as launching human genomics and then developing the genomics field for energy. In turn, these advances have contributed greatly over many decades to ensuring the competitiveness of U.S. industry and of the broader economy. Well over a hundred science Nobel Prizes have been directly associated with DOE National Laboratory research.

The labs also have helped spark the energy revolution, from early work on drilling technologies and basin characterization for shale gas to materials discovery, advanced manufacturing techniques, and other research that has driven down the cost of wind and solar, batteries and LEDs, and continues to do so.

And of course the labs are core national security assets, sustaining the nuclear deterrent without testing, securing dangerous nuclear materials worldwide and propelling the nuclear

Navy, and providing critical technology and analysis for the Departments of Defense and Homeland Security and the intelligence community.

These unique and invaluable capabilities must be developed, sustained, and nurtured over decades. Sound stewardship of the laboratories has been one of my highest priorities as Secretary. Top talent must be attracted and retained by providing a vibrant research environment focused on challenging problems that call upon multidisciplinary teams integrating scientific, engineering, and management expertise.

This stewardship and further strengthening of the National Lab enterprise is both a major responsibility of and opportunity for DOE in service of the national interest. Recognizing that success in this endeavor has vital national consequences and meets critical national needs, Congress directed formation of the Commission to Review the Effectiveness of the National Energy Laboratories (CRENEL).

I thank the Commission for its conscientious and serious work. In formulating its recommendations, the Commission visited all 17 DOE National Laboratories, interviewed staff in more than 100 offices across government and other sectors, and heard testimony by 85 witnesses at public Commission meetings. There is no doubt that the Commission's findings and recommendations are thoroughly researched and a testament to the leadership of its Co-Chairs, Jared Cohon and TJ Glauthier. The Department has carefully considered each of the Commission's findings and recommendations in formulating this response.

In addition, I have asked for input from the National Laboratory Directors' Council (NLDC), which is comprised of the Directors of all 17 National Laboratories, and the Secretary of Energy Advisory Board (SEAB), a Federal Advisory Committee of experts outside the Department that provides advice to me on key issues. Both have provided me with thoughtful views to help shape our response to the CRENEL report; their feedback is attached to this Departmental response.

A central finding of the Commission reinforces the unparalleled value of the National Laboratory system to the Nation, serving as a science and technology powerhouse, and occupying a critical role that cannot be carried out solely by universities or the private sector. However, the report also notes that since the end of the Cold War, oversight by DOE has grown increasingly transactional rather than strategically mission-driven. One of my priorities as Secretary has been to reset this critical relationship – to improve the strategic partnership between the Department and the National Laboratories and, in emphasizing an enterprise-wide

approach to the lab system, to help maximize their unique role in the Nation's innovation ecosystem.

The Commission also recognized the importance of an overarching strategic approach for the laboratories. Steps that I have taken in recent years to underscore the value of such an approach include:

- reorganizing the Department to integrate and better coordinate basic research and applied energy programs under a single Under Secretary for Science and Energy;
- establishing a Laboratory Policy Council and a Laboratory Operations Board to convene a senior-level strategic dialogue on key priorities and improve the effectiveness and efficiency of the laboratories' execution of the DOE mission;
- strengthening project management, including by establishing a Project Management Risk Committee, restructuring the Energy Systems Acquisition Advisory Board, and reinforcing the independent peer review process;
- launching cross-cutting research initiatives that involve coordinated efforts between DOE and multiple laboratories;
- creating an annual Big Ideas Summit that convenes lab scientists and Departmental program leadership to generate new mission-related research challenges of importance to the Nation;
- initiating an integrated approach to cyber issues through the establishment of the DOE Cyber Council, in which the labs are called upon to play a significant role; and
- inaugurating a Technology Commercialization Fund for National Laboratory collaboration with the private sector on energy technology development.

Not only do these and other changes make it possible for the labs to become engaged in providing substantive input about research directions for the Department, but also they have helped to form networks of labs with complementary capabilities to deliver results. All of these steps have been focused on reinvigorating the strategic partnership necessary for effective stewardship of the laboratories as Federally Funded Research and Development Centers (FFRDCs).

The Commission's report appropriately focuses on the importance of the FFRDC model in providing an environment in which DOE sets the mission needs and provides oversight, while the managing contractor and laboratory leadership and staff put together the teams and structure programs in response to the mission needs, all in the public interest. The CRENEL effort has contributed to our re-examination of the management framework for the National

Laboratory system and how it can best serve the public interest. In addressing the Commission's findings and recommendations, the Department's response articulates and defines core objectives that embody this concept of lab management and stewardship. These objectives, along with the related recommendations from the Commission, are as follows:

- Identify and provide necessary resources by conducting rigorous, comprehensive strategic planning across DOE, to include the laboratories in the process (Recommendations 1, 20)
- Assist Congress in its role of reviewing the laboratories by promoting greater transparency with Congress and the taxpayer (Recommendations 1, 2, 30, 36)
- Implement laboratory stewardship through partnership (Recommendations 2, 3, 4, 6, 9, 12, 21)
- Clarify roles and responsibilities (Recommendations 5, 10, 11)
- Improve the development and implementation of requirements; improve the laboratory oversight environment (Recommendations 7, 8, 13, 14, 15, 18)
- Improve annual laboratory planning and evaluation (Recommendations 3, 16, 20)
- Manage the laboratories as a system, seeking to achieve maximum benefit for the Nation (Recommendations 17, 19)
- Beyond revising strategic planning, examine procedures to allow laboratories flexibility to maintain excellence in the expertise of research staff (Recommendations 18, 19, and 21)
- Enhance laboratory mission-aligned collaboration with stakeholders and the broader science and technology community (Recommendations 22, 23, 24, 25, 26, 27, 28)
- Continue to develop the Institutional Cost Report (ICR) (Recommendations 29, 30)
- Revitalize laboratory infrastructure, reduce the risk of excess facilities, and improve project management (Recommendations 31, 32, 33, 34, 35)

It is evident that we have a shared vision for a National Laboratory system focused on innovation, partnership, and stewardship that sustains the DOE laboratories as a science and technology powerhouse for the Nation. The CRENEL report, as well as inputs from SEAB and the lab directors, will continue to help guide progress towards this vital imperative.

Sincerely,

Ernest J. Moniz

Departmental Response to the Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories

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1 INTRODUCTION

Congress, through Section 319 of the Consolidated Appropriations Act, 2014 (Public Law 113-76), directed the Secretary of Energy to establish an independent commission known as the Commission to Review the Effectiveness of the National Energy Laboratories (Commission). In the legislation, Congress asked that the Commission review the 17 Department of Energy (DOE) National Laboratories with respect to their alignment with DOE's strategic priorities, duplication, ability to meet current and future energy and national security challenges, size, and support of other Federal agencies. Congress also asked the Commission to consider whether there are opportunities to more effectively and efficiently use the capabilities of the National Laboratories, and to analyze the effectiveness of the use of laboratory directed research and development (LDRD) to meet DOE's science, energy, and national security goals.

The Secretary established the independent Commission in May 2014, and it published its Final Report in October 2015. In its report, the Commission concluded that the DOE laboratories are "a unique scientific resource and national security asset, providing a vital experimental infrastructure to the Nation's research community and sustaining the nuclear weapons expertise crucial to modern American security" and are "a national treasure with the potential to serve the nation now and well into the future." The Commission noted that, while the DOE laboratories serve the Nation well, they could be even more effective and efficient if they and DOE improve their relationship, focusing on the principles of stewardship, accountability, competition, and partnership inherent in the fundamental model of Federally Funded Research and Development Centers (FFRDC).[1] To that end, the Commission offered 36 recommendations for improvement that focus on six key themes.

As reflected in the Message from the Secretary, DOE agrees with the Commission that the DOE laboratories provide unparalleled value to the Nation, serving as a science and technology powerhouse and occupying a critical role that cannot be carried out solely by universities or the private sector. The laboratories produce innovations that spur the Nation's economy, play a critical role in our national security, and serve as a key catalyst for clean energy development

[1] Pursuant to U.S. Code of Federal Regulations, Title 48, Part 35, Section 35.017, "An FFRDC meets some special long-term research or development need which cannot be met as effectively by existing in-house or contractor resources. FFRDC's enable agencies to use private sector resources to accomplish tasks that are integral to the mission and operation of the sponsoring agency. ...FFRDC's are operated, managed, and/or administered by either a university or consortium of universities, other not-for-profit or nonprofit organization, or an industrial firm, as an autonomous organization or as an identifiable separate operating unit of a parent organization."

and climate mitigation strategies. Continued investments in the laboratories, coupled with effective and efficient stewardship, are critical to strengthening and preserving this vital partnership.

2 RESPONSE

DOE's response to the Commission is organized around the six themes articulated by the Commission in its report: (1) recognizing value, (2) rebuilding trust, (3) maintaining alignment and quality, (4) maximizing impact, (5) managing effectiveness and efficiency, and (6) ensuring lasting change. For those themes, DOE has identified specific objectives which articulate strategic outcomes that DOE seeks to achieve to effectuate its vision of laboratory stewardship and partnership, and to respond to the Commission's findings, conclusions, and recommendations. The response then details those actions that DOE is engaged in, or will commit to execute, to accomplish these objectives.

2.1 RECOGNIZING VALUE

The DOE National Laboratory system consists of 17 laboratories, each with a core mission and core programmatic sponsor at DOE. Of the 17 laboratories, 16 are operated through Management and Operating (M&O) contracts. Some National Laboratories are focused on a single DOE program, while others have a core program that is strengthened by work performed for other DOE programs and sometimes for other government entities (such as DOD or DHS) or private sector partners. DOE uses its laboratories to support and develop its priorities in program areas, and also develops and executes cross-cutting programs across the laboratories.

The Commission notes that a culture of scientific excellence, technical rigor, and mission-focused vision has defined the National Laboratories throughout their history and allowed them to serve the United States time and again. The Commission highlighted the unique and collaborative role that the National Laboratories play in solving highly complex, multi-disciplinary, long-term projects that span the basic sciences to research and development (R&D). This collaboration includes university partnerships, working with other Federal agencies, the private sector, and more than 31,000 academic and industrial scientists who carry out research at DOE's user facilities. More than 100 DOE laboratory-affiliated researchers have been awarded Nobel Prizes, and the National Laboratories have received over 800 R&D 100 Awards since 1962. Given this positive impact, the Commission concluded that sustained Federal support of R&D at the National Laboratories is critical to the future of the science and technology enterprise as well as the Nation's economy and security. By making the laboratory system as efficient as possible and ensuring that it focuses on important endeavors not

otherwise being addressed, DOE can maximize the quality of these R&D accomplishments of the laboratories.

Commission Recommendations

Under the theme "recognizing value," the Commission provided the following recommendation:[2]

Recommendation 1: *The National Energy Laboratories provide great value to the Nation in their service to DOE's mission, the needs of the broader national science and technology community, and the security needs of the Nation as a whole. The Administration and Congress should provide the necessary resources to maintain these critical capabilities and facilities. It would also benefit all stakeholders if the key committees in Congress would develop a more orderly process of reviewing the National Laboratories, to replace the unrelenting pace of studies evaluating the performance of the DOE laboratories.*

Discussion

DOE agrees with the Commission's conclusion that the National Laboratories provide great value to the Nation in their service to DOE's mission, the needs of the broader national science and technology community, and the security needs of the Nation as a whole. The substance of this first recommendation involves actions by DOE and by Congress. While DOE does not have a response to the Commission's recommendations to Congress, it recognizes that DOE's actions can facilitate Congressional understanding and evaluation of the laboratories' contributions and performance.

DOE views the Commission's recommendation that it provide the necessary resources to maintain the critical capabilities and facilities of the laboratories in the broad framework of a strategic partnership with the laboratories that emphasizes performance. The following principles guide DOE's efforts to improve this partnership, so that it continues to provide value to DOE and the Nation as a whole:

- Creating an institutional environment with necessary and sufficient Federal oversight that enables laboratories to best serve the public interest with objectivity and independence and take reasonable risk in the pursuit of innovation

[2] In the body of this report, Commission recommendations are stated in summary form. The full text of Commission recommendations is provided in the Appendix.

- Encouraging laboratory employees to maintain their world-class capabilities and talents in their field(s) of expertise
- Ensuring that laboratories can provide a quick response capability to DOE and its other strategic partners
- Promoting transparency between DOE, the laboratories, the government more broadly, and the public
- Facilitating the ability of the Laboratories to perform cutting edge research for other entities in the national interest

DOE's approach, then, to implementing this recommendation is twofold. First, DOE will continue and enhance its comprehensive planning processes, including involving the laboratories in these planning efforts, to establish strategic direction and priorities, ensuring that DOE makes the most of the available resources. Second, DOE will improve transparency with Congress and with the taxpayer regarding how it is using those resources in the best interest of the Nation. The specific actions described here are intended to meet these two objectives.

Specific Actions

OBJECTIVE: Identify and provide necessary resources by conducting rigorous, comprehensive strategic planning across DOE, to include the laboratories in this process *(Recommendations 1, 20)*

Current Strategic Planning Efforts. DOE currently conducts its strategic planning through the preparation of a series of key studies and documents. They span the range from Administration-wide policy studies to program-specific strategies.

- With respect to DOE's energy programs, the foundational planning drivers for policy and programmatic decisions are the **Quadrennial Energy Review** (QER) and the **Quadrennial Technology Review** (QTR). They are designed to evaluate the current state of energy-related science and technology, policy, infrastructure, and other energy-linked challenges to the economy, environmental quality, and national security, and identify opportunities and recommendations. The QER is an Administration-wide policy process, led by the White House Domestic Policy Council and Office of Science and Technology Policy. DOE plays a critical role in the QER and is responsible for conducting the analysis, drafting the report, stakeholder outreach, and supporting interagency coordination. Unlike other Federal Quadrennial Review processes where an analysis is done every four years, the QER is conducted through installments to allow for granular analysis of key energy sub-sectors.

The QTR is a planning process specific to DOE. It explores the current state of technologies in key energy sectors and R&D opportunities present in the mid-term. It is intended to frame a blueprint for DOE energy technology development and the enabling science for future technology breakthroughs.

- With respect to DOE's national security responsibilities, the National Nuclear Security Administration (NNSA) produces two comprehensive planning documents that integrate programmatic requirements across laboratories, plants, and sites. The **Stockpile Stewardship and Management Plan** (SSMP) is DOE NNSA's 25-year strategic program of record for maintaining the safety, security, and effectiveness of the nuclear stockpile. The SSMP is published annually, in response to statutory requirements, in report or summary form, to support the President's Budget submission to Congress for Weapons Activities. As recommended by the Secretary of Energy Advisory Board (SEAB) Task Force on Nuclear Nonproliferation, a new report, **Prevent, Counter, and Respond – A Strategic Plan to Reduce Global Nuclear Threats**, articulates for the first time, in a single document, the NNSA programs to reduce the threat of nuclear nonproliferation and nuclear terrorism. As such, it serves as a companion document to the annual SSMP.
- The results from these foundational reports on DOE's energy and national security responsibilities are integrated into DOE's Strategic Plan. DOE's most recent **Strategic Plan for 2014–2018**, published in March 2014, is a comprehensive blueprint to guide the agency's core missions and provides a roadmap for the work of DOE, highlights major priorities, and provides the basis for individual DOE program plans.

Future Laboratory Participation. The National Laboratories are already important partners in the development of DOE's key strategic planning documents. They provide important technical input and expertise that informs DOE's analysis and planning efforts. Each of these documents will be refreshed on a periodic basis to reflect the evolving challenges, technologies, and opportunities facing DOE in the execution of its missions. As part of its efforts to strengthen its partnership with the National Laboratories, DOE will continue to engage with them in developing future updates to these documents.

OBJECTIVE: Assist Congress in its role of reviewing the laboratories by promoting greater transparency with Congress and with the taxpayer *(Recommendations 1, 2, 30, 36)*

Starting in 2016, DOE will begin providing an **annual report to Congress on the State of the Laboratory System**. The purpose of the report will be to describe key initiatives of the National Laboratories, including how the system as a whole is serving the Nation through collective and

cross-cutting activities. It also will articulate DOE's operational successes and continued challenges in stewarding the laboratories, including DOE's status in implementing key actions described in this response. The first of these reports will be more comprehensive, providing a history and background on the National Laboratories and establishing a foundation for future annual updates. Developing the annual updates will be a collaborative effort among the three Under Secretary offices, facilitated by the Laboratory Operations Board (LOB). The annual report will be endorsed by the Laboratory Policy Council (LPC) and issued by the Secretary.

DOE also will continue to conduct **Lab Day on the Hill** events. The first, held in September 2014, included Laboratory Directors and representatives from all 17 National Laboratories and showcased demonstration projects across five theme areas – energy innovation and environmental sustainability, manufacturing innovations, high performance computing, national security, and discovery science. The second, in July 2015, highlighted the National Laboratory system's scientific and technological contributions towards developing America's new energy infrastructure, focusing on: grid modernization, sub-surface science, sustainable transportation, and integrated energy systems. In October 2015, Lab Day focused on the role of the National Laboratories in nuclear nonproliferation, national defense, homeland security and counter terrorism, emergency response, and stockpile stewardship. The next, Science Day on the Hill, is planned for April 2016, and an Environmental Stewardship Day on the Hill is planned for fall 2016. These events are a valuable tool not only to share the good work of DOE and its laboratories but also to raise the laboratory system's awareness of broader Congressional interests and to hear feedback from stakeholders.

2.2 REBUILDING TRUST

The Commission noted that a basic premise of the FFRDC/M&O model is trust. The Commission stated that "the government is responsible for setting the '*what*' of strategic program direction to meet the Nation's needs, while contracted university and industry partners are responsible for determining precisely '*how*' to meet the technical and scientific challenges and to carry out programs." The Commission noted that a strength of this model when it is working properly is to provide freedom to innovate without overly intrusive management. The Commission observed that trust between DOE and the laboratories has eroded, which has resulted in overly prescriptive management in some areas. The Commission also recognized, however, that "there is significant improvement being made in this area under the current Secretary and directors of the National Laboratories, and wishes to support these and other steps" including

reactivating the National Laboratory Directors' Council (NLDC), the LOB, and other forums for collaboration of various groups within DOE and the laboratories.

Commission Recommendations

Under the theme "rebuilding trust," the Commission provided the following recommendations:

Recommendation 2: *DOE should delegate more authority and flexibility to the laboratories and hold them accountable for results. The laboratories must be transparent with DOE.*

Recommendation 3: *DOE and each laboratory should cooperatively develop a high level annual operating plan, and DOE should provide increased flexibility and authority to the laboratory within that framework.*

Recommendation 4: *DOE should implement greater leadership and management development for its Federal workforce, including multi-directional rotational assignments.*

Recommendation 5: *DOE should separate NETL's research and development function and consider converting it to a government-owned, contractor-operated FFRDC. NETL should increase its interactions and collaboration with universities.*

Recommendation 6: *DOE should abandon incentive award fees in the M&O contracts in favor of a fixed fee set at competitive rates. DOE should adopt a broader and richer set of incentives and consequences to motivate sound laboratory management and enforce accountability.*

Recommendation 7: *For non-nuclear, non-high- hazard, unclassified activities, DOE should allow laboratories to use Federal, State, and national standards in place of DOE requirements. DOE should review and minimize approval processes.*

Recommendation 8: *DOE should modify its processes for developing directives, orders and other requirements to more fully engage subject matter experts and to use a risk-based model.*

Recommendation 9: *DOE should focus on making the use of Contractor Assurance System (CAS) more uniform across the laboratories, and local overseers should rely on information from the CAS systems.*

Recommendation 10: *The role of the site office should be emphasized as one of "mission support," with all staff in the site office reporting to the site office manager. DOE should devote more effort to leadership training and professional development of field staff.*

Recommendation 11: *DOE should clarify the role and authority of the support centers and align all authorities at either the site office or DOE headquarters, as appropriate.*

Recommendation 12: *All stakeholders should make maximum use of local assessments performed by site offices and laboratories.*

Recommendation 13: *DOE should establish a single point of control—within the Department or each stewarding program office—for all laboratory-directed data requests.*

Recommendation 14: *DOE and its program offices should increase the size of funding increments, extend timelines and minimize milestones for each increment, and institutionalize mechanisms for laboratory flexibility to move money between budget codes.*

Recommendation 15: *Congress should repeal Section 301(d) of the FY 2015 Consolidated Appropriations Act as soon as feasible to remedy the transactional burden it creates for OMB, DOE Headquarters, and the laboratories when operating under a continuing resolution.*

Discussion

DOE agrees with the Commission that there is a need to return to the spirit of the FFRDC model. FFRDCs enable government agencies to work with private sector partners to accomplish tasks that are integral to the mission and operation of the sponsoring agency. The FFRDC is required to conduct its business in a manner befitting its special relationship with the government, to operate in the public interest with objectivity and independence and with full transparency to its sponsoring agency. To do this, DOE and the National Laboratories must work together as partners to restore the ideal nature of the FFRDC relationship as a culture of trust and accountability. To that end, the specific actions outlined here focus on achieving three objectives: (1) implement Laboratory stewardship through partnership, (2) clarify roles and responsibilities, and (3) improve the development and implementation of requirements, as well as the laboratory oversight environment.

Specific Actions

OBJECTIVE: Implement laboratory stewardship through partnership *(Recommendations 2, 3, 4, 6, 12, 21)*

Existing Initiatives. Consistent with the FFRDC model, DOE will ensure its laboratory stewardship responsibilities are founded on the trusting partnership that must exist between Federal and laboratory leadership. Maintaining this partnership requires developing a strong set of tools that will allow all DOE programs to consistently and effectively partner with the

laboratories; delegating authorities to the laboratories where warranted; and investing in leadership development for both Federal and laboratory staff. DOE has established two joint Federal-Laboratory bodies that provide the leadership and enterprise-wide coordination to effectuate this commitment to a partnership model: the LPC and the LOB.

- In July 2013, the Secretary established the **Laboratory Policy Council** (LPC) to provide a forum to include the National Laboratories in strategic discussions of DOE's policy and program planning process, and for DOE to provide strategic guidance on National Laboratory activities. The LPC, chaired by the Secretary and comprised of senior DOE leadership and the National Laboratories Directors' Council Executive Committee, convenes three times a year and serves as an important forum for exploring nascent proposals related to new research directions, building human capacity, and improving communications; discussing progress and guidance on initiatives, such as technology transition pilots and emergency response. Discussions within the LPC have focused on crosscutting Departmental initiatives, DOE-lab studies by external bodies, management challenges, and workforce and leadership diversity.
- The **Laboratory Operations Board** was chartered in October 2013, with a charge "to strengthen and enhance the partnership between DOE and the National Laboratories, and to improve management and performance." One of its early efforts illustrates the enterprise-wide impact of the group: the LOB led a first-ever enterprise wide assessment of general purpose infrastructure across all 17 National Laboratories and NNSA sites and plants, using newly-established metrics to provide a uniform assessment of infrastructure such as utilities, HVAC systems, and office buildings. This initiative provided the basis for an additional $106 million requested by DOE, and funded by Congress in the Fiscal Year (FY) 2016 appropriations, targeted for general purpose infrastructure projects. Since then, the LOB has led DOE on other operations and management issues ranging from the strategic – e.g. coordinating a similar enterprise-wide effort to provide updated assessments and prioritization of unused and contaminated "excess" facilities, to the targeted – e.g. updating Departmental policy on Strategic Partnership Projects and then building a community of practice to promulgate best practices and streamline approvals.
- The LPC and LOB have proven to be successful partnership forums where issues can be raised and solutions can be debated with relevant stakeholders engaged. These bodies will continue to play an important role in providing insight into key Departmental strategy and management issues. They are closely integrated with the laboratory leadership, as the executive committee of the NLDC sits on the LPC, and the chairs of the laboratory Chief Operating Officer and Chief Research Officer working groups are members of the LOB. The

charters of these two key leadership groups will be amended to clearly establish that a key focus area of each initiative should be to address issues counter to the DOE/laboratory partnership, and to establish mechanisms to identify and remedy those as they arise.

Increasing Flexibility and Accountability through Annual Operating Plans. DOE appreciates the recommendation from the Commission regarding **annual operating plans**, which would reflect high-level agreements on the nature and scope of the laboratory's activities. As discussed below in Section 2.3, DOE has already embarked on an effort to improve the existing annual planning process as well as the performance management process through DOE's existing annual Performance Evaluation and Management Plans (PEMPs). These improvements are responsive to some of the increased transparency, accountability, and predictability of laboratory planning that the Commission's report recommends, and DOE is currently evaluating whether existing Departmental mechanisms can be further enhanced to address the Commission's concerns. In addition to these ongoing efforts to strengthen annual laboratory planning and evaluation processes, DOE is undertaking a number of other steps.

- DOE also is evaluating whether **a pilot of the annual operating plan concept** at one or two National Laboratories (or areas within a laboratory) would result in added streamlined management without creating a duplicative process.[3] Any pilot effort would be focused on establishing a high-level understanding and agreement on the laboratory's planned work for the year, which could then be used to guide and expedite various approval processes throughout the course of the year.
- As a result of related recommendations from SEAB, DOE has initiated an **"evolutionary" working group** effort to identify specific authorities that can be delegated, on a pilot basis at Fermi National Accelerator Laboratory, to improve efficiency and reduce transactional oversight. Some of the recommendations for this group likely will lead to changes to Departmental-wide policies.
- Similarly, DOE has initiated a second **"revolutionary" working group** to examine the laboratory contract structure at the Stanford Linear Accelerator Center, with the objective of developing a more streamlined approach to improve the partnership and reduce transactional oversight.

Leadership Development Rotational Assignments. The LOB has established a working group with the DOE Chief Human Capital Officer (CHCO) to develop and implement a pilot for a

[3] In comments to DOE on the Commission report, the Executive Committee of the National Laboratory Directors' Council raised a concern that a new annual operating plan might be duplicative of current requirements such as the PEMPs.

leadership development rotational program that would offer DOE Federal and laboratory mid-level and senior employees opportunities to rotate to laboratory or Federal sites. These rotational assignments would provide opportunities for a detail to a limited-term team that is focused on a unique project or solving a complex problem; longer term assignments also would be considered on a case-by-case basis. The rotational program, to be run by the CHCO office and anticipated to begin in 2016, is intended to promote greater common understanding of the management challenges and opportunities between the laboratories and the Federal employees, and to strengthen partnership and trust.

Incentive Award Fees. With respect to the **M&O contract incentive structure**, the Commission's recommendations are most applicable to the NNSA contracts. Informed by feedback from the M&O community, NNSA is developing an M&O overarching procurement strategy guide that will include contract structure and incentive guidance for use when each specific acquisition strategy is initiated and approved for future competitions of NNSA's M&O contracts. This new contracting strategy will identify the appropriate application of incentive and fixed fee for NNSA contracts when the procurements for those contracts arise.

OBJECTIVE: Clarify roles and responsibilities (*Recommendations 5, 10, 11*)

Headquarters and Field Management. In general, program management responsibility and strategic direction reside at DOE Headquarters whereas field offices provide day-to-day implementation and are advocates for mission work at the sites. DOE is taking steps to clarify the roles and responsibilities of the headquarters, program, field, and laboratory organizations. This will help strengthen the partnership between DOE and the labs and improve the implementation of core operational mechanisms and risk management, such as the Contractor Assurance System (CAS).

A working group of the LOB is developing a **DOE/Laboratory Management Framework** document to be completed in 2016, which will describe the current operational framework across the Department, identify those parts of the framework that have added value to the DOE/laboratory relationship, and articulate core management principles relevant to the DOE/laboratory relationship to be implemented by the Under Secretaries.

Each DOE program will review its field authorities and structure as part of this effort, including to ensure that Contracting Officers report to line managers. In addition, each program will formalize a field manager training and professional development program that provides for effective workforce planning and instills an understanding of "mission support" as the primary site office role.

In particular, NNSA will execute plans to improve its governance and oversight of field operations at its laboratories, sites, and plants and clarifying roles and responsibilities. The new approach will clarify the oversight roles of headquarters and field office personnel, placing emphasis on new rigorous and dependable Contractor Assurance Systems (described below), and leveraging best practices from the Office of Science, including enhancing peer review and corporate parent involvement as appropriate for each site. In addition, to manage and eliminate duplication in field oversight, NNSA's field offices will use a Site Integrated Assessment Plan (SIAP) to identify their annual oversight requirements. This effort is intended to result in a consolidated schedule across all field offices and to assign resources based on expertise and functional area.

National Energy Technology Laboratory. The Commission also recommends for **National Energy Technology Laboratory (NETL)**, the only DOE National Laboratory that is government owned and government operated (GOGO), that there is a need for "significantly increased clarity and focus on the R&D mission for the research staff at NETL and for others outside NETL who work with them." The Commission recommends that DOE should separate NETL's R&D function from its management of Federal programs, and that the R&D function should be converted to "a government-owned contractor-operated FFRDC."

While DOE agrees there is a need for increased focus on the R&D conducted by NETL's scientists, the Department notes that there are several ways to pursue such a focus. In the near term, focus on the R&D can be better achieved by integrating and synchronizing NETL's intramural and extramural research portfolio. This integration will better focus NETL's research, enhance NETL's collaborations with researchers in academia, industry, and other National Laboratories, and increase NETL's ability to consistently provide better science and research results. The Office of Fossil Energy recognizes the need to enhance NETL parity with other GOGOs within the Federal government by giving flexibility and discretion to drive innovation through mechanisms similar to those authorized by the National Defense Authorization Act. These mechanisms permit discretionary funds to strengthen scientific and technical vitality and create a flexible personnel system (e.g., direct-hire authority for scientific and engineering positions, broad-banded pay systems, simplified job classification, contribution-based compensation system, and enhanced training and development) to attract and retain scientific and technical expertise.

OBJECTIVE: Improve the development and implementation of requirements; improve the laboratory oversight environment (*Recommendations 7, 8, 9, 13, 14, 15, 18*)

DOE has initiated a comprehensive review of **how, when, and why it establishes its own set of requirements**, with a charge to take a fresh look at mechanisms including directives, policy memoranda, and acquisition letters. A workshop with a wide set of perspectives (both Federal and laboratory) is being convened in early 2016 with the goal of identifying specific challenges to tackle; it will be sponsored by the LOB and co-chaired by a Federal and a laboratory employee. Part of that effort is expected to discuss DOE requirements that are duplicative of Federal, State and National standards and whether there are circumstances where laboratories should be able to use those standards in place of DOE requirements. The effort also will evaluate proposals to streamline the processes for developing directives and other requirements.

In addition, the Commission noted that **data calls** "can often arrive at the laboratories without being sufficiently vetted or filtered." The Commission indicated that the Office of Science (SC) has reduced the number of data calls by establishing a single point of contact for data requests for all of its 10 laboratories. Consistent with the Commission's recommendation, NNSA and the programs that oversee the applied laboratories plan to evaluate the process used in SC and determine what actions would be appropriate for their programs and their respective laboratories.

The Commission report also recommended that DOE identify opportunities to reduce the transactional burden associated with **funding allotments**, as well as to evaluate whether Congress should repeal Section 301(d) of the FY 2015 Consolidated Appropriations Act.

DOE is limited in the actions it can take without Congress to reduce the subdivision of funding into smaller "buckets." The annual appropriations act for DOE subdivides DOE's funding into more than 500 legally-binding control points, as enforced by section 301(d). Additional control points also are sometimes established administratively through the OMB apportionment process and the internal DOE funds distribution process.

DOE's Office of the Chief Financial Officer (CFO) has been working with the program offices to reduce the subdivision of funds below the Congressional control points. As the Commission points out, the DOE Office of Energy Efficiency and Renewable Energy has recently moved towards larger grants with longer periods of performance and fewer milestones and reporting requirements. In addition, increased transparency should reduce the introduction of control points.

The Section 301 (d) restriction can be troublesome during periods when DOE funding is provided through Continuing Resolutions rather than through an annual appropriations Act. Because the Continuing Resolution typically provides funding at the same level and under the same terms and conditions as the prior year appropriation, it can significantly restrict flexibility as programs transition to the new fiscal year. Also, because a Continuing Resolution is typically enacted for short periods of time, there may not be adequate time to process reprogrammings to address issues where additional program flexibility may be needed. The Administration succeeded in obtaining a waiver of section 301 for the NNSA Weapons Activities appropriation in the FY 2013 full year continuing resolution. No other DOE programs received a section 301(d) waiver in the FY 2013 continuing resolution, and reprogrammings—often requiring months for formulation and Congressional approval—were required to reallocate funds to address requirements. Congress has not waived the provision in any subsequent continuing resolutions or conference appropriations Acts. DOE would work with the House and Senate Appropriations Committees if they choose to repeal section 301(d) to develop mechanisms that will preserve Congressional oversight and ensure Departmental accountability while improving management efficiency and effectiveness. In addition, DOE is exploring mechanisms for better integrating disparate funding streams to have a larger impact, such as is being done in the Grid Modernization Laboratory Consortium.

With respect to the oversight environment, the **Contractor Assurance Systems (CAS)** will continue to serve as a system for the contractor to manage performance consistent with contract requirements. Under this system, the oversight of activities with potentially high consequences is given high priority and greater emphasis. In addition, DOE oversight programs are designed and conducted commensurate with the level of risk of the activities. A working group led by the LOB has been reviewing how the various offices operate CAS at the laboratories under their purview and is developing a policy document which articulates high-level CAS principles, to help further more uniform application across the complex. These principles of Contractor Assurance, roles/responsibilities, and levels of risk acceptance underlie DOE/laboratory interactions, and so these core CAS principles will be incorporated into the DOE/Laboratory Management Framework document described above. In addition, NNSA is in the process of updating its CAS process to more closely mirror the Office of Science model, to include using peer reviews to analyze the strength of the CAS systems.

In the areas of Federal safety and security oversight, DOE has enhanced the way oversight is conducted organizationally, procedurally, and operationally. In 2014, the Secretary established the **Office of Enterprise Assessments** to consolidate and manage all independent safety and security assessments within DOE. At the same time, the **Office of Environment, Health, Safety,**

and Security was established to serve as the organization responsible for policy development and technical assistance; safety analysis; and corporate safety and security programs. These actions provided a clear distinction between operational awareness and independent oversight responsibilities. DOE will continue to work to improve the oversight process, including addressing duplication where appropriate and sharing best practices.

2.3 MAINTAINING ALIGNMENT AND QUALITY

The Commission's report noted the critical role of DOE in providing strategic direction to the laboratory system. The Commission indicates what it finds to be a lack of a comprehensive strategic planning process across DOE, but states that it finds that the laboratories' "research programs and capabilities are generally well-aligned with DOE's missions and strategic priorities." The Commission provides recommendations for improving planning efforts at DOE, including adopting elements of the Office of Science strategic planning process more broadly across DOE.

Commission Recommendations

Under the theme "maintaining alignment and quality," the Commission provided the following recommendations:

Recommendation 16: *Other DOE program offices should adapt the procedures and processes that DOE's Office of Science has for guiding and assessing the alignment of the laboratories with DOE's missions and priorities.*

Recommendation 17: *The processes that the Office of Science has in place for assessing the quality of laboratory research and the quality of the research portfolio in each of its programs, should be adapted by the other DOE program offices.*

Recommendation 18: *There must be a government-wide reconsideration of the conference travel restrictions.*

Recommendation 19: *The Commission strongly endorses LDRD programs and supports restoring the cap on LDRD to 6 percent unburdened, or its equivalent.*

Recommendation 20: *DOE should manage the National Laboratories as a system having an overarching strategic plan that gives the laboratories flexibility. Once the research has matured to the point that a preferred or most promising approach can be identified, the Department should provide strategic oversight and guidance to coordinate and consolidate programs.*

Recommendation 21: *Congress should recognize that the technical capabilities currently housed within the NNSA laboratories are essential to the Nation. Maintaining the nuclear explosive package capabilities in separate and independent facilities has proven effective and should continue.*

Discussion

DOE agrees with the Commission that strategic planning involving both DOE and the laboratories is critical to advancing the strategic direction of the laboratory system. To that end, DOE has identified three objectives: (1) improve laboratory planning and evaluation; (2) manage the laboratories as a system, seeking to achieve maximum benefit for the Nation; and (3) beyond revising strategic planning, examine procedures to allow Laboratories flexibility to maintain excellence in the expertise of research staff.

Specific Actions

OBJECTIVE: Improve annual laboratory planning and evaluation *(Recommendations 3, 16, 20)*

The Secretary has initiated several efforts to bring more consistency to the management and oversight of the DOE laboratories, and DOE has established an Agency Priority Goal for FY 2016-FY 2017 (and related Strategy) that will ensure focus is maintained on these efforts (see box).

Agency Priority Goal: Deliver the highest quality R&D and production capabilities, strengthen partnerships with DOE headquarters, and improve management of the physical infrastructure of the National Laboratories to enable efficient leadership in science, technology, and national security.

Strategy - Develop and implement a consistent, annual process to track and assess laboratory planning and evaluation.

First, DOE has already begun to develop a consistent **annual laboratory planning approach** to track and assess laboratory planning and evaluation. In this effort, DOE is establishing a Laboratory Planning Working Group, convened by the Under Secretary for Science and Energy and with participation from NNSA and the Office of Environmental Management, to create a framework for consistent laboratory planning processes. Consistent with Commission recommendations 16 and 17, NNSA and the applied energy offices will model their revised processes using core elements and attributes from the lab planning process used by the Office of Science (SC). As is done in SC, the annual laboratory plans will inform the PEMPs, infrastructure plans, and 10-Year Site Plans. A key element for programs and Under Secretarial offices is to ensure that these annual planning

efforts provide senior-level vision and direction that will help better integrate efforts rather than simply adding another process or level of review.

Second, DOE has efforts underway regarding improvements to annual laboratory planning. Specifically, NNSA is working to improve its strategic planning process and partnership efforts by establishing a laboratory strategic planning function in the NNSA Office of Policy within the Office of the Administrator. NNSA will work with each of the Lab Directors and NNSA field office managers to establish this new process, which will include an annual high-level strategic discussion at which each Laboratory Director presents his or her long-term strategic vision, to include the complex factors and competing objectives that each national laboratory balances, while continuing to assure national security mission success. The discussion will also include longer-term issues that the Director considers vital to the mission success of the laboratory.

Third, the Office of the Under Secretary for Science and Energy has initiated efforts to improve the annual lab planning processes for the applied energy laboratories under its purview. The Office is developing coordinated and uniform guidance for applied energy labs to submit an Annual Laboratory Plan which will track the process and timing used in the Office of Science. The process will also include presentations by the laboratories of its key priorities.

Finally, the Office of Environmental Management (EM), will establish an entity that is responsible for the stewardship of Savannah River National Laboratory. This entity will manage the process for annual laboratory program guidance, planning, and evaluation, and will serve as a focal point for other key laboratory stewardship activities, such as Strategic Partnership Projects (SPP) and LDRD. EM will implement a planning and evaluation process with core elements and attributes developed from the Office of Science model.

In addition to these annual lab planning improvements, DOE also has efforts underway to make the lab performance management process more uniform across DOE. In 2014, the Office of the Under Secretary for Science and Energy chartered a **Laboratory Performance Management Working Group** to better align the processes used by the program offices to annually evaluate the laboratories' performance, using the Office of Science PEMP process as a model. This group developed several recommendations that are being implemented by DOE, through the Under Secretaries, in FY 2016. The recommendations provide for: consistent annual laboratory performance plans across all laboratories with common hierarchy; standard nomenclature and definitions of terms; the identification and evaluation of a laboratory's leadership role in cross–cutting initiatives with inter-laboratory collaboration (e.g., Grid Modernization); and performance feedback from all major sponsors (both DOE and non-DOE) of work at a laboratory. In 2016, the Under Secretary for Science and Energy will integrate this ongoing

effort to improve the PEMP process with the new annual laboratory planning approach described above.

OBJECTIVE: Manage the Laboratories as a system, seeking to achieve maximum benefit for the Nation *(Recommendations 17, 19)*

A number of the efforts described above go to the efforts to manage the laboratories as a system. This includes the enterprise-wide bodies that provide strategic direction and vision to improve the lab partnership–including the LPC and the LOB–as well as the cross-departmental laboratory planning and performance working group that seek to not just improve planning at a single laboratory, but to better integrate planning across the system. In addition, the Departmental reorganization of the Under Secretary offices moved the basic research and applied energy programs under the newly-established Under Secretary for Science and Energy to better coordinate lab research and development activities. DOE will use future updates of the Science and Energy Plan, the NNSA SSMP, and the report entitled "Prevent, Counter, and Respond – A Strategic Plan to Reduce Global Nuclear Threats," to articulate decisions pertaining to an appropriate level of duplication of research and synergies in the DOE-laboratory crosscuts.

Moreover, DOE will continue collaboration through **DOE-laboratory crosscuts**, and will use the enhanced lab planning approach to inform, for example, crosscutting teams, and plans and proposals submitted to the **National Laboratory Big Ideas Summit**. The Under Secretary for Science and Energy will continue to sponsor an annual National Laboratory Big Ideas Summit, which brings together subject matter experts from DOE's science and energy offices as well as the Office of Energy Policy and Systems Analysis, the NNSA, and all 17 National Laboratories (including their Directors and senior research staff) to propose and explore innovative ideas for solutions to key energy issues. The first Summit resulted in major Departmental initiatives in FY 2015 and FY 2016, including the Grid Modernization Laboratory Consortium, which is led by two Federal and two Laboratory representatives.

OBJECTIVE: Beyond revising strategic planning, examine procedures to allow Laboratories flexibility to maintain excellence in the expertise of research staff. (Recommendations 18, 19 and 21)

Through discussions with the National Laboratory Directors' Council (NLDC) and their working groups, as well as through the LPC and LOB, DOE will continue to identify additional methods and mechanisms to manage the Laboratories as a system with maximum flexibility to pursue new, mission-relevant lines of inquiry.

Of particular note, DOE welcomes the Commission's support for **LDRD programs**. The LDRD Program provides the laboratories with the opportunity and flexibility to establish and maintain an environment that encourages and supports creativity and innovation, and contributes to their long-term viability. LDRD allows DOE's laboratories to position themselves to advance the national security mission and respond to the Nation's future research needs. The Commission recommended that Congress restore the cap on LDRD to 6 percent unburdened, or its equivalent, noting that this will have the largest impact on LDRD at the NNSA laboratories. The recently-enacted FY 2016 National Defense Authorization Act increased funding for LDRD with a minimum rate of 5 percent and a maximum of 7 percent of the NNSA laboratories' operating budgets, a level more consistent with historic NNSA levels.

DOE also is working to promulgate best practices on LDRD throughout DOE. DOE will establish a best practices process in FY 2016 to help the National Laboratories improve the flow of outcomes from LDRD to missions. This working group, led by NNSA but involving the other Under Secretary offices as well, also will develop an electronic forum in 2016 to document and share best practices. In FY 2016, DOE will issue a LDRD Highlights document; NNSA also will share the individual annual lab reports with Congress and provide an annual briefing for stakeholders on the benefits realized due to LDRD investments.

In regard to **conference management** procedures, as the Commission notes, DOE has taken efforts to revise and refine the existing processes, including to streamline administrative actions and reduce transactional oversight, while meeting all legal requirements and maintaining appropriate management controls to ensure cost-effectiveness.

DOE also is streamlining its approval requirements relating to **laboratory employee benefits** to provide laboratories greater flexibility to manage their workforce. Among these changes, following the issuance of the Commission's report, in January 2016 DOE revised its process to eliminate prior approval of new or revised benefit plan changes, with the exception of changes that result in increased costs or that are contrary to Departmental policy or written instructions. DOE also agrees that the timing of its process for reviewing pension funding plans should be addressed and is working to streamline those processes.

2.4 Maximizing Impact

The Commission finds that the "National Laboratories represent a national asset of inestimable value" but notes that more can be done to tap the capabilities of the laboratories, especially in support of economic competitiveness. The laboratories interact with stakeholders beyond DOE – including other Federal agencies and the private sector. The Commission states that more

can be done to broaden collaboration and to make the laboratories run efficiently and effectively.

Commission Recommendations

Under the theme "maximizing impact," the Commission provided the following recommendations:

Recommendation 22: *DOE should establish policies and procedures to make the Strategic Partnership Projects (SPP) process more efficient.*

Recommendation 23: *DOE should support efforts to strengthen the Mission Executive Council.*

Recommendation 24: *DOE and its laboratories should continue to facilitate and encourage engagement with universities.*

Recommendation 25: *DOE should fully embrace the technology transition mission and continue improving the speed and effectiveness of collaborations. Innovative technology transfer and commercialization mechanisms and best practices should continue to be pursued.*

Recommendation 26: *DOE should determine whether the annual operating plans could qualify as the "agency approved strategic plan" under the Stevenson-Wydler Technology Innovation Act of 1980, and the Fast-Track CRADA Program. For CRADAs with non-standard terms and conditions, DOE should define the acceptable range for each term and condition to greatly expedite negotiation and review/approval time.*

Recommendation 27: *Laboratories should pursue innovation-based economic development by partnering with regional universities.*

Recommendation 28: *DOE, the Administration and Congress should continue to support user facilities at the DOE laboratories, including peer review by external advisory groups.*

Discussion

DOE agrees that the laboratories' engagement with Federal and private sector partners is a vital element of their mission. The DOE laboratories are major national scientific and technical assets whose contributions to the United States at large, and in areas beyond the DOE missions, are significant. In addition, the DOE laboratories can play a regional role in supporting universities and community colleges by providing partnering opportunities and serving as a conduit to the broader laboratory network. DOE's objective in this area is as follows: enhance

laboratory mission-aligned collaboration with stakeholders and the broader science and technology community.

Specific Actions

OBJECTIVE: Enhance laboratory mission-aligned collaboration with stakeholders and the broader science and technology community (*Recommendations 22, 23, 24, 25, 26, 27, 28)*

In the area of **Strategic Partnership Projects** (SPP), the Secretary recently issued an updated policy document which sets forth the principles for DOE's strategic engagement with partners from other Federal agencies and the private sector. This policy makes clear that DOE is committed to expanding the use of its laboratories and other sites for the benefit of its strategic partners. This work must be consistent with or complementary to DOE's missions or the facility to which the work is to be assigned. The work also should enhance or make use of the facility's core capabilities, but does not need to be associated with a specific mission of the "owning" program. Additionally, the work must not adversely impact DOE programs, result in direct competition with the domestic private sector, or create a detrimental future burden on DOE resources.

In addition, under the leadership of the LOB, DOE established a community of practice on SPP to ensure communication of best practices across the complex. The community of practice held its first annual SPP summit in March 2015 and continues to meet to discuss ways to enhance collaboration and streamline processes. Within NNSA, the Office of Strategic Partnership Programs has created a task force of laboratory and Federal personnel, including potential SPP partner representatives, to improve the SPP program, processes, and procedures. The task force will undertake an in depth look at the current process to identify efficiencies, an analysis of other mechanisms to place work, including umbrella agreements, and a discussion on appropriate metrics. Proposed changes to the NNSA SPP approval process are expected to be implemented in late FY 2016.

The Commission also recommends that DOE "support efforts to strengthen the MEC." The **Mission Executive Council** (MEC) was established to bring a more strategic understanding of the capabilities needed for the labs and facilities to serve the agencies' missions. While DOE is committed to the future success of the MEC, further development of this strategic concept is required, as well as the involvement and commitment of the agencies for which the DOE facilities perform their work. In addition, since the MEC only represents four agencies, it would not be the proper venue to coordinate, streamline, and execute all interagency work because

many other stakeholders would not be represented. The MEC is currently pursuing an agenda focused on identifying strategic priorities and critical capabilities to address enduring national security challenges and potential technological surprises raised by the MEC Member agencies. This approach and dialogue are starting to work and will result in an actionable MEC strategic framework on specific activities for the MEC Members to execute.

DOE concurs with the Commission's recommendation on continuing to support **user facilities** at the laboratories. DOE will continue to support user facilities as a key part of its portfolio and will continue to use external peer review and external advisory groups to evaluate facility performance and help inform decisions on existing and future facilities. DOE also will ensure that best practices by the Office of Science for managing user facilities are incorporated into the management practices of other DOE program offices. In addition, DOE will include a discussion about user facilities in the Annual State of the Laboratory System report to emphasize the critical role they play.

In regard to supporting and accelerating DOE's **Technology Transfer Mission**, DOE also recognizes how technology transition activities offer ways to improve coordination of strategic activities with the laboratory enterprise. In early 2015, the Secretary established the Office of Technology Transitions (OTT) to coordinate and optimize how DOE transitions early-stage R&D to applied energy technologies through technology transfer, commercialization, and deployment activities. The OTT works with the Technology Transfer Working Group, which includes representatives from all National Laboratories, as a strategic partner providing them information about DOE activities and getting feedback from them on new technology transition programs and policies.

To further support technology transitions activities, DOE will update its 2008 Department-wide policy statement on technology transfer activities and will also develop the statutorily-required Technology Transfer Execution Plan, which will help set the strategic vision and implementation instructions for DOE. These documents will identify ways to enhance the visibility and endorse the importance of the technology transition mission. Additionally, DOE will work to provide more clarity to laboratories regarding the acceptable range for terms and conditions for non-standard CRADAs to expedite negotiation and subsequent review and approval. DOE implements both decentralized and centralized approaches to technology transfer and notes that National Laboratories currently have and employ the flexibility to interact directly with industry and negotiate agreements. DOE supports industry and laboratory interactions that are decentralized since each laboratory is unique and should develop partnerships that support the missions of DOE, and are tailored to the Laboratory's surrounding community and industry

needs, including the pursuit of innovation-based economic development. Recognizing some of the constraints of existing mechanisms, DOE has over the last few years worked to provide more flexibility through the Agreement for Commercializing Technology (ACT) pilot, which will be assessed for its ability to reduce barriers to entities that access the laboratories. DOE also will continue to encourage laboratories to build on the successful innovative mechanisms identified by the Commission for engaging industry to make collaborations easier, faster, less expensive, and more effective.

With respect to **collaboration with universities**, DOE agrees that its engagement with universities is a critical part of the work of DOE and its laboratories. For instance, DOE provides direct-funded grants to universities following a competitive selection process (ranging from single-investigator awards to large multi-disciplinary efforts), and also issues subcontracts to universities. One example of ongoing engagement is through the Energy Frontier Research Centers (EFRCs), which are funded by the Office of Science, and involve partnerships among universities, National Laboratories, and private sector partners to conduct fundamental research focusing on one or more grand challenges to accelerate transformative discovery in current energy technologies. Other partnerships including Energy Innovation Hubs, which are integrated research centers that combine basic and applied research with engineering to accelerate scientific discovery, and the National Network for Manufacturing and Innovation (NNMI), which provides a manufacturing research infrastructure where U.S. industry and academia collaborate to solve industry-relevant problems.

In addition, university faculty and students are actively engaged in work at DOE's laboratories; more than half of the researchers using the Departmental scientific user facilities come from universities. Collaborations between university and National Laboratory researchers take place through mechanisms such as personnel exchanges and joint faculty appointments, research collaborations, and joint research programs.

Looking forward, there will be additional opportunities to further engage with universities and impact innovation based economic development as a result of the **Mission Innovation initiative**. At the recent COP21 meeting in Paris, the Mission Innovation initiative was announced by the President and leaders from 19 other countries. Each of these countries pledged to double their investment in clean energy R&D over the next five years. DOE's implementation of Mission Innovation will encourage greater effort and collaboration by all participants in the innovation process – including individual innovators, universities, private companies and National Labs.

2.5 MANAGING EFFECTIVENESS AND EFFICIENCY

The Commission Report addresses effectiveness and efficiency in three specific areas of DOE's enterprise: overhead rates, infrastructure, and project management. Having compared overhead rates at DOE laboratories with those of university, the Commission concluded that non-NNSA laboratory rates are comparable with university rates when both are adjusted for variability in rate structures. NNSA laboratory rates were found to be higher; however, the Commission noted that the difference was understandable given the unique mission at those laboratories. The Commission also highlights that facilities and infrastructure can have a substantial impact on laboratory research operations. The Commission concludes that laboratory facilities and infrastructure in poor condition can have inadequate functionality for mission performance; negative effects on the environment, safety, and health of the site; higher maintenance costs; and problems recruiting and retaining high-quality scientists and engineers. The Commission recommended increased investment to "...maintain and revitalize the system." Finally, the Commission indicates that project performance could be improved by imposing greater discipline in following project management guidance.

Commission Recommendations

Under the theme "managing effectiveness and efficiency," the Commission provided the following recommendations:

Recommendation 29: *DOE should continue implementing the Institutional Cost Report (ICR) and encourage additional peer reviews to help mature the ICR.*

Recommendation 30: *DOE should provide greater transparency into laboratory indirect costs and publish an annual report of the overhead rates at each National Laboratory.*

Recommendation 31: *DOE should consider whether a capital budget will better serve its internal facilities and infrastructure budgeting and management needs.*

Recommendation 32: *DOE and the laboratories should continue efforts to improve infrastructure by halting the growth in deferred maintenance and speeding up the deactivation and decommissioning of excess facilities. DOE should work with Congress and OMB to agree upon the size and nature of the resources shortfall and develop a long-term plan.*

Recommendation 33: *DOE, the laboratories, Congress, and OMB should actively work together to identify appropriate situations and methods for utilizing innovative financing approaches.*

Recommendation 34: *DOE should maintain focus on increasing institutional capability and imposing greater discipline in project management, including peer reviews and "red teams."*

Recommendation 35: *The Commission supports the recent SEAB Task Force recommendation to put more resources into science and technology development for the EM program.*

Discussion

DOE agrees that managing effectiveness and efficiency is a critical element to a well-functioning FFRDC partnership. Recent Departmental efforts, such as the establishment of the Under Secretary for Management and Performance, the development of the LOB, and the Departmental efforts to improve project management, have focused on this issue. DOE's objectives in this area are as follows: (1) continue to maintain the Institutional Cost Report (ICR); (2) revitalize laboratory general purpose infrastructure and reduce the risk of excess facilities; and (3) improve project management.

Specific Actions

OBJECTIVE: Enhance the Institutional Cost Report (ICR) *(Recommendations 29, 30)*

DOE will continue to work with the laboratories to refine and enhance the quality of the **Institutional Cost Report (ICR) data**. DOE initiated annual ICR reporting in FY 2011, and with the submission of FY 2015 data, will have five years of ICR data. This report provides high-level data to DOE on trends in indirect costs at the laboratories. DOE will work with the laboratories to analyze cost trends across the five years of data and continue to use the ICR data to provide supporting data, as appropriate, for DOE data calls and analyses of laboratory costs.

Detailed ICR data is shared among laboratories under a contractual term prohibiting disclosure of confidential or proprietary business information. This sharing has enabled the laboratories to perform peer reviews of the data to improve quality and consistency. Nonetheless, there are significant variations in the ICR data reflecting, in part, different accounting methods for allocation of indirect cost pools among the laboratories. DOE strongly supports the objective of improving the management efficiency of the National Laboratories through more rigorous analysis of indirect costs and actions to better control costs. The laboratory peer review process provides a needed first step, and DOE will work with the laboratories to continue and intensify the peer review process in order to gain insight into management opportunities to reduce costs. In addition, the LOB will assign greater priority to providing a forum for identifying and sharing of best practices to reduce costs across the laboratories and DOE programs consistent with relevant OMB guidance. DOE will undertake additional efforts to

improve the validation of indirect cost estimates, such as crosscutting reviews of selected indirect cost categories. Such reviews will inform additional efforts by the laboratories to manage indirect costs. DOE will also work on efforts that will lead toward consistency and promote greater transparency to the public on overhead rates in the national laboratory system within legal constraints.[4]

OBJECTIVE: Revitalize laboratory infrastructure, reduce the risk of excess facilities, and improve project management *(Recommendations 31, 32, 33, 34, 35)*

The Commission's report identifies significant challenges faced by DOE and the laboratories with degrading infrastructure and deferred maintenance and "excess" facilities that were once used for the Nation's nuclear production efforts but now are sitting unused, awaiting deactivation and decommissioning (D&D). The Commission states that "The total cost of cleanup at all DOE sites was estimated to be $280 billion in 2013. As of 2015, EM has determined that 234 additional facilities meet its criteria for transfer to EM, but it does not have the funding to accept them for remediation. In addition to the issue of cost of surveillance and maintenance for the program offices, contaminated excess facilities continue to pose a risk to mission, workers, the public, and the environment." The Commission also notes that "the Department needs to build more project management and cost-estimating capacity. It also needs a more homogeneous and disciplined project/program management culture."

Recognizing these challenges, DOE has recently implemented an enterprise-wide focus on infrastructure planning and uniform assessments, and improving project management. This focus supports a specific strategy DOE has articulated under its Agency Priority Goal for the National Laboratories, to improve the percentage of DOE laboratory facilities assessed as "adequate" (see box).

First, last year, a LOB-led effort resulted in significant DOE-wide improvements to the rigor and consistency of infrastructure assessments, allowing more credible and reliable data for decision

Agency Priority Goal: Deliver the highest quality R&D and production capabilities, strengthen partnerships with DOE headquarters, and improve management of the physical infrastructure of the National Laboratories to enable efficient leadership in science, technology, and national security.

Strategy - By the end of FY 2017, the percentage of assessed DOE laboratory facilities categorized as "adequate" will increase by 2 percentage points from the FY 2015 baseline.

[4] The Commission report provided a summary comparison of indirect cost rates that illustrated the differences in the composition of indirect costs among classes of laboratories – NNSA and Non-NNSA laboratories. The Commission's analysis also suggests that total indirect costs for the non-nuclear security laboratories are commensurate with those at major research universities.

makers at all levels. This year, the focus has been on further developing an annual infrastructure status report that provides an enterprise-wide view of risks and opportunities on a timeline that will inform budget formulation and defense. Both of these efforts will continue under the leadership of the newly-formed Infrastructure Executive Committee, which consists of line managers and facilities experts from programs, labs, plants, and sites that has been charged with providing an **annual update to DOE leadership on the state of general purpose infrastructure**, and presenting an enterprise-wide list of prioritized investments. In FY 2016, the first year of this effort, Congress appropriated $106 million in new investments in critical general purpose infrastructure requested by the Administration and identified through this LOB-led process. In addition, DOE's FY 2017 budget submission proposes investments to ensure no increase in the backlog of deferred maintenance at facilities across the complex.

Within individual program offices, infrastructure efforts are now an integral part of the laboratory planning and evaluation processes described in Section 2.3, above. Specifically, annual infrastructure planning processes at each laboratory are being developed that will result in a ten-year maintenance and recapitalization plan that is integrated with and fully supportive of the Annual Lab Plans. Plans will include reduction of deferred maintenance, removal of excess facilities, and proposals for potential construction of new facilities, including consideration of innovative financing approaches as recommended by the Commission. Evaluation of laboratory performance related to infrastructure stewardship will be included in laboratory performance plans. In addition, NNSA has expanded its Asset Management Program (AMP) which uses supply chain management economies-of-scale to provide a more centralized and efficient procurement approach to replacing mission-critical aging infrastructure systems that are common throughout the enterprise, such as roof and HVAC systems.

Second, in regard to removal of excess facilities, the Secretary directed the establishment of an **Excess Contaminated Facilities Working Group**, led by the LOB. The working group developed and executed an enterprise-wide data collection effort to obtain updated cost and risk assessments to deactivate, decontaminate, decommission, and demolish excess facilities. The updated data from the working group was used to define the scope of the challenge and to identify options for how DOE may better prioritize excess facilities. The group is developing policies to institutionalize a corporate approach, and updating and validating data gathered by the working group's efforts. The group also will be finalizing a report on its work. This report will be issued in 2016, also in response to a requirement of the 2016 National Defense Authorization Act.

Third, in 2013, the Secretary established a working group to examine **project management practices** at DOE. After its review, the working group issued a report identifying ways in which project management at DOE could be improved. Following these efforts, in December 2014, the Secretary issued a Secretarial policy memorandum which included additional efforts to improve project management, including: strengthening the Energy Systems Acquisition Advisory Board, establishing a Project Management Risk Committee, and improving the lines of responsibility and the peer review process. To further strengthen the independence of the project peer review process, the Secretary directed each Under Secretary to establish, if it did not already exist, a project assessment office that did not have line management responsibility for project execution. As a result, the Under Secretary for Nuclear Security elevated the Office of Project Assessments as a direct report to the Under Secretary, and within the Under Secretary for Management and Performance, the Office of Project Management Oversight and Assessments was established as a direct report to conduct assessments of the EM portfolio of projects. The Under Secretary for Science and Energy uses the successful model employed within the Office of Science (including the comprehensive project reviews conducted by SC's Office of Project Assessment), and is continuing to expand that model to capital projects funded by the energy programs. In June 2015, a Secretarial memorandum further enhanced and clarified departmental policy related to areas of project management to include analysis of alternatives, cost estimating, planning and scheduling, and design management, among others. DOE is in the process of revising its Project Management Order to incorporate these enhancements to DOE's project management processes and procedures.

In addition, the FY 2017 DOE budget proposes to establish a statutory, DOE-wide Office of Cost Estimating and Program Evaluation (CEPE-DOE) in recognition of a gap in DOE's capacity to independently determine accurate costs of programs and acquisitions within DOE. This proposal also complements, but is not duplicative of, NNSA's Office of Cost Estimating and Program Evaluation (CEPE) established by the 2014 National Defense Authorization Act (50 USC 2411). CEPE-DOE will provide independent analytic advice on all aspects of DOE programs, including cost-effectiveness, and the development and evaluation of program alternatives.

Fourth, even with the improved planning tools noted above in place, DOE agrees with the Commission's recommendation that high levels of **deferred maintenance** and excess facilities continue to pose a challenge. The Commission recommended that DOE **work with Congress and OMB** to agree upon the size and nature of the resources shortfall for facilities and infrastructure, and to develop a long-term plan to resolve it through a combination of increased funding, policy changes, and innovative financing. DOE agrees with this recommendation, and

will continue briefing Congress and OMB on the updated data on the infrastructure and excess facilities challenges identified by the recent working groups.

Further, current Federal budget statutes and policies derive from the concept of a unified Federal budget and do not provide for separate capital and operating budgets. While DOE will not pursue a capital budget, DOE CFO will work with OMB to establish a separate management information system to **report on capital investments** that it will present in its FY 2018 budget request to Congress. These efforts will both improve DOE's infrastructure and provide greater public insight into Departmental investments.

DOE also agrees that, where appropriate, **innovative financing approaches** that are consistent with relevant policies should be pursued more aggressively to address the infrastructure challenges and future needs. DOE has been working with its laboratories to intensify the review and analysis of such approaches, including non-Federal financing and enhanced use leasing, and the LOB receives a monthly update on the progress of these efforts.

Finally, with respect to **environmental management technology development**, DOE agrees with the recommendations from the recent SEAB Task Force regarding the importance of these initiatives. While EM has made significant progress in closing a number of projects, many of the most challenging projects remain and will for decades to come. To address these challenges, the Secretary established a SEAB Task Force Advisory Board to advise on opportunities and barriers for science and technology development for cleanup, as well as a recommendation on the means to implement a program to develop such technologies. EM is targeting critical, near-term technology challenges, which include the following: disposition of cesium and strontium; remediation of mercury contamination; smarter Solutions for technetium management; developing capability for radioactive test beds; and leveraging Federally-funded initiatives and advancements in robotics. EM also is analyzing its remaining mission scope to identify opportunities for infusing game-changing innovation that will help reduce the overall lifecycle cost and duration of that work. As part of this effort, DOE held a Basic Research Needs workshop (co-sponsored by SC and EM) to identify challenges germane to the clean-up, and SC has now issued a call for proposals seeking new Energy Frontier Research Centers to tackle some of the challenges. EM also will continue to identify technologies that improve upon worker health and safety as well as nuclear facility safety.

2.6 Ensuring Lasting Change

The Commission's report points out that over 50 commissions, panels, reviews and studies of the National Laboratories have been conducted over the past four decades, noting that none of

those reports led to the comprehensive change necessary to address persistent challenges. The Commission report observes the lack of a standing body or internal DOE mechanism to advocate for implementation of recommended changes, perform systematic assessments, and evaluate progress over time and states that such an entity could, among other purposes, serve to evaluate whether changes to restore the FFRDC relationship are being made in substance or only cosmetically.

Commission Recommendation

Under the theme "ensuring lasting change," the Commission provided the following recommendation:

Recommendation 36: *A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly on progress, results, and needed corrective actions.*

Discussion

DOE acknowledges that in the past, certain improvements following recommendations from external bodies have not always been fully implemented or sustained. Recognizing the importance of institutionalizing ongoing and new efforts identified in this response, DOE is committed to tracking implementation of these commitments. Moreover, DOE's efforts will be guided by the overarching objectives identified in this document, so that DOE can assess not only whether the specific action was taken or not, but also whether it had the intended consequence and effectively addressed the broader goals – a signpost to guide substantive change.

Specific Actions

For the most part, the actions described in this response are to be owned and implemented by the three Departmental Under Secretaries who have line responsibility for stewardship of the National Laboratories – the Under Secretary for Nuclear Security (LANL, Sandia, and LLNL); the Under Secretary for Science and Energy (the 10 Office of Science labs, NREL, INL, and NETL); and the Under Secretary for Management and Performance (SRNL). That said, monitoring and reporting on these actions will necessarily require cross-agency collaboration. The Secretary will charge the **LOB with the responsibility to track implementation** of these actions and any other follow-on actions identified to achieve the objectives contained throughout this response. Similarly, **the LPC will be charged to serve as a steering committee for the overall effort** of re-examining the management framework and partnership for the National Laboratory

system and how it can best serve the public interest. The charters for each group will be modified to reflect these roles and responsibilities. Within the next 24 months, the LOB, working with the LPC, will conduct a review to assess whether the actions articulated here have had their desired impact.

In addition, **the DOE Office of Enterprise Assessments (EA)** is the organization responsible for performance of assessments on behalf of the Secretary and Deputy Secretary in the areas of nuclear and industrial safety, cyber and physical security, and other critical functions as directed by the Secretary and his Leadership team. EA also has been charged by the Secretary with identifying best practices across the enterprise which will include interfaces with the National Laboratories.

From an independent oversight perspective, DOE believes it would be most efficient to leverage existing bodies to support the implementation of the Commission's recommendations rather than creating a new external committee. DOE also notes that the NLDC indicated in its response to the Commission's report that "we would want to guard against such a body serving as the intermediary between the laboratories, DOE and Congress." DOE plans to look to **SEAB**. SEAB is a Federal Advisory Committee, composed of external members, which provides advice and recommendations to the Secretary on DOE's basic and applied research, economic and national security policy, educational issues, operational issues, and other activities as directed by the Secretary. SEAB specifically has a Task Force on DOE National Laboratories that was created to provide advice, guidance, and recommendations on important issues related to improving the health and management of the labs. Finally, DOE will include discussion of the implementation of the key objectives and actions in the **Annual State of the Laboratory System report** described above, tying results back to the desired outcome – a robust, efficient, effective National Laboratory System in service to the Nation.

3 CONCLUSION

The Commission's report identifies strengths of the National Laboratory system and provides recommendations for improvement. DOE is committed to executing the actions identified in this response to strengthen the DOE/laboratory partnership and to nurture and sustain the unique and valuable capabilities of the DOE National Laboratories.

APPENDIX: FULL SET OF COMMISSION'S RECOMMENDATIONS

Recommendation 1: The National Energy Laboratories provide great value to the Nation in their service to DOE's mission, the needs of the broader national science and technology community, and the security needs of the Nation as a whole. The Administration and Congress should provide the necessary resources to maintain these critical capabilities and facilities. It would also benefit all stakeholders if the key committees in Congress would develop a more orderly process of reviewing the National Laboratories, to replace the unrelenting pace of studies evaluating the performance of the DOE laboratories. For example, Congress could initiate a comprehensive review of the entire laboratory system in predetermined intervals.

Recommendation 2: Return to the spirit of the FFRDC model (stewardship, accountability, competition, and partnership). DOE and the National Laboratories must work together as partners to restore the ideal nature of the FFRDC relationship as a culture of trust and accountability. DOE should delegate more authority and flexibility to the laboratories on *how* to perform their R&D, and hold them fully accountable for their actions and results. For their part, to be trusted partners and advisors, the laboratories must be transparent with DOE about their planned activities ahead of time, as well as about their actions and results as they are carried out.

Recommendation 3: DOE and each laboratory should cooperatively develop a high level annual operating plan, with specific agreements on the nature and scope of activities at the laboratory, and milestones and goals that are jointly established. Within that framework, DOE should provide increased flexibility and authority to the laboratory to implement that plan. This increased flexibility must go hand-in hand with greater transparency and accountability. The annual operating plan is not intended to be a retrospective evaluation document, such as SC's Performance and Evaluation and Measurement Plan (PEMP) or NNSA's Performance Evaluation Plan (PEP). Instead it can provide high-level perspective for such evaluation plans. In other words, as envisioned by the Commission, the annual operating plan fits between the laboratory's long term strategic plan and its evaluation plan.

Recommendation 4: To improve DOE's ability to manage the laboratories, DOE should implement greater leadership and management development for its Federal workforce, including multi-directional rotational assignments with the laboratories.

Recommendation 5: DOE should separate NETL's R&D function from its program responsibilities (and call the R&D portion—not the program activities—NETL). Furthermore, consideration should be given to converting the new, research NETL into a government-owned, contractor-operated FFRDC. Whether or not the above steps are taken, NETL should increase its interactions and collaboration with universities.

Recommendation 6: DOE should abandon *incentive* award fees in the M&O contracts of the National Laboratories in favor of a fixed fee set at competitive rates with risk and necessary investment in mind.

In addition, DOE should adopt a broader and richer set of incentives and consequences to motivate sound laboratory management and enforce accountability.

Recommendation 7: DOE should give the laboratories and M&O contractors the authority to operate with more discretion whenever possible. For non-nuclear, non-high- hazard, unclassified activities, DOE should allow laboratories to use Federal, State, and national standards in place of DOE requirements. DOE should review and minimize approval processes.

Recommendation 8: DOE should modify its processes for developing directives, orders and other requirements to more fully engage subject matter experts for input on the benefits and impacts of the proposed requirements. When developing new requirements, DOE should use a risk-based model, ensuring the level of control over an activity is commensurate with the potential risk.

Recommendation 9: DOE should focus on making the use of CAS more uniform across the laboratories. DOE local overseers should rely on information from the CAS systems, with appropriate validation, as much as possible for their local oversight. The quality of CAS can be increased through peer reviews for implementation and effectiveness.

Recommendation 10: The role of the site office should be emphasized as one of "mission support" to the program offices at DOE and to the laboratories. The site office manager should be clearly responsible for the performance of the site office in support of the mission, and all staff in the site office, including the Contracting Officers, should report to the site office manager. Since site office effectiveness is so dependent on site office leadership, DOE should devote more effort to leadership training and professional development of field staff.

Recommendation 11: DOE should clarify the role and authority of the support centers. Wherever approval authority resides with a support center, DOE should remove it and reinstate it at either the site office or DOE headquarters, as appropriate.

Recommendation 12: All stakeholders should make maximum use of local assessments (performed by site offices and laboratories), with appropriate verification, to reduce duplicative assessments and burden on the laboratories.

Recommendation 13: DOE should establish a single point of control—within the Department or each stewarding program office—for all laboratory-directed data requests.

Recommendation 14: To reduce the number of funding buckets and minimize the accompanying transactional burden, DOE and its program offices should adopt and adhere to the following principles:

- Increase the size of funding increments through consolidation of B&R codes at the highest level possible within each program area.

- Extend timelines and minimize milestones for each increment of funding. Work breakdown structures must be formulated to focus on strategic goals rather than tactical milestones and reporting requirements.
- Within legal limits, institutionalize mechanisms for laboratory flexibility via notification, rather than formal approval, to move money between B&R codes on cross-cutting R&D objectives or closely interrelated research areas among DOE program offices.

Recommendation 15: Congress should repeal Section 301(d) of the FY 2015 Consolidated Appropriations Act as soon as feasible to remedy the transactional burden it creates for OMB, DOE Headquarters, and the laboratories when operating under a continuing resolution.

Recommendation 16: Other DOE program offices should adapt to their contexts the procedures and processes that DOE's Office of Science has in place for guiding and assessing the alignment of the laboratories under its stewardship with DOE's missions and priorities.

Recommendation 17: The processes that the Office of Science has in place for assessing the quality of the research being done by the 10 laboratories under its stewardship, and for assessing the quality of the research portfolio in each of its programs, should be adapted by the other DOE program offices.

Recommendation 18: There must be a government-wide reconsideration of the conference travel restrictions to enable conference participation at levels appropriate to both the professional needs of the existing scientific staff and to attract the highest quality staff in the future. The Commission is encouraged by DOE's recently revised guidance on conference-related activities and spending, and notes that the laboratories have been given more autonomy on this issue, while at the same time being held accountable for the appropriate use of taxpayer funds.

Recommendation 19: The Commission strongly endorses LDRD programs, both now and into the future, and supports restoring the cap on LDRD to 6 percent unburdened, or its equivalent. The Commission recognizes that, in practice, restoring the higher cap will have the largest impact on the LDRD programs of the NNSA laboratories.

Recommendation 20: DOE should manage the National Laboratories as a system having an overarching strategic plan that gives the laboratories the flexibility to pursue new lines of inquiry, so long as the research aligns with mission priorities. Once the research has matured to the point that a preferred or most promising approach can be identified, the Department should provide strategic oversight and guidance, including expert peer review, for the laboratory system to coordinate and potentially consolidate their programs to achieve the most effective and efficient use of resources.

Recommendation 21: Congress should recognize that the technical capabilities currently housed within the NNSA laboratories are essential to the Nation. Maintaining the nuclear explosive package capabilities in separate and independent facilities has proven effective and should continue, thereby

providing senior decision makers the highest possible level of confidence in the country's nuclear weapons stockpile.

Recommendation 22: DOE should establish policies and procedures to make the Strategic Partnership Projects (SPP) process more efficient, especially for work that is consistent with the annual operating plans, such as institutionalizing ongoing efforts to streamline the contracting process through more consistent use of umbrella SPP agreements and oversight mechanisms dedicated to shortening the timeline of the approval process; encouraging greater use of personnel exchanges and "customer relationship managers"; and creating a central point of contact in DOE headquarters to field questions from other Federal agency customers about where specific capabilities lie within the laboratory system.

Recommendation 23: DOE should support efforts to strengthen the Mission Executive Council.

Recommendation 24: DOE and its laboratories should continue to facilitate and encourage engagement with universities through collaborative research and vehicles such as joint faculty appointments and peer review.

Recommendation 25: All DOE programs and laboratories should fully embrace the technology transition mission and continue improving the speed and effectiveness of collaborations with the private sector. Innovative technology transfer and commercialization mechanisms should continue to be pursued and best practices in other sectors, including academia, should be examined.

Recommendation 26: DOE should determine whether the annual operating plans proposed by the Commission in Recommendation 3 could qualify as the "agency approved strategic plan" under the Stevenson-Wydler Technology Innovation Act of 1980, and the Fast-Track CRADA Program, and, if not, Congress should amend the law accordingly. For CRADAs with non-standard terms and conditions, DOE should define the acceptable range for each term and condition to greatly expedite negotiation and review/approval time.

Recommendation 27: Laboratories should pursue innovation-based economic development by partnering with regional universities.

Recommendation 28: DOE, the Administration and Congress should continue to support user facilities at the DOE laboratories. Peer review by relevant external advisory groups should continue to be used to decide which facilities to build and where to put all future upgrades and new and replacement user facilities.

Recommendation 29: DOE should continue implementing the ICR as a consistent method for tracking indirect costs across all laboratories, and encourage additional peer reviews to help mature the ICR as a tool for DOE, the laboratories, and other stakeholders.

Recommendation 30: DOE should provide greater transparency into laboratory indirect costs and publish an annual report of the overhead rates at each National Laboratory.

Recommendation 31: DOE should consider whether a capital budget will better serve its internal facilities and infrastructure budgeting and management needs.

Recommendation 32: DOE and the laboratories should continue efforts to improve laboratory facilities and infrastructure by halting the growth in deferred maintenance and speeding up the deactivation and decommissioning of excess facilities. DOE should work with Congress and OMB to agree upon the size and nature of the resources shortfall for facilities and infrastructure, and to develop a long-term plan to resolve it through a combination of increased funding, policy changes, and innovative financing.

Recommendation 33: DOE, the laboratories, Congress, and OMB should actively work together to identify appropriate situations and methods for utilizing innovative financing approaches, such as third-party financing, enhanced use leases, and other methods, including State funding, gifts, and leveraging partnerships with other Federal agencies.

Recommendation 34: DOE should maintain focus on increasing institutional capability and imposing greater discipline in implementing DOE project guidance, which is currently being incorporated into its DOE directive 413.3 B. Expanding on recent DOE efforts, there should be more peer reviews and "red teams" within DOE, among laboratories, other agencies, industry, and academia when appropriate.

Recommendation 35: The Commission supports the recent SEAB Task Force recommendation to put more resources into science and technology development for the EM program given the technical complexity of its projects.

Recommendation 36: A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly to DOE, the laboratories, the Administration, and the Congress on progress, results, and needed corrective actions. The standing body could assist congressional committees in developing a rational plan for future evaluations of the DOE laboratories.

National Laboratory Directors Council
Executive Committee
www.nationallabs.org • nldc-chair@nationallabs.org

Terry Michalske, Chair
Dan Arvizu
Bill Goldstein
Chi-Chang Kao

November 16, 2015

The Honorable Ernest J. Moniz
Secretary of Energy
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Mr. Secretary,

On behalf of the Department of Energy, National Laboratory Directors Council (NLDC) we respectfully provide the following review of the Final Report of the Commission to Review the Effectiveness of the National Laboratories (CRENEL), "Securing America's Future: Realizing the Potential of the Department of Energy's National Laboratories".

We wish to compliment the CRENEL for the extremely thorough and complete analysis that they performed. We are impressed with the time, effort, and dedication of the CRENEL members to deeply examine each of the 17 laboratories' missions, capabilities, operations, and challenges. We also appreciate the direct access and multiple discussions that the CRENEL Co-Chairs, Jared Cohon and TJ Glauthier provided to the NLDC during the course of their work.

The NLDC is strongly supportive of the overall focus, structure, and recommendations contained in the Final Report. We find that the six themes developed by CRENEL provide useful context to organize and link their thirty-six specific recommendations against the backdrop of the larger strategic objectives. Our review of the CRENEL Final Report addresses each of the six themes, focusing on specific recommendations that we feel are most significant and will require greatest care developing the response. We appreciate the opportunity to work with DOE in preparing detailed responses to each of the CRENEL recommendations, and look forward to working together on implementation.

<u>Recognizing Value</u>
This section provided an excellent summary of the importance and unique S&T challenges of the National Laboratories' missions and their critical role in addressing highly complex multi-disciplinary long-term R&D challenges.

While this section contains only one specific recommendation (#1), we view this as extremely important to the development of greater understanding, appreciation, and partnership across Congress, DOE, and National Labs regarding the value of DOE laboratories. We believe that the DOE / NLDC partnership to organize Lab Days has been a valuable step to increase Congress' understanding of and support for the value of the network of DOE laboratories. We support continued opportunities for Congressional

Members and Staff to see the collective value of the DOE laboratories including events such as Lab Days, Laboratory CODELs, and NLDC meetings with Congressional Committees and their Staff. Continued activities of this type will improve Congress' ability to better understand and assess the value and impact of DOE laboratories.

Rebuilding Trust

CRENEL places strong importance on the degree of trust between DOE and its National Laboratories from the point of view of current challenges and its role in underpinning our ability to address future opportunities. This section of the Final Report contains fourteen recommendations, representing nearly forty percent of the total. The NLDC supports the emphasis that CRENEL has placed on this theme. While we would agree that the overall level of trust between DOE and its National Laboratories can and should be improved, we appreciate CRENEL's recognition that the degree of trust varies across DOE programs and that some programs and their laboratories currently enjoy a high degree of trust. We support the focus of the CRENEL recommendations to create a more uniform approach across the DOE.

The NLDC strongly supports Recommendation #2, which emphasizes the need to return to the spirit of the FFRDC. In our view, this recommendation speaks to the core of the partnership and special relationship that must exist between DOE and its National Laboratories. We greatly appreciate the focus and attention that the current DOE leadership has placed on restoring this relationship and we are hopeful that this CRENEL recommendation will serve to guide the DOE / National Laboratory relationship into the future.

The NLDC believes that joint planning between DOE and its National Laboratories is one of the key factors to help build and strengthen that partnership. CRENEL's recommendations #3, #16, and #20 each speak to improvements and increased consistency in the laboratory planning process, pointing toward some of the exemplary practices of DOE's Office of Science. We believe that a process that integrates long-term strategic priorities with annual operating objectives will be most effective. Recommendation #3 calls for the creation of a high-level annual planning document that may help link the laboratory's long-term strategic plan and its annual evaluation plan. While we appreciate the intent of this specific recommendation, we are concerned that a new planning document may become duplicative with current planning documents such as PEMP. We recommend that DOE implement a planning process within each of its elements that links long-term strategy and annual operating needs, taking full advantage of the best practices in DOE's Office of Science and Nuclear Energy organizations.

Recommendation #6 provides a strong encouragement for DOE to abandon incentive award fees in the M&O contracts. The NLDC supports a move away from incentive award fee alone toward a "richer set of incentives and consequences" including extended award duration and increased authority over operations as called out in Recommendation #7 and #8. We suggest that the DOE engage a discussion with laboratory leadership, M&O contractor leadership, and DOE site and program to evaluate how best to support an effective approach to better manage risk and create incentives that encourage the highest level of performance. We note that NNSA has begun such a discussion. We further support Recommendation #9, which calls for the review of the use of CAS, and appreciate the DOE's recent decision to undertake such a review.

Given the importance of developing and sustaining a talented and diverse workforce at the DOE Laboratories, the NLDC suggests that DOE explore opportunities to provide M&O contractors with greater management flexibility aimed at increasing the National Laboratories' ability to attract and retain the current and future generation of workers.

Recommendation #5 pertains to the National Energy Technology Laboratory (NETL), the only DOE laboratory that is government owned and operated. The CRENEL observes that there is a need for "significantly increased clarity and focus on the R&D mission for the research staff at NETL and for others outside NETL who work with them." The NLDC and specifically the Director of NETL agrees there is a need for increased focus on the R&D conducted by NETL's scientists. The DOE should explore approaches to better integrate and synchronize NETL's intramural and extramural research. In addition, the NLDC recognizes the need for more flexibility in NETL's ability to invest through laboratory-directed research and development (LDRD) or other similar mechanisms.

Finally, the NLDC strongly supports Recommendation #14 calling for a reduction in the number of funding buckets. Such restrictions on the movement of resources act to impede the strategic relationship between DOE and its National Laboratories, creating a more transactional interchange. We understand that moving in this direction will require greater transparency and partnership on the part of the Laboratories. We are encouraged by the recent direction of DOE's Office of Energy Efficiency and Renewable Energy in this regard.

Maintaining Alignment and Quality

We are pleased that CRENEL found there was strong overall mission alignment between DOE programs and the National Laboratories. NLDC supports consistent and effective long-term and annual planning between DOE and its National Laboratories as a means to promote even greater mission alignment going forward. As called out in Recommendation #16, the planning process used by DOE's Office of Science contains elements that lead to increased mission alignment and could be adapted for use in other DOE mission areas.

The NLDC appreciates CRENEL's recognition of the important role LDRD plays in the vitality of the National Laboratories, facilitating their ability to "adapt, retool, invest in staff capabilities, and to enter new research areas". We are pleased to see and fully endorse CRENEL's Recommendation #19 to restore the cap on LDRD to six percent unburdened, or its equivalent.

The CRENEL's treatment of the appropriate levels of duplication of research addresses the inherent challenge in balancing competition for new ideas with the need to efficiently focus resources. The NLDC is supportive of recent examples such as the Grid Modernization Initiative and Big Ideas. We agree with CRENEL that these examples represent a step in the right direction. We understand that finding the right balance can be difficult and that there is most certainly not a standard approach that should be applied. It must also be recognized that establishing an efficient focus may require prioritization and partnerships across DOE program areas as well as its National Laboratories. While we agree with Recommendation #20, we would also add the need for DOE and its National Laboratories to partner together early on in the identification of highest priority focus areas for the future.

With regard to Recommendation #21, the NLDC fully endorses the CRENEL's commitment to maintaining and strengthening the unique competencies at the NNSA laboratories needed to provide the highest level of confidence in our country's nuclear deterrent.

Maximizing Impact

This theme in the CRENEL Final Report focuses on the broader value that the DOE National Laboratories provide through their work with entities outside DOE including other Federal Agencies, academia, and private sector commercial partners through Strategic Partnership Projects (SPP).

Overall, the CRENEL recommends greater strategic engagement between DOE and other Federal Agencies along with a streamlining of the process needed to gain approval for SPP. The NLDC is supportive of Recommendation #22 to create a more coherent interface between DOE, its National Laboratories, and other Federal Agencies. However, in responding to this recommendation we strongly caution DOE against creating a "gate keeper" function that could add additional steps and further complicate SPP.

CRENEL recognizes the high level of collaboration that exists between DOE Laboratories and universities. However, partnering with industry and transitioning technology is specifically called out in Recommendations #25 and #26 as an area where improvement is needed. While we agree with the assessment of barriers and the intent of these recommendations, we believe more is necessary to guide improvement. Recommendation #25 is not sufficiently specific to address the inconsistency among labs or program offices. Recommendation #26 is helpful, but more is needed to drive major improvement. In order for technology transfer to be a priority, each program office must clearly articulate that priority, resource it directly, and hold laboratories accountable to improve their performance.

NLDC appreciates CRENEL's call for continued support for user facilities at the DOE Laboratories (Recommendation #28).

Managing Effectiveness and Efficiency

As CRENEL points out, the DOE Laboratories are often criticized for being too expensive. We appreciate CRENEL's recognition that laboratory leadership is extremely mindful and proactive in controlling overhead rates. The CRENEL analysis shows non-NNSA laboratory overhead rates are comparable with top-funded R1 universities. The higher cost of NNSA laboratories is an understandable outcome of their nuclear and classified missions. NLDC supports continued transparency (Recommendation #29) across major sectors of the National Laboratory population.

The NLDC agrees with CRENEL that better management of DOE Laboratories' collective facilities and infrastructure is necessary. We also support recent steps taken by DOE to accurately assess the scope of deferred maintenance and associated budget shortfall. We strongly support Recommendations #32 and #33 to continue efforts to work with Congress and OMB to better understand the magnitude of the problem, develop a prioritized plan of action, and utilize the full spectrum of approaches including increased funding, policy changes and innovative financing to address the shortfall.

In many cases, large-scale projects in NNSA and EM represent one-of-a-kind programs and facilities. We agree with CRENEL Recommendation #34 to expand recent DOE efforts to place more emphasis on peer review and "red teams" to help assess risk and identify alternatives. In addition, the EM program faces significant technical challenges as it addresses the remaining, more challenging work ahead. As CRENEL points out in Recommendation #35, better scientific and technical basis will be needed to successfully address the complex problems ahead.

Ensuring Lasting Change

Perhaps the most challenging recommendation from the CRENEL Final Report is the call for a standing body to track implementation and actions in the CRENEL Report with the intent to minimize the need for new congressional commissions (Recommendation #36). The NLDC agrees with the intent of the recommendation and understands the tradeoffs regarding where such a body would be charged and housed. It is not clear to us that there is a "perfect" place for such a standing body. However, we would

want to guard against such a body serving as the intermediary between the laboratories, DOE and Congress. It is the view of NLDC that open, frequent, and strategic communications between the DOE, NLDC, and Congress are the best means to ensure the greater understanding that will promote lasting change in how our country best utilizes the enormous resource that is contained in the DOE Laboratories.

It is our hope that this brief review of the CRENEL recommendations provides value to you and to the DOE. We stand ready to fully support the DOE in its development of detailed response to each of the CRENEL's recommendations. Thank you for the opportunity to provide our input on the CRENEL Final Report.

Sincerely,

Dr. Terry A. Michalske
Chair, National Laboratory Directors Council
Director, Savannah River National Laboratory

SECRETARY OF ENERGY ADVISORY BOARD

MEMORANDUM FOR: SECRETARY OF ENERGY

FROM: Secretary of Energy Advisory Board (SEAB)

DATE: January 26, 2016

SUBJECT: Task Force comments on the *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*

You have charged the SEAB National Laboratory Task Force to review studies of the DOE National Laboratories as they appear and to give you advice about what your response should be to their findings and recommendations. This SEAB letter transmits the comments of its National Laboratories Task Force on the recently released report of the Commission to Review the Effectiveness of the National Energy Laboratories (CRENEL), entitled *Securing America's Future: Realizing the Potential of the DOE's National Laboratories*. That committee, co-chaired by TJ Glauthier and Jared Cohen, was formed pursuant to Section 319 of the Consolidated Appropriations Act, 2014 (Public Law No. 113-76), and was charged to evaluate the laboratories'

> "…alignment with the Department's strategic priorities, duplication, ability to meet current and future energy and national security challenges, size, and support of other Federal agencies,…the efficiency and effectiveness of the laboratories, including assessing overhead costs and the impact of DOE's oversight and management approach,…the effectiveness of the Department's oversight approach and the extent to which LDRD funding supports recruiting and retention of qualified staff[1]."

The CRENEL report is based on extensive fact finding, including significant testimony from numerous stakeholders and visits to all of the labs in the DOE complex. The final report, issued on October 28, 2015, follows the Commission's report of February 27, 2015, and contains a total of 36 recommendations across 6 primary themes: recognizing value,

[1] *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*, Volume 1, October 28, 2015, p 1.

rebuilding trust, maintaining alignment and quality, maximizing impact, managing effectiveness and efficiency, and ensuring lasting change. For convenience, Appendix 1 of this letter provides a copy of the tabulated recommendations from the Commission's report, grouped by theme and identifying a proposed owner for each.[2]

Overall, our SEAB Task Force endorses the CRENEL report. We find the analysis and recommendations from the Commission to be consistent with the numerous prior investigations, commissions and studies that have reviewed the Laboratories over the years. The Commission's report is well aligned in areas that overlap with previous work and recommendations from our Task Force. We comment below on several specific items but, in general, we view the Commission's report as a thorough recitation of a well-told story that repeats and reinforces important recommendations to improve the efficiency of laboratory operations, planning and research outcomes, while endorsing the value, the direction and operations of the current laboratory system. As with the majority of recent reports, the Commission decries the current environment where oversight and regulation are increasingly imposed on the national laboratories and Congress and the Department have not followed-up or implemented recommendations to streamline the process and the management of the labs. Speaking to this issue, the Commission's final recommendation states,

> A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly to DOE, the laboratories, the Administration, and the Congress on progress, results, and needed corrective actions. The standing body could assist Congressional committees in developing a rational plan for future evaluations of the DOE laboratories.[3]

Later in this letter, you will find SEAB's recommendation on how the "standing body" could be created and who should establish and maintain it.

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[2] The Commission appendix would be even more useful if the Commission suggested which office in DOE should be the "responsible actor" for each recommendation. Experience shows that absent direct secretarial intervention, bureaucratic interests greatly delay the implementation of meritorious proposals for change.

[3] ibid, p 63.

We first point out areas of emphasis in the Commission's report that reinforce points raised in your SEAB Task Force's report:

1. The Commission speaks to the need to reestablish the model in which the laboratories operate as FFRDCs and roles are appropriately established: "…the government is responsible for setting the "*what"* of strategic and program direction to meet the Nation's needs, while the contracted partners, along with the laboratories they manage and operate, are responsible for determining precisely "*how"* to meet the technical and scientific challenges and to carry out programs."[4] In particular, the Commission highlights the need to clearly establish where responsibility rests amongst the many stakeholders involved in the lab management and delivery system (the laboratory director and the director's leadership team, DOE Headquarters sponsoring program offices, DOE Site (or in the case of the NNSA, Field) Offices, DOE Service Centers, DOE operational oversight offices, the M&O contractor). This finding is directly aligned with the primary focus in our Task Force's report (Recommendation 1.1) to use the Laboratory Policy Council to clarify the roles and responsibilities for mission execution at the laboratories and direct the Under Secretary for Management and Performance to lead the Laboratory Operations Board in implementing these changes.

2. The Commission's report recommends a number of actions that can be taken to provide immediate change to the overly burdensome detailed management of the laboratories that is inconsistent with the philosophy of a Government Owned, Contractor Operated (GOCO) laboratory. The Commission endorses the recommendation of the Augustine-Mies Panel to eliminate the incentive portion of the M&O contract award, replacing it with a competitive fixed fee arrangement. We support this recommendation as a way to reduce complex bureaucracy, which is delivering limited operational performance leverage.

[4] ibid, p iv.

Other short term actions recommended in the CRENEL report are consistent with the SEAB Task Force's recommendation for laboratory management "experiments." The Commission suggests reestablishing local and rapid decision making for conference participation (which it deems vital to maintaining the intellectual excellence of laboratory staff), establishing a single point of control within the Department for all laboratory data requests, and removing approval authority from Support Centers, clearly articulating their *support* role.

Finally, it is worth noting that the Commission specifically recommends separating the National Energy Technology Laboratory (NETL), currently the only Government Owned, Government Operated (GOGO) laboratory in the system, into two independent parts – a standard GOCO to handle the research and development mission and a contracting office to handle the disbursement of funds to external partners.

We find merit in all these CRENEL suggestions.

3. As noted in numerous reviews and reports over the last decade, the Commission observes that the laboratories can make a greater contribution to the national economy and its competitiveness, if the laboratories have effective technology transfer processes in place. The Commission clearly articulates the larger view of what technology transfer means, commenting that in addition to traditional Cooperative Research and Development Agreements, Work for Others, or licensing activities, significant technology transfer occurs through the world class user facilities, through the maturing of early career research talent and through personnel flow and rotation between the laboratories, academia and industry. SEAB strongly endorses this view. However, we believe that CRENEL has failed to comment on an important issue on this topic. As the Interim Report by the SEAB National Laboratory Task Force suggests, there is some level of confusion and inconsistency about whether economic development and national competitiveness are part of the mission of National Laboratories. To address this directly, the SEAB report has recommended (#3.1) that you issue a policy statement that

creating value for the private sector through the use of technology transfer, research facilities and workforce is part of the National Laboratory mission. We continue to advocate this.

4. The Commission provides a thorough analysis of the rationale and current uses of Laboratory Directed Research and Development (LDRD) and finds clear benefits from the program for supporting high-risk, potentially high reward early-stage research, for exploring research avenues that may be new to the laboratory or the complex, and as a significant tool that ".. enables laboratories to develop and invest in its workforce for both the short and long term."[5] As with numerous recent reviews, including your Task Force, the Commission "…strongly endorses LDRD programs, both now and into the future, and supports restoring the cap on LDRD to 6 percent, unburdened, or its equivalent."[6]

5. The Commission notes positively your strongly articulated commitment and the steps being taken by the Department to ensure alignment of the laboratories in its strategic planning processes. The Office of Science (SC) process is described in detail:

> During this Laboratory Strategic Planning process, SC requires laboratory leaders to define the long-range visions for their respective laboratories. This information provides a starting point for discussion about each laboratory's future directions, immediate and long-range challenges, and resource needs. DOE and the laboratory leaders settle on new research directions and the expected development or sustainment of capabilities. In addition, external advisory committees provide advice on establishing research and facilities priorities; determining proper program balance among disciplines; and identifying opportunities for inter-laboratory collaboration, program integration, and industrial participation.[7]

The report further describes the effective processes SC uses to review its alignment to DOE strategy and connect both its strategic and tactical execution to its annual

[5] ibid, p 66.
[6] ibid, p 43. SEAB notes with some sadness that use of the word "equivalent" apparently conceals inability to agree on a simple and transparent method to calculate the 6% because some labs are jockeying for more complex formulae that result in greater LDRD.
[7] ibid, p 35.

Performance and Evaluation and Measurement Plan (PEMP.) The Commission calls for the adaptation of these core, successful processes to all the DOE laboratories. As you know, the SEAB Task Force made a similar recommendation and proposed that the DOE Laboratory Operations Board be charged with the task of implementing a DOE-wide effort to identify, manage, and resolve issues affecting the management, operations, and administration of the National Laboratories.

One additional point that bears mentioning is the Commission's analysis and endorsement of recommendations made by both the NRC[8] and, more recently SEAB[9], to provide a modest investment stream for science and technology development for the Environmental Management program, stating that, "Success of the cleanup effort will require significant new understanding of the science and with this understanding, development of new technology."[10]

As noted above, CRENEL calls for the establishment of a "standing body" to track implementation of the recommendations made in its report. SEAB recommends that because most of the National Laboratories are managed by their respective offices of the Under Secretaries for Science & Energy and Nuclear Security, and many of the recommendations involve management and performance, the "standing body" should be formed by the three Under Secretaries – Science & Energy, Nuclear Security and Management & Performance – with the Under Secretary for Management & Performance serving as the Chair of this standing body. The purpose of this standing body would be to track and enforce timelines and priorities to make process changes and report directly to the Secretary.

[8] National Research Council, Committee to Evaluate the Science, Engineering, and Health Basis of the DOE's Environmental Management Program, *Improving the Environment: An Evaluation of DOE's Environmental Management Program,*" (Washington DC: NRC, 1995), 21.
[9] SEAB, *Report of the Task Force on Technology Development for Environmental Management*, (Washington, DC: DOE, 2014);
[10] *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*, Volume 1, October 28, 2015, p 59.

We also note a few points where we feel that the CRENEL report could have been a bit more assertive in its recommendations.

1. The Congressional charge to the Commission implicitly calls for a judgment about whether the size of the DOE national laboratory network is too big, too small, or just right given the current and future technology needs of the country in DOE's mission areas of responsibility: science, energy, national security, and environmental management. The Commission does not directly address this central question but their implicit answer is that the DOE national labs are doing their job, their effectiveness and efficiency is impaired by over regulation, and the amount of public resources is "just right" although at several points there is a hint that more resources would be welcome. This central conclusion would be more convincing if the Commission had examined a range of different organizational arrangements, quite different from the current structure, and compared the pros and cons of each.

2. The CRENEL report also does not offer a timeline for its recommendations to be implemented. Because many of the recommendations are similar to the ones offered by the SEAB Task Force, we suggest that you use the timeline offered by the SEAB Task Force report.

In summary, we find that the CRENEL Commission report provides additional support for the numerous findings and recommendations that have already been voiced about the value and performance of the DOE national laboratories. The Commission also repeats and underscores the many recommendations that have been made to streamline the management and oversight of the laboratories, thus making them more efficient and of greater value to the scientific and technological strength of the country. It is up to you and your successors to see that the meritorious suggestions for change are put into place.

Appendix 1 Summary of the Commission's Recommendation[11]

Section	Theme	Section	Theme
2	Recognizing Value	5	Maximizing Impact
3	Rebuilding Trust	6	Managing Effectiveness and Efficiency
4	Maintaining Alignment and Quality	7	Ensuring Lasting Change

Table 4. Responsible Actors for Each Recommendation and Cross-References to Volume 2

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
2.C	1	The Administration and Congress should recognize the value of the National Laboratories and provide the necessary resources to maintain their capabilities and facilities. Congress should also develop a more orderly process of reviewing the laboratories.	Administration and Congress	**1.E**
3.A.1	2	Department of Energy (DOE) and the laboratories must work together to restore the ideal Federally Funded Research and Development Center (FFRDC) relationship as one of trust and accountability. DOE should delegate more authority and flexibility to the laboratories and hold them accountable. The laboratories must be more transparent with DOE about their activities.	DOE and Laboratories	**2.C**
3.A.1	3	DOE and each laboratory should jointly develop an annual operating plan, with agreements on the nature and scope of the laboratory's activities, including goals and milestones. DOE should then provide increased flexibility and authority to the laboratory to implement that plan.	DOE and Laboratories	**2.C**
3.A.1	4	To improve DOE's ability to manage the laboratories, DOE should implement greater leadership and management development for its Federal workforce, including multi-directional rotational assignments.	DOE	**2.C**
3.A.1	5	DOE should separate the National Energy Technology Laboratory's (NETL) research and development (R&D) function from its program responsibilities. Consideration should be given to converting the new, research NETL into an FFRDC. NETL should increase its interactions with universities.	DOE and Congress	**2.C**
3.A.2	6	DOE should abandon *incentive* award fees in favor of a fixed fee set at competitive rates with risk and necessary investment in mind. DOE should also adopt richer set of incentives to motivate sound management.	DOE	**2.C**

[11] Reproduced directly from Table 4 of the *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*, Volume 1, October 28, 2015.

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
3.B.1	7	DOE should give the laboratories the authority to operate with more discretion whenever possible. For non-nuclear, non- high-hazard, unclassified activities, DOE should allow laboratories to use Federal, State, and national standards in place of DOE requirements. DOE should review and minimize approval processes.	DOE	**3.G**
3.B.1	8	DOE should modify its processes for developing directives, orders and other requirements to get more input on the benefits and impacts of the proposed requirements. When developing new requirements, DOE should use a risk-based model, ensuring the level of control over an activity is commensurate with the potential risk.	DOE	**3.G**
3.B.2	9	DOE should focus on making the use of Contractor Assurance System (CAS) more uniform across the laboratories. DOE local overseers should rely on information from the CAS systems, with appropriate validation, as much as possible for their local oversight. The quality of CAS can be increased through peer reviews for implementation and effectiveness.	DOE	**4.D**
3.B.2	10	The role of the site office should be emphasized as one of "mission support." The site office manager should be responsible for the performance of the site office; all staff, including the Contracting Officers, should report to the site office manager. DOE should devote more effort to professional development of field staff.	DOE	**4.D**
3.B.2	11	DOE should clarify the role and authority of the support centers. Wherever approval authority resides with a support center, DOE should remove it and reinstate it at the site office or DOE headquarters.	DOE	**4.D**
3.B.3	12	All stakeholders should make maximum use of local assessments (performed by site offices and laboratories), with appropriate verification, to reduce duplicative assessments and burden on the laboratories.	DOE and External Auditors	**5.C**
3.B.3	13	DOE should establish a single point of control within the Department for all laboratory-directed data requests.	DOE	**5.C**
3.B.4	14	DOE should increase the size of funding increments by consolidating budget and reporting (B&R) codes, extending timelines and minimizing milestones for each funding increment and institutionalizing mechanisms to move money between B&R codes for related research areas.	DOE	**6.D**
3.B.4	15	Congress should repeal Section 301(d) of the FY 2014 Consolidated Appropriations Act as soon as feasible to remedy the transactional burden it creates for the Office of Management and Budget (OMB), DOE Headquarters, and the laboratories.	Congress	**6.D**
4.A	16	Other DOE program offices should adapt the processes that DOE's Office of Science has in place for guiding and assessing the alignment of the laboratories under its stewardship with DOE's missions and priorities.	DOE	**7.E**
4.B	17	The processes that Office of Science has in place for assessing the quality of the research being done by its laboratories and for assessing the quality of its research portfolio should be adapted by the other program offices.	DOE	**7.E**
4.B	18	There must be reconsideration of the travel restrictions to enable conference participation at levels appropriate to the professional needs of the existing scientific staff and to attract the highest quality staff in the future. The Commission is encouraged by DOE's recently revised guidance on conference-related activities and spending.	DOE and OMB	**7.E**
4.C	19	The Commission strongly endorses Laboratory Directed Research and Development (LDRD) programs, both now and into the future, and supports restoring the cap on LDRD to 6 percent unburdened, or its equivalent. The Commission recognizes that, in practice, restoring the higher cap will have the largest impact on the LDRD programs of the National Nuclear Security Administration laboratories.	Congress	**8.D**
4.D	20	DOE should manage its laboratories as a system having an overarching strategic plan that gives the laboratories the flexibility to pursue new lines of inquiry. Once the research has sufficiently mature, DOE should provide strategic oversight and guidance to coordinate and potentially consolidate their programs.	DOE	**7.E**

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
4.D	21	Congress should recognize that the capabilities currently housed within the NNSA laboratories are essential to the Nation. Maintaining these capabilities in separate and independent facilities should continue.	Congress	**7.E**
5.A	22	DOE should establish techniques to make the Strategic Partnership Projects process more efficient.	DOE	**9.E**
5.A	23	DOE should support efforts to strengthen the Mission Executive Council.	DOE	**9.E**
5.B	24	DOE and its laboratories should continue to facilitate and encourage engagement with universities through collaborative research and vehicles such as joint faculty appointments and peer review.	DOE and Laboratories	**10.C**
5.C	25	DOE and the laboratories should fully embrace the technology transition mission and continue improving the speed and effectiveness of collaborations with the private sector. Innovative transfer and commercialization mechanisms should be pursued and best practices in other sectors should be examined.	DOE and Laboratories	**11.E**
5.C	26	DOE should determine whether the annual operating plans proposed by the Commission could qualify as the "agency- approved strategic plan" under the Stevenson-Wydler Technology Innovation Act of 1980, and the Fast-Track Cooperative Research and Development Agreement Program. If not, Congress should amend the law accordingly.	DOE and Congress	**11.E**
5.C	27	Laboratories should pursue innovation-based economic development by partnering with regional universities.	Laboratories	**11.E**
5.D	28	DOE and Congress should continue to support user facilities at the DOE laboratories. External advisory groups should continue to be used to decide which facilities to build and how to upgrade existing facilities.	DOE, Administration, and Congress	**12.C**
6.A	29	DOE should continue implementing the Institutional Cost Report (ICR) as a method for tracking indirect costs across the laboratories, and encourage peer reviews to help mature the ICR as a tool for DOE, the laboratories, and other stakeholders.	DOE	**13.E**
6.A	30	DOE should provide greater transparency into laboratory indirect costs and publish an annual report of the overhead rates at each individual National Laboratory.	DOE	**13.E**
6.B	31	DOE should consider whether a capital budget will better serve its internal facilities and infrastructure budgeting and management needs.	DOE	**14.D**
6.B	32	DOE and the laboratories should continue efforts to improve facilities and infrastructure by halting the growth in deferred maintenance and speeding up the deactivation and decommissioning of excess facilities. DOE should work with Congress and OMB to agree upon the size and nature of the resources shortfall for facilities and infrastructure, and to develop a long- term plan to resolve it through a combination of increased funding, policy changes, and innovative financing.	DOE, Laboratories, Congress, and OMB	**14.D**
6.B	33	DOE, the laboratories, Congress, and OMB should actively work together to identify appropriate situations and methods for utilizing innovative financing approaches, such as third-party financing, enhanced use leases, and other methods, including State funding, gifts, and leveraging partnerships with other Federal agencies.	DOE, Laboratories, Congress, and OMB	**14.D**
6.C	34	DOE should maintain focus on increasing institutional capability and imposing greater discipline in implementing DOE project guidance, which is currently being incorporated into its DOE directive 413.3 B. There should be more peer reviews and "red teams" within DOE.	DOE	**15.G**
6.C	35	The Commission supports the recent Secretary of Energy Advisory Board Task Force recommendation to put more resources into science and technology development for the EM program given the technical complexity of its projects.	DOE, Administration, and Congress	**15.G**
7.C	36	A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly to DOE, the laboratories, the Administration, and the Congress. This body could assist Congress in developing a rational plan for future evaluations of the DOE laboratories.	DOE, Administration, and Congress	**16.D**