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Special Report

Management Challenges at the Department of Energy

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Department of Energy
Washington, DC 20585

November 10, 2011

MEMORANDUM FOR THE SECRETARY

FROM: 
Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: "Management Challenges at the Department of Energy – Fiscal Year 2012"

INTRODUCTION

Responsible for executing some of the Nation's most complex and technologically advanced missions, the Department of Energy faces an array of challenges that are as wide-ranging and complex as at any time in its history. While the Department's origins can be traced to the Manhattan Project and the 1973-1974 oil embargo, it has evolved into a multi-faceted agency that encompasses a broad range of national security, scientific, energy and environmental activities with an annual budget in excess of \$24 billion. Additionally, with the enactment of the American Recovery and Reinvestment Act in February 2009, the Department received more than \$35 billion in supplemental funding and massive new loan and loan guarantee authority for the acceleration of a number of efforts, including investments in energy efficiency, renewable energy, transportation, carbon capture and storage, and a "smart" electric grid.

Annually, the Office of Inspector General identifies what it considers to be the most significant management challenges facing the Department. Now codified as part of the Reports Consolidation Act of 2000, this effort assesses the agency's progress in addressing previously identified challenges and considers emerging issues facing the Department. Unlike prior reports, we have also identified a series of cost reduction and efficiency enhancement actions for consideration by Department management. This is intended to assist the Department in dealing with the likely budget reductions facing most agency programs. Consistent with our mission, the overall goal is to focus attention on significant issues with the objective of working with Department managers to enhance the effectiveness of agency programs and operations.

This memorandum and the attachments provide the results of our review of Department of Energy management challenges for Fiscal Year (FY) 2012.

MANAGEMENT CHALLENGES

Challenges

As noted in previous reports, many of the Department's most significant management challenges are not amenable to immediate resolution and must, therefore, be addressed through a concerted effort over time. Given this fact, and based on the results of our body of work over the last year, the management challenge list for FY 2012 remains largely consistent with that of 2011. However, given the current economic environment and associated budgetary concerns, we have added the area of Operational Efficiency and Cost Savings as a new management challenge.

Additionally, due to the decision to terminate the Yucca Mountain Project and the remaining uncertainty as to the path forward for disposing of spent commercial nuclear waste and high level defense waste, we now consider Nuclear Waste Disposal to be a significant management challenge. Finally, as a result of Department efforts, Safeguards and Security, a former management challenge, has been downgraded.

Thus, the Office of Inspector General's management challenges list for FY 2012 includes:

- Operational Efficiency and Cost Savings
- Contract and Financial Assistance Award Management
- Cyber Security
- Energy Supply
- Environmental Cleanup
- Human Capital Management
- Nuclear Waste Disposal
- Stockpile Stewardship

Should additional information be desired on preexisting challenge areas, readers may consult recent management challenges reports, which can be found at: <http://www.ig.energy.gov/>.

Watch List

We also develop an annual "watch list" consisting of significant issues that do not meet the threshold of a management challenge, yet, in our view, warrant special attention by Department officials. For FY 2012, the watch list includes: Infrastructure Modernization; Safeguards and Security; and Worker and Community Safety. Further, this year we have added the Department's Loan Guarantee Program to the watch list. Given the significance of the funds involved and the Government's exposure to risk, we believe that heightened and continued focus on this program is necessary.

MANAGEMENT INITIATIVES

The Department has undertaken a number of new management initiatives intended to increase operational efficiencies. This includes an effort to achieve and sustain a new framework for "management and operational excellence." For example, the Department has committed to such actions as realigning roles and responsibilities, improving contract and project management, improving transparency, cutting waste, and reapportioning savings. Further, the Department recently released its inaugural Quadrennial Technology Review (QTR) Report, which assesses the agency's energy research and development (R&D) portfolios. Additional Department efforts include programs to reduce the vehicle fleet, achieve cost savings associated with building energy efficiency measures, and improve efforts to reduce the number of websites. Similarly, the National Nuclear Security Administration (NNSA) has introduced plans to consolidate the Management & Operating (M&O) contracts for the Pantex Plant outside of Amarillo, Texas, and the Y-12 National Security Complex in Oak Ridge, Tennessee, along with specific functions at the Savannah River Site, in South Carolina. This is intended to consolidate business and information technology operations at these sites. The Department estimates that savings from

such a consolidation would total nearly \$900 million over 10 years, although this estimate has been challenged by the U.S. Government Accountability Office. Moreover, under the new consolidated contract, the Department hopes to establish new minimum qualifications and performance "gateways," which are aimed at increasing efficiency and cost effectiveness.

OPERATIONAL EFFICIENCY AND COST SAVINGS

While there are a number of positive initiatives underway, the Department and the Federal government in general face a new challenge. We know of no other time in recent memory when there was such a broad and bipartisan consensus concerning the need to reduce Federal spending and address the Nation's mounting debt. While the elements of various budget reduction plans under consideration differ on key details, dramatic change appears likely, and the impact on the Department's operations could be equally dramatic. The impact of the work of the Congressional "Super Committee" is a prime example of the change that can be anticipated. Given this atmosphere, we have designated Operational Efficiency and Cost Savings as a special management challenge facing the Department for FY 2012.

Like all Federal agencies, the Department of Energy has been challenged to "think outside its comfort zone" in the quest for new and better management practices. In this context, the Office of Inspector General has developed a series of operational efficiency and cost reduction ideas for management's consideration. The intent is to highlight possible ways in which the Department can reduce the overall cost of operations and become more efficient. The topics include:

- Extending the reach of the QTR concept by applying it to the Department's entire science and technology portfolio (*Exhibit 1*);
- Eliminating duplicative NNSA functions (*Exhibit 2*);
- Establishing a "BRAC-style" commission to analyze the Department's laboratory and technology complex (*Exhibit 3*);
- Reprioritizing the Department's environmental remediation efforts (*Exhibit 4*); and,
- Re-evaluating the current structure of the Department's physical security apparatus (*Exhibit 5*).

The attached exhibits provide additional details on these suggestions. While the suggestions are intended to provide a starting point for any conversation, we are mindful of the fact that they represent approaches which could be both difficult to implement and highly controversial.

In raising these issues, we took into consideration several seemingly unavoidable and perhaps unpleasant realities. These include the following:

- The Department currently has over 115,000 Federal and contractor personnel¹ who ably guide the agency in its vital missions. While we could find no precise analysis, the best estimate that we could identify suggests that between 60 to 70 percent of all Department expenditures support Federal, contractor, subcontractor, and grant recipient staffing costs, including direct compensation as well as other benefits. Thus, efforts to decrease the

¹ For FY 2010, this figure includes more than 99,000 contractors and over 16,000 Federal personnel.

Department's cost structure will invariably result in painful cutbacks in personnel. This reality has already begun to take hold, as recent budget uncertainties have led to reductions-in-force at several Department facilities.

- The Department has one of the largest contracting portfolios on the civilian side of the Federal government. It is unique in that, based on principles established under the Manhattan Project in the 1940's and 1950's, contractors manage and operate most of the Department's key facilities and sites. As a result, cost reduction efforts, if they are to be substantive, must inevitably include contractor operations.
- The Department's facilities, particularly its complex of national laboratories and defense-related components, have a rich history of exceptional service to the Nation. Some have one-of-a-kind assets that cannot be easily or inexpensively replicated. Therefore, any effort to modify the organizational structure of the complex will be challenging, tumultuous, and involve navigating a maze of internal and external "moving parts." Further, any such effort will require up-front investments necessary to save money over time; significant public policy decisions; and potential statutory and administrative changes.
- In several states, with New Mexico, Idaho, South Carolina, Washington, and Tennessee as prime examples, the Department's facilities and contractor operations are among the largest employers and most potent economic generators in those jurisdictions. Any change to the organizational structure of the Department's complex will have a significant economic impact on these and other states and localities.

The Office of Inspector General has a number of current reviews that are designed to advance other cost saving proposals. For example, we are currently examining the opportunity to improve energy efficiency at the Department's numerous data centers. Additionally, we are considering initiating a review to determine if the Department could make greater use of the program evaluation technique to enable Department leadership to more readily identify underperforming programs. We will keep management informed of our progress. We look forward to working with the Department's leadership in this effort.

Attachments

cc: Deputy Secretary
Associate Deputy Secretary
Under Secretary for Science
Administrator, National Nuclear Security Administration
Chief Financial Officer
Chief of Staff

Extend the Reach of the Quadrennial Technology Review Concept by Applying it to the Department's Entire Science and Technology Portfolio

Background

In September 2011, the Department released its inaugural QTR. Initiated by Secretary Chu and led by Under Secretary Koonin, the QTR was the first analysis of its kind undertaken by the Department. In his message prefacing the report, Secretary Chu referred to the hard budget choices and fiscal challenges facing the Department, concluding that the Department must find ways to intelligently choose between the many technically viable activities it could pursue. Secretary Chu advanced the QTR as a mechanism to guide these difficult choices. In his opening message, Under Secretary Koonin concluded that the QTR established a framework for investment in energy technology development paths against which the Department can be judged.

Our view is that the outcome of the QTR, the quality of its analysis, and the richness of the information developed for the process surpassed expectations. According to the Department, this was the first time the energy technology component of the Department's science mission was analyzed in such a systematic way. Among its most notable conclusions regarding Department priorities going forward:

- Limited resources demand thoughtful and consistent program choices to maximize impact.
- Fundamental R&D and emerging technologies must remain a part of the Department's portfolio.
- Currently, the Department focuses too much effort on researching technologies that are multiple generations away from practical use at the expense of other engineering research that could influence practice in the near term.
- The Department is underinvested in the transportation sector relative to the stationary sector.
- The Department is underinvested in activities supporting modernization of the electric power grid.

As beneficial as it may be, the QTR's scope was limited to the Department's energy-related technology sector.

Issue

Key Question: Can the performance of the Department's multi-billion dollar R&D portfolio be improved through an all-encompassing review of the science and technology program using the principles established in the QTR?

Path Forward

We concluded that the discipline of the QTR process should be applied to the Department's entire set of science and technology activities. In making this observation, we are cognizant of the fact that a strategic plan-style effort for a general science and technology portfolio may be decidedly more complex than looking at a more limited set of activities such as the energy

technology sector. Forcing choices such as funding high performance computing versus biology is not easy. Nonetheless, in an environment of constrained resources, a broader QTR process would help to ensure that:

- The Department's R&D strategy, largely as executed through its laboratory system, is consistent with current policy;
- R&D assumptions, as paraphrased in the QTR, are harmonized across technologies;
- Metrics are in place that allow an objective evaluation of the performance of the R&D portfolio and of its component parts, most specifically the performance of the Department's laboratory system; and,
- The Departmental budgeting process, which is heavily science and technology driven, is better informed.

The QTR calls for the development of a strong internal capability to support the energy R&D strategy and to provide a sound basis for future QTRs. We concluded that this recommendation would serve as a platform for expanding the QTR process and applying it to the Department's entire R&D portfolio.

Eliminate Duplicative, Redundant National Nuclear Security Administration Functions

Background

The National Nuclear Security Administration was established under the Defense Authorization Act of 2000 as a separately organized agency within the Department of Energy. The National Nuclear Security Administration was created in response to national security concerns primarily relating, at the time, to the Department's laboratory activities. In addition, the separation was intended to allow NNSA to concentrate on its defense-related mission, free of other bureaucratic distractions. As a result, NNSA maintains a costly set of distinctly separate overhead and indirect cost operations that often duplicate existing Departmental functions. These include separate functions in areas such as:

- Chief Information Officer
- Congressional Affairs
- General Counsel
- Human Resources
- Procurement and Acquisition
- Public Affairs

Issue

The additional expenses associated with these functions are significant. In addition to headquarters, this concern also manifests itself at a number of field sites where Department and NNSA activities are co-located (the Oak Ridge Reservation in Tennessee being a prime example). In addition to cost considerations, these redundancies can complicate communications and program execution. Currently, the formal alignment between the Department and NNSA functions is statutorily required. As a result, alterations to the current arrangement would require new legislation. Further, proponents of the status quo argue that the current organizational alignment has improved NNSA's effectiveness. The relative merit of these issues notwithstanding, the sustainability of this arrangement in the current environment needs to be closely examined.

Key Question: Are the benefits of NNSA's semiautonomous status, with its resulting duplicative operations, worth the cost?

Path Forward

Pursuant to Public Law 111-84, on October 28, 2009, the Department entered into an agreement with the National Academy of Sciences to complete a study at NNSA's three major national laboratories (Lawrence Livermore, Sandia and Los Alamos) to evaluate the quality of the science and engineering being conducted at each laboratory; the outcomes used by NNSA to assess the quality of the science and engineering; and the impact of the respective M&O contracts on science and engineering quality at the laboratories. This study could be utilized as a starting point in a deliberative process to evaluate the re-incorporation of NNSA into the Department's organizational structure.

Establish a "BRAC-style" Commission to Analyze the Department's Laboratory and Technology Complex

Background

The Department operates 16 Federally Funded Research and Development Centers (FFRDC) at an annual cost of more than \$10.4 billion.² These facilities, with wide variations in mission, range in size from Ames Laboratory with an annual appropriation of approximately \$30 million to Sandia National Laboratories with a budget of more than \$2.3 billion, including nearly \$1 billion in "Work for Others" projects. In addition to FFRDC's, the Department has a broad array of other laboratories and facilities that carry out its science and technology missions. Taken together, these include:

- Three NNSA defense-related laboratories;
- Thirteen science laboratories, including facilities under the aegis of the Office of Science, Office of Energy Efficiency and Renewable Energy, and Office of Nuclear Energy;
- Two naval propulsion laboratories (Knolls Atomic Power Laboratory in Schenectady, New York and Bettis Atomic Power Laboratory in Pittsburgh, Pennsylvania);
- Five National Energy Technology Laboratory sites in Morgantown, West Virginia; Pittsburgh, Pennsylvania; Houston, Texas; Albany, Oregon; and Fairbanks, Alaska; and
- Other government-operated facilities such as the New Brunswick Laboratory.

In most instances, these laboratories and facilities are managed and operated for the Department by contractors, including leading industrial firms, colleges and universities, and non-profit entities.

The Department's Functional Cost Report for FY 2009 identified *total support costs* and the cost of *mission direct operations* for all primary site facility contractors, including the major laboratories. The support cost categories included functions such as executive direction, human resources, procurement, legal, safeguards and security, utilities, logistics support, and information services. The Functional Cost Report disclosed that, on average, support costs represented between 35 and 40 percent of total laboratory operating costs. Thus, based on the Department's internal data for FY 2009, total support costs consumed more than \$3.5 billion out of the approximately \$10 billion total cost for laboratory operations. We concluded that this cost structure, specifically the proportion of scarce science resources diverted to administrative, overhead, and indirect costs for each laboratory, may be unsustainable in the current budget environment.

Issue

The Department of Energy's science and research portfolio is a primary component of its core mission and is of essential value to the Nation. While there has been some evolution over the

² This figure excludes the sizeable "Work for Others" programs at the Department's national laboratories.

years, the Department's research complex is organized essentially as it has been for over a half-century. In the current budget situation, we believe the following key questions need to be addressed:

- Can the Department sustain 16 individual FFRDC's and other related research centers, each with significant support cost structures?
- Are there opportunities for laboratory consolidation and realignment, including for example, the possibility of consolidating all major non-NNSA laboratories under the leadership of the Office of Science?
- In this regard, would an independent consolidation and realignment review be the right mechanism for evaluating R&D facility capabilities and ensuring that laboratory efforts are properly aligned with agency priorities; that laboratory missions are clear, well understood, and properly coordinated; and that the complex is appropriately sized?
- Are there alternative governance models, other than the historic M&O contract, which would enhance laboratory efficiency and economy?
- As a means of reducing overhead costs, should the Department consider diverting R&D resources to outside technology centers, such as existing universities and non-profit research centers?

Path Forward

Using the Department of Defense's Base Closure and Realignment Commission (BRAC) experience as a guide, the Department should establish an independent panel to comprehensively examine alternatives for evaluating, consolidating, and/or realigning the Department's R&D laboratory complex.

Reprioritize the Department's Environmental Remediation Efforts on a Complex-wide Basis Utilizing a Risk-Based Strategy – Fund Only High Risk, High Priority Activities

Background

The Department's current unfunded environmental remediation liability is approximately \$250 billion. The result of more than 50 years of nuclear defense and energy research work, this effort involves 2 million acres of land located in 35 states and employs more than 30,000 Federal and contractor employees. The Department spends about \$6 billion per year on its environmental remediation activities. In doing so, program costs are largely "driven" by 37 individually negotiated Federal Facility Agreements (FFA) at key Department sites across the Nation. The FFAs involve no less than 350 milestones at these sites. The FFAs are augmented by numerous other local agreements with their own set of actions, requirements, milestones and due dates.

Issue

The FFAs and related requirements are the result of individual, site-specific negotiations between the Department and Federal and state regulators. In many cases, these agreements were reached after complex, painstaking negotiations over many years. In some cases, the courts are also involved in these agreements. Modifying these agreements would be a very costly and time-consuming process and would, understandably, be extremely unpopular with a variety of constituencies. However, the current strategy may not be sustainable if the Department's remediation budget suffers major reductions.

Key Question: Are the Department's existing environmental remediation commitments sustainable in light of current budget realities and, as a corollary, would a risk-based strategy applied throughout the complex allow for improved targeting of scarce remediation resources?

Path Forward

The Department should consider revising its current remediation strategy and instead address environmental concerns on a national, complex-wide risk basis. This would result in a form of environmental remediation triage. Looking at the program holistically, fund only high risk activities that threaten health and safety or further environmental degradation. Consistent with this philosophy, where appropriate and consistent with U.S. Environmental Protection Agency guidance and long term Department land-use planning policies, reduce costs by remediating to "brownfield" rather than "greenfield" standards.

To ensure that risk drives funding choices and priorities rather than potential local or regional influences, the Department should retain a respected outside group, such as the National Academy of Sciences, to rank and rate, on a national, complex-wide risk/priority basis the Department's environmental remediation requirements. The Department's National Integrated Priority List could serve as a logical starting point for this exercise.

Re-evaluate the Current Structure of the Department's Physical Security Apparatus

Background

The Department of Energy is responsible for some of the Nation's most sensitive sites, including a number of nuclear and defense-related facilities. It spends more than \$1 billion per year providing physical security for these facilities and related materials and data. Of this amount, nearly \$700 million per year is spent on a complex-wide protective force staff of nearly 4,000 highly trained professionals. Using what has been termed as a graded approach, the risks and vulnerabilities at each site and facility are evaluated to determine the level of "gates and guards" necessary to provide appropriate physical security.

Issue

The protective force staff is made up almost exclusively by contractor personnel. Their services are procured using three primary mechanisms. At some facilities, the facility management contract includes a provision for protective force services as part of the prime contract. At other locations, the protective force is procured through a stand-alone prime contract awarded by the Department. Under the third model, the protective force is procured through a subcontract to the prime facility management contractor. These arrangements, which lack uniformity and consistency, result in at least 25 separate contract instruments. In March 2010 testimony on this subject, GAO described this process as, "...not uniformly managed, organized, staffed, trained or compensated." In prior reports, the Office of Inspector General has noted the lack of consistency between sites in terms of the procurement of weapons and with regard to certain training procedures.

Key Question: Can the Department achieve significant savings in the over \$1 billion annual physical security budget by restructuring the way in which it obtains protective force support?

Path Forward

Although this general topic has been the subject of several reviews in recent years, the current budget situation makes a fresh look worthwhile. We think that all options should be on the table for consideration. These include, but are not limited to:

- Utilizing a "master contract" (i.e., a single contractor nationwide) to provide security at all or essentially all Department facilities;
- Consolidating protective force contracts, using region of the country, nature of the entity (NNSA vs. Science laboratories) or some other basis; and/or
- Federalizing the protective force.

It is our view that there may be significant economy of scale cost benefits associated with protective force contract consolidation. Further, such action could encourage a more uniform and consistent approach to protective force organization, management, training, and equipment purchases. It could also improve the system for sharing security best practices and lessons learned between Department facilities, while providing the staff with greater career opportunities

for advancement by allowing them to move between sites. Finally, consolidation would reduce the number of contracts, minimizing administrative costs and simplifying the process of contractor accountability.

We recognize that both GAO and the Department have recently addressed the notion of federalizing the protective force. While federalization was recently rejected by the Department, potential benefits include: consistent and uniform treatment, training, and benefits packages; enhanced continuity of operations; and the potential for cost savings through the elimination of multiple contract vehicles. As GAO recognized in a 2010 report on the Department's protective services, "if DOE decides not to take meaningful actions or if its actions will not achieve intended goals, an examination of other options, including the federalization of protective forces, may be merited."

It is important that any analysis of protective force alternatives appropriately consider the full range of options, including those potentially involving significant paradigm shifts. To ensure that this goal is met, we believe that the Department should engage outside public sector security experts, such as the Center for Strategic and International Studies, to review the issue of the protective force configuration with an eye toward reigning in the Department's cost structure.

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