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DEPARTMENT OF ENERGY

DOE Lacks an Effective Strategy for Addressing Recommendations From Past Laboratory Advisory Groups

Statement of Victor S. Rezendes, Director,
Energy, Resources, and Science Issues,
Resources, Community, and Economic
Development Division

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Messrs. Chairmen and Members of the Subcommittees:

We are pleased to testify on the Department of Energy's (DOE) management of its national laboratories. In the past, we have reported on how improved management is needed if DOE and the laboratories are to successfully meet new mission responsibilities. This statement is based on our report to the full committee.[1] The objectives of our report were to

- identify the recommendations by various advisory groups for addressing management weaknesses at DOE and the laboratories and
- evaluate how DOE and its laboratories have responded to these recommendations.

In summary, Mr. Chairman, we reported that for nearly 20 years, many advisory groups have found that while DOE's national laboratories do impressive research and development, they are unfocused, are micromanaged by DOE, and do not function as an integrated national research and development system. These groups have made dozens of recommendations ranging from improving strategic planning to streamlining DOE's internal processes, and some have also suggested major organizational changes in the way the laboratories are directed. While DOE has made some progress—principally by reducing paperwork burdens on its laboratories—most of its actions in response to past advisory groups are still under way or have unclear outcomes. DOE cannot show how its actions have resulted or may result in fundamental change because they lack the objectives, performance measures, and milestones needed to effectively track progress and account for results. We believe that without a strategy for ensuring that reforms actually take place, DOE will make limited progress in achieving meaningful reforms. Additionally, DOE's organizational weaknesses, which include unclear lines of authority, are a major reason why the Department has been unable to develop long-term solutions to the recurring problems reported by advisory groups.

Background

The missions of DOE's 23 laboratories have evolved over the last 55 years. Originally created to design and build atomic bombs under the Manhattan Project, these laboratories have since expanded to conduct research in many disciplines—from high-energy physics to advanced computing at facilities throughout the nation. The missions have expanded in the laboratories for many reasons, including changes in the world's political

[1]Department of Energy: Uncertain Progress in Implementing National Laboratory Reforms (GAO/RCED-98-197, Sept. 10, 1998).

environment. Nine of DOE's laboratories are multiprogram laboratories that account for about 70 percent of the total laboratory budget and about 80 percent of all laboratory personnel. Three laboratories—Lawrence Livermore, Los Alamos, and Sandia—conduct the majority of DOE's nuclear weapons defense activities but have been substantially diversified in the wake of reduced funding for nuclear weapons.

Concerns Raised by Past Advisory Groups

Despite the many studies identifying similar deficiencies in the management of DOE's national laboratories, fundamental change remains an elusive goal. We identified nearly 30 reports by a wide variety of advisory groups on various aspects of the national laboratories' management and missions. Most of these reports have been prepared since the early 1980s. The reports include the following:

- In 1982, DOE's Energy Research Advisory Board reported that the national laboratories duplicate private-sector research and that while DOE could take better advantage of the national laboratories' capabilities, it needed to address its own management and organizational inefficiencies, which hamper the achievement of a more effective laboratory system.[2]
- In 1983, a White House Science Council panel found that while DOE's laboratories had well-defined missions for part of their work, most activities were fragmented and unrelated to the laboratories' main responsibilities.[3]
- In 1992, DOE's Secretary of Energy Advisory Board found that the laboratories' broad missions, coupled with rapidly changing world events, had "caused a loss of coherence and focus at the laboratories, thereby reducing their overall effectiveness in responding to their traditional missions as well as new national initiatives . . ."[4]
- A 1993 report by an internal DOE task force reported that the Department's missions "must be updated to support DOE's new directions and to respond to new national imperatives . . ."[5]

The most recent extensive review of DOE's national laboratories was performed by a task force chaired by Robert Galvin, former Chairman of

[2]The Department of Energy Multiprogram Laboratories: A Report of the Energy Research Advisory Board to the United States Department of Energy (Sept. 1982).

[3]Report of the White House Science Council, Federal Laboratory Review Panel, Office of Science and Technology Policy, Executive Office of the President (May 20, 1983).

[4]Final Report, Secretary of Energy Advisory Board (1992).

[5]Changes and Challenges at the Department of Energy Laboratories: Final Draft Report of the Missions of the Laboratories Priority Team (1993).

the Motorola Corporation. Consisting of distinguished leaders from government, academia, and industry, the Galvin Task Force was established to examine alternatives for directing the laboratories' scientific and engineering resources to meet the economic, environmental, defense, scientific, and energy needs of the nation. Its 1995 report identified many of the problems noted in earlier studies, called for a more disciplined focus for the national laboratories, and reported that the laboratories may be oversized for their role.[6]

DOE's Laboratory Operations Board was created in 1995 to focus the laboratories' missions and reduce DOE's micromanagement of the laboratories. Members serving on the Board from outside DOE have issued four different reports, which have noted the need to

- focus and define the laboratories' missions in relation to the Department's missions,
- integrate the laboratories' programmatic work, and
- streamline operations, including the elimination or reduction of administrative burdens on the laboratories.

DOE Lacks an Effective Strategy for Addressing Advisory Group's Recommendations

Most of the actions DOE has taken in response to past advisory group's recommendations are process oriented, incomplete, or only marginally related to past recommendations for change. DOE actions include

- creating various internal working groups;
- strengthening the Energy Research and Development Council (R&D) to facilitate more effective planning, budgeting, management, and evaluation of the Department's R&D programs and to improve the linkage between research and technology development;
- increasing the use of private-sector management practices;
- adopting performance-based contracting and continuous improvement concepts;
- reducing unnecessary oversight burdens on laboratories;
- developing the Strategic Laboratory Missions Plan in July 1996 that identified laboratory activities in mission areas;
- creating the Laboratory Operations Board, which includes DOE officials and experts from industry and academia, to provide guidance and direction to the laboratories; and

[6]Alternative Futures for the Department of Energy National Laboratories, Secretary of Energy Advisory Board Task Force on Alternative Futures for the Department of Energy National Laboratories, DOE (Feb. 1995).

- developing "technology roadmaps," a strategic planning technique to focus the laboratories' roles.

According to DOE, its major effort to give more focus to laboratory missions was a Strategic Laboratory Missions Plan, published in July 1996. However, the plan is essentially a descriptive document that does not effect change. Nor does the plan tie DOE's or the laboratories' missions to DOE's annual budget process. Few laboratory experts we consulted could show how the plan is used to focus missions or integrate the laboratory system.

A second action that DOE officials reported as a major step toward focusing the laboratories' missions is "technology roadmaps." DOE describes roadmaps as planning tools that define the missions, goals, and requirements of research on a program-by-program basis. However, some experts told us that it is too soon to tell if this initiative will succeed. Another expert was uncertain about just how the roadmaps will work. When we asked DOE officials about roadmapping, we were told that it is still a work in progress and will not be connected directly to the budget process for months or even years.

DOE's major organizational action in response to recent advisory groups' recommendations was to create the Laboratory Operations Board in April 1995. The purpose of the Board is to provide dedicated management attention to laboratory issues on a continuing basis. While several experts we interviewed generally viewed the Board positively, some recognized that the Board's limited advisory role is not a substitute for strong DOE leadership and organizational accountability. One expert commented that the effectiveness of the Board was diminished by the fact that it meets too infrequently (quarterly) and has had too many changes in membership to function as an effective adviser. Other experts agreed but indicated that the Board still has had a positive influence on reforming the laboratory system. One expert said that even though the Board monitors the progress of reform and makes recommendations, it is still advisory and cannot coordinate or direct specific actions.

When asked by DOE to comment on its actions earlier this year, some laboratory directors raised questions about both the accuracy of DOE's reported actions and their applicability to the laboratories.[7] For example, some laboratory officials believe little progress has been made in meeting

[7]These comments were made on DOE's draft response to our request for a listing of actions taken by the Department to address recommendations from past advisory groups.

past recommendations intended to provide more focus on the laboratories' missions as exemplified in the following remarks:

"[This] remains in the future. We have seen nothing yet."

". . . it is not clear that DOE has made as significant progress as the response implies . . ."

"[The] tone of the response in [DOE's response] is a bit more optimistic than actual experience in the field justifies . . . Only modest improvements have occurred to this point . . . "

"No reorganization has occurred . . . no integration has occurred."

"The labs have largely been held at arm's length rather than included as part of the team. There have been recent efforts to correct this but there is no plan or action in place to correct it."

Additionally, when we asked several laboratory officials for examples of their progress in responding to past advisory groups, most spoke of actions they have taken on their own initiative. Few could cite an example of a step taken in direct response to a DOE action.

DOE has not established a comprehensive plan with goals, objectives, and performance measures or a system for tracking results and measuring accountability. As a result, DOE is unable to document its progress and cannot show how its actions address the major issues raised by the advisory groups. Experts we contacted noted that while DOE is establishing performance measures for gauging how well its contractors manage the laboratories, DOE itself lacks any such measurement system for ensuring that the objectives based on the advisory groups' recommendations are met.

Organizational Weaknesses Prevent Fundamental Reform

We, along with past advisory groups and internal DOE studies, have often reported on DOE's complex organizational structure and the problems in accountability that result from unclear chains of command among headquarters, field offices, and the laboratories. For example, a 1997 DOE report stated that the

"lack of clarity, inconsistency, and variability in the relationship between headquarters management and field organizations has been a longstanding criticism of DOE operations.

This is particularly true in situations when several headquarters programs fund activities at laboratories . . ."[8]

As a consequence of DOE's complex structure, the Institute for Defense Analyses reported that unclear chains of command have led to the weak integration of programs and functions across the Department; wide variations among field activities, relationships and processes; and confusion over the difference between line and staff roles.[9]

Weaknesses in DOE's ability to manage the laboratories as an integrated system of R&D facilities is one the most persistent findings from past advisory groups, as well as from our 1995 management review of laboratory issues.[10] We concluded that DOE had not coordinated the laboratories' efforts as part of a diversified research system to solve national problems. Instead, DOE was managing the laboratories on a program-by-program basis. We recommended that DOE evaluate alternatives for managing the laboratories that would more fully support the achievement of clear and coordinated missions. We also reported that if DOE is unable to refocus the laboratories' missions and develop a management approach consistent with these new missions, the Congress may wish to consider alternatives to the present relationships between DOE and the laboratories. Such alternatives might include placing the laboratories under the control of different agencies or creating a separate structure for the sole purpose of developing a consensus on the laboratories' missions. Because of DOE's uncertain progress in reforming the laboratories' management, we continue to believe that the Congress may wish to consider such alternatives.

Further, we recommended that DOE strengthen the Office of Laboratory Management to facilitate the laboratories' cooperation with DOE and resolve management issues across DOE's program areas. DOE did not strengthen this office. DOE's primary response to our recommendations and those made by the Galvin Task Force was creating the Laboratory Operations Board.

Experts we interviewed earlier this year cited DOE's complex structure and lack of a strong central laboratory authority as hindering the effective

[8]DOE Action Plan for Improved Management of Brookhaven National Laboratory, DOE (July 1997).

[9]The Organization and Management of the Nuclear Weapons Program, Institute for Defense Analyses (Mar. 1997).

[10]Department of Energy: National Laboratories Need Clearer Missions and Better Management (GAO/RCED-95-10, Jan. 27, 1995).

implementation of advisory groups' recommendations. The experts whom we consulted noted that DOE's organizational weaknesses prevent reform, and that DOE has not been responsive to recommendations for organizational changes and improvements in reporting relationships. According to these experts, DOE's establishment of working groups to implement recommendations can be helpful for guiding reform, but these groups often lack the authority to make critical decisions or to enforce needed reforms. One expert commented that "the current DOE organizational structure is outdated . . . there is no DOE leadership to implement changes."

As far back as 1982, an advisory group recognized the need for a strong central focus to manage the laboratories' activities. In its 1982 report, DOE's Energy Research Advisory Board noted the "layering and fractionation of managerial and research and development responsibilities in DOE on an excessive number of horizontal and vertical levels . . ."[11] The Board recommended that DOE designate a high-level official, such as a Deputy Under Secretary, whose sole function would be to act as DOE's chief laboratory executive. Although DOE did not make this change, the Under Secretary told us that he has assumed responsibility for ensuring that laboratory reforms are accomplished.

We believe that DOE's organizational weaknesses are a major reason why the Department has been unable to develop long-term solutions to the recurring problems reported by advisory groups. The absence of a senior official in the Department with program and administrative authority over the operations of all the laboratories prevents the effective management of the laboratories on an ongoing basis.

Messrs. Chairmen, this concludes our statement. We would be happy to respond to any questions from you or Members of the Subcommittees.

[11]The Department of Energy Multiprogram Laboratories: A Report of the Energy Research Advisory Board to the United States Department of Energy (Sept. 1982).

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