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**Testimony**

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**DEPARTMENT OF  
ENERGY**

**Alternatives for Clearer  
Missions and Better  
Management at the National  
Laboratories**

Statement for the Record by  
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Mr. Chairman and Members of the Subcommittee:

We are pleased to provide this statement on the challenges facing the Department of Energy (DOE) in managing its multiprogram national laboratories. As you requested, we focused on (1) DOE's performance in managing the laboratories in light of their changing missions and (2) alternatives for managing the laboratories, including those recommended in the Galvin task force's report on the national laboratories.<sup>1</sup> The information included in this testimony is drawn from our management review of DOE and past work on DOE's national laboratories.<sup>2</sup>

In summary, Mr. Chairman, DOE has not ensured that work at the national laboratories is focused and managed to make maximum contributions to national priorities. First, DOE has not established clear missions for the laboratories that reflect a consensus among laboratory and government leaders on the laboratories' appropriate missions in the post-Cold War environment, even though past studies and special task forces have called for such action. DOE has exacerbated this problem by treating the laboratories as separate entities, rather than as a coordinated national research system with unified goals. Second, DOE's fragmented management approach has impeded the ability of the laboratories to achieve their current research missions and administrative responsibilities.

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<sup>1</sup>The Secretary of Energy asked Robert Galvin, Chairman of the Motorola Corporation, to chair this task force. Its report, 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), was issued in February 1995.

<sup>2</sup>Department of Energy: National Laboratories Need Clearer Missions and Better Management (GAO/RCED-95-10, Jan. 27, 1995).

DOE has taken some steps to address these problems--by initiating a new strategic planning process and reforming the contracts that it enters into with the laboratories, for example. But the outcome of these initiatives is uncertain, and DOE's past efforts along these lines have not been successful. Other experts have suggested various alternatives for improving the management of the laboratories--by, for example, transferring management responsibility to other federal agencies or to universities. These alternatives would require thorough evaluation by DOE and the Congress to ensure that national priorities are met and that the laboratories are operating effectively.

One structural alternative was suggested by the Galvin task force, which was asked by the Secretary of Energy to examine options for the future of the laboratories. The task force recommended that control of the laboratories be placed in private hands. The task force's basic findings--that the laboratories' missions should be redefined and improvements made in the way the laboratories are managed--are largely consistent with the results of our work. The ultimate success of the task force's work will be judged by the extent to which it helps DOE shape a consensus on the future of the laboratories among key stakeholders: the Congress, DOE, and the laboratories themselves. Such a consensus has not resulted from past advisory boards' recommendations.

Before discussing these issues in more detail, we would like to provide some background.

#### BACKGROUND

DOE's nine multiprogram laboratories have over 50,000 employees and combined annual budgets of about \$6.5 billion. DOE estimates that it has invested over \$100 billion in the laboratories over the past 20 years. Most of the laboratories

were established during or just after World War II as part of the Manhattan Project, which developed the world's first atomic bombs. The laboratories have since expanded their missions to encompass civilian research and development in many disciplines--from high-energy physics to advanced computing. The laboratories support DOE's programs and address national needs in science and technology. DOE owns the laboratories but contracts with universities and private-sector organizations for their management and operation.

#### THE LABORATORIES' MISSIONS ARE NOT CLEAR

The dramatic reduction in the nuclear arms race brought about by the collapse of the Soviet Union raises questions about the future role of the three large defense laboratories--Lawrence Livermore, Los Alamos, and Sandia--created to design, develop, and test nuclear weapons. Furthermore, all nine of the multiprogram laboratories face increasing pressure to apply their resources to current national priorities, such as improving economic competitiveness and cleaning up the environment. Redefining their missions in the face of these trends, and with limited future funding, is perhaps the greatest challenge the laboratories face.

Over the past decade, several government advisory groups have urged DOE to clarify its laboratories' missions. However, these missions are set forth as broad goals and activity statements rather than as a coordinated set of objectives with specific implementation strategies for bringing together the individual and collective strengths of each facility to meet departmental and national priorities. The Galvin task force--the latest of these initiatives--called for a more "disciplined focus" for the national laboratories. A 1992 Secretary of Energy advisory board had also reported a "loss of coherence and focus" at the laboratories and said that DOE had failed to develop a

coordinated and shared vision for them.<sup>3</sup> We believe that the lack of proper direction for the laboratories' missions is compromising both the effectiveness of the laboratories in meeting traditional missions and their ability to achieve new national priorities.

To obtain independent views about the laboratories' missions and management, we assembled a panel of experts from industry, academia, and government.<sup>4</sup> These experts, as well as other specialists we consulted, have also called for more focused missions for the national laboratories. Our experts concluded that with proper focus of their missions, and better direction from management, the multiprogram laboratories can make vital contributions in many areas important to DOE and the nation. According to our panel, the highest-priority missions for the laboratories involve national defense, energy, the environment, and commercial technology. The laboratories have already made contributions in these areas--such as effective weapons systems, energy conservation programs, environmental cleanup techniques, and the development and support of technologies with commercial applications. But our panel concluded that clarifying and, in some cases, redefining the current missions for the laboratory system as a whole would enhance the laboratories' value.

DOE currently manages the laboratories program by program, not as a single research system with diverse objectives. This approach prevents the laboratories from fully capitalizing on one of their great strengths--combining multidisciplinary talents to solve complex, cross-cutting issues. For example, research on

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<sup>3</sup>Secretary of Energy Advisory Board, Task Force on the Department of Energy's National Laboratories, final report, July 1992.

<sup>4</sup>For a list of the experts on GAO's panel, see p. 14 in Department of Energy: National Laboratories Need Clearer Missions and Better Management (GAO/RCED-95-10, Jan. 27, 1995).

preventing the proliferation of nuclear weapons requires combining expertise in nonproliferation and weapons design-- activities that are carried out by different laboratories and managed by different assistant secretaries at DOE. Similar linkages are needed among the energy conservation, fossil fuel, and nuclear energy research areas.

We and past advisory groups have cited the need for DOE to develop a mechanism to facilitate cross-program coordination. DOE did create the Office of Laboratory Management in early 1993 to coordinate the interests of various program offices that interact with the laboratories. However, this office lacks the authority to resolve disputes among program offices and reports through two levels of command below the Secretary--an arrangement that does not promote effective interaction between DOE and the laboratories.

#### DOE's Management Inhibits Accomplishment of the Laboratories' Missions

DOE has struggled to manage and oversee the laboratories effectively. Many view DOE's day-to-day management as costly and unproductive in meeting the laboratories' missions. Laboratory managers have characterized DOE as a micromanager in many areas, especially in overseeing the laboratories' compliance with expanding administrative requirements.

While DOE has recognized the need to expand oversight of the laboratories, the Department's method of doing so poses a strategic dilemma for DOE and the laboratories' managers. DOE created new oversight offices, each having the authority to impose new requirements. The guidance and direction from these offices is not always consistent, and the laboratories are forced to meet similar requirements from many different offices. Moreover, DOE has not set priorities for compliance with its

environmental requirements, forcing the laboratories to treat each requirement as equally important. Neither cost-benefit analysis nor risk assessment has been used to target resources for the laboratories' administrative requirements. Consequently, DOE has no assurance that the laboratories address more pressing concerns first, or with enough attention. As a result, laboratory officials are kept from managing their research most effectively, according to many experts.

A related issue is the cost-effectiveness of DOE's intensified oversight. Laboratory managers have expressed concern to us about the overall cost of a greatly increased administrative burden without corresponding benefits. Many laboratory managers feel a more balanced approach is needed, one that reflects the need for both managing a program well and ensuring compliance. Such a balance is hard to achieve under DOE's program-oriented management approach. One senior laboratory manager told us that his increased overhead costs for compliance activities makes his research more expensive than that of other competing federal and university laboratories, which are not generally subject to the same level of oversight.

Laboratory managers and experts also worry that the cost of complying with growing oversight and administrative requirements has increased their research costs to the point that they cannot compete for research opportunities sponsored by industry and other government agencies. This limitation could, in turn, diminish the ability of the laboratories to build partnerships with industry--the key to the success of their initiatives to support industry's commercial technology development.

## DOE Has Taken Steps to Address These Concerns

DOE officials have several initiatives under way that they believe address our concerns. For example, DOE has launched a new strategic planning process that officials believe will provide the framework for more focused missions for the laboratories. DOE also believes that reforming its contracts, specifically by introducing performance measures to guide and evaluate the laboratories' activities, will form a basis for a more rational risk-based and productive management approach that better integrates the laboratories' missions.

We generally agree that these initiatives have the potential to help DOE refocus the missions of the laboratories and improve their management. However, these initiatives have not yet been implemented and, in the case of contract reform, will take years to be fully implemented. Thus, their outcome, while promising, is very uncertain. We also caution that in the past, DOE has introduced planning systems, reorganized many times, and tried to institute reforms--all without significant success.

## ALTERNATIVES FOR MANAGING THE NATIONAL LABORATORIES

The Galvin task force gives DOE another opportunity to chart a course for the future of the laboratories. Its findings on mission and management are consistent with those reported by us and others who have studied the national laboratories. Both our report and the task force's report called for clarifying the laboratories' missions, treating the laboratories more as an integrated research system, and improving the way in which the laboratories are managed. We believe the report's many specific recommendations and observations deserve serious consideration by DOE and the Congress.



Perhaps the most far-reaching recommendation made by the task force is to "corporatize" the laboratories. Under this arrangement, one or more nonprofit corporations would be created to operate the laboratories under the direction of a board of trustees that would channel federal funding to various laboratories to meet the needs of both government and nongovernment entities. DOE would be a customer, rather than the direct manager of the laboratories. Although the task force provided few details about how such an alternative structure would be developed and implemented, and acknowledged that several variations could be studied, its proposal raises important issues that both DOE and the Congress should consider. For example:

- The expenditure of public funds by a privately managed and operated structure raises concerns about how to monitor and oversee the use of those taxpayer funds. How would a new structure be responsive and accountable to the Congress and DOE?
  
- The laboratories have significant responsibilities for addressing environmental, safety, and health problems at their facilities, some of which are governed by legal agreements between DOE, the Environmental Protection Agency, and the states. How would a new structure ensure that these responsibilities continue?
  
- To what extent would this new structure safeguard federal access to facilities so that national priorities are met? Most if not all of the laboratories perform work essential to the government, including national security missions. Considerable thought would have to be given to whether and how a priority system can be developed within any alternative structure.

- Would a new structure affect the laboratories' ability to attract and retain technically competent scientists?

In addition, organizational options that have been proposed by other experts could also be considered, including the following:

- Convert some laboratories, particularly those working closely with the private sector, into independent entities.
- Transfer the responsibility for one or more laboratories to another agency, whose responsibilities and mission are closely aligned with a particular laboratory.
- Create a "lead lab" arrangement, under which one laboratory is given a leadership role in a mission or technology area and other laboratories are selected to work in that area.
- Consolidate the responsibility for research, development, and testing of nuclear weapons within a single laboratory.

While we have not analyzed these alternatives, each has advantages and disadvantages, as does the Galvin task force's proposal, and each needs to be evaluated in light of the laboratories' capabilities for designing nuclear weapons and pursuing other missions of national and strategic importance. Furthermore, the government may still need facilities dedicated to national and defense missions, a factor that would heavily influence any decisions about future organization.

Redefining and/or clarifying the missions of the laboratories should be undertaken before deciding on the best structure for managing the laboratories. For example, the Congress and the administration should decide if research on

energy efficiency is needed before deciding where and how to fund this research.

In addition, correcting the current system of management is still an option deserving of attention. Although the task force is not optimistic that DOE's current initiatives will correct problems in managing the laboratories, more specific evidence may be needed before the task of managing the laboratories is taken away from DOE.

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In conclusion, Mr. Chairman, lack of a strategic approach in managing the laboratories limits DOE's ability to ensure that the laboratories are making the greatest possible contribution to national needs. The relationship between DOE and the laboratories has deteriorated under recent changes, preventing DOE and laboratories' managers from developing a sense of common purpose. To develop a more effective management strategy, DOE needs to better define its missions and strengthen its working relationships with all of the laboratories.

We are encouraged by DOE's initiatives. These efforts--especially those concerning strategic planning and contract reform, once fully in place, should help strengthen DOE's ability to improve its own management and provide a foundation for refocusing the laboratories' missions. Our optimism is tempered, however, by the fact that DOE has reorganized before and has undertaken planning efforts in the past. Furthermore, DOE has not used the results of past advisory groups' recommendations to refocus the laboratories or improve its management of them. In any event, any initiative DOE takes to restructure the laboratory network will bear close monitoring by the Congress.

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