

**COMPETITION FOR DEPARTMENT OF ENERGY  
LABORATORY CONTRACTS: WHAT IS  
THE IMPACT ON SCIENCE?**

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**HEARING**  
BEFORE THE  
SUBCOMMITTEE ON ENERGY  
COMMITTEE ON SCIENCE  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED EIGHTH CONGRESS

FIRST SESSION

—————  
JULY 10, 2003  
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**Serial No. 108-24**

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**COMPETITION FOR DEPARTMENT OF ENERGY  
LABORATORY CONTRACTS: WHAT IS THE  
IMPACT ON SCIENCE?**

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**THURSDAY, JULY 10, 2003**

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON ENERGY,  
COMMITTEE ON SCIENCE,  
*Washington, DC.*

The Subcommittee met, pursuant to call, at 10 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Judy Biggert [Chairwoman of the Subcommittee] presiding.

**COMMITTEE ON SCIENCE  
SUBCOMMITTEE ON ENERGY  
U.S. HOUSE OF REPRESENTATIVES**

**Competition for Department of Energy Laboratory Contracts—What is the  
Impact on Science?**

Thursday, July 10, 2003

10:00 AM – 12:00 PM  
2318 Rayburn House Office Building

**Witness List**

**Robin Nazzaro**

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U.S. General Accounting Office  
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**The Honorable Robert Gordon Card**

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HEARING CHARTER

**SUBCOMMITTEE ON ENERGY  
COMMITTEE ON SCIENCE  
U.S. HOUSE OF REPRESENTATIVES**

**Competition for Department of Energy  
Laboratory Contracts: What Is  
the Impact on Science?**

THURSDAY, JULY 10, 2003  
10:00 A.M.—12:00 P.M.

2318 RAYBURN HOUSE OFFICE BUILDING

**1. PURPOSE**

On Thursday, July 10, 2003, the Energy Subcommittee of the U.S. House of Representatives' Committee on Science will hold a hearing to examine the Department of Energy's (DOE) management and operations (M&O) contracts for its laboratories. Specifically, the hearing will focus on DOE's use of M&O contract competition to create accountability for scientific and managerial performance, and on whether the application of competition as a tool to promote accountability has particular implications for the conduct of science at the laboratories.

**2. WITNESSES**

**Mr. Robert Card**, Under Secretary for Energy, Science and Environment, U.S. Department of Energy. Prior to his DOE employment, Mr. Card was President and CEO, Kaiser-Hill Company, LLC. In that role he was responsible for the cleanup and closure of the U.S. Department of Energy's (DOE's) Rocky Flats site. Mr. Card also served as a Director and Senior Vice President at CH2M HILL Companies, Ltd. Prior to the Rocky Flats assignment, Mr. Card served as Group Executive, Environmental Companies, responsible for the energy and environmental business, which was the firm's largest business practice. Mr. Card completed the Program for Management Development at Harvard Business School, received a M.S. in Environmental Engineering from Stanford University, and a B.S. in Civil Engineering from the University of Washington.

**Ms. Robin Nazzaro**, Director of Natural Resources and Environment at the General Accounting Office. Since 1993, she has overseen GAO's work on federally funded R&D, including responsibility for NIST, NSF and PTO as well as a number government-wide R&D programs. In addition, she is currently responsible for the Department of Energy's National Nuclear Security Administration, Environmental Management, and Waste programs as well as general DOE management issues such as security and contract management. Ms. Nazzaro has been with GAO since 1979. For several years, she worked on tax and financial management issues and later on information technology issues. She has also served as an assistant to the Deputy Director for Planning and Reporting, where she was division focal point for strategic planning and human resources management. Ms. Nazzaro received a Bachelor's degree in K-12 education from the University of Wisconsin and recently received a senior management in government certificate in public policy from the John F. Kennedy School of Government at Harvard University.

**Dr. Paul Fleury**, Dean of Engineering and Frederick William Beinecke Professor of Engineering and Applied Physics at Yale University. Prior to joining Yale, Dr. Fleury was Dean of the School of Engineering at the University of New Mexico, following 30 years at AT&T Bell Laboratories. In January 1992, he was chosen as Vice President for Research and Exploratory Technology at Sandia National Laboratories, where he was responsible for programs in physical sciences, high-performance computing, engineering sciences, pulsed power, microelectronics, photonics, materials and process science and engineering, and computer networking. In October 1993, upon termination of the contract under which AT&T managed Sandia for the Department of Energy, Dr. Fleury returned to Bell Laboratories. He has served on the Secretary of Energy's Laboratory Operations Board and the University of

California President's Council on the National Laboratories, is currently a Board member of Brookhaven Science Associates which manages Brookhaven National Laboratory, and serves on visiting committees for Lawrence Berkeley, Sandia and Los Alamos National Laboratories.

**Dr. John McTague**, Professor of Materials at the University of California, Santa Barbara. From 2001 to 2003, he served as the University of California's Vice President for Laboratory Management, overseeing management of Los Alamos, Lawrence Livermore, and Lawrence Berkeley National Laboratories. Dr. McTague has over a twenty-year history of management at the Department of Energy's National Laboratories. Beginning in 1982, he was appointed as the first chairman of Brookhaven National Laboratory's National Synchrotron Light Source. He served on the Board of Overseers of both Argonne National Laboratory and Fermilab, where he was also Chairman of the Board. Dr. McTague is a founding co-chair of DOE's National Laboratories Operations Board and a ten-year member of the Secretary of Energy Advisory Board. In 1999, he retired from Ford Motor Company where he spent 12 years as Vice President of Research and Vice President of Technical Affairs. Prior to joining Ford, he served as Deputy Director and Acting Director of the White House Office of Science and Technology Policy and was Acting Science Advisor to the President. During the first Bush Administration he was a member of the President's Council of Advisors on Science and Technology and U.S. chair of the U.S.-Japan High Level Advisory Panel of Science and Technology. Dr. McTague graduated from Georgetown University and received his Ph.D. from Brown University.

### 3. OVERARCHING QUESTIONS

The hearing will address the following overarching questions:

- Can competition of M&O contracts for laboratories deliver management improvements? What criteria should be used to determine if competition is appropriate?
- What criteria should be used for awarding M&O contracts? What are the advantages and disadvantages of competition? What is the likely field of competitors, and is the field large enough to make the effort worthwhile?
- What is the impact of contractor change, or the uncertainty of contractor continuity, on the science programs at the laboratories? What has the result been where contractor changes have occurred?
- What is the best way to structure the relationship between the Federal Government and scientists in a way that ensures accountability for management and performance of top-quality science?

### 4. OVERVIEW

DOE spends more federal funds on contracts than any other civilian agency; the vast majority, over \$16 billion per year, goes to contractors to manage and operate 28 major facilities. Of this amount, nearly \$9 billion goes to the operation of the 15 national laboratories listed in Table 1 on page five. Unfortunately, the public portrait of performance of both DOE and its contractors has often been a source of ongoing controversy rather than pride. The popular history of laboratory management is characterized by repeated reports of cost overruns, credit card abuse, and security lapses. The General Accounting Office (GAO) designated DOE contract management as a high-risk area in 1990, and has reiterated that designation every year since.

The relationship between DOE and its M&O contractors is complex. In fact, there are actually numerous relationships, and not all of them have been contentious or problematic. For example, the relationship with the Stanford Linear Accelerator Center (SLAC) has worked remarkably well, with major facilities consistently delivered at or below budget. Other contracts, such as that with Associated Universities, Inc., at the Brookhaven National Laboratory, were terminated due to management failures. Still others, such as the contracts with the University of California to operate the Livermore and Los Alamos National Laboratories, have been consistently renewed despite cost overruns in the billions of dollars at the National Ignition Facility at Livermore, and serious management and security lapses at Los Alamos. However, most of these criticisms of DOE laboratories have centered on management functions rather than the mission-related outcomes that the laboratories were created to produce. While management functions are important, the evaluation of science outcomes is very different from financial reviews in time-scale, process and specificity.

Over the years, numerous critics have observed that it is difficult for the Department to carry out its oversight and accountability role without some credible means of sanctioning contractors. This is why the GAO, the Office of Management and Budget (OMB), and others have continually urged DOE to use competitive, perform-

ance-based contracts. However, competition also has real risks. Opponents of competition argue that needless competition can actually increase costs, especially if few competent competitors are likely to come forward. More importantly, the uncertainty of leadership and the disruption of work flow if contractors change, opponents say, can distract scientists from their mission and delay important scientific work.

These issues of laboratory governance recently came to the fore because of several decisions at DOE. On April 30, 2003, DOE announced that two major laboratories' M&O contracts (that had never previously been competed) would undergo competition: the Los Alamos Laboratory and the Idaho Laboratory (formerly Argonne National Laboratory (ANL)-West and Idaho National Engineering and Environmental Laboratory (INEEL). Despite the fact that these two contracts are both slated for competition, their situations are not similar. In the case of Los Alamos, a new round of problems associated with credit card abuse and procurement fraud, prompted extensive discussions with Congressional representatives and other stakeholders. These culminated in the announcement to compete the M&O contract, two years before the contract expiration. In the case of ANL-West, there had been no allegations of mismanagement, and few prior consultations with the Congress before the announcement, and little more than a year before the contract expired. This extremely inconsistent treatment of two major laboratories and contractors brings into question whether DOE had a uniform policy or criteria for determining how contracts are structured and whether they are competed.

The next day, on May 1st, DOE answered those questions when it formally tasked a Blue Ribbon Commission on the Use of Competitive Procedures for Department of Energy Laboratories to recommend procedures and criteria for M&O contract competition decision-making. The Commission was slated to report by the end of July. The Committee believes that the Commission, and ultimately DOE, will need to address the important questions that are the focus of this hearing, in formulating a competition policy. (The Senate Committee on Energy and Natural Resources has also been examining the issue of laboratory governance.)

## 5. BACKGROUND

### *History of DOE Laboratory Contracting.*

The tradition of the Government Owned Contractor Operated (GOCO) structure for DOE laboratories was first established when the weapons laboratories were created in the 1940s. While a number of factors contributed to the selection of the GOCO approach, the size, scope, and expense of the pursuit of nuclear weapons, posed a new challenge. Government salaries were insufficient to attract the "best and brightest" scientists, nor were government procurement rules flexible enough to manage work on these issues of urgent national importance. The first laboratory contractors were either universities for the more science-oriented laboratories (such as Los Alamos and Argonne) or large companies with major industrial laboratories, such as AT&T or Union Carbide. Direct profit did not appear to be a motive for contractors to manage laboratories, e.g., AT&T accepted only \$1 per year to manage Sandia. Over time, the fees have generally increased, and range from zero at SLAC, to up to \$34 million per year for INEEL. Fees constitute a relatively small percentage of contract revenues, generally less than 1 percent, with INEEL again having the most generous contract, with over 4.5 percent of the INEEL budget dedicated to fees.

The relationship between DOE and its laboratory M&O contractors has evolved considerably since the first contracts were set up decades ago. While few observers would deny the success of the science at DOE laboratories, it is also difficult to deny that the pursuit of the laboratories' missions has sometimes come at the expense of normal housekeeping and care taking chores that taxpayers, rightfully, expect with the expenditure of their funds. Consequently, the Congress and its oversight committees, OMB, the General Accounting Office, and the DOE Inspector General increased their scrutiny of DOE. DOE, in turn, increased its oversight of laboratory functions, using tools like "Tiger Teams" to attack environmental lapses and contract reforms to address financial and managerial shortcomings. Despite increased scrutiny, or perhaps because of it, managerial failures continued to come to light, causing more intensive efforts by oversight bodies, and a proliferation of rules and regulations.

In response to this increasing regulation, scientists began to complain that overhead costs were eating into their science budgets, and to complain that paperwork, conflicting regulatory mandates, and endless review processes were causing the quality and quantity of the scientific product to decline. Dr. Siegfried Hecker, former director of Los Alamos National Laboratory, recently commented, "The net result has been to significantly diminish the ability of the laboratories to accomplish their missions and to dramatically reduce productivity."

Furthermore, due to what Professor Bob Behn of Harvard University calls “the accountability bias,” the increased scrutiny has tended to be on the easily measurable. Behn distinguishes between accountability for what he calls “finances and fairness” and accountability for performance:

If you want to be in the accountability-holding business, it makes more sense to concentrate on process rather than performance. This is because our accountability expectations for finances and fairness are much clearer than they are for performance. . . .the accountability standards for money and equity are much more formal, much more specific, much more detailed, much more objective, much more established and much more accepted.<sup>1</sup>

While Behn was commenting on government programs generally, in this case the problem of the accountability bias is exacerbated by the inherent difficulty of measuring scientific performance. The long-term, technically-specialized nature of the science carried out at the majority of DOE laboratories does not lend itself to the type of specific measures common to many other government programs. Thus, while it is important to make sure that accountability mechanisms are in place, the design of those mechanisms should reflect programmatic context and the type of accountability that we seek.

Because DOE is a large and diverse organization, with contractors tasked with several very different types of missions—science; weapons design, production, and stewardship; product engineering; and environmental cleanup—it may be necessary to design different accountability mechanisms for different missions. It is crucial that any redesign of government-contractor relationships, including any decision to routinely re-compete contracts, be made in the context of these missions.

For example, the science missions of DOE have benefited by relationships to academic institutions over the years. However, it is not clear that non-profit institutions have the wherewithal and motivation to compete with commercial enterprises every five years. The motivations of academic institutions interested in operating laboratories could be very different from those of industrial organizations, and therefore require different incentives. In addition, the types of incentives offered for science M&O contracts could well differ from those for other activities. Finally, the effect on scientific activities from ongoing uncertainty about management and operations leadership, or from a transition from one contractor to another, may be different than the effect on other DOE missions.

This hearing is designed to explore avenues to optimize the management and accountability structures at DOE science laboratories for both management and scientific performance.

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<sup>1</sup> Robert D. Behn, “rethinking democratic accountability” Brookings Institution Press, Washington, DC, p. 12.

**Table 1: Competition Status in DOE Laboratories that Receive Office of Science Funding**

National Laboratory *never competed	Contractor	FY03 \$ (millions, Incl. non- DOE)	DOE host office**	Past contractor	Establishment date and last contractor change
Ames*	Iowa State U.	\$30	Science	N/A	Est. 1943
Argonne National Laboratory *	U of Chicago	\$494	Science (but has much NE and EERE)	N/A	Est. 1946
Brookhaven National Laboratory	Brookhaven Science Associates (SUNY-Stony Brook/Battelle)	\$382	Science	Associated Universities, Inc. (AUI)	1998, Est. 1947
Fermi *	URA	\$227	Science	URA	Est. 1967
Idaho National Engineering & Environmental Laboratory	Bechtel BWXT Idaho, LLC (Bechtel National, Inc., BWX Tech. Co and INRA a consortium of eight regional universities)	\$663	EM --soon to be NE	Lockheed Martin EG&G	Every 5 years since 1949 startup.
Lawrence Berkeley National Laboratory*	U of California	\$442	Science	N/A	Est. 1947
Lawrence Livermore National Laboratory *	U of California	\$1,230	NNSA	N/A	Est. 1952
Los Alamos National Laboratory *	U of California	\$1,800	NNSA	N/A	Est. 1943
National Renewable Energy Laboratory	Consortium of MRI, Battelle, and Bechtel National, Inc.	\$210	EERE	Midwest Research Institute, (MRI)	1998, Est. 1977
Oak Ridge National Laboratory	U of Tennessee-Battelle LLC.	\$647	Science	Lockheed- Martin	April 2000 Est. 1943
Pacific Northwest National Laboratory *	Battelle Memorial Institute	\$547	Science	N/A	Est. 1964
Princeton Plasma Physics Laboratory*	Princeton U.	\$68	Science	N/A	Est. 1975
Sandia National Laboratory	Lockheed Martin (formerly Martin Marrietta)	\$1,746	NNSA	AT&T	1993; Extended to Dec 2008. Est. 1948
Stanford Linear Accelerator Center*	Stanford U.	\$184	Science	N/A	Est. 1976
Thomas Jefferson National Accelerator Facility*	SURA (Southeastern Universities Research Association)	\$92	Science	N/A	Est. 1984

**\*\*Abbreviations for DOE Program Offices**

EERE - Energy Efficiency and Renewable Energy  
EM - Environmental Management  
NE - Office of Nuclear Energy  
NNSA - National Nuclear Security Administration

**Fig. 1: Location of DOE National GOCO Laboratories**

## 6. WITNESS QUESTIONS

### *Questions for Under Secretary Card*

- What is DOE's current policy toward competition of M&O contracts, and what led the department to reconsider that policy?
- When laboratories have changed contractors in the past, what effect did this have on the operation of the laboratories in question?
- How specific a set of recommendations do you expect to receive from the Blue Ribbon Commission? When do you expect the Commission to report, and what procedures do you expect DOE to use to review and implement its recommendations?
- Why were some decisions made on laboratory M&O contract competitions on the eve of the formation of the Blue Ribbon Commission?
- What are the advantages and disadvantages of competing M&O contracts?

### *Questions for Ms. Robin Nazzaro*

- What public statements has the Department of Energy (DOE) made in response to your recommendations that DOE compete more of its laboratory contracts? Are there any trends with regard to competition for science laboratories run by universities?
- Do your reports provide evidence that competition of management and operations contracts for laboratory management deliver management improvements? Are some laboratories better candidates for competition than others? What are the criteria that matter most in making a competition decision? How should DOE determine the timeframe for contract competition?
- What evidence do you have regarding universities ability to compete successfully with for-profit entities? Do you have estimates of the cost of competition which some have estimated to be as high as \$10 million? How many universities are qualified as potential competitors?
- What is the purpose of performance based contracting for laboratory management? What criteria should be used to evaluate proposals—do we even know what makes a good laboratory contractor? How can one make legitimate and unbiased comparisons of competitors? What is the likely field of competitors? Is the field large enough to make the effort worthwhile? Should an incumbent have an advantage if that contractor receives high performance scores?

### *Questions for Dr. Paul Fleury*

- What motivates a contractor to want to operate a Department of Energy (DOE) laboratory? Why did AT&T decide not to renew the management contract for Sandia in 1993?
- What is the impact, if any, on the science programs at the laboratories due to uncertainty of contractor continuity? How does a change of contractor affect science operations? How did Sandia employees react to the management changeover in 1993?
- If DOE decides to compete laboratory management and operations contracts, what criteria should be used to evaluate proposals—do we even know what makes a good contractor? Should an incumbent have an advantage if that contractor receives high performance scores? How can one make legitimate and unbiased comparisons of competitors?
- What is the likely field of competitors? Is it large enough to make the effort worthwhile?
- We frequently hear criticisms of laboratory oversight as being intrusive "micro-management." What do you think the proper review and oversight mechanisms should be? How often do you think reviews should occur?
- Do you believe the current performance-based contract incentives deliver improved management or science results? What should the incentives be for contractors? Should the incentives be different for non-profit versus for-profit entities? What can be done to better align the incentives of science professionals at laboratories with those of the contractors?

### *Questions for Dr. John McTague*

- What motivates a contractor to want to operate a Department of Energy (DOE) laboratory?

- What is the impact on the science programs at the laboratories due to uncertainty of contractor continuity? How does a change of contractor affect science operations?
- If DOE decides to compete laboratory management and operations contracts, what criteria should be used to evaluate proposals—do we even know what makes a good contractor? Should an incumbent have an advantage if that contractor receives high performance scores? How can one make legitimate and unbiased comparisons of competitors?
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- We frequently hear criticisms of laboratory oversight as being intrusive “micro-management.” What do you think the proper review and oversight mechanisms should be? How often do you think reviews should occur?
- Do you believe the current performance-based contract incentives deliver improved management or science results? What should the incentives be for contractors? Should the incentives be different for non-profit versus for-profit entities? What can be done to better align the incentives of science professionals at laboratories with those of the contractors?

Chairwoman BIGGERT. I now call the Subcommittee on Energy to order.

I want to welcome everyone to this hearing.

Today we are focusing on the Department of Energy's contracting policies with respect to the management and operations of its national laboratories, especially the science labs. Why are we holding this hearing? Well, be to quite frank, the logic behind a number of the Department's recent contracting decisions has been hard to follow.

Over the course of the last nine months, the DOE has made a number of critical decisions to extend or compete management and operations, or M&O, contracts at Sandia, Los Alamos, and lab facilities in Idaho, including Argonne-West and lab facilities—the Idaho National Environmental and Engineering Lab, or INEEL. However, these decisions have seriously called into question whether the DOE has or ever had a uniform policy for determining how contracts are structured and whether or not they are competed.

For instance, the day after the Department announced it would compete several lab management contracts, the Department then announced a Blue Ribbon Commission to study when, where, and how decisions to compete lab management contracts would be made. You can't help but wonder if the Department was putting the cart before the horse or at least putting the horse after the cart.

While I commend the Department for taking this—a step toward establishing a policy to guide future decisions to extend or compete contracts. I must confess that I am skeptical that the Commission's report alone will enhance accountability enough to solve management problems like the many that have been exposed at Los Alamos. DOE has ignored or only partially implemented advice from previous panels with a similar charge. That is why I am particularly eager to hear from DOE about what direction it has given the Commission, what it expects from the Commission on the specific issue of competition, what other measures the DOE will undertake to improve laboratory performance and contractor accountability, and how these steps will be integrated with the Commission's recommendation to form a coherent policy to improve DOE's relationship with its M&O contractors.

As we proceed, let me be clear about one thing: this hearing should not be interpreted as supporting a blanket, uniform policy of competition. On the contrary, a one-size-fits-all approach to contracting may not be appropriate given the DOE's diverse facilities and mission, including weapons design and production, environmental clean-up, product engineering, and of course, science.

Furthermore, the contracts we are discussing today are not contracts to operate a cafeteria, to procure a part for a tank, or to arrange clean-up services for a contaminated site. No, these contracts are to undertake the work of basic science research, which, by its very nature, is inherently risky. It often involves failure as an element of learning and success, and it presents a much greater challenge when it comes to measuring performance and results.

If the DOE, the GAO, and this Congress are serious about maintaining strong science programs at our national laboratories while improving financial and management accountability, we should not

simply mandate contract competition under the existing M&O contract regime. Rather, we should look more broadly at the overall relationship between the laboratories, their M&O contractors, and the DOE to determine what must be done to bring about full financial and management accountability without adversely impacting or disrupting the kind of world-class science that we have come to expect from our national laboratories. To start, the DOE must establish clear criteria to guide decisions to extend or compete contracts so that lab managers understand exactly how they are to be judged and what the consequences will be should they fail to meet expectations.

There is no doubt that this is a complex issue. I look forward to reviewing the Commission's report, as I am sure the entire panel does. But in the meantime, there is plenty to discuss about the costs and benefits of competition and what else can and should be done to ensure accountability at our national labs.

[The prepared statement of Ms. Biggert follows:]

PREPARED STATEMENT OF CHAIRMAN JUDY BIGGERT

I want to welcome everyone to this hearing of the Energy Subcommittee of the House Science Committee.

Today we are focusing on the Department of Energy's contracting policies with respect to the management and operation of its national laboratories, especially the science labs. Why are we holding this hearing? Well, to be quite frank, the logic behind a number of the Department's recent contracting decisions has been hard to follow.

Over the course of the last nine months, the DOE has made a number of critical decisions to extend or compete management and operation—or M&O—contracts at Sandia, Los Alamos, and lab facilities in Idaho, including Argonne-West and the Idaho National Environmental and Engineering Laboratory (INEEL). However, these decisions have seriously called into question whether the DOE has, or ever had, a uniform policy for determining how contracts are structured and whether or not they are competed.

For instance, the day *after* the Department announced it would compete several lab management contracts, the Department then announced a Blue Ribbon Commission to study when, where and how decisions to compete lab management contracts would be made. You can't help but wonder if the Department was putting the cart before the horse or at least putting the horse after the cart.

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- what direction it has given the Commission,
- what it expects from the Commission on the specific issue of competition,
- what other measures the DOE will undertake to improve laboratory performance and contractor accountability, and
- how those steps will be integrated with the Commission's recommendations to form a coherent policy to improve DOE's relationship with its M&O contractors.

As we proceed, let me be clear about one thing: this hearing should not be interpreted as supporting a blanket, uniform policy of competition. On the contrary, a one-size-fits-all approach to contracting may not be appropriate given the DOE's diverse facilities and mission, including weapons design and production, environmental clean-up, product engineering, and, of course, science.

Furthermore, the contracts we are discussing today are not contracts to operate a cafeteria, to procure a part for a tank, or to arrange cleanup services for a contaminated site. No, these are contracts to undertake the work of basic scientific research, which, by its very nature, is inherently risky. It often involves failure as an

element of learning and success, and it presents a much greater challenge when it comes to measuring performance and results.

If the DOE, the GAO, and this Congress are serious about maintaining strong science programs at our national laboratories while improving financial and management accountability, we should not simply mandate contract competition under the existing M&O contract regime. Rather, we should look more broadly at the overall relationship between the laboratories, their M&O contractors, and the DOE to determine what must be done to bring about full financial and management accountability without adversely impacting or disrupting the kind of world-class science that we have come to expect from our national laboratories. To start, the DOE must establish clear criteria to guide decisions to extend or compete contracts so that lab managers understand exactly how they are to be judged, and what the consequences will be should they fail to meet expectations.

There's no doubt that this is a complex issue. I look forward to reviewing the Commission's report, as I'm sure this entire panel does. But in the meantime, there is plenty to discuss about the costs and benefits of competition, and what else can and should be done to ensure accountability at our national laboratories.

Chairwoman BIGGERT. The Chair now recognizes Nick Lampson, the Ranking Minority Member on this Energy Subcommittee, for an opening statement.

Mr. LAMPSON. Thank you, Madam Chairwoman.

I want to thank Chairwoman Judy Biggert for calling this hearing. I think it is an important topic, and I look forward to hearing from our excellent panel of witnesses today.

The DOE National Labs are world-class laboratories that contribute significantly to DOE's major mission areas. DOE spends more federal funds on contracts than any other civilian agency: over \$10.3 billion annually goes to contractors to manage and operate the DOE's 21 national facilities.

The DOE laboratories trace their beginnings to the Nation's atomic weapons development program during World War II, the Manhattan Project. The government funded the construction of lab facilities that used universities and companies with existing expertise to carry out the work. This arrangement avoided the need for the government to develop its own expertise and allowed paying higher rates than generally available in federal service. Consequently, the labs have had a history of attracting some of the most talented scientific workforce in producing world-class science and technology.

DOE labs are not the only governmental agency to receive criticism for contracting issues. We all remember the bad press that the Department of Defense received in the '80's about the \$400 hammers and the \$1,000 toilet seats. And it is hard to pick up the *Washington Post* today without reading about contracting problems at other federal agencies inside the beltway. While I am confident that DOE can work through their contracting issues, the work that is being done at the national labs is too important to be lost in the controversy of cost overruns, credit card abuses, and security lapses. And I am committed to work with this—on this committee to address the abuses and ensure that science outcomes in the DOE labs remain sound.

So thank you for joining us here today, and I look forward to your testimony. And I yield back.

[The prepared statement of Mr. Lampson follows.]

## PREPARED STATEMENT OF REPRESENTATIVE NICK LAMPSON

I would like to thank Chairwoman Judy Biggert for calling this hearing. It is an important topic and I look forward to hearing from our excellent panel of witnesses today.

The DOE National Labs are world-class laboratories that contribute significantly to DOE's major mission areas. DOE spends more federal funds on contracts than any other civilian agency—over \$10.3 billion annually goes to contractors to manage and operate DOE's 21 national facilities.

The DOE laboratories trace their beginnings to the Nation's atomic weapons development program during World War II—the Manhattan Project. The government funded the construction of lab facilities but used universities and companies with existing expertise to carry out the work.

This arrangement avoided the need for the government to develop its own expertise and allowed paying higher rates than generally available in federal service. Consequently, the labs have had a history of attracting some of the most talented scientific workforce and producing world-class science and technology.

DOE labs are not the only governmental agency to receive criticism for contracting issues. We all remember the bad press the Department of Defense received in the 1980s for \$400 hammers and thousand dollar toilet seats. And it is hard to pick up the *Washington Post* today without reading about contracting problems at other federal agencies inside the Beltway.

I am confident that DOE can work through their contracting issues—the work that is being done at the national labs is too important to be lost in the controversy of cost overruns, credit card abuses and security lapses. I am committed to work on this committee to address the abuses and ensure that science outcomes in the DOE labs remain sound.

Thank you for joining us here today and I look forward to your testimony.

Chairwoman BIGGERT. Thank you. If there is no objection, all additional opening statements submitted by the Subcommittee Members will be added to the record. Without objection, so ordered.

[The prepared statement of Mr. Costello follows:]

## PREPARED STATEMENT OF REPRESENTATIVE JERRY F. COSTELLO

Good morning. I want to thank the witnesses for appearing before our committee to examine the Department of Energy's (DOE) management and operations (M&O) contracts for its laboratories.

Earlier this year, DOE announced that two major laboratories' M&O contracts, Los Alamos Laboratory and the Idaho Laboratory (formerly Argonne National Laboratory-West and Idaho National Engineering and Environmental Laboratory) would undergo competition. Los Alamos Laboratory has been investigated for mismanagement, fraud, and abuse while Argonne National Laboratory-West has had no allegations of mismanagement. Despite the fact that these two contracts are both scheduled for competition, their situations are vastly different. Competing contracts for these two laboratories brings into question whether DOE has uniform policies and criteria for determining how contracts are structured and whether they are competed.

Further, I am particularly interested in the external regulation of the DOE laboratories. The Office of Science operates numerous laboratories, major scientific instruments, and user facilities. Yet, the DOE currently regulates itself with regard to nuclear and worker safety and has been criticized for weakness in self-regulation at its facilities. External regulation by the Nuclear Regulatory Commission and the Occupational Safety and Health Administration has been proposed as a way to improve ES&H at DOE facilities and provide cost savings. Despite nearly a decade of consideration, including advisory group evaluations, pilot programs, stakeholder input, and specific direction from Congress, the DOE has continued to use stall tactics in developing a comprehensive plan for transition to external regulation.

When the House of Representatives considered comprehensive energy legislation, the House Science Committee adopted an amendment, sponsored by myself and Mr. Calvert, that would provide for the external regulation of nuclear safety and occupational safety and health at the DOE civilian labs. Unfortunately, it was not included in the text of H.R. 6. Instead, a report detailing transition and cost was included in the bill. This provision duplicates information already on record in GAO reports and DOE reports submitted to Congress as well as cost audits requested by the Energy and Water Appropriations Subcommittee. After ten years of studying this

issue, we already know that external regulation is the right answer; yet, DOE insists that more time is needed.

Accountability for scientific, managerial, and safety performance has particular implications for the conduct of science at the laboratories. The question of competition as a tool to promote accountability will continue to be explored by this committee and I look forward to hearing from our witnesses.

Chairwoman BIGGERT. At this time, I would like to introduce our excellent panel of witnesses. And thank you so much for joining us. First in order will be Ms. Robin Nazzaro, Director of Natural Resources and Environment at the General Accounting Office. Thank you. Second will be Mr. Robert Card, Under Secretary for Energy, Science, and Environment, U.S. Department of Energy. Third is Dr. Paul Fleury, Dean of Engineering and Frederick William Beinecke Professor of Engineering and Applied Physics at Yale University. And fourth, Dr. John McTague, Professor of Materials at the University of California, Santa Barbara.

So as our witnesses, I am sure, know, the spoken testimony is limited to five minutes each, after which Members of the Committee will have five minutes each to ask questions. So we will try and stick to our five minutes, and if you can stick to your five minutes. So we will start with Ms. Nazzaro.

**STATEMENT OF MS. ROBIN M. NAZZARO, DIRECTOR OF NATURAL RESOURCES AND ENVIRONMENT, U.S. GENERAL ACCOUNTING OFFICE**

Ms. NAZZARO. Thank you, Madam Chairman, and Members of the Subcommittee.

I am pleased to be here today to discuss the Department of Energy's use of competition and other mechanisms to help ensure effective contractor performance in managing and operating its research laboratories.

DOE is the largest civilian contracting agency in the Federal Government, relying primarily on contractors to manage and operate its sites and to carry out its diverse missions, including research. For fiscal year 2003, DOE will spend \$9.4 billion on contracts to operate its 16 research laboratories known as Federally Funded Research and Development Centers, or FFRDCs.

Since 1990, GAO has identified DOE's contract management as high-risk for fraud, waste, abuse, and mismanagement. In 1994, DOE began reforming its contracting practices to, among other things, improve contractor performance and accountability. As part of that effort, DOE has used competition in awarding contracts to better manage and operate its research laboratories.

In this context, my testimony today will focus on, first, DOE's rationale for competing a laboratory research contract, second, the extent to which DOE has competed these contract, and third, the role of competition and other mechanisms in improving contractor performance.

In summary, Madam Chairman, DOE has had three main reasons for competing its FFRDC contracts instead of extending them non-competitively: one, when the contractor operating the laboratory is a for-profit; two, when the mission changes warrant a review of the capabilities of other contractors; or third, when the incumbent contractor's performance is unsatisfactory. DOE guidance on contracting indicates a clear preference for competition, in part,

as a result of its contract reform initiative. While federal statutes and regulations give DOE considerable flexibility in deciding whether to compete or non-competitively extend an FFRDC contract for noncompetitive extensions, DOE guidance requires the Department to present a convincing case to the Secretary. Among other things, DOE must certify that competing the contract is not in the best interest of the government and must describe the incumbent contractor's past successful performance.

Of the 16 FFRDC contracts currently in place, DOE has competed six. DOE's decision to compete these six contracts is consistent with the Department's overall policy on determining when competition is appropriate. It has not competed the remaining ten contracts since the contractors began operating these sites, in some cases, since the 1940's. DOE recently decided to compete two of the ten contracts that had never before been competed: contracts to manage and operate the Los Alamos National Laboratory in New Mexico, and the Argonne West Laboratory located at the Idaho National Laboratory. DOE decided to compete the Los Alamos contract because of concerns about the contractor's performance. The Argonne West contract is part of an overall effort to refocus and separate the Idaho National Laboratory's nuclear energy research mission from the environmental clean-up mission. DOE plans to include the activities at Argonne West in the competition for the Idaho site's science mission, remove the Argonne West scope of work from DOE's existing contract with the University of Chicago to operate the Argonne West National Laboratory. DOE believes this contract restructuring will help to revitalize the nuclear energy mission at the Idaho site and accelerate the environmental clean up.

Regarding the role of competition and other mechanisms in improving contractor performance, competition is one of several steps DOE can take to address contractor performance problems or to strengthen contract management. However, just competing a contract does not ensure that contractor performance will improve. Other aspects of DOE's contract reform initiative intended to improve contractor performance include greater use of fixed-price contracts instead of cost-reimbursement contracts and establishing or strengthening performance-based incentives in existing contracts. In addition, we have reported that DOE must effectively oversee its contractors' activities in carrying out projects, use appropriate outcome measures to assess overall results, and apply lessons learned to continually improve its contracting practices. Our recent evaluation of DOE's contract reform efforts indicates that DOE is still working to put these management practices and outcome measures in place.

Thank you, Madam Chairman and Members of the Subcommittee. This concludes my statement. I'd be happy to respond to any questions that you may have.

[The prepared statement of Ms. Nazzaro follows:]

PREPARED STATEMENT OF ROBIN M. NAZZARO

Madam Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss the Department of Energy's (DOE) use of competition and other mechanisms to help ensure effective contractor perform-

ance in managing and operating its research laboratories. DOE is the largest civilian-contracting agency in the Federal Government, relying primarily on contractors to operate its sites and carry out its diverse missions. These missions include not only conducting research but also maintaining the nuclear weapons stockpile, and cleaning up radioactive and hazardous waste. For fiscal year 2003, DOE will spend about 90 percent of its total annual budget, or \$19.8 billion, on contracts, including \$9.4 billion to operate 16 of its research laboratories.

For over a decade, we, DOE's Office of Inspector General, and others have criticized DOE's contracting practices, including its failure to hold its contractors accountable for results. DOE's longstanding approach had been to develop a broadly defined statement of work, provide considerable direction to the contractor, and reimburse virtually all costs. This approach placed limited emphasis on cost control or accountability for results. Furthermore, poor contractor performance led to schedule delays and cost increases on many of the department's major projects. Since 1990, such problems have led us to designate DOE contract management—defined broadly to include both contract administration and management of projects—as a high-risk area for fraud, waste, abuse, and mismanagement.

In 1994, DOE began its contract reform initiative to improve contractors' performance. Through this initiative DOE intended, among other things, to strengthen contracting practices, hold contractors more accountable for their performance, and demonstrate progress in achieving the agency's missions. DOE implemented numerous changes, such as performance based-contracts with results-oriented measures and a greater use of competition in awarding contracts, including contracts to manage and operate its research laboratories known as Federally Funded Research and Development Centers (FFRDC). According to the Federal Acquisition Regulation, FFRDCs are entities that engage in activities sponsored by a government agency or agencies to conduct or manage basic or applied research and development. Contracts to operate such facilities differ from other contracts because the government contemplates a long-term relationship with the FFRDC contractor and the contractor has access to government data, employees, and facilities beyond that common in a normal contractual relationship.

My testimony today will discuss (1) DOE's rationale for deciding whether to compete a FFRDC contract, (2) the extent to which DOE has competed these contracts, and (3) the role of competition and other mechanisms in improving contractor performance. Although we have not conducted a review solely related to FFRDC contracts, our past work on DOE's contract reform initiative, especially our September 2002 report,<sup>1</sup> focused in part on DOE's use of competition as a tool to improve contractor performance, including the contractors that manage and operate DOE's laboratories. My testimony today is based on the findings in that report as well as related information we have developed as part of our ongoing oversight of DOE's contracting activities.

In summary we found the following:

- DOE has competed its FFRDC contracts in three main situations: when the contractor operating the laboratory is a for-profit entity, when mission changes warrant a review of the capabilities of other potential contractors, or when the incumbent contractor's performance is unsatisfactory. DOE guidance on contracting reflects a strong emphasis on competition that exists, in part, as a result of its contract reform initiative. Statutes and regulations give DOE considerable flexibility in deciding whether to compete or noncompetitively extend a FFRDC contract. However, for noncompetitive extensions, DOE guidance requires the department to present a convincing case to the Secretary. Among other things, DOE must certify that competing the contract is not in the best interests of the government and must describe the incumbent contractor's past successful performance.
- Of the 16 FFRDC contracts in place, DOE has competed six. It has not competed the remaining 10 contracts since the contractors began operating the sites—in some cases, since the 1940s. DOE recently decided to compete 2 of the 10 contracts that had never before been competed—contracts to operate the Los Alamos National Laboratory in New Mexico and the Argonne West Laboratory, located at the Idaho National Laboratory. DOE decided to compete the (1) Los Alamos contract because of concerns about the contractor's performance and (2) Argonne West contract as part of an overall effort to sep-

<sup>1</sup>U.S. General Accounting Office, *Contract Reform: DOE Has Made Progress, but Actions Needed to Ensure Initiatives Have Improved Results*, GAO-02-798 (Washington, D.C.: Sept. 13, 2002).

arate the Idaho National Laboratory's ongoing research mission from the environmental cleanup mission at the Idaho site.

- Competing contracts is one of several mechanisms DOE can use to address contractor performance problems or strengthen contract management. However, just competing a contract does not ensure that contractor performance will improve. Other aspects of DOE's contract reform initiative intended to improve contractor performance included greater use of fixed-price contracts instead of cost-reimbursement contracts and establishing or strengthening performance-based incentives in existing contracts. In addition, we have reported that DOE must (1) effectively oversee its contractors' activities in carrying out projects and (2) use appropriate outcome measures to assess overall results and apply lessons learned to continually improve its contracting practices. Our recent evaluation of DOE's contract reform efforts indicates that DOE is still working to put these management practices and outcome measures in place.

### **Background**

DOE has a large complex of sites around the country dedicated to supporting its missions: sites that were used to produce or process materials and components for nuclear weapons and laboratories that conduct research on nuclear weapons, defense issues, basic science, and other topics. These sites and laboratories are often located on government-owned property and facilities, but are usually operated by organizations under contract to DOE, including universities or university groups, nonprofit organizations, or other commercial entities.

DOE contracting activities are governed by federal laws and regulations. Although federal laws generally require federal agencies to use competition in selecting a contractor, until the mid-1990s, DOE contracts for the management and operation of its sites generally fit within an exception that allowed for the use of noncompetitive procedures. Those contracts were subject to regulation that established noncompetitive extensions of contracts with incumbent contractors as the norm and permitted competition only when it appeared likely that the competition would result in improved cost or contractor performance and would not be contrary to the government's best interests. In the mid-1990s, DOE began a series of contracting reforms to improve its contractors' performance. A key factor of that initiative has been the increasing use of competition as a way to select management and operating contractors for DOE sites. Although DOE initially focused the increased use of competition on its contracts with for-profit organizations, the laboratories operated by universities and other nonprofit organizations have not been completely insulated from these changes.

Contract administration in DOE is carried out by the program offices, with guidance and direction from DOE's Office of Procurement and Assistance Management. The management and operating contracts at DOE's FFRDC laboratories are administered primarily by the National Nuclear Security Administration, a semi-autonomous agency within DOE; or DOE's Offices of Science, Environmental Management, or Nuclear Energy, Science, and Technology.

### **DOE Has Competed FFRDC Contracts for Three Main Reasons**

DOE has had three main reasons for competing its FFRDC contracts instead of extending the contracts noncompetitively: when the contractor operating the laboratory is a for-profit entity, when mission changes warrant a review of the capabilities of other potential contractors, or when the incumbent contractor's performance is unsatisfactory. Without one of these conditions, DOE has generally extended these contracts without competition.

DOE has considerable flexibility in deciding whether to compete a management and operating contract for one of its FFRDC laboratories. Although federal procurement law specifies a clear preference for competition in awarding government contracts, the Competition in Contracting Act of 1984 provided for certain conditions under which full and open competition is not required. One of these noncompetitive conditions occurs when awarding the contract to a particular source is necessary to establish or maintain an essential engineering, research, or development capability to be provided by an educational or other nonprofit institution or a FFRDC.

The Federal Acquisition Regulation, which implements federal law, defines government-wide policy and requirements for FFRDCs, including the establishment, use, review, and termination of the FFRDC relationship. Under this regulation (1) there must be a written agreement of sponsorship between the government and the FFRDC; (2) the sponsoring governmental agency must justify its use of the FFRDC; (3) before extending the agreement or contract with the FFRDC, the government agency must conduct a comprehensive review of the use and need for the FFRDC;

and (4) when the need for the FFRDC no longer exists, the agency may transfer sponsorship to another government agency or phase out the FFRDC.

DOE's 1996 acquisition guidance describes the procedures DOE program offices must follow to support any recommendation for a non-competitive extension of any major site contract, including a FFRDC contract. This guidance indicates a clear preference for competition and requires DOE program offices to make a convincing case to the Secretary before a noncompetitive contract extension is allowed. This preference for competition is an outcome of DOE's contract reform initiative, which concluded that DOE needed to expand the use of competition in awarding or renewing contracts. Among other things, the 1996 guidance specifies that, before a non-competitive contract extension can occur, DOE must provide

- a certification that full and open competition is not in the best interest of the department,
- a detailed description of the incumbent contractor's past performance,
- an outline of the principal issues and/or significant changes to be negotiated in the contract extension, and
- in the case of FFRDCs, a showing of the continued need for the research and development center in accordance with criteria established in the Federal Acquisition Regulation.

In November 2000, DOE's Office of Procurement and Assistance Management issued additional guidance on how to evaluate an incumbent contractor's past performance when deciding whether to extend or compete an existing contract. The guidance states that DOE contracting officers must review an incumbent contractor's overall performance including technical, administrative, and cost factors, and it outlines the information required to support the performance review and the expected composition of the evaluation team. When reporting the results of a performance evaluation, the team should address all significant areas of performance and highlight the incumbent contractor's strengths and weaknesses. The evaluation team's report serves as the basis for determining whether extending a contract is in the best interests of the government and is subject to review and concurrence by the responsible assistant secretary and DOE's Procurement Executive.

#### **DOE Has Competed or Plans to Compete Half of Its 16 FFRDC Contracts**

In September 2002, we reported that DOE had taken several steps to expand competition for its site management and operating FFRDC contracts. First, DOE reassessed which sites it should continue to designate as federally funded research and development centers. As a result of the reassessment, DOE removed 6 of the 22 sites from the FFRDC designation. DOE subsequently competed the contracts for two of these—the Knolls and Bettis Atomic Power Laboratories in New York and Pennsylvania. DOE restructured the other four contracts and, because of the more limited scope of activities, no longer regards them as major site contracts. The six site contracts that DOE has dropped from FFRDC status since 1992 are listed in Table 1.

**Table 1: Sites Where DOE Has Eliminated the FFRDC Designation**

Site	Year FFRDC status terminated
Bettis Atomic Power Laboratory, Pennsylvania	1992
Hanford Engineering Development Laboratory, Washington	1992
Inhalation Toxicology Research Institute, New Mexico	1995
Energy Technology Engineering Center, California	1995
Knolls Atomic Power Laboratory, New York	1992
Oak Ridge Institute of Science and Education, Tennessee	1999

Source: GAO analysis of DOE data.

For the 16 remaining FFRDC contracts that DOE sponsors, DOE has competed 6 of them and is planning to compete two additional contracts in 2004 and 2005. The 16 current FFRDC sites and the competitive status of the site contract are shown in Table 2.

Table 2: DOE's FFRDC Sites and Contract Status

Site	Site contractor	Contract status
<b>Sites with contracts that have not been competed:</b>		
Ames National Laboratory, Iowa	Iowa State University	Initiated in 1943.
Argonne National Laboratory, Illinois	University of Chicago	Initiated in 1946. DOE plans to compete the Argonne West (Idaho) portion of the contract in 2004.
Fermi National Laboratory, Illinois	Universities Research Association	Initiated in 1967.
Jefferson Laboratory, Virginia	Southeastern Universities Research Association	Initiated in 1984.
Lawrence Berkeley National Laboratory, California	University of California	Initiated in 1947.
Lawrence Livermore National Laboratory, California	University of California	Initiated in 1952.
Los Alamos National Laboratory, New Mexico	University of California	Initiated in 1943. DOE plans to compete the contract in 2005.
Pacific Northwest National Laboratory, Washington	Battelle Memorial Institute	Initiated in 1964.
Princeton Plasma Physics Laboratory, New Jersey	Princeton University	Initiated in 1975.
Stanford Linear Accelerator Facility, California	Stanford University	Initiated in 1976.
<b>Sites with competed contracts:</b>		
Brookhaven National Laboratory, New York	Brookhaven Science Associates	Completed in 1997.
Idaho National Engineering and Environmental Laboratory, Idaho	Bechtel BWTX Idaho, LLC	Completed in 1999. DOE plans to restructure the site contract and compete it in 2004.
National Renewable Energy Laboratory, Colorado	Midwest Research Institute	Completed in 1998.
Oak Ridge National Laboratory, Tennessee	UT-Battelle, LLC	Completed in 1999.
Sandia National Laboratory, New Mexico	Sandia Corporation	Completed in 1993.
Savannah River Site, South Carolina	Westinghouse Savannah River Company	Completed in 1996.

Source: GAO analysis of DOE data.

DOE's decision to compete the six FFRDC sites shown in Table 2 is consistent with the department's overall policy on determining when competition is appropriate. For example, DOE competed the contract for the Brookhaven National Laboratory in 1997, after terminating the previous contract for unsatisfactory performance by the incumbent contractor. DOE competed the contract for the National Renewable Energy Laboratory in 1998 to incorporate additional private sector expertise into the management team for the site. This competition resulted from an expanded mission at the site to develop innovative renewable energy and energy efficient technologies and to incorporate these technologies into cost effective new products. For the remaining four FFRDC contracts that DOE has competed, the operator of the laboratory was a for-profit entity.

When DOE has decided not to compete its FFRDC contracts but to extend them noncompetitively, its decisions have not been without controversy. For example, in 2001, DOE extended the management and operating contracts with the University of California for the Los Alamos and Lawrence Livermore National Laboratories. The University of California has operated these sites for 50 years or more and has been the sites' only contractor. In recent years, we and others have documented significant problems with laboratory operations and management at these two laboratories—particularly in the areas of safeguards, security, and project management.<sup>2</sup> Congressional committees and others have called for DOE to compete these contracts. Until recently, however, DOE did not compete them. Instead, DOE chose to address the performance problems using contract mechanisms, such as specific performance measures and interim performance assessments. In our September 2002 report, we commented that if the University of California did not make significant improvements in its performance, DOE may need to reconsider its decision not to compete the contracts.

In April 2003, the Secretary of Energy decided to open the Los Alamos National Laboratory contract to competition when the current contract expires in September 2005. The Secretary made this decision based on "systemic management failures" that came to light in 2002. The management failures included inadequate controls over employees' use of government credit cards, inadequate property controls and apparent theft of government property, and the firing of investigators attempting to identify the extent of management problems at the laboratory.

<sup>2</sup> For example, see U.S. General Accounting Office, *Department of Energy: Key Factors Underlying Security Problems at DOE Facilities*, GAO/T-RCED-99-159 (Washington, D.C.: Apr. 20, 1999); U.S. General Accounting Office, *Nuclear Security: Improvements Needed in DOE's Safeguards and Security Oversight*, GAO/RCED-00-62 (Washington, D.C.: Feb. 24, 2000); and A Special Investigative Panel, President's Foreign Intelligence Advisory Board, *Science at Its Best, Security at its Worst: A Report on Security Problems of the U.S. Department of Energy* (Washington, D.C.: June 1999).

DOE has also decided to restructure the FFRDC contracts supporting work at the Idaho National Laboratory. Currently the laboratory has two FFRDC contracts—(1) a site management contract that includes activities ranging from waste cleanup to facility operations activities and (2) a contract to operate Argonne National Laboratory, which includes the Argonne West facility at the Idaho site. DOE plans to restructure the two contracts so that one focuses on the nuclear energy research mission and the other focuses on the cleanup mission at the site. DOE also plans to include the activities at Argonne West in the contract competition for the site's research mission and to remove the Argonne West scope of work from DOE's existing contract with the University of Chicago to operate Argonne National Laboratory. DOE believes this contract restructuring will help revitalize the nuclear energy research mission at the Idaho Site and accelerate the environmental cleanup.

DOE is continuing to examine the nature of its relationship with FFRDC contractors and the implications of that relationship for its contracting approach. DOE established FFRDCs in part to gain the benefits of having a long-term association with the research community beyond that available with a normal contractual relationship. However, more recent events are causing DOE to rethink its approach. As discussed above, DOE has been criticized for not competing laboratory contracts where the contractors are performing poorly. Furthermore, annual provisions in the Energy and Water Development Appropriations Acts since fiscal year 1998 have required DOE to compete the award and extension of management and operating contracts, including FFRDC contracts, unless the Secretary waives the requirement and notifies the Subcommittees on Energy and Water of the House Committee on Appropriations 60 days before contract award.

Given these concerns, in 2003 the Secretary of Energy commissioned an independent panel to determine what criteria DOE should consider when deciding whether to extend or compete a laboratory management and operating contract. The panel is expected to help DOE determine, among other things, the conditions under which competition for laboratory contracts is appropriate, the appropriate criteria for deciding to compete or extend laboratory contracts, the benefits and disadvantages derived from competing laboratory contracts, and whether different standards and decision criteria should apply depending on whether the contractor is non-profit, an educational institution, an academic consortium, or a commercial entity.

**Competing Its Contracts Is One of Several Mechanisms DOE Has to Address Contractor Performance, but Effective Oversight and Improved Outcome Measures Are Also Needed**

Competing contracts is one of several mechanisms DOE can use to address contractor performance problems or strengthen contract management. However, competing a contract does not ensure that contractor performance will improve. Other steps DOE has taken as part of its contract reform initiative to address contractor performance issues include changing the type of contract, such as from a cost-reimbursement to a fixed-price contract, or establishing or strengthening performance-based incentives in the contract. For example, in September 2002, we reported that DOE now requires performance-based contracts at all of its major sites. DOE has also increased over time the proportion of contractors' fees tied to achieving those performance objectives. However, DOE has struggled to develop effective performance measures and continues to modify and test various performance measures that more directly link performance incentives to a site's strategic objectives.

Even these changes to DOE's contracts do not by themselves ensure that contractor performance will improve. We have reported that DOE must also (1) effectively oversee its contractors' activities in carrying out projects and (2) use appropriate outcome measures to assess overall results and apply lessons learned to continually improve its contracting practices. Effectively overseeing contractor activities involves, among other things, ensuring that appropriate and effective project management principles and practices are being used. Since June 1999, DOE has been working to implement recommendations by the National Research Council on how to improve project management at DOE. In 2003, the National Research Council reported that DOE has made progress in improving its management of projects but that effective management of projects was not fully in place.

Regarding the use of outcome measures to assess overall results, in September 2002, we reported that DOE did not have outcome measures or data that could be used to assess the overall results of its contract reform initiatives. We recommended that DOE develop an approach to its reform initiatives, including its contracting and project management initiatives, that is more consistent with the best practices of high-performing organizations. DOE is still working to put a best-practices approach in place.

As we reported in 2001, improving an organization's performance can be difficult, especially in an organization like DOE, which has three main interrelated impediments to improvement—diverse missions, a confusing organizational structure, and a weak culture of accountability.<sup>3</sup> However, DOE expects to spend hundreds of billions of dollars in future years on missions important to the well-being of the American people, such as ensuring the safety and reliability of our nuclear weapon stockpile. Therefore, the department has compelling reasons to ensure that it has in place an effective set of contracting and management practices and controls.

Thank you, Madam Chairman and Members of the Subcommittee. This concludes my testimony. I would be pleased to respond to any questions that you may have.

**Contacts and Acknowledgments**

For further information on this testimony, please contact Ms. Robin Nazzaro at (202) 512-3841. Individuals making key contributions to this testimony included Carole Blackwell, Bob Crystal, Doreen Feldman, Molly Laster, Carol Shulman, Stan Stenersen, and Bill Swick.

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<sup>3</sup>U.S. General Accounting Office, *Department of Energy: Fundamental Reassessment Needed to Address Major Mission, Structure, and Accountability Problems*, GAO-02-51 (Washington, D.C.: Dec. 21, 2001).



## Highlights

Highlights of GAO-03-0327, Testimony before the Subcommittee on Energy, Committee on Science, House of Representatives

### Why GAO Did This Study

DOE is the largest civilian-contracting agency in the federal government, and relies primarily on contractors to operate its sites and carry out its diverse missions. For fiscal year 2003, DOE will spend about 90 percent of its total annual budget, or \$19.8 billion, on contracts, including \$9.4 billion to operate 16 of its research laboratories (called federally funded research and development centers). Since 1990, GAO has identified DOE's contract management as high-risk for fraud, waste, abuse, and mismanagement. In 1994, DOE began reforming its contracting practices to, among other things, improve contractor performance and accountability. As part of that effort, DOE has at times used competition in awarding contracts to manage and operate its research laboratories. In September 2002, GAO reported on the status of contract reform efforts in DOE. (Contract Reform: DOE Has Made Progress, but Actions Needed to Ensure Initiatives Have Improved Results) (Sep. 2002, GAO-02-798)

This testimony discusses some of the findings in that report. GAO was asked to testify on DOE's rationale for deciding whether to compete a laboratory research contract, the extent to which DOE has competed these contracts, and the role of competition and other mechanisms in improving contractor performance.

[www.gao.gov/cgi-bin/getrpt?GAO-03-0327](http://www.gao.gov/cgi-bin/getrpt?GAO-03-0327)

To view the full product, including the scope and methodology, click on the link above. For more information, contact Robbe M. Rasmussen (202) 512-3641 or [rasmur@gao.gov](mailto:rasmur@gao.gov).

July 13, 2003

## CONTRACT REFORM

### DOE's Policies and Practices in Competing Research Laboratory Contracts

#### What GAO Found

DOE has competed its research laboratory contracts in three main situations—when the contractor operating the laboratory is a for-profit entity, when mission changes warrant a review of the capabilities of other potential contractors, or when the incumbent contractor's performance is unsatisfactory. DOE guidance requires that to extend a contract noncompetitively, the department must present a convincing case for doing so to the Secretary of Energy. Among other things, DOE must certify that competing the contract is not in the best interests of the government and must describe the incumbent contractor's past successful performance.

Of the 16 research laboratory contracts currently in place, DOE has competed 6. The remaining 10 contracts have not been competed since the contractors began operating the sites—in some cases, since the 1990s. DOE recently decided to compete 2 of the 10 contracts that had never before been competed—contracts to operate the Los Alamos National Laboratory in New Mexico and the Argonne West Laboratory, located at the Idaho National Laboratory. DOE decided to compete the Los Alamos contract because of concerns about the contractor's performance, and to compete the Argonne West contract as part of an overall effort to separate the Idaho National Laboratory's nuclear energy research mission from the environmental cleanup mission at the Idaho site.

Competing contracts is one of several mechanisms DOE can use to address contractor performance problems or strengthen contract management. However, just competing a contract does not ensure that contractor performance will improve. Other aspects of DOE's contract reform initiative intended to improve contractor performance included greater use of fixed-price contracts instead of cost-reimbursement contracts and establishing or strengthening performance-based incentives in existing contracts. In addition, GAO has reported that DOE must (1) effectively oversee its contractors' activities in carrying out projects and (2) use appropriate outcome measures to assess overall results and apply lessons learned to continually improve its contracting practices. GAO's recent evaluation of DOE's contract reform efforts indicates that DOE is still working to put these management practices and outcome measures in place.

## BIOGRAPHY FOR ROBIN M. NAZZARO

Ms. Nazzaro is a Director with the Natural Resources and Environment team of the U.S. General Accounting Office (GAO). Since 1993, she has overseen GAO's work on federally funded R&D, including responsibility for NIST, NSF and PTO as well as a number government-wide R&D programs. In addition, she is currently responsible for the Department of Energy's National Nuclear Security Administration, Environmental Management, and Waste programs as well as general DOE management issues such as security and contract management.

Ms. Nazzaro has been with GAO since 1979. For several years, she worked on tax and financial management issues and later on information technology issues. She has also served as an assistant to the Deputy Director for Planning and Reporting, where she was division focal point for strategic planning and human resources management.

Ms. Nazzaro received a Bachelor's degree in K-12 education from the University of Wisconsin and recently received a senior management in government certificate in public policy from the John F. Kennedy School of Government at Harvard University. She has received numerous GAO honors, including the Comptroller General's Meritorious Service Award for sustained leadership and two Assistant Comptroller General's Awards for exceptional contributions to strategic planning.

Chairwoman BIGGERT. Thank you very much.

Now we will hear from Mr. Card, DOE. Thank you.

**STATEMENT OF MR. ROBERT GORDON CARD, UNDER SECRETARY FOR ENERGY, SCIENCE, AND ENVIRONMENT, DEPARTMENT OF ENERGY**

Mr. CARD. Thank you, Madam Chairman, Members of the Subcommittee. GAO has done such an outstanding job of summarizing our position that I'm just going to make a few quick points.

First, I just want to reemphasize what you said that the Department is very proud of the outstanding science produced by its laboratories. These laboratories are creating breakthroughs everyday, which will enhance our security, boost our economic competitiveness, protect the environment, and improve our health. Second, the Department takes its management responsibilities for its science program very seriously. With an objective to maximize the science contribution to the Nation while providing taxpayer value and effective stewardship of this \$3.5 billion figure enterprise just in the science budget. Third, in responding to calls during the late 1980's and early 1990's for increased contractor accountability and oversight, the Department significantly increased competition for contracts Department-wide, as you have heard from GAO. This has also resulted in increased competition for laboratory contracts. Fourth and finally, given the important tradeoffs that this committee is concerned about, and so are we, between accountability provided for in competition and continuity that may be important for the development of a science program.

The Secretary has sought the advice of Blue Ribbon Commission on laboratory contract competition. Its Commission expected to complete its work later this year.

So Madam Chairman, thank you for the opportunity to testify. I look forward to your questions.

[The prepared statement of Mr. Card follows:]

PREPARED STATEMENT OF ROBERT GORDON CARD

Good morning Madam Chairperson and Members of the Subcommittee. It is my pleasure to join you to discuss the Department of Energy's laboratories and the use of competitive contracting procedures to maintain these important scientific research institutions.

Let me begin by affirming the importance of the Department's system of laboratories to our country's national security and its scientific leadership. DOE labs are the United States' preeminent institutions for the conduct of long-term, often high risk, research and development. The labs represent a major capital investment in state-of-the-art scientific facilities and technologies which, in many cases, is beyond the financial reach of American industry and academia. For over fifty years, DOE labs have enhanced the ability of our nation to deter and defend against military threats; they have expanded our understanding of the origins and physical nature of our world; they have led the way in high energy, nuclear, and condensed matter physics; they have helped increase the availability of energy supplies, made energy technologies more efficient, and supported the discovery and development of alternative energy sources; they have expanded our knowledge, skills and technologies in dealing with environmental hazards; and they have helped to unlock the biologic codes which dictate who and what we are.

The preservation and enhancement of these critical scientific capabilities is a major objective of Energy Secretary Spencer Abraham. He is committed to ensuring that the DOE labs continue to provide our nation with world class science and that they are managed in a conscientious, business-like fashion by our contractors. It is my privilege to support him in my role as Under Secretary for Energy, Science and Environment.

You have invited me here today to address the Department's policies and practices for the use of competitive procedures in maintaining DOE's contractor managed and operated laboratories. Allow me to begin with a historical perspective.

The Department and its predecessor agencies, the Energy Research and Development Administration and the Atomic Energy Commission, have, since their inception, relied on private sector industrial and academic institutions to carry out weapons production, basic and applied research, and other mission-critical activities at its government-owned sites and facilities located throughout the United States. The Department has obtained these services through the use of management and operating (M&O) contracts. M&O contracts are contractual agreements authorized under DOE's enabling legislation and regulated by the government-wide Federal Acquisition Regulation (FAR).

The FAR characterizes an M&O contract by its special purpose in conducting work closely related to an agency's fundamental mission as well as by its long-term or continuing nature. The FAR further provides that the effective work performance under management and operating contracts usually involves high levels of expertise and continuity of operations and personnel.

The Department historically provided for the continuing maintenance of its major sites and facilities and their assigned mission responsibilities through the use of non-competitive contract extensions. The use of competitive procedures for M&Os was relatively infrequent, and generally limited to those circumstances where a new facility was being established or an incumbent chose not to continue its performance at an existing facility. For example, between 1984 and 1994 when the Department had over 50 M&O contracts, only 3 M&O contracts were competed.

In the mid 1990s, however, DOE's competition policy and practice changed significantly. As a result of a comprehensive initiative to assess and improve its management of M&O contracts, the Department made a policy decision to significantly increase the use of the competitive procedures in selecting contractors to manage and operate its facilities. At the same time, it significantly reduced the usage of the M&O form of contracting coincident with mission changes at certain sites and its desire to identify more appropriate forms of contracting to fit its needs.

DOE's new policy, which was introduced in 1994, and formally established by regulation in 1996, provided that competition would be the norm or default mechanism for selecting an M&O contractor at the completion of the contract term. This policy was consistent with the statutory principles governing all federal agencies as contained in the Competition in Contracting Act of 1984. The policy preserved the concept of maintaining a long-term contractual relationship, however, by providing for a contract term of up to 10 years: a 5-year initial term with a competitively derived option right that the Department could exercise for an additional term of up to 5 years. The Department's new policy recognized, however, that certain circumstances might, nonetheless, support the noncompetitive extension of a contract with an incumbent, as specifically authorized by the Competition in Contracting Act. To ensure that competition was always considered and that noncompetitive procedures were selectively and appropriately used, a rigorous process of analysis, review, and approval was established with the ultimate authority to approve noncompetitive actions resting with the Secretary.

As a result of the new policy, DOE vigorously applied competitive procedures to its M&O contracts as well as to other major contracts which were formally M&O

contracts. Since 1994 the Department conducted 26 competitions for its M&O and former M&O contracts, representing over \$50 billion in contract value. Approximately 75 percent of the Department's contract dollars are now awarded competitively as compared to its historic norm of less than 20 percent.

Notwithstanding this major paradigm shift in the way the Department manages its programs and places its contracts, certain M&O contracts have not been competed. They are a subset of the Department's research and development laboratories, which have been officially designated as Federally Funded Research and Development Centers (FFRDC). An FFRDC is a unique organization that assists the United States Government with special long-term scientific research, analysis, and systems engineering requirements which cannot be met effectively by other means. An FFRDC occupies a special relationship to the government organization it serves, having access, beyond that which is common to a normal contractual relationship, to government and private data, including sensitive and proprietary information, as well as to federal employees and facilities. An FFRDC is required to conduct its business in the public interest with objectivity and independence and in a manner befitting its special relationship. It must remain free from organizational conflict of interest, and provide full disclosure of its affairs to its sponsoring agency. Government-wide policies and procedures governing the establishment and maintenance of FFRDC's are promulgated in the Federal Acquisition Regulation. The FAR encourages long-term relationships between government sponsors and FFRDCs in order to maintain continuity, currency, objectivity, and independence.

The Competition in Contracting Act of 1984, which provides Federal Executive Branch agencies with Congressional policy and procedures for the conduct of their contracting activities, recognizes the unique position of FFRDCs and specifically authorizes agencies, as an exception to the general rule requiring the use of full and open competition, to use noncompetitive procedures as necessary to establish and maintain FFRDCs.

As a matter of general practice, most federal agencies that sponsor FFRDCs do not use competitive procedures to maintain their FFRDCs upon expiration of the contract terms. Indeed, the Department has been able to identify only two incidents of competition by other federal agencies.

Consistent with its policies on the use of competition, however, the Department of Energy has since 1994 affirmatively considered the use of competition for its FFRDCs at the expiration of contract term. Although Congress authorized federal agencies to exempt FFRDC contracts from competition, the Department has, nonetheless, engaged in competition when an identifiable interest presents itself, such as where it is dissatisfied with an incumbent's performance or when a change of mission or program direction presents an opportunity for considering the merits of alternative providers. It has also tended to compete in those cases where an FFRDC is run by an incumbent for-profit organization as opposed to an academic or non-profit organization. As a consequence, the Department has competed or decided to compete FFRDCs eight times since 1994. Most significantly, however, the Department has demonstrated to its incumbent contractors its willingness to engage in competition when necessary so that contractors do not consider their continued contractual relationship with the government as a foregone conclusion. DOE has used this competitive pressure to ensure that the contractors focus on good performance and the Department's needs and concerns, as well as to provide leverage to accomplish significant changes in contract terms and conditions.

DOE believes that the changes in policy and practice with respect to M&O and former M&O competition have had a generally positive impact. Although some performance learning curve and program disruption may be experienced if a non-incumbent is selected as a result of competition, it has generally been offset by either improved longer-term performance of the contractor or the accomplishment of other contract goals during the competition such as the use of performance-based contracting techniques. Further, the effects of the learning curve of a newly-selected contractor are offset by DOE's retention of relatively long contract terms of up to 10 years. With respect to the FFRDC's, since they have typically been competed for cause because of a specific objective to be accomplished through the competitive process, DOE has, in almost every case, seen improvements in, the operation of the laboratory.

Notwithstanding the changes in DOE policy and the significant increase in the use of competitive procedures, generally, the issue of competition continues to receive the attention of Congress and the General Accounting Office.

For example, the GAO in its recent report on DOE management challenges noted that although the Department had made much progress in its overall competitive posture, it continued to noncompetitively extend most of its FFRDCs including some that had experienced performance problems. GAO concluded that it was unclear in

these latter cases whether “. . . DOE can successfully address the performance problems using contract mechanisms.” Further, DOE has, on occasion, received different perspectives from Congress regarding the use of competition and has received complaints as to lack of clarity in DOE policy as to when competition is and isn’t appropriate. To help address this continuing issue, Secretary Abraham requested the Secretary of Energy Advisory Board to establish an independent “Blue Ribbon Commission” to re-examine the issue of DOE’s competition policies and practices with respect to its FFRDCs. The Commission is expected to assess the Department’s competitive policies and procedures to determine the circumstances and criteria under which competition can best assist DOE in maintaining high quality research and efficient and effective operation of its government-owned facilities. Among other things, the Commission is expected to advise on whether the FFRDCs should be routinely competed and with what frequency, or whether they should only be competed for cause. If the former, should there be any exceptions? If the latter, under what circumstances should a decision to compete be made? Should different standards or decision criteria be applied depending on the purpose of the research facility? Should different standards or decision criteria be applied depending on whether the incumbent is a non-profit or academic institution or a commercial, for-profit entity?

The Commission will also assess the benefits and disadvantages of competing the FFRDCs, offer its opinion as to whether FFRDCs should be treated differently from other competition decisions, and recommend potential criteria for deciding which types of entities should manage and operate the various types of laboratories.

The Commission’s analysis and recommendations on these and other issues are due by the end of the fiscal year. Its report should provide useful information to the Secretary of Energy to make necessary improvements to the Department’s competition policies and procedures.

This concludes my testimony, I will be happy to answer any questions that you may have or provide any additional information that you desire for the record.

#### BIOGRAPHY FOR ROBERT GORDON CARD

Mr. Robert Card is the Under Secretary for Energy, Science and Environment at U.S. Department of Energy. Prior to his DOE employment, Mr. Card was President and CEO, Kaiser-Hill Company, LLC. In that role he was responsible for the clean-up and closure of the U.S. Department of Energy’s (DOE’s) Rocky Flats site. Mr. Card also served as a Director and Senior Vice President at CH2M HILL Companies, Ltd. Prior to the Rocky Flats assignment, Mr. Card served as Group Executive, Environmental Companies, responsible for the energy and environmental business, which was the firm’s largest business practice. Mr. Card completed the Program for Management Development at Harvard Business School, received a M.S. in Environmental Engineering from Stanford University, and a B.S. in Civil Engineering from the University of Washington.

Chairwoman BIGGERT. And now Dr. Fleury.

#### STATEMENT OF DR. PAUL A. FLEURY, DEAN OF ENGINEERING, YALE UNIVERSITY

Dr. FLEURY. Madam Chairman, I am grateful for the opportunity to share some of my perspectives with you this morning on the DOE National Laboratories and on their management and operations contracts—concepts.

The main missions of the DOE multi-program laboratories are national security and science. These missions require that the labs are necessarily large, complex, and expensive. In order for them to deliver the necessary value to the country, they must be operated efficiently and effectively. They must be able to attract and retain the best scientific and technical talent. I believe that over the decades, as a group, the DOE labs have done this job better than any other comparable group.

I believe that much of the credit for this record goes to the GOCO-M&O concept and its execution, at least in the early years. When the government engaged contractors such as AT&T and the

University of California in the '40's, those contractors took on the job largely out of the sense of public service. In fact, President Truman's letter to the then-president of AT&T stated that AT&T had an opportunity to render an exceptional service and a national interest. And I believe that that paradigm has persisted for many of the contractors for many years.

But in recent years, there have been a number of changes in the environment that the DOE and the labs face such that the GOCO concept has come under increasing scrutiny and, I believe, has experienced some serious distortion. For the DOE labs, this distortion has meant that the partnership mentality has been transformed into one of ever-increasing audits and oversights and micromanagement. Contractors have been given more oversight and scrutiny and greater liability while having less autonomy and less authority.

When I was at Sandia in the early '90's, I experienced some of these effects firsthand following the infamous "Tiger Teams" visits. I believe that approach resulted in focusing more on a mode of compliance than cooperation and has led to decreased scientific and technical productivity, increased staff dedicated to preparing for audits and policing compliance, and confusion about lines of authority and accountability.

I did go through a contract change as part of the AT&T disengagement from the DOE in 1993 when that contract was competed. It was a long, complex, and expensive process, and it was done by mutual agreement, not by any dissatisfaction of the DOE with AT&T. Nevertheless, there were considerable impacts, at least in the short term, on the staff throughout the laboratory.

As I think you may hear more from John, I won't talk about the Lab Operations Board, but I will mention that that was the major reaction of the DOE to the Galvin report that took place in the mid-'90's to look at the overall management of the suite of laboratories. Many of their recommendations seemed to imply that there was an opportunity for substantial increase in productivity and efficiency in the laboratories. But to date, only a fraction of this potential has been realized.

Let me just turn briefly to the question of competition and competing contracts. I do not believe that problems that have come up in recent months and years can be fixed by merely tweaking the current reactive approach. I believe that there is an urgent need for a strong and visible commitment on the part of Congress and the Department to restore the GOCO concept to its earlier structure and mode of operation. Such a commitment will influence substantially all of the contractor-related questions that we're discussing here today. If we don't make such a commitment, I believe that the result will be a restriction in the pool of potential bidders for new contracts. It will influence negatively their motivation. It may result even in contractors who are willing to operate more in a compliance mode, even at the expense of mission completion.

I, in my written testimony, made some more concrete suggestions about what I believe are attributes of a good contractor and what some of the initial steps could be—that could be taken.

In closing, let me just say that I believe that competing for these contracts should either be the rule or the exception. If it is the rule,

then I believe you will get into needless expense without necessarily a positive outcome. That could lead to the evolution of a sham process. If it is the exception, then you have to understand what the exception is for. I would say that unless the incumbent wants to terminate the relationship or the DOE wants them to terminate it, then it should not be necessary for re-competing. The primary goals should be to have effective management at the labs to enable mission accomplishment, not to measure compliance to particular rules or regulation.

Thank you.

[The prepared statement of Dr. Fleury follows:]

PREPARED STATEMENT OF PAUL A. FLEURY

#### **National Laboratories Overview**

Madam Chairman, I am grateful for the opportunity to share with you some of my perspectives on the DOE National Laboratories management and some of the issues raised by the current concern for the status and trajectory of the GOCO and M&O contract concept.

My background and past affiliations with many of these laboratories are described in my brief bio attached to these remarks, so let me not spend time on that here. Rather let me begin by stating my belief that world leadership in research and development is absolutely vital for the U.S.; that technology based on the methods, discoveries and laws of science is the basis for innovation, productivity enhancement, and improvement in the human condition; that the position of the U.S. is seriously threatened by a steadily declining competency in our schools in the areas of science, math and technology; that the virtual disappearance of real research in the U.S. industrial sector adds to this threat and puts an increasing burden on our universities and national laboratories to fill the resulting gaps.

The main missions of the DOE multiprogram laboratories are: national security and science. The former embraces economic and energy security as well as physical security. The latter embraces technology development appropriate to the security mission as well as large facility based fundamental research. In order to fulfill these vital missions, the national laboratories are necessarily large, complex, and expensive. Over the past five decades they have become more so. Thus it is increasingly important that the labs operate efficiently and effectively. I believe that despite some managerial shortcomings at virtually all levels the DOE labs as a group have done an outstanding job in meeting these challenges. As a group they are superior to any other set of FFRDC's.

#### **GOCO-M&O Concept**

Much of the credit for this record goes to the GOCO-M&O concept. As Sig Hecker has detailed in his testimony to the Senate Energy and Natural Resources Committee on June 24, 2003 the GOCO relationship began as a partnership that was deliberate and innovative. For several decades it was also quite successful. The Congress and the agency [first the AEC and then the DOE] set the missions and strategic objectives, and the Management and Operations Contractor was responsible for their execution. Motivation for becoming an M&O contractor in those days was in large measure related to the 'opportunity to render an exceptional service in the national interest'—to quote from President Truman's letter to the then president of the Bell System [AT&T] requesting him to accept the management of Sandia National Laboratories. Similar motivation surely played a dominant role in the University of California's management of its three national laboratories.

Though conceived and initially implemented for the weapons laboratories, the M&O GOCO model was successfully adopted for the DOE's science laboratories as well. Aspects of the 'inherently governmental function' associated with nuclear weapons laboratories—namely long-term commitment, superb technical judgment, complex science and engineering projects, and operation of unique and expensive facilities—were and are still also to be found in the DOE science laboratories. They house and host facility based fundamental research in particle and nuclear physics, in chemical, materials and computational science and increasingly in biology. For several decades successive generations of large scale science facilities and projects have successfully operated under the GOCO-M&O paradigm. Though the short-term stakes for the Nation appear higher when it comes to effective management

of the DOE weapons labs, I believe that the long-term stakes are equally high for the science labs.

In the past decade and a half or so there have been numerous changes in the technological and geopolitical landscapes with the result that the GOCO concept has come under increasing criticism and has experienced serious distortion if not complete destruction. Too numerous and complex to describe here, these include changes in the nature of threats to our national security, expansion of global markets and technology bases, shrinkage of U.S. industry supported basic research, increasing dependence on foreign technical talent, an increase in the litigiousness of our society, and the growth of government bureaucracy. For the DOE labs these changes have meant a distortion of the partnership mentality which once characterized the DOE-contractor relationship into one of a more vendor-supplier relationship characterized by ever increasing oversight, audits, orders, compliance requirements and micromanagement. Contractors were given more oversight and greater liability, while having less authority and autonomy.

#### **The Sandia-AT&T Experience**

This distortion has had many negative consequences—several of which have been documented in the Galvin Report [*Alternative Futures for the Department of Energy National Laboratories*] of 1995. I experienced many of these effects first hand as Vice President of Research and Exploratory Technology at Sandia in 1992 and 1993. The infamous ‘Tiger Teams’ under then Secretary Watkins had just completed their work at Sandia. In their wake was left a seemingly unending set of orders, rules, directives and procedures, indicative of an approach DOE was to follow for years hence: increased audits and paperwork, a mode of compliance rather than cooperation. This approach led to decreased scientific and technological productivity, increased staff both inside and outside the lab dedicated to preparing for endless audits and policing compliance, confusion about lines of authority and accountability and a noticeable erosion of the sense of trust and teamwork so necessary for a productive partnership.

I had gone to Sandia expecting renewal of the AT&T M&O contract due in October of 1993, only to find soon after my arrival that the DOE and AT&T were not going to renew their 45-year-old relationship. AT&T’s management of Sandia stood out as one of the finest examples of a contractor performing ‘exceptional service in the national interest.’ But with the DOE’s decision not to renew its presidential indemnification of AT&T and the increasing replacement of oversight for trust, AT&T declined to be considered for a contract renewal. Additional factors such as the profound change the corporation itself was experiencing as a result of the 1984 break up of the Bell System were undoubtedly also involved.

The contract was thus open to the long, complex, and expensive bidding process. As I recall dozens of potential bidders attended the first briefings in 1992 and eight eventually went through the entire bidding process—at considerable expense to themselves and considerable disruption, uncertainty and angst to thousands of Sandians. The bidders were down selected to two finalists: Battelle and Martin Marietta [now Lockheed Martin], the eventual winner.

I remained at Sandia until Sept. 30, 1993 and participated in the transition before returning to Bell Laboratories. In this case the decision to compete the contract was made not out of any concern on the part of DOE for the performance of AT&T as M&O contractor [they had never collected any fee, despite being a ‘for profit’ corporation, and had implemented a very successful management structure and philosophy at the labs] but rather out of the vacuum created by AT&T’s rejection of the dramatically changed ground rules imposed by DOE. In my opinion the management staff and laboratory culture within Sandia at that time was very strong and competent, so that while there was considerable apprehension about the change of contractors, the lab has succeeded very well. Lockheed Martin has now managed Sandia for almost ten years, and was awarded a renewal of its contract in 1998.

#### **University of California President’s Council on the National Laboratories**

I was given the opportunity for another view of the DOE-contractor relationship when I was invited to join the Science and Technology Panel of the UC President’s Council on the National Laboratories in late 1996. By then I was Dean of Engineering at the University of New Mexico and was serving on technical review committees for divisions at both Sandia and Los Alamos [as well as Berkeley and Brookhaven National Laboratories].

For nearly four years I had the opportunity to participate in the evaluation of all the technical divisions at the three UC managed laboratories. As has been repeatedly stated by others, the dominant impression from all of these reviews remains that the quality of the technical work at these DOE labs is at least excellent

throughout and uniquely outstanding in certain key areas. I also observed that the day to day style of execution, the management tools and practices, indeed the very culture of the laboratories are substantially influenced by the contractor. This was as true of Sandia under AT&T as it is of Berkeley, Livermore and Los Alamos under UC, and as it was at Brookhaven under AUI.

UC is the longest standing of the M&O contractors in the DOE system. They have therefore experienced in the greatest measure changes in the operation of the GOCO concept, and I was able to observe that as well as some of UC's reactions to them.

### **Secretary of Energy's Laboratory Operations Board**

The events outlined above were by no means unique, and the DOE commissioned a comprehensive study of the management of its entire suite of laboratories [perhaps not entirely coincidentally] shortly after the demise of the AT&T contract. The DOE's principle response to the resulting Galvin Report was the formation by then Secretary O'Leary of the Laboratory Operations Board, tasked to advise her on ways to implement the Galvin recommendations and to generally improve the strategic planning and operations of the DOE Laboratories.

The Board originally consisted of eight external members and eight internal DOE members. Deputy Secretary Charles Curtis and retired Ford executive John McTague co-chaired the LOB in its early days. While it is difficult to assess the impact of such committees, one clearly positive aspect of the LOB was the quarterly convening in the same room of a set of external [mostly industry] members with their DOE counterparts as a committee together with the Assistant Secretaries from all of the DOE headquarters offices. We were told more than once that this was a unique collection. We worked hard to change it from a collection to a system—but without much evident success.

Much of our effort in the LOB was aimed at understanding and simplifying the relationships between the DOE and its contractors and laboratories. In many quarters a strong CYA [cover your anatomy] mentality had developed, associated with proliferating audits from the OMB, GAO and IG-like organizations. Typically the DOE had responded by adding more audits and layers of staff. The sense of partnership with the contractors continued to erode. The unbelievably convoluted 'management chain' involving the DOE HQ, field offices, area offices, site officers, contractors, and internal lab management defied rational analysis. [For those interested I commend to their attention Figure I-1 on page I-9 of the Institute for Defense Analysis Paper P-3306 of March 1997. The paper is entitled "*The Organization and Management of the Nuclear Weapons Program*".]

The LOB addressed many concerns, but to me our primary objective was to improve the efficiency of laboratory operations so that the best efforts of the best technical staffs could properly execute the missions of science and national security. To this end we engaged many issues, carried out many studies and wrote many reports. These can be traced through, for example: *Contributions and Value of the Laboratory Operations Board-December 7, 2000*; *White Paper on Performance Based Management-Dec. 7, 2000*; *Review of the DOE's Laboratory Directed Research and Development Program-Jan. 2000*; *Analysis of Headquarters and Field Structure Issues-September 1997*. All are available through the website: <http://www.seab.energy.gov/publications/pubs.htm>.

I believe there have been some improvements in the subsequent years with regard to several of the issues the LOB considered: progress toward reducing 'stealth overhead'; clarifying lines of authority especially with the identification of Principal Secretarial Officers; willingness to pilot simplifying reforms at one or two labs prior to directing their system wide adoption; restoration of the LDRD ceiling to a reasonable level, etc. However, there is still very much to be done.

In my opinion we have barely begun to exploit the increases in efficiency envisioned in the Galvin report [30 to 50 percent]. Such increases are still possible, but not by continued piling on of more rules and compliance checkers, nor by merely trading out one contractor for another, possibly more compliant replacement. Rather the restoration of the practice of the GOCO concept to its former partnership based status is necessary. *A high level commission of the Galvin type is needed now in my opinion to reverse the negative trends that have recently begun to undo the modest progress that was beginning to be made and to position the laboratories to execute their increasingly vital national missions more efficiently.*

### **Going forward with M&O Contracts**

Let me turn now to some questions related to the competing of M&O contracts in today's world. I do not believe the problems can be fixed by merely tweaking the current reactive approach that intimidates or penalizes an incumbent contractor

with the threat of competing their contract or by adding more layers of oversight and micromanagement to new contracts.

I believe that in view of the basic soundness of the GOCO concept for the management of these laboratories and the deterioration of the practical execution of that concept, there is an urgent need for strong and visible commitment on the part of Congress and the Department to restore it. Such a commitment will influence substantially and, I believe positively, all of the contractor related questions with which we are concerned here today. Failure to make such a commitment will restrict the pool of potential contractors, will influence negatively their motivation and may result in new contracts and contractors who are willing to operate in a compliance mode, even if that means compromising [perhaps as an unintended consequence] the vital missions of the laboratories.

I believe that the attributes of a good M&O contractor include:

- Experience in efficiently managing mission oriented, complex technical organizations.
- Experience in efficient planning, constructing and operating large, complex scientific research facilities.
- Ability to recognize, recruit, retain, and reward the best scientific and technical talent.
- Sufficient internal expertise and personnel to provide sustained technical and operational leadership.
- Sufficient ‘clout’ to push back on ill conceived directives from the Department.
- A true sense of service to the Nation.
- Absence of conflict of interest.

Among the for-profit organizations, it is difficult to imagine a company like AT&T or Dupont being interested or willing to bid for a DOE M&O contract in today’s environment. Defense, aerospace or environmental firms might well be willing—certainly they were in evidence during the Sandia process in 1993. Issues of management fees, reward structure and potential conflict of interest all come strongly into play with such candidates. Nevertheless, there is at least some evidence that these issues can be managed. There remains, however, at least for me a concern for the level of in-house understanding of and commitment to science and basic research with such bidders.

Among universities, there are few if any universities that have the breadth of capabilities to match the University of California and none that have their experience. Nevertheless there may be some with sufficient intellectual, managerial and financial resources to mount competitive bids. Partnerships between universities and not-for-profit organizations have been forged and are today operating some science labs with evident success. So partnerships appear to be an attractive option. However, they involve additional interfaces and the need for particular attention to delineation of roles and responsibilities which may not prove workable for a weapons laboratory.

It is perhaps worth commenting on the question of laboratory culture. This colors significantly the laboratory’s approach to accountability, efficiency, safety, security, trust between scientist and manager and a host of other ‘soft’ issues. Over the decades each laboratory has developed its own culture which has been influenced noticeably by the M&O contractor. One only has to compare Sandia with Los Alamos or Berkeley with Brookhaven to see this. An important goal in considering any contractor is in my opinion to ingrain safety, efficiency, accountability and security in the modes of mission work itself for every employee and to reduce the need for overseers and auditors. This is perhaps too idealistic a goal in today’s world, but a commitment to working in that direction will do a lot for morale of the scientists and would expand the pool of potential bidders.

On the question of *what can be done to better align the incentives of science professionals at the laboratories with those of the contractors?*, I would say that the contract should make clear that delivering on the mission is paramount. What is not paramount is counting the number of orders complied with or the number of staff hired to oversee their compliance. Any contract provisions that put process or order compliance at odds with achievement of the science and security missions will naturally set the contractor and the scientists at odds.

How can we ensure that those most capable of doing the job will actually take it on?

What should incentives be for contractors? I believe the most compelling incentive will be to break the cycle of micromanagement oversight-orders-audits-compliance

checking-increasing bureaucracy-resulting inefficiency-penalties and threats that now exists. Some progress had been made in this direction during the latter half of the 1990's, but we are now slipping back noticeably. Hence my call above for a visible commitment from Congress and the department to rectify these trends.

I realize that this can not be done all at once, but some initial steps might involve:

- Increased focus on mission outcomes rather than process compliance.
- Fewer, less redundant and better coordinated audits and reviews of technical and operational performance.
- Allowing resources saved by efficiency improvements to be reinvested for more science.
- Increasing size of programs managed per manager to reduce stealth overhead.
- Reward good performance with less frequent contract recompetes or threats thereof.
- Identify steps toward working together to solve a problem [e.g., inappropriate accounting charges] before taking punitive action.

#### **Summary of Main Points**

1. Science and National Security are the main missions of the DOE multiprogram national laboratories.
2. These vital missions require that these laboratories be large, complex, and expensive.
3. These attributes require that the laboratories attract the very best technical talent and be operated efficiently.
4. Changes in the geopolitical, economic and technology landscapes have made the labs more important than ever to the Nation.
5. The GOCO-M&O concept was well conceived and well practiced for several decades at the national labs, but has been severely distorted by micro-management and compliance driven approaches that substantially reduced much needed mutual trust.
6. The Galvin Task Force, the LOB and other committees have identified several aspects of the GOCO breakdown and have suggested solutions which have not been implemented.
7. Strong commitment by the congress and the DOE to restore to the GOCO-M&O practice its former trust is needed to attract qualified bidders with the requisite commitment to 'exceptional service in the national interest.'
8. It is time for a follow up to the Galvin Task Force in order to give sufficient visibility and clout to the steps needed for reform.

Thank you for the opportunity to share my thoughts on these important matters with you today.

#### **BIOGRAPHY FOR PAUL A. FLEURY**

Paul Fleury has been Dean of Engineering and Frederick William Beinecke Professor of Engineering and Applied Physics at Yale University since December of 2000. Prior to joining Yale Dr. Fleury was Dean of the School of Engineering at the University of New Mexico from January 1996 following 30 years at AT&T Bell Laboratories. His last position there was Director of the Materials and Processing Research Laboratory in Murray Hill, New Jersey. In January 1992, he was elected Vice President for Research and Exploratory Technology at Sandia National Laboratories, where he was responsible for programs in physical sciences, high performance computing, engineering sciences, pulsed power, microelectronics, photonics, materials and process science and engineering, and computer networking. In October 1993, upon termination of the contract under which AT&T managed Sandia for the Department of Energy, Dr. Fleury returned to Bell Laboratories.

He received his Bachelor of Science and Master of Science degrees from John Carroll University, and his doctorate from the Massachusetts Institute of Technology all in Physics. He holds five patents and has authored more than 130 scientific publications. He is a Fellow of the American Physical Society and the American Association for the Advancement of Science; and a member of the National Academy of Engineering and the National Academy of Sciences. He has received the 1985 Michelson-Morley Award and the 1992 Frank Isakson Prize of the American Phys-

ical Society for his research on optical phenomena in condensed matter systems. He has served on the Secretary of Energy's "Laboratory Operations Board" and the University of California President's Council on the National Laboratories. He is currently a Board member of Brookhaven Science Associates which manages Brookhaven National Laboratory, and serves on visiting committees for Lawrence Berkeley, Sandia and Los Alamos National Laboratories.

Chairwoman BIGGERT. Thank you very much. The bell that you heard, of course, is we are going to have a vote, but it is just one vote. So I think we will continue with Dr. McTague and then we will recess for a few minutes to make the mad dash over to the Capitol to vote and come back. So Dr. McTague or we will miss our vote.

Dr. McTAGUE. I agree with almost everything—

Chairwoman BIGGERT. I don't think you have your mic on.

**STATEMENT OF DR. JOHN P. McTAGUE, PROFESSOR OF MATERIALS AT UNIVERSITY OF CALIFORNIA, SANTA BARBARA**

Dr. McTAGUE. I agree with almost everything that has been said so far, so I will try not to be repetitious and to address things from a different perspective.

My experience with DOE labs goes back to 30 years ago this month when I spent the summer at Brookhaven National Lab. It was a really exciting time and just incredibly electric environment, things happening all over the place. One of the more exciting things was in the area of subatomic particle physics where a group there and a group at the Stanford Linear Accelerator, another DOE FFRDC, were competing to characterize what has now come to be called the J/Psi particle. Both laboratories have researchers that won the Nobel Prize for that.

At the same time, if you looked across all of the other federal—FFRDCs, such as Lincoln Lab, other very exciting things were going on. At that time, Lincoln Lab had just put up there experimental satellites eight and nine, which were the first space-based communication satellites. They are still flying. If you look around the spectrum of the other FFRDCs, I could give you examples all over the place. Their research has been superb. If you look today, the same sorts of things are happening. At Brookhaven, there is very exciting work going on the so-called quark-gluon, a plasma, for example. And at Lincoln Labs, they now have a communication satellite up there based on lasers, which can communicate directly to airplanes flying in the sky and to ships at sea.

So the track record is superb, and the track record of FFRDCs is not just in DOE. A substantial fraction of the FFRDCs is outside DOE. Yet somehow, the FFRDCs within DOE receive the scrutiny of a microscope but the ones sponsored by other agencies, such as DOD, the IRS, FAA, or the National Science Foundation are not treated the same way. This should lead to the question: what is different about DOE's management, which causes such scrutiny? And I think that is an important area to take a look at.

The characteristic of FFRDCs across the spectrum has been one of long-term relationships. Of all of the Federal R&D centers, I believe only a single one of them where an existing contractor was in place and willing to continue was ever competed, and I believe that is Oak Ridge National Lab. None of the non-DOE FFRDCs, and there are more of them than there are in DOE, have ever been

competed. Most of them go back to the '40's and '50's, including Lincoln Labs or NASA's JPL, for example.

Yet—and the relationships have been stable. This is not the case with DOE. There has been a series of more than a decade long sets of experimentation with the interaction with their laboratories. And I have—can find no way to demonstrate that their experimentation with contracting and with interactions has improved their situation relative to the other successful FFRDCs that we have in this country.

Yet things will go ahead. There will be changes, I am sure. As changes are made, I think we should look at certain characteristics, many of which I have put in my testimony. But the first one is to take the Hippocratic oath. First, do no harm. The mission performance, as you have mentioned, Madam Chairman, and as you, Congressman Lampson, have mentioned is exceptionally good, and it is the purpose of the laboratories. And we must be careful that anything we do doesn't disturb that.

It is also true, as has been noted by many, is that one size doesn't fit all. DOE has a lot of so-called GOCOs, some of which are research laboratories, yet their missions are different and the way they should be interacted with are quite different. And indeed, within even the research laboratories there is a big difference.

The core of the FFRDC's success has been that the sponsor dictates the mission goals while the contractor specifies and implements the methods for carrying these out. Yet over the past two decades, DOE has constantly, in one guise or another, specified the hows. The results haven't been good.

As one makes changes, it is important also to note that there can be unintended consequences. And I give an example in my written testimony of the Harwell Laboratory in Great Britain, which has a history similar to Argonne, actually. It goes back to the 1950's. It was a very successful research laboratory, but it got swept up with other changes occurring in the government.

Chairwoman BIGGERT. If you could, conclude, because we have five minutes left in our vote.

Dr. MCTAGUE. And the changes caused Harwell to be, in effect, privatized, and that—results of that have been that Harwell no longer has a research capability.

[The prepared statement of Dr. McTague follows:]

PREPARED STATEMENT OF JOHN P. MCTAGUE

Madame Chairman Biggert, Congressman Lampson, and other Members of this subcommittee, thank you for inviting me to testify on this important subject. I am John McTague, Professor of Materials at the University of California at Santa Barbara. I formerly served as Vice President for Laboratory Management at the University of California, Vice President of Research for the Ford Motor Company, and as Deputy and Acting Presidential Science Advisor during the Reagan Administration, among many other positions, and have spent much of my professional life engaged in federal government science policy issues. I am appearing here representing my own views, however, and not those of any institution I am or have been affiliated with.

Thirty years ago this month when I was a young associate professor at UCLA, I spent a summer at Brookhaven National Laboratory doing research on their unique facilities. The atmosphere was electric. Some of the best scientists from around the world were there doing forefront research in materials science, biology, and elementary particle physics. Indeed, at that time, there was a fierce competition between researchers at Brookhaven and the Stanford Linear Accelerator, both DOE

National Labs, to characterize a new subatomic physics particle, the J/Psi. A few years later, researchers from both DOE laboratories shared the Nobel Prize for this important discovery.

During this timeframe, exciting and important mission accomplishments were in progress at other Federally Funded Research and Development Centers (FFRDCs). NASA's Jet Propulsion Laboratory, operated by Caltech, was preparing the Viking probes for launch to Mars in 1975. JPL was also in the early stages of the Voyager projects whose two probes, launched in 1977, have provided us with a quarter of a century of fundamental data on the outer planets.

At Lincoln Lab, a national security FFRDC managed by MIT, was focused on two of their satellites, which were the first "switchboards in the sky," and which are still flying; and at Lawrence Livermore National Laboratory, two of the prime research areas were high performance computing and high power lasers.

Thirty years from now, I suspect that someone looking back on these same FFRDCs in 2003 would find the same level of mission accomplishment. At Brookhaven, it might focus on the quark-gluon research at the Relativistic Heavy Ion Collider (RHIC), a search for a fundamentally new state of matter. At JPL, it would be the Mars Rovers. At Lincoln Lab, it would be an optical communications satellite, a descendant of the 1970s ones, and at Lawrence Livermore, high performance computing and the successful turn on of the National Ignition Facility, an unprecedented high power laser, once again come to mind.

These specific examples spanning a three-decade time scale illustrate what many more comprehensive studies have documented. The FFRDCs have a more than half-century track record of continuing accomplishment of important national technical missions. There have been many systematic studies done over the decades, which more comprehensively and uniformly have reached the same conclusion.

The FFRDC concept has been a superb success in mission accomplishment. No other country has had anything like this success with its government-sponsored laboratories—not the former Soviet Union, not France or Germany, not Great Britain or Japan.

Yet despite what is in plain sight one subset of the FFRDCs, those sponsored by the Department of Energy, have been subjected to the scrutiny of a microscope. Sometimes the microscope focuses on something really ugly, like an improper travel voucher or an inadequate safety document. Sometimes it is somewhat out of focus and may seem to show something egregious, like the apparent purchase of a Mustang automobile by a laboratory employee using government money. Better focus sometimes shows a different picture.

The accurately identified flaws certainly call out for processes for continuous improvement, and sometimes for individual personnel actions. We all simply must do better, especially with government funds and property. What the sum of the microscope images does not do, however, is give a picture of the overall landscape. It does not tell us about overall mission accomplishment. It does not tell us about the overall safety record or overall operational efficiency.

To my mind, the fundamental question is: How do we make the requisite improvements without deleterious effects on the fundamental mission outcomes, and taking into consideration the overall safety, environmental, security, and operational performance? A second question is: What, if anything, is fundamentally different about the DOE management of FFRDCs, which has caused the focus on their labs and not on the many other FFRDCs sponsored by other agencies such as NASA, DOD, NSF, FAA, and IRS?

These are complex questions and deserve answers that acknowledge this complexity as well as the risk in implementing the wrong solutions.

As former Caltech President and Nixon Science Advisor, Lee DuBridge, noted many years ago, "In a republic many people are concerned with the government. On the other hand, few people are directly concerned with science. How can the many be made to understand the concerns and the problems of the very few? This is a major problem in our democracy."

One of the first to face up to the DuBridge problem was General Leslie Groves, as he directed the Manhattan Project. When Los Alamos was being set up in late 1942, it was assumed that it would be a purely government laboratory, with the scientists as government employees, indeed commissioned military officers. But several key scientists refused to join under military hierarchy and bureaucracy. Science, they believed, thrived when scientists were free of bureaucratic constraints and judged according to their competence.

In a February 25, 1943, letter to J. Robert Oppenheimer, General Groves set the pattern for all future government owned, contractor operated FFRDCs. He decreed that Los Alamos would be a civilian operation managed by the University of Cali-

fornia; what in modern parlance is referred to as a Government Owned, Contractor Operated (GOCO) entity, or an FFRDC.

As we look forward to improvement, we should first document where we are. What are the salient characteristics of these successful FFRDCs? Once again, there are several more comprehensive studies, but they all include:

1. Working in the public interest, FFRDCs operate as *long-term strategic partners* with their sponsoring agencies.
2. As private agencies, FFRDCs have greater flexibilities than the government in recruiting and managing a highly skilled technical workforce.
3. Sponsors conduct comprehensive reviews of their FFRDCs every five years to ensure the quality, efficiency, and appropriateness of the work program.

What are the principles that should guide us as we aim for continuous improvement? Some that come to my mind are:

1. Take the Hippocratic Oath: *First, do no harm*. Our existing system is successful, important, and of unknown fragility. Whatever we do should be incremental, not revolutionary, and should be reversible if experience warrants it. Beware of unintended consequences.
2. The role of universities in managing FFRDCs has led to exceptional quality, especially in personnel (JPL, Lincoln Labs, the National Center for Atmospheric Research, Argonne, LANL, LLNL, LBNL, etc.).
3. The predictably long-term relationship and commitments by both sponsors and contractors are at the heart of the FFRDCs.
4. One size does not fit all. The DuBridge observation points out that managing a research laboratory with its long-term relationships is different from, say, the contract for cleanup at Rocky Flats, a finite life government procurement activity, where optimal performance is simpler to define.
5. The core of the success of the FFRDC concept is that the government sponsor dictates the mission goals (the “whats”), while the contractor specifies and implements the methods for achieving the goals (the “hows”). Unlike the sponsors of the other FFRDCs, since its founding as a cabinet department, DOE has had a persistent history of trying to specify the “hows.” These have been at several levels. The most egregious was “management by Directive.” Others have been “performance based management,” with a large series of “hows” included. The current fad in DOE is “your GOCO will have a two-fold management structure.” Can you picture Ford or IBM, for example, running its laboratories this way? Also, unlike all the other Government FFRDC sponsors, DOE now seems to be devaluing long-term relationships in favor of contract competition.

DOE should return to the fold of the other sponsors of FFRDCs and specify the “whats,” and not the “hows.” Their own track record is the best justification for this recommendation.

It is fine to have philosophical debates on how to make improvements, but implementation is another matter. Here history gives us a cautionary guide on unintended consequences.

The United Kingdom Atomic Energy Authority (UKAEA) was formed in 1954 with responsibility for developing that nation’s civil nuclear program and to provide all the associated R&D. The Harwell Laboratory played a central role in this UK and, indeed, global research.

In the early 1980s the UK undertook a revolutionary and very successful privatization of many previously governmental activities, such as coal mining and telecommunications. Swept up into this was the Harwell Research Laboratory, a world class facility comparable to Brookhaven or Argonne. The government focused on privatization and external competition. It ignored the DuBridge caution that research needs separate consideration. The research part (Harwell Lab) initially did well, but the profit focus has inexorably killed off almost all of its research excellence, and it is now mainly a consulting and modeling agency. This particular UK “goose” has laid its last “golden egg.”

The moral of this story is that DOE, unlike the other FFRDC sponsors, has a decade long history of detrimental experimentation with the FFRDC concept. It should learn a lesson from this history and rejoin the fold of the other FFRDCs. It should reaffirm the efficacy of long-term relationships, and it should focus on the “whats,” and leave the “hows” to the contractor partners, as the other agencies have done. The Department should then intensely evaluate, on a periodic basis, how well the contractor has performed the “whats.”

Thank you again for inviting me; I would be happy to answer any questions you may have.

#### BIOGRAPHY FOR JOHN P. MCTAGUE

John P. McTague is Professor of Materials, University of California, Santa Barbara, a position he has held since 2001. He has a more than twenty year history with management issues at the Department of Energy's National Laboratories beginning in 1982 when he was appointed as the first chairman of Brookhaven National Laboratory's National Synchrotron Light Source. He has served on the Boards of Overseers of both Argonne National Laboratory and of Fermilab, where he was also chairman of the board. He was also founding co-chair of DOE's National Laboratories Operations Board and a ten year member of the Secretary of Energy Advisory Board.

Most recently he has been University of California Vice President for Laboratory Management from 2001 to 2003, overseeing UC's management for DOE of Los Alamos, Lawrence Livermore, and Lawrence Berkeley National Laboratories.

On January 1, 1999, he retired from Ford Motor Company, where he spent twelve years first as Vice President, Research, then as Vice President, Technical Affairs. At Ford he was, at various times, responsible for worldwide research, environmental and safety engineering, technical personnel development, plant engineering, and worldwide product and technical planning.

Prior to joining Ford in 1986, he served as Deputy Director and Acting Director of the White House Office of Science and Technology Policy, and was Acting Science Advisor to the President. During the first Bush administration, he was a member of the President's Council of Advisors on Science and Technology and U.S. chair of the U.S.-Japan High Level Advisory Panel on Science and Technology.

A physical chemist, Dr. McTague received his undergraduate degree with honors in chemistry from Georgetown University in 1960 and his Ph.D. from Brown University in 1965. Brown also bestowed on him an honorary Sc.D. in 1997. From 1970 to 1982, he was a professor of chemistry and member of the Institute of Geophysics and Planetary Physics at UCLA.

He is a member of the National Academy of Engineering and a Fellow of the American Physical Society and of the American Association for the Advancement of Science.

Chairwoman BIGGERT. Thank you. The Committee will stand in recess, which will hopefully be in a short while.

[Recess.]

#### DISCUSSION

Chairwoman BIGGERT. The Committee will come to order. It is now time for our questions, so we will try and keep those to five minutes, but we really want to elicit the responses from you. So our—I will yield myself five minutes.

I think the first question I would like to ask is for all of you and that is, first of all, competition has real risks, and most people don't go to a new mechanic if they are happy with the one that they have just for the sake of enhancing competition. So in—to assure that we don't interfere with well run, successful programs just for the sake of competition, what other mechanisms could we use to ensure accountability in our labs? Would anyone like to start with that? Okay. You can turn on your mike. Thank you.

Ms. NAZZARO. I can start. We certainly have identified other approaches as well. We see competition as being one tool to hold contractors more accountable, but there certainly are other mechanisms that could be used as well in that process. One: alternative contract approaches that emphasize results, having good performance measures and tying them in with some incentives based on results. Two: performance based contracts where you have a contractor fee or profit potentially at risk. And certainly, just having

the right people and the right skills available. We have talked a lot about leadership and management, the right technical skills available. Oversight by DOE has been something that is missed a lot of times as far as improving contractor performance.

Chairwoman BIGGERT. Anyone else? Mr. Card.

Mr. CARD. Yeah, I would agree with GAO's conclusions. The—I—we are using more performance measures and penalties. There are competitive options available. There is competition for scope, which is probably a thing the labs worry about a lot right now of who gets what mission. And there are stiffer exercising contract provisions we already have.

Chairwoman BIGGERT. Dr. Fleury.

Dr. FLEURY. I think performance based measures are fine. The question is, what is the performance measured against? Is it measured against the mission or is it measured against regulations and directives? And I emphasize that it has to be measured against mission. That means that you have to provide an environment where contractors capable of delivering on the mission are incented to actually want to be management contractors. People who have the ability to attract and retain the top technical talent, who have sufficient internal expertise and personnel in their own organizations to provide leadership. They should have experience in managing large facilities in complex technical organizations. In other words, where the best business practices, like safety, as well as safety and security are ingrained in the daily operations of every employee rather than pasted on from the top. And I think those are, if you will, levers that can be applied to, and against which contractors can be measured that will provide alternatives to competing for competition's sake.

Dr. MCTAGUE. I—once again, I am sorry I agree with everyone. I should have stayed in Santa Barbara.

Chairwoman BIGGERT. Absolutely not. Your testimony was outstanding.

Dr. MCTAGUE. Their—in judging the performance of a technical operation, there is nothing like the review, the qualitative review made by experts, so-called peer review. As some of the background material for this hearing has taken note of, there is a tendency to evaluate things that are easily quantifiable: how many ball-point pens get lost, for example, as opposed to has the mission for keeping nuclear weapons safe, secure, and reliable been carried out? Carrying that mission out really requires people who are expert in that area giving an evaluation. Also, as has been mentioned by just about everybody, one of the most important things to measure is the quality of the technical staffs in these organizations, because that is their asset.

Another important thing in terms of performance-based management, which also I believe in, is that the performance measured—measures have to have been agreed upon, consented, by the contractor and the contractee at a very high level. It should not be relegated to a sum of small level issues at lower level people. The laboratory or the organization is not the arithmetic sum of 100 small organizations—small operations.

Chairwoman BIGGERT. It—one mechanism that has been proposed to ensure accountability and yet remain faithful to the ideal

of competition is an occasional review, say every seven to ten years and by three panels who would not be allowed to collaborate. But these teams would evaluate and rank the labs on performance and then only, say, the bottom tier would be required to compete. Have you heard about that approach or thought about that? Dr. McTague.

Dr. MCTAGUE. I agree. One of the really important characteristics of the FFRDCs, in general, has been that there is periodic review in depth, not annually, but usually every five years, five, seven, ten years. A length of time commensurate with the length of the kinds of missions that are involved, I think, would be quite helpful. There is no question in my mind about that.

Chairwoman BIGGERT. My time is expired.

The Ranking Member is recognized for five minutes. Mr. Lampson.

Mr. LAMPSON. Thank you, Madam Chairwoman.

Let me ask Dr. McTague a question of clarification of something that you said. And I didn't get it down right, but you said something about the differences in management of agencies cause a need for different scrutiny. Do you—what you said, and can you clarify that for me a little bit, what—

Dr. MCTAGUE. What I was trying to state is that there are different types of activities. For example, in the Department of Energy, there are a fair number of so-called GOCOs, Government Owned, Contractor Operated, entities, some of which are research labs, some of which are not. Some of them are basically clean-up sites or production facilities. The one-size-fits-all does not work for DOE. On the other hand—and the DOE research labs are much more like the FFRDCs in other organizations, the research labs like Lincoln Lab, which is managed by MIT for the national security agencies, or the Jet Propulsion Lab, which is managed by Cal Tech for NASA. So that should be looked at in a similar way, FFRDCs, not just the FFRDCs in DOE. We should be looking, I think, at what is working in the FFRDCs in other agencies that we can use as best practices for DOE. And in fact, Under Secretary Card undertook such a look, what was it, last year. And he might want to comment on this.

Mr. LAMPSON. Please.

Mr. CARD. In trying to figure out how we could reduce the bureaucracy that our contractors have to work under, we did engage in a bench-marking activity with Jet Propulsion Lab and ENCAR, JPL is operated by NASA and ENCAR by National Science Foundation. And we actually implemented a number of reforms. I can't think of the entire list right now that we put in place as a result of that benchmarking effort. We found some positive things, and I think they were helped by it as well, so it was a good exercise and we intend to do more of it.

Mr. LAMPSON. I—they all need, I guess, experience that I—issue with comes from healthcare and watching the Healthcare Finance Administration some years back scrutinize the activities of a number of healthcare providers. And that became a pretty intrusive activity. It was one that, I think ultimately, led to driving an awful lot of people just totally away from being interested in offering themselves to perform services. So I guess I am concerned a little

bit. At that same time, it is—it was a cost plus type operation, so let me ask this question. With my concern about M&O contractors seeing the government as a limitless source of funds and since profit is not a factor, spending accordingly with little regard for efficiency, do you believe there is a disconnect between contractors and expenditure of taxpayer money? Can any of you comment on—

Dr. MCTAGUE. There are some reasonably standard measures of efficiency, such as percentage of costs, which are related to overhead, for example, which are fairly easily documentable. And the history of the DOE labs in this area, I think, has been a rather good one of improvement, of cutting the fraction of costs which are a part of over—which are attributed to overhead as opposed to actual mission performance. Over the past, what 10 or 15 years, that rate has gone down continuously. And it is certainly in a range similar or better than many private organizations. So the fact that it is federal money “limitless pockets,” I don’t think that the situation is quite that bad. Most people who are running these laboratories really have a dedication to the mission. And they really want to be efficient. They want the money spent on science and research and not on overhead.

Mr. LAMPSON. Is that the case with non-profits over private? Do you feel that they are doing a more creditable job?

Dr. MCTAGUE. I don’t—I am—from—I haven’t looked at the statistics for the various laboratories most recently, but when I used to be co-chair of the National Labs Operations Board for DOE, there was no discernible difference between the quality of efficiency performance between, say, Sandia and Livermore.

Mr. LAMPSON. Thank you.

Chairwoman BIGGERT. The gentleman from Maryland, Mr. Bartlett, is recognized for five minutes.

Mr. BARTLETT. Thank you very much.

Ms. NAZZARO, I understand that DOE contract and project management remains on GAO’s list of high-risk areas that are vulnerable to fraud, waste, abuse, and management. Can you explain to us the criteria that were used to put them there and what they need to do to get removed from that list?

Ms. NAZZARO. Yes, sir. GAO put DOE on that list, as far as high-risk, back in the early ’90’s. It continues to be on that list. Initially, we looked at things such as the fact that 90 percent of DOE’s budget is spent on contractors. They had a history of inadequate management and oversight of contractors. And there was a failure to hold the contractors accountable. So those were the kinds of things. It is a judgment call that we make, but there are certain factors that we look at, and we reassess those factors each year. And DOE has continued to be on that list.

DOE has taken some of the first steps to get off of that list. One of the first things is to have proper management attention at the right levels in the organization, and we currently see that with DOE. They have tasked each of their areas to address all of the management challenges, not only the contracting high-risk area. DOE is addressing all of the management challenges that GAO has identified and is developing corrective actions. That is currently in place.

Mr. BARTLETT. Do the labs have a clear road map as to what the problems are and what they need to do to correct those problems so that they can get removed from that list?

Ms. NAZZARO. Right. Our bottom line is to see contracts come in on time and within cost. The most recent evaluation that we did for that was issued in early 2002, and we have not seen that level of attainment yet. We are seeing that they are taking some of the right actions to move in that direction but yet have not seen the bottom line.

Mr. BARTLETT. Mr. Card, do you think that your people understand how they got there and what they need to do to get off that list?

Mr. CARD. Well, first let me say I think contracting is a very serious issue for DOE, whether we are on somebody's high-risk list or not. And as GAO identified, when you are outsourcing 90 percent of your work, which I think is a good model, by the way, it is something that requires paying a lot of attention to. I think how we get on or off, I don't know that I am personally so concerned of whether we are on or off the high-risk list. What I would like to be doing is performing well.

Mr. BARTLETT. If you are performing well, shouldn't you be off that list? Do you think that their criteria are irrelevant?

Mr. CARD. No, I think GAO's criteria make a lot of sense. We may disagree from time to time on exactly how well we are doing with regard to the list, but I think cost and scheduled performance—

Mr. BARTLETT. Do you have a time schedule for changing what you need to change so that you will no longer be on that list?

Mr. CARD. Well, we have been on an aggressive schedule since Secretary Abraham came on board. He made this one of his very top priorities. And as GAO has mentioned, we have actually gone down their list in total and have people tasked individually to deal with each of the issues that they have raised. So we are taking it very seriously. I don't—am reluctant to predict a time, because as was mentioned, it is a subjective evaluation. But I think we are making some great improvements, and we are taking it very seriously.

Mr. BARTLETT. When you were talking—

Ms. NAZZARO. If I could just add—

Mr. BARTLETT. Excuse me. Go ahead.

Ms. NAZZARO [continuing]. The task is something that is very difficult to attain. We are not taking this lightly. We are recognizing that there are significant challenges here for DOE in managing this kind of an environment. It would take quite a bit of effort. And it may not all be something within their control with some of these issues, but I don't know that it is all totally what they do and what kind of time frame, but DOE is certainly moving in the right direction as a first step.

Mr. BARTLETT. I wanted to talk for just a moment about evaluation of performance. You have got to measure that against something. Clearly what the labs are doing today is quite different from what they used to do. The labs used to design and build and maintain nuclear weapons. Now we no longer design and build nuclear weapons, we maintain nuclear weapons. The metamorphism from

what the labs used to do to what they are now doing, I was at Sandia years ago, and I noticed they are very focused on nanotechnology. They are very focused on alternative energies, and these are both very good things. Was there a conscious effort to change the mission, some of the missions of the labs? Or did they just kind of wander there? We—you know, clearly the focus of the labs has changed, because we no longer design and build nuclear weapons. We now have a number of labs that are focused entirely on maintaining the stockpile. How did we get to where we are now? Was it a conscious directed metamorphosis or did we just kind of get there?

Dr. FLEURY. I will give you my opinion that the mission of the weapons labs remains principally national security, but it is no longer restricted to designing and building nuclear weapons, although it includes, very strongly, the assurity of the stockpile. And that does require continued attention to, in replacing the stockpile components to having to design with different processes and different materials and the same type of deliverable weapons. Nevertheless, I think with the terrorism in the—and the evolution of the threat, the national threat since the end of the Cold War, the laboratories have consciously evolved their security mission to include a different range or a broader range of technologies than they did before. This is—

Mr. BARTLETT. My time is up. If there is an opportunity for a second round, we can come back to this. Thank you, Madam Chairman.

Chairwoman BIGGERT. Thank you.

The gentleman from California, Mr. Honda.

Mr. HONDA. Thank you, Madam Chairman. I appreciate the testimony of the experts here.

Just very quickly to GAO. You mentioned that there are examples of content that is—of areas that are not in DOE's control. Can you just give us a couple of examples of what is not under DOE's control?

Ms. NAZZARO. Well, when we designate areas as a management challenge or a high-risk area, some of it is just inherent by the very basic nature of it. And certainly managing—

Mr. HONDA. Such as?

Ms. NAZZARO [continuing]. Nuclear materials, national security, the security of facilities. In light of September 11, regardless of what DOE was doing, these kinds of things would probably be identified as high-risk, just because of their inherent nature. Contract management, with 90 percent of DOE's budget, and over 100,000 employees that are carrying out the mission for the agency, inherently, is an area that you would want to watch closely.

Mr. HONDA. I don't—I still don't understand what you mean by inherently. Are you saying that there are certain kinds of processes that need to be reexamined in order to provide security?

Ms. NAZZARO. What I am saying is by its very nature, it is something that should be kept under a watchful eye. Certainly the security area is one area that we have been working with DOE on.

Mr. HONDA. Okay.

Ms. NAZZARO [continuing]. In light of September 11.

Mr. HONDA. I understand what you are saying now. But it just seems like there are two kinds of discussions we are having here. One is about the mission of the labs and the scientists, and the other is oversight.

Ms. NAZZARO. Correct.

Mr. HONDA. Okay. And in the mission of the labs, has GAO made any kinds of conclusions?

Ms. NAZZARO. We have not assessed the science—

Mr. HONDA. Okay. So what is at—really at stake is the mission of these labs and where we want to go with them. And what is controlling the whole argument is who is doing it and who is responsible for the management.

Ms. NAZZARO. Correct.

Mr. HONDA. And within this process, is—are there mechanisms where folks who are working the labs can sort of criticize what is going on without being targeted in such a way that there is improvement in the management process? I mean, GAO, I mean—are—have you looked at that?

Ms. NAZZARO. We looked at the internal controls.

Mr. HONDA. Right.

Ms. NAZZARO. Is that what you are asking?

Mr. HONDA. Right. I mean, if you are looking at management efficiency, have you looked for those kinds of things?

Ms. NAZZARO. We have looked at internal controls in the financial area. In fact, we have an ongoing review right now looking at the financial management.

Mr. HONDA. Okay. I am looking at the whole management with the human resources, too.

Ms. NAZZARO. We have addressed the issue that there have been inadequate resources in some areas from a leadership standpoint. We have also talked about the changing mission and unclear mission.

Mr. HONDA. And these would be issues whether you contracted out to private industry or to the universities and things like that? It is all internal, is that correct?

Ms. NAZZARO. They could be, but I think it is further complicated because it is a contract relationship.

Mr. HONDA. Okay. Are there IGs inherent in these kinds of processes? You have instructed—

Ms. NAZZARO. The DOE IG certainly has looked at these issues as well, yes.

Mr. HONDA. Are they independent of the Department of Energy, or are they part and parcel of the Department?

Ms. NAZZARO. Well, they report to Secretary Abraham, but they are independent of the programs.

Mr. HONDA. But are they independent of the Department of Energy?

Ms. NAZZARO. No.

Mr. HONDA. Like, pretty much—

Ms. NAZZARO. No, that would be a role that someone like GAO would play.

Mr. HONDA. I see. Okay.

Ms. NAZZARO. But the IG for the Department of Energy is within the department.

Mr. HONDA. Okay. So just very quickly, there is a bifurcation of our issues that one is the mission of the scientists and what we want them to do and the other is the administration of the contract by management. And we are mixing them up, and I think that I—to throw the baby out with the water in the tub.

The other question I have is have we spoken with the employees, this is an open question, to get their feedback as to what could improve the process rather than just looking at a finite study of a portion of the problem?

Ms. NAZZARO. Within the course of our reviews, we talk with employees, both at the labs and at DOE headquarters. We do extensive interviews of these individuals to identify problems within the organization and potential corrective actions. Anytime we issue a report, we also run it by the agency to get their perspective.

Mr. HONDA. The agency is different from employees, is that correct?

Ms. NAZZARO. Well, we would run it by various components within the organization. We do what we call exit conference where we verify facts and we certainly provide it to the agency. And a lot of times, it is the program people who comment.

Mr. HONDA. Okay. Okay. And in terms—this is the last question. In terms of accountability, what level of responsibility does the Department of Energy have in oversight of the contracts that they let? I mean, we are focusing only on the contractee. And what is going to suffer is going to be the mission and the employees, it seems to me. It—you know, and the law of ultimate responsibility seems like those who let the contracts have a considerable amount of responsibility and success of efficiency and bench marking.

Ms. NAZZARO. I agree. They do have a responsibility. I don't know if Mr. Card wants to respond to what you do in that regard.

Mr. CARD. Well, I think most people would argue we have a very robust oversight, particularly to the contractors, in terms of our oversight role. And I think—it wasn't clear to me whether you were asking about what the oversight is on the people who awarded the contract in the first place or how we are managing it. But we have—in addition to the IG, we have an independent oversight organization in the Department, and then each functional area has its own oversight role, and the programs do. So one of my challenges has been to try to knit that together so the contractor sees as few different oversight incursions into their work as possible. But I believe that there is plenty of oversight going on.

Mr. HONDA. Well—

Chairwoman BIGGERT. The gentleman's time has expired.

The gentleman from Washington, Mr. Nethercutt.

Mr. NETHERCUTT. Thank you, Madam Chairman. I want to welcome all of you. Thank you for your testimony today.

I want to talk with you for a moment about how effectively the Department of Energy manages its contracts currently. It is my understanding that by 2005 Department of Energy will have competed  $\frac{1}{2}$  of its Federally Funded Research and Development Centers. I am interested to know from each of you what you think is the most important criterion that might compel the Department of Energy to compete laboratory maintenance and operations contracts? Anyone and everyone who wants to answer, I am interested

in isolating what particular important criterion you think are important to compel DOE to compete. Yes, sir.

Dr. MCTAGUE. Clearly the most important is are the prime missions that have been assigned to those laboratories being carried out? Are nuclear weapons safe, secure, and reliable, for example, in terms of how Sandia and Los Alamos and Livermore perform? That is the first item. And that tends to get forgotten in these processes. The secondary aspects are those related to the business aspects of how the missions are carried out. Are the accounting systems up-to-date? Is there excess waste, fraud, and abuse? Are safety, security, and environmental standards being adhered to? Those should be the secondary—but those should be secondary. And the evaluation of a laboratory should not be the arithmetic sum of individual items. That is the way it used to be in the past. And what could be easily measured, which are the management aspects, often was 70 percent of the evaluation of a laboratory. And the science and the performance were just sort of over there on the side. “Let us not worry about them.”

Mr. NETHERCUTT. Um-hum. So substance over form, right? The—I might just parenthetically say there is a shock physics lab at Washington State University, which happens to be in my District and my alma mater. And they are doing some fabulous work on the integrity—determining the integrity of the current nuclear stockpile through shock physics. And it is performance based. I assume all of the accounting and the mechanical requirements of contracts are being met and adequately provided and—but yet, I tend to agree with you, sir, with respect to the substantive of findings and the value of these M&O contracts.

So does anybody else have a comment or care to discuss what criteria are most important?

Ms. NAZZARO. I don't know that we could identify one criteria as being more important than the other. I think the science is important, but so is the management. We talk about three issues in our report. One, is it in the best interest of the Department to also look at contractors' past performance and whether the mission of the organization is aligned with the work that they are doing. If you have a change in mission or a change in scope, there may be a need to realign.

Mr. NETHERCUTT. Sir?

Dr. MCTAGUE. I have a separate comment to make, and that is that the individual who runs that laboratory at your university is a very important advisor to the Lawrence Livermore Lab.

Mr. NETHERCUTT. Yogi Gupta.

Dr. MCTAGUE. Yes.

Mr. NETHERCUTT. Dr. Gupta is a fabulous person. I have great respect for his intellectual capacity as well as his experience, so I appreciate you mentioning that. I will pass that on to him. I talk with him fairly regularly.

Dr. Fleury, let me ask you. In your testimony, you mentioned that several groups, such as the Galvin Task Force, have suggested improvements to the lab management structure that have not been implemented. And I am wondering which of these suggestions you feel would be the most beneficial, how would the implementation of those suggestions ensure that accountability is still maintained?

Dr. FLEURY. Well, I think that at the higher level, the most important thing is to step back from, or break the cycle of compliance, auditing and rules that is this partnership sense that I mentioned earlier. I think that there should be an increased focus on the mission outcomes rather than the focus on measuring process compliance.

Mr. NETHERCUTT. Um-hum.

Dr. FLEURY. This is a dichotomy that has already been noted, and I think we have to put more emphasis on the former. There should be fewer—less redundant and more coordinated reviews of both the technical and operational performances. It is not unusual for a laboratory to have hundreds of audits or reviews in the course of a year, many of which are uncoordinated and don't speak to one another. I think that allowing some of the savings resulting from increased efficiency to be reinvested to improve the science and the mission, the technical capabilities of the laboratories, many of which have long neglected maintenance problems that can come to bear negatively on the mission is another aspect that could be addressed.

So I would say finally to take a posture that identifies steps where the Department and the contractor can work together to solve problems rather than focusing so soon on taking punitive action for shortcomings. And I would tend to say that default condition, which puts the threat of competing one's contract up as a first resort rather than a last resort is the wrong way to go about it.

Mr. NETHERCUTT. Thank you all.

Chairwoman BIGGERT. The gentleman's time has expired.

Mr. NETHERCUTT. Thank you.

Chairwoman BIGGERT. The gentlewoman from California, Ms. Woolsey, is recognized for five minutes.

Ms. WOOLSEY. Thank you, Madam Chairman.

First of all, I apologize for being here after your testimony, so if you have already answered this, I am sorry, but I guess you have to answer it again.

First of all, I hope you acknowledge the interest in this subject. It is—these are really busy days for us right now, and people are here and they are staying, and they are interested, so know how valuable you are to us as our witnesses.

Okay. In discussions of competition for management contracts, we usually hear terms like lower costs and/or a goal of more efficient operations. And we—absolutely I understand that that is necessary, because we are looking for good governs, but I am also concerned that we are missing other important issues and—that have to do with competition like in terms of access to intellectual resources, the best and the brightest, employee morale, scientific achievement. I mean, how can those of us in Congress and those of us that are considering these issues ensure that these other key points are considered when—in the proposal process? So let us just start at the beginning, and if you can answer me, I would appreciate it.

Ms. NAZZARO. Maybe there is a misunderstanding here. What we are looking for is competition as one tool. We have mentioned a number of other tools. What we are looking for is accountability. And we just don't see that that would preclude world-class science

by making them accountable. We are all for the world-class science and having the best and brightest. But all we are asking for is that there is some accountability for the taxpayer dollar.

Ms. WOOLSEY. Dr. Fleury.

Dr. FLEURY. Well, again, I come back to accountability in what sense. There is accountability in operational efficiency, which is, as several people have mentioned, relatively easy to measure and sometimes difficult to achieve, but I think progress can be made. I think there is a lot of focus in the whole lab system, at least in my nearly two decades of interactions with it, on accountability toward the mission. There are, as John McTague mentioned, substantial, frequent and deep reviews, peer reviews, by scientists from around the country who serve, usually, pro bono, on review committees who are experts in the technical fields and in the content parts of the mission. And I believe that while some of these things may be more difficult to measure than strictly accounting measures, those reviews are taken seriously and are used to refine the practice within the laboratories. I don't think that that has been neglected at all. I think it is a very serious and ongoing responsibility that the system is actually taking and working seriously.

Ms. WOOLSEY. Dr. McTague, I haven't heard your voice since I got here, so I am going to ask for your voice.

Dr. MCTAGUE. Thank you.

Once again, I agree with my colleagues here. But you—I—one aspect of your question, I think, is very interesting and that is in looking at, let us say, contract proposals. If there is a competition, how do you evaluate within different proposals the likelihood that this will improve, for example, the ability of the organization to successfully perform? And that rests in very large measure, in main measure, on the quality of the technical staff. And the question is, will—can you, in meeting a contract proposal from Proposer A and Proposer B, as compared to the present contractor, get anything out of that contract proposal which will give you really substantive information on that? And I personally can not think of such. Therefore, I think there really should be a bias toward maintaining contractors unless their performance is egregious, because the risk you take of damaging the quality of the technical staff is of unknown proportion. And we can't make a mistake there.

Ms. WOOLSEY. So tried and true versus going out and experimenting with something new without being able to—so, can I ask the fourth witness to respond, Madam Chairman?

Chairwoman BIGGERT. [No response.]

Ms. WOOLSEY. Thank you.

Mr. Card.

Mr. CARD. Well, I think your question, and many of them here, are focused on the crux of the matter of how do we either combine or separate the science from the management. I would say my personal view is that the labs across the board are producing excellent science, and I can't think of but a small handful of cases where we might be disappointed in the science performance. What we see is that the management issues, in fact, having the most significant determinate on the labs' performance, because the expectations by people in this body and across the aisle and across the Capitol and

in other constituencies with the Department of Energy, for whatever reason, have developed very high expectations on management. Those are one of these things where we can probably influence it, but I doubt that we can control it. And so we are eager to seek direction of where do we strike the compromise on how to decide which is more important or how to weight the science and management performance. And I think if you look at our competitions in the science laboratories, they have overwhelmingly been driven by management issues, rather than science issues.

Ms. WOOLSEY. Thank you.

Chairwoman BIGGERT. Thank you.

The gentleman from Michigan, Dr. Ehlers.

Mr. EHLERS. Thank you, Madam Chair. And I also have to apologize for missing your testimony. I was at another hearing in trying to control the escalating cost of higher education. And if you think you have got problems, you should listen to the other—listen to the students.

I am probably unique on this panel. I think I am the only one here who has worked at not one, not two, but three federal laboratories, National Laboratories, all DOE. And so I may have a slightly different perspective. But in my experience, not only at the DOE labs, but other labs where I have worked, by far, the best management from the bench scientist perspective is invisible management. They don't give two hoots about the management and how they run it as long as they get their equipment, they get their time on the computers or accelerators or reactors or whatever they need, and they are not bothered by administrative details. And I have noticed a dangerous trend in my visits to—not only to DOE labs, but to other labs during the last decade, that more and more the bench scientists are being asked to perform managerial tasks, which some of them perform it very well and others have no taste for it and no desire to do it. And that may be part of the problem.

But that was—that is the background for my question. The scientists are there to do science. The problems that I generally hear about from my colleagues and from the press don't very often involve the scientists. They involve support staff, management, and so forth. And if we are talking about changing contractors, I would have a great concern about what is the impact on the science programs if you do what I consider rather a draconian step of changing contractors. And I agree with, I think it was either Dr. Fleury or Dr. McTague that said that shouldn't be the first recourse. That should be—Dr. Fleury. There should be other steps that can be taken before that.

But what has happened in the cases where you have changed contractors? What—has there been any measurable impact on the science that it performed in that laboratory? Would you have gone through a change of contractors? Is it, indeed, draconian? Does it cause problems with the morale and the science that is done? Or do the scientists just take this in stride and keep on with their work? I would like to ask all of you to respond. And let us go right to left this time instead of the usual pattern. Dr. McTague.

Dr. MCTAGUE. There has been only one—let us see. Recently—let me put it this way. The one laboratory where a contractor was removed for poor performance and a new one was put in was

Brookhaven National Laboratory. The quality of the staff, as far as I can tell, is as good now as it was then, but I am not certain of that. But the point is that I haven't seen any egregious effects. On the other hand, I don't know if that would be the same thing at another organization. At that particular organization, the contractor, in fact, was a consortium of the university, so there was no particular identification of the staff at that laboratory with University A or University B. Their association—their identity was with each other.

Mr. EHLERS. I suspect that is generally true.

Dean Fleury.

Dr. FLEURY. Yes. Actually, the Brookhaven situation was one where the AUI, Associated Universities, was a loose collection of faculty from northeastern universities and was the contractor. Their principal focus was on the science and not so much on the management, and as a result, they were dismissed. We could get different opinions as to whether that was the right thing to do at that time, but that is what happened. They were replaced by a partnership between Batelle, a not-for-profit, and Stony Brook plus six other universities, of which mine is one. And so I sit on the Board—the Brookhaven Science Associates Board at the moment. I would say that in that case, the change, as John has indicated, was not discontinuous or disruptive, but a lot of—there was a lot of that continuity provided by, at least on the academic and science content side, by those six core universities that had formerly been—formerly but less formally involved in AUI.

The other case in which I am familiar is where a contractor wasn't replaced but where it was a mutual parting of the ways when AT&T left Sandia in '93. And there, I think, there was a bit more disruption because it had been a long-standing relationship and they were taken over by a for-profit contractor, now Lockheed Martin. By I believe that after some initial concern on the part of the staff and so forth, that that has worked out reasonably well as well.

So it isn't inherently disruptive, but I think it really depends on the style and capabilities of both the contractor that is being replaced and the one that is replacing them that determines how disruptive it is to the science.

Mr. EHLERS. Mr. Card.

Mr. CARD. Just a grain of salt for all of these answers is that the sample that you have proposed have all got one thing in common: either the contractor withdrew, there was visibly bad performance, or a change in missions. So you pretty much needed to do it. But I would say that in each case where we have competed based on performance, there has been an improvement, from our perspective in this—the technical and business relationship of the lab, because in the end the business relationship, when it becomes an issue of public visible concern, affects the science and affects the mission of the lab. So we think that those were successful. I don't know that you would apply that across the board.

Mr. EHLERS. Ms. Nazzaro.

Ms. NAZZARO. There are the two examples we have seen here. There are not many examples of what has happened when you change the contractor of a science laboratory.

Mr. EHLERS. Wasn't Oak Ridge also—didn't Oak Ridge also go through?

Ms. NAZZARO. Yes, Oak Ridge was also re-competed. At Brookhaven we have some indication of the effect. The Brookhaven Science Associates have won their fees since the changeover, so we would assume DOE is happy with the science that is coming out of the laboratory. We have more experience with other organizations, such as the environmental management area. There we have seen it is mostly management that turns over, and there isn't a significant change in scientists.

Mr. EHLERS. All right. Thank you.

Just—I think those three cases that I am familiar with was—either has a—they may have withdrawn or there were serious breaches of faith, I believe, between DOE and the contractor. Without throwing any stones, they were problems. But I would agree with Dean Fleury that this is something to be used very, very carefully and very, very rarely. There should be intermediate steps, if necessary, put into the contract to punish contractors who are not performing well.

But I would also have to comment, as a scientist, whatever you do, be careful not to disrupt the scientists. And I am very concerned with what I have seen and the amount of time that bench scientists are having to spend on administration. I mean, these are people who tend to work 60 hours a week, at least, without being prodded to do it, as long as you leave them alone and give them a meaningful task. The accountability has to be, I think, just in looking at the overall mission rather than examine each detailed aspect of it. But the problems of the labs, I think, have been primarily in the management of the non-technical employees, or at least the non-scientific employees. And that clearly has to be addressed. And that requires very good management.

Dean Fleury, were you trying to say one last thing?

Dr. FLEURY. I just wanted to comment on the point you made about invisible management becoming intrusive management. This takes the form of what I call "stealth overhead," that scientists from the ground up are spending more and more of their time trying to find sponsors for their individual work, so it doesn't appear as—necessarily as adding managers. But it does reduce the efficiency of the process. And that is one of the things I suggest in my written testimony that we should take a look at: the scope of management of program managers in the labs. I think it has been creeping in the wrong direction.

Mr. EHLERS. Thank you.

Chairwoman BIGGERT. Thank you. And Dr. Ehlers, if I just might comment on that and—what you have brought up. I think one of the reasons for this hearing is the fact that perhaps we are—that DOE is looking at, and there is the Blue Ribbon Commission that might come up, that would suggest that all labs be competed. And I think, you know, we have got 16 labs, and just with the three that you have talked about, that this could be a real change in our labs. And so we want to make sure that we know exactly, you know, what the criteria is for competition and how that will occur. And I think that is what we are trying to get at.

Thank you.

The gentleman from Tennessee, Mr. Davis, is recognized for five minutes.

Mr. DAVIS. Thank you, Madam Chairman.

I represent an area that—several people work in the area around the Oak Ridge National Lab. And obviously there has been a change in contractors during the last three or four years. Under Secretary Card, the question I want to ask, when you make a decision to competitively bid a contract currently, in today's atmosphere, how do you—what process do you go through? How do you evaluate that? How would you look at the contractors, say, at Oak Ridge National Lab today and decide that there should be competitively bidding two, four, six, eight years down the road? And if you have a good contractor, who is doing an excellent job that has had excellent ratings, I know there are several labs that have been operated that have not had competitive bidding for as much as 50 or 60 years. If you have someone doing the job, managing well within budget, operating well, what induces the Department of Energy to ask for a competitive bid for that particular lab that will be operated for the next few years?

Mr. CARD. I can answer on how we have done it, but not how we would do it yet until we get the results from the Blue Ribbon Commission and the Secretary makes a policy decision on that. How it occurred in the past, we would look at the stewardship of the contractor over the laboratory asset, which is both the intellectual aspect, that has been discussed, and the physical asset and how they are—how well they are protecting the, what I will call, mission viability of the laboratory. And the—in the case of Oak Ridge, some of the improvements we noted is we are noticing improvements in the intellectual and physical infrastructure and on project performance, particularly of the flagship project, which is Spallation Neutron Source, which, in my opinion, was not doing well and was probably the catalytic event that created the desire on DOE's part, I wasn't here at the time and part of the decision, but I was in the community, to compete that contract. And that project is, in my opinion, a benchmark project now in its—both its technical performance and its safety performance. And it—just let me reemphasize that while safety may not be science, the lack of events on Spallation Neutron Source has, in fact, saved the taxpayer a lot of money by allowing that project to proceed smoothly, as it is doing.

Mr. DAVIS. Well, I certainly applaud the contractors there today and what they are doing and how the process has worked and continues to work. And the reason I ask the question that I am somewhat concerned if we—about competitive bidding two, or three, or four years down the road, and my hopes are that as you look at labs throughout America, if the job is being done on budget, on target, then the process of having competitive bidding, obviously, just for competitive bidding is not something that I would recommend or advise to do.

But on the other hand, when there is a need or when there are needs for a change, and it is obvious with all of the different reviews that you have that—the auditing process that you go through, when you ask for a new bid, what kind of talent pool do we have? How many different contractors do we have in this coun-

try today that are capable that—of actually bidding to do management and operations over labs? Do we have a pretty good—are they shrinking? Are we seeing bidders grow? Is it usually one or two people who bid for competition? More than two? Generally, could you give me an idea of how many bidders we have when that decision is made to actually competitively bid the operation in management?

Mr. CARD. Well, it depends on the lab and what—how big it is and what its mission is and where it is and a number of issues. But typically, what will happen is there will be half a dozen potential contenders. They usually congeal into two or three bidders, and we have—we can give you, for the record, statistics, but I believe in all but a couple competitions, we have had more than one bidder. And in fact, I am familiar with one that was not a science contract, but it was pretty obvious that it had been competed just to compete it. And so the other bidders understood that and didn't bid. But we haven't had trouble getting competition, but these gentlemen associated with prominent universities might know better how their institutions would look at such a situation.

Mr. DAVIS. Would you respond, please?

Dr. MCTAGUE. If one looks at the—at history, there were two science labs that were competed. At, namely, Oak Ridge and Brookhaven, each one of them had two bidders. It is easier to get bidders for more engineering-oriented operations, things that are more similar to what a BWXT kind of company does. It is not so easy to find organizations that are willing and able to manage mainly scientific laboratories.

Mr. DAVIS. So what you are saying is if through the auditing process the job was getting done, then there can be a continuity of contracting from the current contractors? That is an assumption.

Dr. MCTAGUE. Almost all of the laboratories have had fairly continuous relationships with contract—with the organization. The University of California runs three laboratories: one of them for 50 years, one for 60, one for 70 years. The different—and if you look at the other FFRDCs outside DOE, such as Lincoln Labs, which is managed by MIT for the national security agencies of the government, they have run that laboratory without bidding since it was established when—it actually grew out of the radiation lab during World War II. Every single FFRDC, outside of DOE, has never been competed. Never.

Mr. DAVIS. Thank you. I yield back the rest of my time.

Chairwoman BIGGERT. The gentleman from Oregon, Mr. Wu.

Mr. WU. Thank you, Madam Chair.

Mr. Under Secretary, welcome to the Science Committee. Are you familiar with this GAO report dated April 2002, Department of Energy Weapons Laboratory's actions needed to strengthen oversight is a report requested by Eddie Bernice Johnson and me? And in the report, there appears to be some differences by contractor of—in terms of women and minorities promotions, personnel actions, percentages of workforce in the different energy laboratories. And what is interesting and relevant to this hearing is that there appear to be differences by contractor. Are you familiar with that report, Mr. Under Secretary.

Mr. CARD. I am familiar with the report, although its focus, as I believe, was on NNSA, which is the other part of DOE that I am not responsible for. And do you want me to—

Mr. WU. Now it—I believe that the report was focused on three laboratories: Sandia, Los Alamos, and Lawrence Livermore. And you are not responsible for those three facilities?

Mr. CARD. Not as of when I left for the hearing.

Mr. WU. Well, you never know. The—what is of concern to me is that, as part of the DOE's response to the report, there was a commitment on the part of the Department of Energy to work with this Congress and other departments in addressing the disparities found in the various laboratories and as between contractors. And since we are talking about the contracting process now, I am—since the Department made a commitment to move forward with this. And I—my understanding is that I have a commitment from Secretary Abraham and his predecessor, Secretary Richardson, to work on these issues, we have not done the oversight process in public or by news release. I think that we have been more than patient in addressing some of these issues. I am curious as to whether those commitments to work with—to work on these disparities continue to be good.

Mr. CARD. I can tell you that it is very important to the Secretary personally. I know it is important to Administrator Linton Brooks. He spends a lot of time on this issue. I spend a lot of time on the issue any time we have a big group of managers together. It is on the agenda, so I can assure you that we take those issues very seriously. And we would be glad to provide an update for the record for you as well.

Mr. WU. Thank you very much, Mr. Under Secretary. And I will take your answer as a reaffirmation of the Department's commitment, is that correct?

Mr. CARD. Absolutely. And my part of the Department as well as NNSA.

Mr. WU. Thank you very much. And I just wanted to underscore before I turn to Dr. McTague here, that you know, there are a couple of different aspects of national security, and we want, very much, to protect those aspects of national security, which we can do so by keeping secrets. But one of the things that challenges America constantly is we live in an open society. And one of the ways that we also provide for national security is by inventing new things that other people don't have. And the only thing—the only way that we can do that is by recruiting the best and brightest and providing them with an environment in which they can best exert their creative energies and focus on their job rather than deal with some of these other distracting and negative issues, which I believe are identified in this GAO report. And so I view this very much as part of this two-pronged approach to national security. And I look forward to working with the Department on that. Doctor?

Dr. MCTAGUE. I guess I can speak from experience in that for the last two years, up until January of this year, the Livermore Laboratory and Los Alamos, two out of the three laboratories reported to me at the University of California. And from examining DOE's attitude, in particular that of General Gordon and of Ambassador Brooks, the two heads of NNSA during that time period, they had

very strong personal commitments in this area. And indeed, General Gordon spent a large amount of time going around doing focus groups at the laboratories, browbeating the lab directors, et cetera.

But has there been improvement? I don't have the——

[PA Malfunction.]

Dr. MCTAGUE. At Livermore, the main problem probably was in the area of Asian Americans and Pacific Islanders, not in terms of the numbers in the laboratory, but——

[PA Malfunction.]

Dr. MCTAGUE. One of the actual results are——

[PA Malfunction.]

Dr. MCTAGUE. But they are positive. That being said, these are areas that require continuous attention from the top levels, the directors of the lab, the undersecretaries and the director—and the assistant secretaries within the Department of Energy and the highest level in the contractors themselves.

Mr. WU. Well, I welcome your comment. I think it is a forward step in addressing this issue, but what I found rather striking in the statistics that I saw was that it was rather counterintuitive of——

[PA Malfunction.]

Mr. WU [continuing]. In California to be——

[PA Malfunction.]

Mr. WU [continuing]. At the numbers, it seemed like the private sector contractor——

[PA Malfunction.]

Mr. WU [continuing]. Perhaps statistically did a better job on some of these issues than the university did and I hope the universities are working on that. And——

[PA Malfunction.]

Dr. MCTAGUE. I think you are absolutely right. And my perception of what was the problem was that the university did not face up to this issue in a systematic way. And once they started looking at it systematically, progress took place.

[PA Malfunction.]

Mr. WU [continuing]. The Department and contractors, potential contractors——

[PA Malfunction.]

Mr. WU. Thank you very much.

Chairwoman BIGGERT. Thank you.

Just one quick question, Mr. Card, if I may. You expect that the Blue Ribbon Commission——

[PA Malfunction.]

Mr. CARD. The process for the report, we would expect in that time frame that the Commission itself may finish its work. But for it to be complete, it will have to be reported to us from the Secretary of Energy Advisory Board. So it would be some time after that before we would have a—we would expect to finish our process by the end of the calendar year.

Chairwoman BIGGERT. And then when do you think that you will announce whether the recommendations have been accepted or that you intend to implement?

Mr. CARD. Well, I would assume by the end of the calendar year. Of course, that will be the Secretary's decision, and he is, I can assure you, very personally engaged in this issue.

Chairwoman BIGGERT. Is there a timetable, then, for implementation?

Mr. CARD. Well, the implementation could be quite rapid, because we have—the transaction that need to be made are known, and we have—we are fairly far along on thinking through how we would deal with those, depending on what the policy would be.

Chairwoman BIGGERT. The question came up that as far as the cost of bidding, and certainly if there are at least two bids, do you think that this will then be more like—

[PA Malfunction.]

Chairwoman BIGGERT [continuing]. Bidding for some of these contracts rather than the universities—

[PA Malfunction.]

Chairwoman BIGGERT. And it is a cost to the taxpayer, but what about the bidder that loses out on it, because they do spend quite a sum—

Mr. CARD. Well, the costs of bidding are substantial. And the—few to several million dollars. Clearly, if the—in my opinion, if the Department—

[PA Malfunction.]

Mr. CARD [continuing]. Were to adopt a more aggressive competition strategy, we would have to take a serious look at the fee structure of the resulting contract to see that the people investing in a bid would have an opportunity to recover their bid cost.

Chairwoman BIGGERT. Thank you.

The gentlewoman from California.

Ms. WOOLSEY. Madam Chairman, witnesses, Representative Jerry Costello could not make it. He was trying throughout the entire process to get here. But he will provide questions, and he—we would ask your cooperation in responding to his questions. Thank you very, very much.

Mr. EHLERS. [Presiding.] Yeah, I want to follow up just a little bit on the questions I asked earlier, and particularly Dr. Fleury. You administer or manage—try to manage, and Dr. McTague, you have experience in the industrial area. Just looking at this, and instead of going out for new contractors, what intermediate steps do you see as being very useful in the case of non-performance? How would you handle it based on your administrative experience? And we will start with you, Dean Fleury.

Dr. FLEURY. Well, I think that there should be regular and deep dialogue between the Department and the contractor, not just in the question of assessing compliance at the small scale level, but if there are changes or impending areas of concern that these be addressed in a sense of teamwork rather than in a punitive way, as I mentioned before. It could be that contracts in the future might have provisions for evolution during the period of the contract so that rather than go or no go in certain areas, or what they used to call off ramps on some of these contracts. For example, I think the Appendix O that was in the Los Alamos contract, which was stuck in—or put in to deal with certain aspects of some of the problems that occurred up there in the last couple of years is one

example. So I would say that there—it would be from a sort of scientific description, more of an adiabatic, continuous process rather than a bunch of discontinuous and hopefully non-punitive steps.

Mr. EHLERS. Well, in terms of punitive, can you think of small steps in conjunction with an adiabatic approach?

Dr. FLEURY. Well, I think one of the things is to look at the composition of the top management team, whether there should be removal or reassignment of people for not adequately performing rather than throwing out the entire baby and the bath water at the same time, as happened, say, at Brookhaven, for example. That is one type of punitive approach that is graded.

Mr. EHLERS. What about financial penalties?

Dr. FLEURY. For—you know, for non-profits and for not-for-profits, I don't know that that is particularly effective. I think that a positive incentive of—as was said before, improved efficiency—being able to result in returned funds to the laboratories that could be invested in improving their performance of the mission is a better way to go. To me, punitive steps are a sign of failure rather than a sign of teamwork, so I prefer to focus on rewards rather than punishments. Sometimes it is necessary, and in that case, I think replacement of people in key positions rather than going for the jugular of the entire contract is the way to go.

Mr. EHLERS. Well, I am primarily referring to cases where there is—such as Los Alamos where there was specifically—where there was money wasted. Should the contractor bear part of the cost of that?

Dr. FLEURY. Well, I think the contractor has, and my understanding is that where that has occurred that those costs were reimbursed to the government by the contractor.

Mr. EHLERS. Okay.

Dr. FLEURY. And I think that the actual—some of these even was—occurred at the—in the case where there was still dispute as to whether those costs were allowable or not allowable—

Mr. EHLERS. I see.

Dr. FLEURY [continuing]. But the university went that way.

Mr. EHLERS. Dr. McTague.

Dr. MCTAGUE. Well, first I want to endorse everything that Paul Fleury has said. The most important thing is to deal with small problems before they become big problems. And when I was Vice President for Laboratory Management at the University of California, the Under Secretary of the NNSA and I, about a year ago, put in place a system for three times a year meetings at the highest level, that is to say, the undersecretary and the assistant secretaries, our lab directors, and myself, to discuss what are the big issues, how can we solve these things together, how are we doing, by the way, on what we said we were going to do at the beginning of the year, and how do we need to readjust? I think that process is continuing. And I think that is the kind of thing that should be occurring, not just an assessment five years down the road on, “Gee whiz, wasn't that terrible?”

The second thing on, sort of, intermediate steps, I agree with Paul. Managers have to be held accountable personally. And I know that that has happened in several cases with lab directors. I don't want to get into names or laboratories, but that has hap-

pened. And it does happen continuously at lower levels. There was an announcement recently, for example, at Sandia in the security area.

One of them that is also very effective with organizations that do these things for public service is public shame, because these organizations do care about their reputations. They are not in this for the money. They are in it as a national service, and if it is being pointed out that they are not doing a good job at national service, they react. No question about it. It is more valuable than money.

Mr. EHLERS. I might just comment that the one concept that Congressmen are very familiar with is public shame. And indeed, it is very effective. Generally—frequently, it results in loss of employment, too.

Well, thank you. Those comments have been very insightful. I am sorry I couldn't hear the entire testimony, but I certainly appreciate what I have heard during my time here. I certainly thank you for being here. It has been very, very helpful testimony and certainly useful to me as a Member, and I am sure to the entire Committee and to their staff.

One thing I will be asking the staff for, and they may in turn have to ask you, Mr. Card, I personally want to see a list of all of the National Laboratories that are under contract, who the contractors are, who the administrators are, et cetera. And that is some basic knowledge I don't have, which I should have, and should have had before the hearing, but I don't. So you may get a request from that if the staff doesn't have it on hand.

Thank you. Thank you very, very much for participating. I truly appreciate it. And with that, I declare the hearing adjourned.

[Whereupon, at 12:05 p.m., the Subcommittee was adjourned.]



## Appendix 1:

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ANSWERS TO POST-HEARING QUESTIONS

## ANSWERS TO POST-HEARING QUESTIONS

*Responses by Robin M. Nazzaro, Director of Natural Resources and Environment,  
U.S. General Accounting Office*

**Questions submitted by Republican Members**

*Q1. The Department of Energy (DOE) has been accused of both lax oversight and micromanagement. Can both these things be true simultaneously? This suggests that there is effective oversight that we need more of and ineffective oversight that we should reduce. Does it matter who is doing the oversight and on what schedule? Does it matter, if there is more than one overseer—how coordinated and consistent they are? What specific steps should DOE take to ensure that oversight is done effectively and at the appropriate level? What proportion of DOE's reform efforts should be directed to contracting reforms and what proportion to administrative steps to rationalize day-to-day oversight?*

A1. DOE spends almost \$20 billion each year so that contractors can carry out DOE's missions and operate its facilities. Because of this relationship, DOE needs to have adequate oversight to ensure that mission work is done safely and effectively. In addition, DOE has a fiduciary responsibility to the taxpayers to guard against the possibility of fraud, waste, abuse and mismanagement in its contracting activities.

Determining the appropriate level and frequency of oversight is DOE's responsibility, since the department is ultimately accountable for what goes on at its sites and facilities. In addition, DOE is not generally subject to external regulation for safety, including nuclear safety at its facilities. Therefore, the department must ensure that workers, the public, and the environment are protected.

Prior to implementing performance-based contracts in the mid-1990's, DOE's traditional approach to its M&O contracts was to provide broadly defined statements of work and provide considerable direction to the contractors as to how that work should be performed. With performance-based contracts, DOE generally uses a results-oriented statement of work and gives the contractor more latitude on how to accomplish those results. The amount of oversight necessary may vary depending on the nature of the work to be performed and the performance level of the contractor.

The extent and frequency of oversight may vary depending on the risks involved in an activity. Certain activities at DOE sites are subject to oversight by more than one organization. For example, the Defense Nuclear Facilities Safety Board can raise concerns about the safety of nuclear facilities and operations, or the Environmental Protection Agency and state regulators approve DOE's plans for cleanup of hazardous or radioactive wastes. In these cases, DOE is still the single point of contact for oversight and coordinates with these agencies in providing feedback or direction to the contractors.

*Q2. You cite, as a reason for non-competitive extensions of lab management and operations (M&O) contracts, "the benefits of having a long-term association with the research community beyond that available with a normal contractual relationship." Are there any other reasons not to compete M&O contracts?*

A2. The Federal Acquisition Regulation (FAR) Part 35.017 sets out federal policy regarding the use, review, and termination of Federally Funded Research and Development Centers (FFRDCs). According to this policy, a FFRDC must meet a special long-term research or development need that cannot be met as effectively by existing in-house or contractor resources. Long-term relationships between the government and FFRDCs are encouraged under this policy in order to provide the continuity that will attract high-quality personnel.

The Competition in Contracting Act of 1984 (CICA), which established "full and open competition" as the federal norm, contained seven specific statutory exceptions that authorize the use of "other than" full and open competition in certain situations, including when an agency has the need to "establish and maintain an essential engineering, research, or developmental capability to be provided by an educational or other nonprofit institution or a federally funded research and development center."

Even though DOE is not required to compete its FFRDC contracts under this exception in CICA, the department's 1996 acquisition guidance describes the procedures that DOE program offices must follow to support any recommendation for a non-competitive extension of any major site contract, including a FFRDC contract. The guidance specifies that, before a noncompetitive contract extension can occur,

DOE must provide (1) a certification that full and open competition is not in the best interest of the department, (2) a detailed description of the incumbent contractor's past performance, (3) an outline of the principal issues and/or significant changes to be negotiated in the contract extension, and (4) in the case of FFRDCs, a showing of the continued need for the research and development center in accordance with criteria established in the FAR.

DOE's practice for competing FFRDC contracts has been to non-competitively extend those contracts provided that the 1996 guidance has been followed and there is no compelling reason to compete the contract—that is, if the mission has not changed and the performance of the incumbent contractor is satisfactory.

*Q3. In a recent Senate hearing on DOE laboratory contracts, former Los Alamos National Laboratory Director Sig Hecker testified that "numerous governmental audits and investigations by offices such as the GAO or the Inspector General. . . consistently fault the DOE for lack of sufficient oversight" but fail to note that efforts to increase oversight reduce "trust and flexibility" and create an environment in which "we cannot get our work done productively." Is this a fair characterization of GAO's reports?*

A3. It is true that GAO and Office of Inspector General audits have criticized DOE for either not having sufficient qualified staff to provide oversight or not providing adequate oversight of major projects. However, we do not agree with Mr. Hecker's view that efforts to increase oversight automatically reduce trust and flexibility or create an environment in which work cannot get done. We know of no evidence that would show that effective oversight is detrimental to accomplishing an agency's mission. In fact, we believe that effective oversight is essential to ensuring that an agency's mission is successfully accomplished.

DOE has a fiduciary responsibility to provide adequate oversight of the contractors that carry out its missions, including basic research and other activities. Federal oversight is necessary to ensure that mission requirements are being met and to provide a reasonable level of assurance that work is carried out safely and efficiently. This is especially true when the work done by contractors has substantial inherent risks—such as NASA's space shuttle missions or DOE's nuclear weapons research and stockpile stewardship efforts.

*Q4. Is it fair to say that GAO has not subjected other agencies' non-competitive contracts to the same level of scrutiny as DOE's? Why or why not?*

A4. GAO has designated contract management as a high-risk area that is vulnerable to fraud, waste, abuse, and mismanagement in three agencies—DOE, the Department of Defense, and NASA. GAO continues to review contracting activities and monitor any corrective actions taken by these three agencies.

Competition for contracts has been an issue at DOE because prior to the mid-1990's, competing DOE's M&O contracts was the exception rather than the norm. As part of its contract reform efforts begun in 1994, DOE has increased the percentage of its major site contracts that are competitively awarded and has changed its procurement regulations to establish competition as the norm.

*Q5. Both DOE and GAO cite three reasons for M&O contract competitions at DOE: mission change, unsatisfactory performance, and if a commercial entity was the operator. While this may explain the three most recent decisions, does GAO see this as a consistent practice on the part of DOE? Given this policy, do DOE's decisions over the last two years fit this pattern?*

A5. DOE has described three main reasons for competing its Federally Funded Research and Development Centers (FFRDCs) instead of extending the contracts non-competitively: when the contractor operating the laboratory is a for-profit entity, when mission changes warrant a review of the capabilities of other potential contractors, or when the incumbent contractor's performance is unsatisfactory. Without one of these conditions, DOE has generally extended these contracts without competition.

Over the past decade, it appears that DOE has consistently followed these guidelines. Of the six FFRDC contracts that have been competed since 1993—for Brookhaven National Laboratory, Idaho National Engineering and Environmental Laboratory, National Renewable Energy Laboratory, Oak Ridge National Laboratory, Sandia National Laboratory, and the FFRDC at the Savannah River Site—DOE's decision to compete those contracts was consistent with the department's overall policy on determining when competition is appropriate. For example, DOE competed the contract for the Brookhaven National Laboratory in 1997, after terminating the previous contract for unsatisfactory performance by the incumbent contractor. DOE competed the contract for the National Renewable Energy Laboratory

in 1998 to incorporate additional private sector expertise into the management team for the site to reflect an expanded mission. For the remaining four FFRDC contracts that were competed, the operator of the laboratory was a for-profit entity.

DOE's decisions over the last two years also fit this pattern. The decision to open the Los Alamos National Laboratory contract to competition when the current contract expires in September 2005 was based on "systemic management failures" at the laboratory under the incumbent contractor. In addition, the decision to restructure the M&O contracts for the Idaho National Laboratory and include the Argonne West scope of work in one of the new contracts was based on a change of mission and direction at the Idaho site.

*Q6. Please comment in detail on the proposal to ensure excellence in science and remain faithful to the ideals of competition by means of an occasional review (say, once every seven to ten years). As currently discussed, three panels that are not allowed to collaborate would do these reviews. The teams would evaluate and rank the labs on performance, and only the bottom tier would be required to compete. What are the important considerations for setting a timeframe for such a review process? Do you think such an approach would be workable?*

A6. Peer review panels such as those discussed in the above proposal are not new to DOE research laboratories. Such peer review panels are already used to evaluate the science and technology work performed by some of the contractors at DOE laboratories as part of the overall assessment of the contractors' performance. It appears that the panels in the proposal would also be evaluating and ranking the labs on performance in the science and technology area. However, there are other important aspects of contractor performance including safety, security, and sound financial management that should also be assessed. Furthermore, the quality of contractor performance is only one of the reasons to compete a contract for a DOE research laboratory. Other reasons to compete a contract could include when the mission of the laboratory changed significantly and different expertise was needed, or when an incumbent contractor decided not to continue, which happened at Sandia National Laboratory in the early 1990's.

If DOE used peer review panels to evaluate contractors' performance, the final decision on whether to compete a contract should remain with the department. DOE cannot delegate such a responsibility to independent review panels, but could use the panels in an advisory capacity.

#### **Questions submitted by Democratic Member Questions**

*Q1. Looking back through GAO reports on lab management for the last decade, how does the performance of university, non-profit, or profit-seeking institutions compare in managing contracts? What are the relative merits of each and which type (or combination thereof) is proving to be an ideal contractor? Is the pool of potential lab M&O contract bidders growing or shrinking? Why?*

A1. GAO's past work on contract management has not generally involved comparing the performance of contractors based on the for-profit or non-profit status of the contractor. However, there are some indications that there have been performance problems with each type of contractor. For example, in a 1999 report on DOE's nuclear safety enforcement program, GAO presented information on the enforcement actions taken against contractors who violated DOE's nuclear safety rules and were assessed civil penalties under the Price-Anderson Amendments Act of 1988. Of the nine enforcement actions with assessed civil penalties exceeding \$100,000, four of those involved non-profit contractors. In addition, from 1996 through 1998, only two of the 33 enforcement actions were for severity I violations, the most serious—the contractors involved represented one for-profit and one non-profit.

In a September 2002 report on DOE's contract reform efforts, GAO reported on the cost and schedule performance of 16 major projects (those with a total project cost greater than \$200 million). Although we did not specifically name the contractors associated with each of the projects with cost and schedule overruns, both for-profit and non-profit contractors were represented in the sample. Regardless of these indications and examples, we are not in a position to address the relative performance or merits of different types of contractors, or whether there is an "ideal" contractor. Furthermore, GAO has done no work on the pool of potential lab M&O contract bidders, so cannot address whether such a pool is growing or shrinking and the reasons for such differences, if any.

*Q2. Given the difficulty of establishing concrete performance metrics for basic and applied science, should other evaluation mechanisms be employed to facilitate decisions on contracts? For instance can metrics be developed for activities in*

*technology transfer, patents or intellectual property to evaluate a laboratory's performance? Are there lessons learned from other agency M&O contract-type situations that can be applied to DOE M&O contracts? How do performance metrics for basic science play into the administration and competition for M&O contracts? How do they pertain to fees awarded to the contractor?*

A2. Developing performance measures for basic science and research has long been a challenge. It is difficult to determine the long-term impact of basic science, since many factors are involved in a successful transition from basic to applied research and to product development and economic impact. This is a recognized problem across the federal government. For example, the President's Management Agenda for Fiscal Year 2002 included better research and development (R&D) investment criteria as one of the challenges, and tasked DOE to work with the Office of Management and Budget to solicit input from other R&D agencies and experts to develop objective investment criteria. Regarding lessons learned from other agencies that can be applied to DOE M&O contracts, we have not conducted such an assessment. Even within the DOE research laboratories, the missions and science can be very different and there is no one measure that could be applied to all situations.

An acceptable alternative to outcome-oriented objective performance measures for basic science has been the peer review process. DOE's laboratory contractors already use this technique to evaluate performance in the science and technology areas. Administrative controls are necessary to ensure that the peer review of science is done in a timely manner and that the members of the peer review panel are independent of the research being evaluated.

The evaluation of science and technology at the laboratories—regardless of whether performance is assessed by peer review panels or some other method—is just one of the activities that should be included in an overall evaluation of the contractor's performance. Other activities that should be evaluated include nuclear safety, security, worker safety and health, and financial controls over areas such as procurement and property management. What impact that evaluation has on the fees awarded to the contractor varies depending on the fee structure in the individual contract. For example, some contracts include base fee amounts that are not tied to performance measures. The amount of fee "at-risk" can be allocated to individual performance measures or to an overall area, such as science and technology or mission support.

*Q3. Should contractors be subject to more or less oversight and regulation by DOE? In what areas should DOE governance be improved? In what areas should the Department give the contractors more autonomy?*

A3. DOE needs to exercise sufficient oversight to ensure that contractors are carrying out the department's missions effectively and safely. The specific level of oversight for a contractor or subject area could be determined using a risk-based approach. For example, above some minimum level, the extent of oversight on mission support or administrative functions could vary depending on whether the contractor was performing these functions satisfactorily. In addition, major projects involving substantial investment by the government may require more oversight to ensure that these projects meet cost, schedule, and technical baselines. Furthermore, in areas such as nuclear safety, environmental protection, and national security, DOE needs to ensure that contractors meet certain standards.

*Q4. What are the merits of shorter contracts (five yrs.) compared to longer contracts (10+ yrs.)? Are we allowing lessons to be learned before jumping into another contract competition prematurely? Should there be a DOE policy to compete lab contracts on a periodic basis? If so, what time period would be appropriate?*

A4. We are not aware of an ideal contract length for DOE's research laboratory contracts. DOE's acquisition regulations generally allow a contract period that consists of an initial term up to five years with options to extend the contract provided that the total contract period does not exceed ten years. For the contracts to operate DOE's FFRDCs, competition is not required by law. Nevertheless, DOE guidance requires that these contracts be evaluated prior to approving a non-competitive extension.

Having a DOE policy that requires competing contracts for the research laboratories on a periodic basis is not necessarily a solution to all problems. The department needs to consider competition as just one of the mechanisms available to deal with contractor performance problems. Deciding when it is appropriate to compete a contract for a research laboratory depends on a number of factors, including the stability of the mission, the benefits of a long-term relationship with the contractor, and whether the incumbent contractor is performing at an acceptable level.

## ANSWERS TO POST-HEARING QUESTIONS

*Responses by Paul A. Fleury, Dean of Engineering, Yale University*

*Q1. Your written testimony seems to indicate that you do not believe competition is the appropriate way to create accountability in Department of Energy (DOE) laboratories. However, in answer to a question during the hearing, you found little impact at the labs with which you were familiar, Brookhaven and Sandia National Laboratories. If this is the case, then why are you so adamant that the labs should not be competed without cause? Is there something unique about Sandia or Brookhaven that made the change of contractor less harmful than it otherwise would have been? Is there a negative impact prior to the contractor change due to distraction of upper laboratory management for extended periods, increased retirement and turnover of staff scientists; an increase in confusion, anxiety and lowering of morale throughout the laboratory? Does the prospect of competition affect the ability of the contractor to hire an outstanding Director?*

A1. First, I believe that there are many ways to achieve accountability in the DOE laboratories that are less disruptive and more effective than the threat of competing M&O contracts. I believe that contracts should be competed only for cause [such as failure to perform on the laboratory mission or decision by an incumbent contractor to withdraw]. The process of competing a contract is both costly and disruptive. The financial and managerial costs to the bidders is substantial. The work of the laboratory and the attention of laboratory management at all levels is seriously distracted during the process and during the transition. Focus on the laboratory mission is diffused during the process and for sometime afterwards especially if the competition results in a change in contractor.

All of these factors were in evidence at both Sandia in 1993 when AT&T withdrew and at Brookhaven following the cancellation of the AUI contract. Both of those cases met the criteria I outlined for a justified competition. But the costs and disruptions ensued nonetheless. I believe that these examples support the position that contract competition for multi-program national laboratories should be done as a last resort only and not as the 'default condition.' Both Sandia and Brookhaven have survived the change in contractor and appear to be functioning well. But both have now had several years to digest and accommodate the changes. And both experienced staff uncertainty and I believe some increased turnover during the period of bidding, selection and transition.

As for the prospect of competition affecting the hiring of an outstanding Lab Director, I observe that identifying the Director is an integral part of any bid and so must be secured by the bidder as a member of their team before any contractor change. So I do not think the prospect of competition per se would affect a contractor's ability to identify and attract an outstanding Director. Rather, the quality of the contractor organization and its relationship with the DOE [whether cooperative or antagonistic] would be more likely to influence the attractiveness of the Director position for likely candidates.

*Q2. In answer to a question about Brookhaven, you suggested that when a contractor is a consortium of universities, contractor change has less of an impact than when the contractor is a single university. How else does the management of a laboratory by a single university differ from that of a consortium including universities and the private sector? Do you feel there is anything lacking in the labs where these partnerships are currently the managing contractor? Will increased competition tend to force more universities to form partnerships with commercial enterprises to be able to compete with for-profit institutions?*

A2. I did not mean to suggest that there is any inherent difference between a single university and a consortium when it comes to impact on the laboratory accompanying a contractor change. I do believe that in general, relative to a consortium the lines of authority, communication, and decision-making are clearer in the case of a single entity. In that sense a single university is preferable, in general, to a consortium. However, a properly constructed partnership involving multiple members can work well also. I believe that the current Brookhaven situation is one such example. The university partners bring special experience and familiarity with research and the scientific community while the industrial or commercial partner often brings experience and familiarity with business operations and management processes. In my experience it is rare that the university sector alone can bring all the necessary elements together. If any university system can do it, UC with its size, breadth and national lab experience should be the one. Were they not in the picture, I believe that competing for M&O contracts in the future will tend to en-

courage more partnerships between the universities and other organizations, or leave the field in the hands of 'for-profit' organizations.

*Q3. Please comment in detail on the proposal to ensure excellence in science and remain faithful to the ideals of competition by means of an occasional review (say, once every seven to ten years). As currently discussed, three panels that are not allowed to collaborate would do these reviews. The teams would evaluate and rank the labs on performance, and only the bottom tier would be required to compete. What are the important considerations for setting a timeframe for such a review process? Do you think such an approach would be workable?*

A3. The premise of the question, I believe, is faulty because it implies that some fraction of the M&O contracts will always have to be competed. I would address the issue in two parts: the review process and the consequence of the review process.

I believe that for some years now, all of the laboratories have been subject to too many uncoordinated, detail-oriented reviews every year. These number in the many tens, if not hundreds, for large laboratories. What is needed is not ultra-long intervals between reviews, but better coordination among the reviews themselves and more emphasis on using the results to evaluate and improve mission performance rather than to impose penalties or meaningless 'grades'. Properly conducted annual reviews [or at the most biennial reviews] are essential to keep track of the performance against the mission in the areas of science and national security. These reviews also should cover management practices and operations as affect these missions.

However, I do not support the notion of separate, independent reviews of the same laboratory, each giving grades or rankings that would be used to determine which laboratory's contract is to be competed. Like every scheme, this one could easily be 'gamed'. Furthermore, it would entail costly and redundant efforts on the parts of all involved. The proposal to compete the X percent of the most lowly graded lab contracts also sends the wrong message. This implies that there is no such thing as good performance across the entire set of all the laboratories, whereas that should be very much the goal of the entire system. Alternatively, it could be the case that all the laboratories are performing below standard—in which case every contract should be competed, not merely the most poorly graded. On the other hand, if every laboratory is performing at an acceptable level, no laboratory contract should be competed in that period.

The important considerations for setting a timetable such reviews, I believe, are to be found in the nature of the work and the mission. For fundamental research work where one is attempting to address fundamental questions, annual review or even biennial review is sufficient. In the case of more deliverable oriented applied work and engineering projects, frequent project reviews such as is done in industry are appropriate. Finally, overall M&O contract performance could be reviewed on a less frequent basis than annually, but not anywhere near as long as seven to ten years. At least twice during the contract period is a reasonable compromise if the review is done in a sufficiently comprehensive manner and it is free of fictitious grading requirements.

## ANSWERS TO POST-HEARING QUESTIONS

*Responses by John P. McTague, Professor of Materials, University of California, Santa Barbara*

**Questions submitted by Republican Members**

*Q1. Your written testimony seems to indicate that you do not believe competition is the appropriate way to create accountability in Department of Energy (DOE) laboratories. However, in answer to a question during the hearing, you found little impact at the labs with which you were familiar, Brookhaven and Sandia National Labs. If this is the case, then why are you so adamant that the labs should not be competed without cause? Is there something unique about Sandia or Brookhaven that made the change of contractor less harmful than it otherwise would have been? Is there a negative impact prior to the contractor change due to distraction of upper laboratory management for extended periods, increased retirement and turnover of staff scientists; an increase in confusion, anxiety and lowering of morale throughout the laboratory? Does the prospect of competition affect the ability of the contractor to hire an outstanding director?*

A1. Competition is at the heart of the success of the U.S. scientific enterprise. I hope it will always remain so. We need to support the best and the brightest and encourage risk taking in the pursuit of new ideas, while ensuring that ongoing missions are effectively implemented.

Historically, we have done these aspects extremely well. The secret of our success has been the competition for the best ideas and for the best means for implementation. Peer review has served us very well. For example, if SLAC has a better idea for a fundamental particle facility than Fermilab, then the community backs SLAC. Our system is very effective at placing work with the best provider, be it SLAC or Fermilab, Los Alamos, or Livermore, Argonne, or Oak Ridge. A lab grows or shrinks based on its technical ideas and capabilities, and that is as it should be.

Competition for management is an entirely different matter, and here one size does *not* fit all, as was pointed out in the testimony of Dean Fleury. Some laboratories, such as Fermilab or Brookhaven, were historically managed by associations of universities or boards with essentially no assets and no purpose other than such management. Others, such as Ames, SLAC, LBNL, LANL, LLNL, Lincoln Lab, JPL, and NCAR have grown integrally from their university sponsors. Indeed, Ames, SLAC, and LBNL reside on university land. In all these cases, lab employees are, and consider themselves to be, employees of their respective universities.

Other laboratories grew up as separate entities, often initially managed by corporations. Examples include Sandia, PNNL, and Oak Ridge.

These three classes are quite different and should be treated differently. In particular, those laboratories which have grown out of university campuses (Ames, SLAC, LBNL, LANL, LLNL) have some of the characteristics of campuses in complex university systems. Several states (e.g., California, New York, Texas) have multi-campus enterprises. When a management problem occurs on an individual campus, it is addressed by the central system. It is not "competed" to a rival institution.

Whether an announcement of competition causes significant problems in terms of laboratory function (recruitment, retirement, etc.) is not well known, because competing of FFRDCs has been so rare. In particular, no university managed FFRDC has ever been competed. Note, however, that this year, the University of California, in a deviation from custom, did not do an open recruitment process for the recently appointed director of LANL. Also, the UC Vice President for Lab Management position has gone for more than half a year without a permanent occupant.

*Q2. One of the explicitly stated intentions in creating federally-funded research and development centers was to facilitate long-term relationships with research institutions. However, you correctly note in your testimony that the trend at DOE laboratories has been to compete contractors, and consequently, to signal that the relationship (at least in relative terms) is expected to be shorter than in the past. What is the ideal length of a relationship with a research institution? If regular competition becomes a requirement for management and operations (M&O) contracts, what would be an appropriate review period?*

A2. I believe that the ongoing assumption for management of research FFRDCs, including DOE National Labs, should be for a continuing relationship unless the contractor withdraws or is no longer able to perform effectively in terms of mission results or of malfeasance. Continuous rebalance of workloads among the competing

laboratories is an effective and minimally disruptive means of encouraging mission performance and efficiency. *It is the best form of competition.*

I do not believe that there should be any “normal” time period for laboratory *management* competition. Rather, one should look to the way universities traditionally handle evaluation. It is common for university presidents and chancellors, and indeed, laboratory directors, to be comprehensively evaluated at five-year time periods. The overall quality of our research universities suggests that this time scale is appropriate.

A similar time scale, five to seven years, might be adopted for government evaluation of overall performance of FFRDCs, including DOE National Labs. Criteria might include appropriateness of mission balance, effectiveness of exploratory research, quality of staff, and quality and efficiency of operations.

Only in the case of a “failing” evaluation where improvement measures appear inappropriate should termination occur. In this case, I believe termination should be announced and a new competition, excluding the incumbent, or laboratory closure should occur.

The notion of competition as a norm seems to devalue public service as a motive for managing FFRDCs, including DOE National Laboratories. I believe the Nation would not be served well by a system which would cause universities to withdraw from lab management.

*Q3. In general, Americans believe that competition is a good thing, because it prompts innovations, can solve past problems, and lowers costs. Indeed, this hearing is focused on the question of whether competition for M&O contracts for science laboratories is a proper tool to ensure scientific results as well as financial and managerial accountability. In your testimony, you mention that when you arrived at Brookhaven as an associate professor, “there was a fierce competition between researchers at Brookhaven and the Stanford Linear Accelerator Center.” This implies that, due to rivalry between the laboratories, at least some of the benefits we seek from competition are produced in scientific results. If this competition is sufficient to produce the results we want on the science side, how do we ensure the fiscal and managerial accountability that Americans expect and deserve without competing M&O contracts for the laboratories?*

A3. The U.S. system for “competition of ideas” has surely served us well as a nation. The ongoing challenge has been how to ensure that the “business of science” is handled as well.

All too often, the business aspect has been treated as a “second class citizen.” We simply must do better, even though I am unaware that the environmental, safety, financial, security, personnel, etc. operations of FFRDCs are poorer than those of commercial enterprises or defense contractors.

What is missing, however, is transparency to enable confidence in and to improve practices. Here, the recent DOE initiatives to implement private best practices are encouraging. Focusing on, and auditing, process as opposed to transactions and comparison with best practices can be quite helpful.

Such audits should be independent, credible, and published for all to see. The light of day is an effective disinfectant. For instance, I believe that the financial and other management systems of FFRDCs should be audited by nationally-recognized organizations who specialize in this area (e.g., Price Waterhouse, Cooper).

*Q4. Please comment in detail on the proposal to ensure excellence in science and remain faithful to the ideals of competition by means of an occasional review (say, once every seven to ten years). As currently discussed, three panels that are not allowed to collaborate would do these reviews. The teams would evaluate and rank the labs on performance, and only the bottom tier would be required to compete. What are the important considerations for setting a timeframe for such a review process? Do you think such an approach would be workable?*

A4. I strongly support competition within our FFRDCs, including DOE’s national labs. This competition occurs every working day, as a federal manager decides to place a program at laboratory X instead of laboratory Y, or to terminate funding for a particular project. This form of competition is effective and efficient, especially as it utilizes peer or expert evaluation.

That being said, it is valuable from time-to-time to step back and get a broader perspective. At a given laboratory, is the whole greater than the sum of its parts? Does the laboratory as a whole address important agency missions? Are business operations being accomplished efficiently, effectively, and ethically?

It would be helpful to have such a long-term, broad review of the laboratory system. The goal should be to rebalance the agency portfolio as a whole and to improve management practices as a whole. If the legislative and executive branches could

have the discipline to carry out such a program, it would be helpful. History, however, is replete with examples of short-term reactions to the latest real or perceived outrage, ignoring long range perspectives.

Nevertheless, we should try once more to focus on the big picture and the long term. The focus of this long-term, broad review should be on a rebalancing the agency's portfolio. This may require shifting programs, closing laboratories, opening new ones, and utilizing best business practices across the complex, or selective re-competition of M&O contracts. It should not, however, focus primarily on the latter, nor should there be an arbitrary target on the number of research lab M&O contracts to be competed, if any.

### Questions submitted by Democratic Members

*Q1. It's been said that ties between National Laboratories and Universities should be strong and weak relationships suffer in the quality of science they produce. Do you believe a strong relationship with the University community is essential for a laboratory to produce good science? If so, how should a laboratory be involved with the University community?*

A1. The United States is unique in the close, complementary ties of their University researchers and their national laboratories. National laboratories have many unique facilities, such as the high-energy accelerators at Fermilab and SLAC, which are user facilities for the broader community. Indeed, almost every DOE national lab has one or more such facilities that create research synergy. I believe all labs also have guest researcher programs, and often joint appointment programs with Universities.

Our DOE national labs all have mission responsibilities in areas such as national security, energy, environment, and fundamental science. As large as these laboratories are, the total world research enterprise is much larger. By budget, the DOE national labs are almost two percent of world research. Thus, close interaction and collaboration with the other 98 percent of industry and University researchers is essential for the labs to fulfill their missions.

The importance of University ties has been acknowledged for over a half century, with many FFRDCs, including the DOE national laboratories, being integral parts of a University system. Examples include Ames Lab at Iowa State, Lincoln Lab and MIT, LLNL, LBNL, and LANL within the UC complex, UCAR and the University of Colorado, JPL and Cal Tech, etc.

My own knowledge is closest for the UC managed labs, LBNL, LANL, and LLNL. Here fully 25 percent of all published papers from each of these labs have a UC faculty member as a co-author. Clearly, the record of accomplishment shows the effectiveness of these collaborative relationships. Our challenge is to preserve it. It works like no other on the planet.

*Q2. Incumbent contractors have agreed that re-competing and changing contractors has a detrimental effect on the science personnel at the labs. Given the modern environment where people switch jobs all the time, how important is continuity of employers for science personnel, especially if their jobs do not change? How does that answer differ from industrial contractors compared to University contractors? Do changes in contractors adversely affect the culture of the lab? Does a change in contractors result in turnover or retirement of senior scientist?*

A2. Clearly the quality of the staff, particularly the scientist and engineers, is at the heart of the ability of laboratories to accomplish the missions that agencies assign to them. It is true that in many, even most commercial areas, the connection of employees with their organization has weakened resulting in significant migration even of professionals. The situation in our FFRDCs, including DOE's national labs, is quite different, and hopefully will remain so.

For example, the two nuclear weapons laboratories, LANL and LLNL, managed by UC, have individuals with unique experience, which cannot be replaced, by the general technical job pool. Their loyalty to their organization and its mission is very important to national goals.

As pointed out earlier by both Dean Fleury and me, there are very different historical groups of labs with different cultural connections between the contractor and employees. They need to be treated differently.

Many FFRDCs, including some DOE national labs, grew integrally from University sponsors. These include Ames, SLAC, LBNL, LANL, LLNL, JPL, Lincoln lab, and NCAR. Here, employees rightly consider themselves to be integral parts of their Universities.

Some laboratories, such as Fermilab or Brookhaven, have been managed by consortia, whose main purpose has been this relationship and who have essentially no asset or other purpose.

A third class is labs, which grew up as separate entities, often managed by corporations as national trusts. Some of these have been taken over by more traditional defense contractors.

Potential changes in contractors are likely to have different effects in the three classes. The greatest unknown, and the greatest risk, is in the group managed by Universities, where the lab employee identification with the contractor is the closest. Since none of these has ever been competed, we don't know the consequences. Do we want to learn it by doing the experiment?

*Q3. How do University, non-profit, or profit-seeking institutions compare in managing contracts? What are the relative merits of each and which type (or combination thereof) is proving to be an ideal contractor?*

A3. Who manages FFDRCs, including DOE national labs, best? A good question.

First, it is important to ask whether the missions have been well served by the labs and whether there is an observed difference in performance, given the character of task.

Recall that several major U.S. corporations, among them AT&T, Union Carbide, and Dupont, once agreed to manage labs as a national service. That is no longer the case.

From a practical point of view, the present pool of actual and potential for profit contractors excludes most corporations, with exception of traditional government (mainly defense) contractors.

This group probably should include Battelle, which for tax purposes is not for profit, but which has a goal to raise funds for certain charitable purposes.

This group of contractors has historically focused on laboratories with a more systems engineering role and has done well here. Sandia is a prime example.

At the other extreme is the single purpose lab, such as SLAC, Fermilab, Jefferson. Here, it is difficult to imagine that anything other than a University or University consortium would be the most appropriate manager.

Then there are the large numbers of labs that have grown as integral parts of University systems (Lincoln Lab, NCAR, LANL, LLNL, JPL, etc.). It seems quite risky to wrench such labs from their present culture.

Perhaps the real question is how, within each class, to ensure optimal management.

The answer may differ for each class. I have tried to approach these issues in many of the earlier questions, but I don't have definitive answers and only hope that whatever is done, reinforces the tremendous success of our present system and acknowledges the uncertain fragility to change.