Remarks to the Council of Presidents of the Universities Research Association
Jeff Bingaman (D-New Mexico)
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I am pleased to be here to speak to you this morning.

As you know, I have been a strong proponent of the science and technology programs at DOE for many years. In the last year or two, I have been increasingly concerned about the stature and health of the DOE programs funded by its Office of Science, which up until recently was headed by Dr. Millie Dresselhaus. The Office of Science has traditionally been a crucial source of funds for the physical sciences in this country–including the disciplines of physics, chemistry, and materials science. Included in this funding is support for high energy physics and Fermilab, which you manage and operate for the DOE.

Along with a bipartisan group of 20-30 fellow Senators, we have strongly advocated in the last year that the Office of Science receive the same sort of treatment in the budget process accorded to the other principal science agencies in government, the NSF and the NIH. In doing this, we were joined by numerous Presidents of colleges and universities who also wrote and communicated with Congressional leadership. Together, we were successful last year in achieving the largest growth in the budget for the Office of Science in a decade.

I plan to work with my colleagues in this Congress to maintain and increase this support. I hope that you will join in this effort again, as well. In addition to support for broadly increasing the budget for science and technology in DOE across the board, I am focusing on three specific target areas that I would like to briefly describe to you.

The first is the area of advanced computational science in DOE. The defense side of DOE has made a major contribution to advancing the state of the art in massively parallel supercomputing though the ASCI program. But supercomputing is just as necessary and enabling to science and engineering in DOE civilian programs. Unfortunately, these civilian computing programs were severely threatened last year in Congress for political reasons that had nothing to do with the merits of what DOE was already doing or was planning to do. I introduced a bill in the Senate laying out a multiple-year program of increased resources for advanced computation, both in the Advanced Scientific Computing Research program at DOE and in the basic science programs that would develop and use discipline-specific supercomputing hardware and software. Although this bill was not enacted into law, it played an important role in increasing the funding that was seen in the appropriations act for DOE. I have re-introduced this bill this week in the Senate, along with Senators Craig, Murray, and Schumer. Its bill number is S.193, and will be available in printed form in a few days on the web. We hope to use it to continue to build support for budget increases in this area.

A second legislative initiative of mine has been to introduce a bill, S.90, that will guide DOE's program and investments in nanoscience and nanotechnology. Again, this is a critical, enabling area of research that can and will broad impacts on many scientific disciplines. DOE needs to be

a leader in this area both to keep pushing the edge of its traditional strength in advanced scientific instrumentation, and also to fulfill its civilian mission responsibilities to increase energy supplies, promote more efficient ways of using energy, and help clean up the environmental legacy of the Cold War at DOE sites.

A third legislative initiative that is under development is focusing specifically on the future of nuclear science and engineering in universities. Universities are a crucial training ground for the cadre of scientists and engineers that our society will need to deal with future challenges to deal with the legacy of the Cold War both in the United States and in Russia, to maintain our national leadership in nuclear medicine, and to maintain our existing investment in nuclear power. I am working on legislation with some of my colleagues that will set funding levels that will provide a stable baseline for universities, so that they can make long-term decisions and commitments related to faculty and institutional facilities.

For these bills to have a positive impact on funding decisions in the Congressional appropriations process, it is not enough for proponents to introduce them. We need active help and support from the larger scientific community, and I invite you to examine these bills closely, to let us know how they might be improved, and to help us reach out to other Members of Congress who might support them.

Beyond these programmatic initiatives, there are a series of policy issues relating to science an technology at DOE that increasingly call out for urgent attention.

As you know, a dominant feature of the DOE investment in research and development is the national laboratory system that has grown up in the Department and its predecessor agencies over the past 50 years. You represent a unique perspective on the role of this laboratory system.

- As individual Presidents and senior executives of some of our largest universities, you represent a set of research-performing institutions that sometimes are in competition with the DOE laboratories for research funding.

- At the same time, as a corporate body, you manage Fermilab for DOE.

- And your faculty and students often use the unique facilities at Fermilab and the other DOE laboratories to carry out their research.

So you are in a good position to recognize both the strengths and weaknesses of the DOE labs.

Among the strengths of the laboratories are their ability to sponsor long-term projects of an interdisciplinary character, their usefulness as a neutral site for very expensive and unique facilities and instrumentation, their ability to rapidly reconfigure themselves institutionally to respond to new challenges from their sponsoring agency, and their success in both technology innovation in their mission-specific arenas and in working with other research performers on transferring some of this new technology to other applications and fields.

But the DOE laboratory system is coming under increasing stress from a number of sources. I do not believe that its long-term viability can be taken for granted. If the DOE labs were to slip from their current level of excellence, I think that there would be some important negative effects for the entire U.S. scientific and technical community. I believe that it is in the interest of the entire community to work together to see that the next 4 or 5 years leads to a refocusing and strengthening of the DOE laboratory system for the long term.

The first source of stress on the laboratories is a structural divide enacted by the last Congress between the defense programs of the DOE, and the labs primarily associated with these missions, and the civilian programs of the Department and the rest of the labs that have been traditionally associated with those programs. This came about through the formation of the National Nuclear Security Administration (or NNSA) in 1999. The first Administrator of the NNSA, General John Gordon, has wisely chosen to emphasize the need to continue civilian programs at the so-called NNSA labs–Los Alamos, Lawrence Livermore, and Sandia. He developed a good working relationship with Dr. Millie Dresselhaus, who led the DOE Office of Science in the last Administration. But it is always unsettling to rely almost entirely on future incumbents of these two positions to have a appropriate attitude and working relationship towards each other. History shows that separate organizations have a propensity of going their own separate ways, and the organizational mentality in Washington can often be highly territorial.

If future leaders in the NNSA and the rest of DOE do not work together as well as General Gordon and Dr. Dresselhaus did, it could be a real problem for the labs as research institutions of excellence. As you know, science and technology cannot be compartmentalized into neat defense and civilian pigeonholes. That's not how scientists at the DOE labs work–many of them are supported by both defense and civilian parts of the DOE. We have seen over the years how the basic work carried out by DOE laboratory scientists in places like Los Alamos and Sandia, which provides for intellectual stimulation and peer recognition in the broader R&D community, allows them to more effectively contribute innovative solutions to national defense problems, which are crucial to the nation, but which must be, in some cases, a tightly held secret.

In addition to the organizational difficulties of setting up a separate NNSA within DOE, the allegations of serious lapses in security over the past 3 years at DOE, and the political response in Washington, has led to a number of other serious pressures on all the DOE labs and their research excellence.

For example, for nearly a year from 1999 to mid-2000, Congress imposed a moratorium on visits by foreign scientists from certain countries to DOE's defense laboratories. The ban applied regardless of the subject matter of the visit. What we discovered was that this greatly complicated the ability of the labs to work with universities–no Principal Investigator of a university research group is going to cooperate with the labs on a project if half or more of his or her research group is excluded.

Even though I was successful in getting the foreign visitors moratorium lifted, with much help from staff at DOE, the CIA, and the FBI, there is still pressure to restrict the dissemination of

information from the DOE laboratories to foreign scientists, particularly those in countries deemed to be sensitive from a defense perspective, regardless of whether the science we are talking about has much to do with defense. These pressures are being felt at all DOE labs.

As another example, at the height of the publicity about Chinese espionage, Congress enacted broad new authority for DOE to conduct screening polygraphs of its scientific and technical employees in several broad categories. These categories encompass lab employees at both defense and non-defense labs. While I am not against all uses of the polygraph, the scientific evidence for its validity as a screening tool is pretty thin, and imposing an unscientific employment test on scientists is not a big morale booster.

And even in the past 2 weeks, some of my colleagues in the House of Representatives have strongly challenged DOE's decision to extend the role played for 55 years by the University of California in managing 3 DOE laboratories. They are promising a Congressional investigation of this decision and are threatening to subpoena documents and witnesses. Politicizing these sort of research management decisions does little to encourage young scientists to come to the labs and make a long-term career commitment to these institutions.

These developments are having a chilling effect on the work environment at the defense-related DOE labs, and have raised concerns at the other more civilian-oriented labs.

As one example, last year, no Asian-Americans applied for the prestigious Oppenheimer postdoctoral fellowship at Los Alamos National Laboratory.

There are clear signs of increased attrition at the labs among the youngest and brightest scientists, particularly in disciplines such as computational sciences that are mission-critical to the DOE for its future on both the defense and civilian sides.

Even without this attrition, DOE laboratories have a older scientific and technical work-force than universities and other research institutions, generally.

We will need to make a concerted effort to revitalize the DOE laboratories as scientific institutions over the next few years, if we are to maintain their special contribution to DOE's missions and to the broader scientific and technical community of which you are a part. That will have to include both improvements to management policies that discourage scientists and engineers from coming to and remaining at the laboratories, and also attention to the aging physical infrastructure at many of the labs.

I don't see efforts to work on these problems as being a zero-sum game with increasing R&D support for universities through both DOE and the other science and engineering funding agencies. I do think that they are important for all of us to work on, if we are to have a vibrant and varied structure for supporting and carrying out scientific and engineering research.

I look forward to your help and support to make sure that we apply the best institutional management practices from the university sector at the DOE laboratories, and make sure that the roles of the universities and the DOE labs in maintaining our technological leadership remain mutually supportive.