

SENATE ENERGY AND NATURAL RESOURCES COMMITTEE
STATEMENT OF DENNIS SPURGEON
ASSISTANT SECRETARY FOR NUCLEAR ENERGY
U.S. DEPARTMENT OF ENERGY
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Chairman Domenici, Senator Bingaman, and members of the committee, it is an honor and a great pleasure for me to be here today to discuss the Administration's progress implementing the provisions contained in the Energy Policy Act of 2005 (EPACT 2005) that encourage building new advanced nuclear power plants in the U.S. As this is the first hearing at which I have testified since being sworn in as Assistant Secretary for Nuclear Energy six weeks ago, I can think of no better topic for discussion than efforts of the Administration and this committee to stimulate more nuclear generating capacity to meet our growing demand for energy.

The President has stated a policy goal of expanding nuclear power in the U.S. and around the world. The resurgence of nuclear power is a key component of President Bush's *Advanced Energy Initiative* and a key objective contained in the President's National Energy Policy. The reasons for this are obvious. As we enter a new era in energy supply, our need for energy – even with ambitious energy efficiency and conservation measures – will continue to grow as our economy grows. While nuclear is not the only answer, there is no plausible solution that does not include it.

Just over a year ago, Deputy Secretary of Energy Clay Sell testified before this committee on the Department's *Nuclear Power 2010* program and the risks associated with building the first few nuclear plants. Since then, significant progress has been made, in both *Nuclear Power 2010* and in terms of mitigating the risk associated with building the first few new nuclear plants.

Last year, President Bush proposed and Congress created Federal risk insurance, called *Standby Support*, as part of EPACT 2005 to protect first movers of new nuclear plants from regulatory or litigation-related delays that are outside of the control of these first movers. I am pleased to report that earlier this month the Department issued the interim final rule for the Standby Support program on-schedule, establishing the requirements for risk insurance to cover costs associated with covered delays. We look forward to receiving comments on the interim final rule over the next month and issuing the final rule by August 8, 2006, the one-year anniversary date of EPACT's enactment.

In addition, EPACT 2005 contains other key provisions aimed at addressing economic and regulatory risks associated with building new nuclear plants – extension of Price Anderson Act indemnification, creation of a production tax credit program for new advanced nuclear generation, and creation of a loan guarantee program for advanced low-emissions energy systems, including nuclear energy.

With enactment of these provisions and the continued work of the Department and industry, I am confident that we will have these programs fully in place on a schedule that supports the construction schedule for the first movers of new advanced nuclear power plants. I firmly believe that we will see new plants ordered before President Bush leaves office. It is a key priority for the President, for the Department, and for me. Today, it is appropriate that we pause to review what has been accomplished and where we go from here. I would like to thank you for holding this hearing.

NUCLEAR ENERGY, KEY TO U.S. ENERGY SECURITY

Benefits, Challenges, and Opportunities

The Energy Information Administration forecasts that U.S. energy demand will increase by one-third between 2004 and 2030, climbing to 134 quadrillion British thermal units (Btu). At the same time, most of the growth in energy demand will occur in the petroleum and electricity sectors. Electricity sales, which are most germane to nuclear, are forecast to increase from 3,567 billion kilowatt hours in 2004 to 5,341 billion kilowatt hours in 2030, more than 50 percent over the next 25 years. At the same time, carbon emissions from combustion of fossil fuels are forecasted to increase by more than one-third over present levels, from 5,900 million metric tons in 2004 to 8,114 million metric tons in 2030.

Nuclear energy is an important technology for maintaining our economy and our way of life with minimal impact on the environment. Nuclear power is the only mature technology with significant potential to deliver large amounts of emissions-free baseload power to meet projected demand for electricity. In the future, as the country turns to other sources of energy for transportation, such as hydrogen, nuclear energy may also be an important technology for producing hydrogen without carbon emissions. While this hearing is focused on near-term deployment of new nuclear plants, it is important to recognize that the benefits of nuclear extend beyond electricity, to medicine, space exploration, and possibly in the future, through hydrogen production, to transportation.

In the U.S. today, 103 nuclear plants provide one-fifth of the nation's electricity. These plants are emissions-free, operate year round in all weather conditions, and are among the most affordable, reliable, and efficient sources of electricity available to Americans. Nuclear, like coal, is an important source of base-load power and is the only currently available technology capable of delivering large amounts of power without producing air emissions. Last year, the operation of U.S. nuclear power plants displaced 681.9 million metric tons of carbon emissions, which is almost as much carbon as released from all passenger cars combined.

Over the last 15 years, as ownership of nuclear plants has been concentrated, industry has done an exceptional job improving the management and operation of the plants. In this country, nuclear plants have an outstanding record of safety, reliability, availability, and efficiency. In fact, the operation of these plants over the last 15 years added the

equivalent of 26¹-1,000 megawatt units without building a single new plant. Longer periods between outages, reduction in the number of outages needed, power up-rates, use of higher burn-up fuels, improved maintenance, and a highly successful re-licensing effort extending the operation of these plants another twenty years, have collectively improved the economics of nuclear energy. Today, nuclear energy is among the cheapest electricity available on the grid, at 1.8 cents per kilowatt-hour. Public acceptance of nuclear energy is also higher than it has been at any time in the last 25 years – industry studies indicate more than three-quarters of Americans are willing to see a new reactor built near them and the vast majority (83%) of those living in the vicinity of a nuclear plant favor nuclear power.

Yet, despite these successes and growing recognition of the benefits and need for more nuclear energy, industry has not ordered a new nuclear plant since 1973 (an additional plant ordered in 1978 was subsequently cancelled). In fact, not much base-load capacity—whether nuclear, hydro-electric, or coal—has been ordered since the 1970s, other than some mine-mouth coal-fired plants located in the western United States.

While today’s nuclear plants are economic, during their construction, the sponsors and owners of many of these plants experienced major financial and regulatory challenges that significantly drove up the capital cost of the plants and delayed their initial start-up. Although this is partially attributed to the recession of the 1970’s, significant challenges were brought about by a difficult, uncertain, and often contentious regulatory process for siting and commissioning the plants. In addition, investment premiums were so high that capital markets could no longer support nuclear power plant projects. As a result, by the 1980’s a large number of commercial orders were cancelled and no new orders were placed.

The Energy Policy Act of 1992 (EPACT 1992) authorized a “one-step,” streamlined licensing process for construction and operation of new nuclear plants (also promulgated through Nuclear Regulatory Commission (NRC) regulations in 10 CFR Part 52). The combined Construction and Operating License (COL) process established by EPACT 1992 was intended to resolve all public health and safety issues associated with the construction and operation of a new nuclear power plant before construction begins. The process remained untested for the next decade as industry viewed the combination of high up-front capital costs and difficult-to-control regulatory risks as show stoppers to building new nuclear plants. In addition, during this time period there was surplus electricity, fuel costs of fossil fuels remained relatively stable, and additional base-load power was not needed.

The conditions are significantly different today, with rising fossil fuel costs, increased price volatility of fossil fuels, and increasing demand. As such, to address the economic and regulatory risks associated with new nuclear plants, in February 2002, the Department launched the Nuclear Power 2010 program. In July of that year, the Department issued a report on the critical risks associated with deploying new nuclear plants, and additional approaches that could be used for mitigation of the risks. More

¹ Increase in nuclear generation between 1990 and 2005 with a 90% capacity factor

importantly, Congress and the Administration began working together to enact landmark legislation to address our nation's long-term energy security. Finally, EPACT 2005, enacted last summer extended Price Anderson indemnification, reauthorized Nuclear Power 2010, and created incentives that could remove the last barriers to deployment of a new generation of nuclear plants.

NUCLEAR POWER 2010 *Demonstrating Regulatory Certainty*

Nuclear Power 2010 addresses the regulatory and financial uncertainties associated with siting and building new nuclear plants by working in cost-shared cooperation with industry to identify sites for new nuclear power plants, by developing and bringing advanced standardized plant designs to the market, and by demonstrating untested regulatory processes. Nuclear Power 2010 is focused on Generation III+ reactor technologies, which are advanced, light water reactor designs, offering advancements in safety and economics over the Generation III designs certified by the Nuclear Regulatory Commission (NRC) in the 1990's.

Since the program was launched in 2002, DOE and industry have provided more than \$270 million for the activities under this initiative. The Department has requested \$54 million in Fiscal Year 2007 to continue the work under this program. While the funding requested for Fiscal Year 2007 is less than the current year appropriation, at the time of the request, the Department believed that the combination of the requested funding and projected carryover would provide the funding needed in FY 2007 to keep the program on schedule. However, at the end of December 2005, one of the consortia refined its estimates and submitted its project baselines, shifting a number of key milestones forward, including the submittal of applications for combined COL a year earlier than envisioned by the original project plan. The consortium also proposed submitting an additional COL application to the NRC for a reactor technology already included in the program but at a different site. We did not request funding for these new proposals, which we estimate would cost an additional \$34.2 million in Fiscal Year 2007.

The Department is currently sponsoring cooperative projects for preparation of Early Site Permits (ESP) for three commercial sites. The ESP process includes resolution of site safety, environmental, and emergency planning issues in advance of a power company's decision to build a new nuclear plant. The three ESP applications are currently in various stages of NRC review and licensing decisions are expected by the end of 2007.

In Fiscal Year 2005, the Department established competitively selected, cost-shared cooperative agreements with two power-company led consortia to obtain COLs. The Department selected Dominion Energy and NuStart, a consortium of nine electric generating companies, to conduct the licensing demonstration projects to obtain NRC licenses and operate two new nuclear power plants in the U.S. Dominion is examining North Anna in Virginia and NuStart is examining Bellefonte in Alabama and Grand Gulf in Mississippi. The two project teams involved in these two licensing demonstration

projects represent power generation companies that operate more than two-thirds of all the U.S. nuclear power plants in operation today. Already this approach has encouraged nine power companies to announce their intention to apply for COLs. Several have specifically stated that they are building on work being done in the Nuclear Power 2010 program as the basis for their applications. In addition, UniStar, a consortium of Constellation, AREVA and Bechtel Power, announced plans to pursue new nuclear plants. The design and engineering activities necessary to finish the preparation of the first COL application for submittal to the NRC will be completed in Fiscal Year 2007.

These projects include design certification and completion of detailed designs for Westinghouse's Advanced Passive Pressurized Water Reactor (AP 1000), General Electric's Economic Simplified Boiling Water Reactor (ESBWR) and site-specific analysis and engineering required to obtain COLs from the NRC. Under the Nuclear Power 2010 program, two COL applications are planned for submission to the NRC in late 2007. Industry is planning for issuance of the NRC licenses by the end of 2010. Several nuclear utilities have announced plans to quickly follow these with an additional 12 COL applications. It is possible that a utility decision to build a new plant could be announced as early as 2008 with construction starting in 2010 and a new plant operational by 2014.

STANDBY SUPPORT *Addressing Licensing Risk for First Purchasers*

Last year, the President proposed and Congress established the *Standby Support* provisions of EPACT 2005 (section 638) to encourage building of new nuclear power plants in the U.S. by addressing financial risks to first "movers" of these new advanced plants. Under section 638, the Secretary can enter into contracts to insure project sponsors against certain delays that are outside the control of the sponsors and to provide coverage for up to six reactors but for no more than three different designs. The level of coverage is distinguished between the first "initial two reactors," for which the Secretary will pay 100 percent of covered costs up to \$500 million per contract and "subsequent four reactors," for which the Secretary will pay 50 percent of covered costs up to \$250 million after a 180-day delay. EPACT 2005 required the issuance of an interim final rule by May 6, 2006, and the issuance of the final rule by August 8, 2006.

As you know, the Department issued the interim final rule on May 6, 2006, establishing the requirements for risk insurance to cover costs associated with certain regulatory or litigation related delays in the start up of new nuclear power plants. The Department will receive comments on the rule over the next thirty days and issue the final rule by August 8, 2006.

The interim final rule establishes a two-step process for obtaining risk insurance. First, the project sponsor of a new advanced nuclear facility may seek to enter into a conditional agreement with DOE after the sponsor has an application docketed by the NRC for a combined construction and operating license for an advanced nuclear facility.

Second, after all applicable requirements have been satisfied, including the issuance of a license by the NRC, the project sponsor and DOE may enter into a standby support contract.

The project sponsors for the first six reactors to satisfy the requisite conditions can qualify for reimbursement of certain losses that are associated with covered delays. The rule identifies events that would be covered by the risk insurance, including delays associated with the NRC's review of inspections, tests, analyses and acceptance criteria or other licensing schedule delays, and certain delays associated with litigation in state, federal, or tribal courts. Insurance coverage would not be available for the sponsor's failure to take actions required by law or regulation, events within the sponsor's control, and normal business risks such as employment strikes and weather delays. Covered losses would, subject to satisfaction of all requirements, include principal or interest on debt (subject to the Federal Credit Reform Act of 1990) and losses resulting from the purchase of replacement power to satisfy certain contractual obligations.

PRODUCTION TAX CREDITS

Addresses Economic Risk for First Purchasers

EPACT 2005 (section 1306) permits a taxpayer producing electricity at a qualified advanced nuclear power facility to claim a credit equal to 1.8 cents per kilowatt-hour of electricity produced for eight years. The provision also specifies a national megawatt capacity limitation of 6,000 megawatts. Only capacity up to this limitation will qualify for the credit. The tax credit is administered by the Department of Treasury, in consultation with the Department of Energy. The Department of Treasury has asked the Department to assist by developing a "certification process" under which the Secretary of Energy certifies that a facility is an advanced nuclear facility, that construction is proceeding on schedule, and that it is feasible to place the facility in service before 2021. The Secretary of Treasury will allocate the national megawatt capacity limitation of 6,000 megawatts only to facilities that have received such a certification.

On May 1, 2006, the Department of Treasury published a notice in the Internal Revenue Bulletin providing guidance on the production tax credit for advanced nuclear facilities. The notice specified the method that will be used to allocate the 6,000 megawatt capacity limitation and prescribed the application process by which taxpayers may request an allocation. It is anticipated that the notice will be subsequently converted to regulations.

LOAN GUARANTEES

Addressing Financial Risk and Promoting Emissions Free Technologies

EPACT 2005 (Title 17) authorizes the Secretary of Energy to enter into loan guarantees. The loan guarantees may be provided for projects that avoid, reduce, or sequester air pollutants or emissions of greenhouse gases and that use new and significantly advanced energy technologies, including advanced nuclear power plants.

The challenge that confronts the introduction of new nuclear generating capacity is the same challenge that confronts many energy systems – the up-front capital costs are substantial and the financial community views them as risky. In addition, the uncertainties caused by possible regulatory delays or delays from potential litigation, particularly as associated with new nuclear plants, further increase the risk to sponsors of new plants and their investors. While these licensing risks will be mitigated by the standby support program, loan guarantees potentially provide a tool for addressing risks associated with major energy projects.

Therefore, consistent with the new authorities provided to us by EPACT 2005, we are establishing a loan guarantee program within DOE for energy technologies that avoid, reduce or sequester pollutants or greenhouse gases. We are mindful that the Department does not have an enviable record of accomplishment with loan guarantees issued in the past, but we will follow the Federal Credit Reform Act of 1990 (FCRA) and the Office of Management and Budget (OMB) guidelines issued since our last experience with loan guarantees, and we will emulate the best practices of other Federal agencies. We will move prudently to ensure that the program objectives are achieved while meeting our responsibilities to the taxpayer. Toward that end, the Department has established a small loan guarantee office under the Department’s Chief Financial Officer and is proceeding to staff that office with staff detailed from other programs and possibly staff from other agencies with experience in Federal loan guarantee programs. DOE staff is currently developing the overarching policies and procedures to implement the program and establish a credit review board. Finally, we will employ outside experts for financial evaluation, construction engineering evaluation, and credit market analyses to assist in the evaluation of loan guarantee applications.

We are proceeding but doing so with the appropriate measure of caution and prudence. While these provisions of EPACT 2005 provide a “self-pay” mechanism that may reduce the need for appropriations, they do not eliminate the taxpayer’s exposure to the possible default of the total loan amount. It is possible that the ultimate cost to the taxpayer could be significantly higher than the cost of the subsidy cost estimate. Therefore, DOE’s evaluation of loan guarantee applications will entail rigorous analysis and careful negotiation of terms and conditions.

It is also our view that the Federal Credit Reform Act of 1990 contains a requirement that prevents us from issuing a loan guarantee until we have an authorization, such as a loan volume limitation, to do so in an appropriations bill. We do not believe we have the authority to proceed with an award without having explicit necessary authorizations in an appropriations bill.

CONCLUSION

Nuclear power is not the only answer to maintaining our economy and our way of life, but there is no plausible solution that does not include it. Mr. Chairman, I thank you and the Committee for being an early and serious voice encouraging the country to consider building more nuclear plants. This is a unique moment in time in which key drivers of new nuclear plants – increasing demand, price volatility in other electricity sectors, performance of the last decade, supportive government policies, and strong bi-partisan and public support have converged to create a foundation for a new generation of nuclear power plants in the United States. I pledge to this Committee that I will do all that I can to make this a reality.