

Congress Negotiates Funding of the Spallation Neutron Source

The Department of Energy's budget request for \$157 million for Fiscal Year 1999 to begin construction of the next generation Spallation Neutron Source (SNS) at Oak Ridge National Laboratory in Tennessee is facing the budgetary process on Capitol Hill. It is possible, according to congressional sources, that the agency's full funding request will not be granted. Sen. Pete Domenici (R-NM) said, "I can't tell you. . . that I'll succeed in finding all [of the] \$157 million. But. . . I will be trying very hard."

Not that the facility, which is scheduled for completion in 2005, is without strong backing, in both the scientific and political communities. One of its staunchest supporters is Vice President Al Gore, who is eager for SNS construction to begin. Gore's staffers said the Vice President sees SNS—which would become the most powerful neutron source in the world—as an important new technological resource for industry.

The problem of funding SNS stems from two sources. First, the loss of potential revenues from the federal government's settlement with the tobacco companies has left all new spending in doubt. Even though the SNS request was not contingent upon the tobacco settlement, the project's funding could be affected by the budgetary tradeoffs. Second, some political maneuvering over the FY 1998 budget has created a lingering effect that could squeeze SNS directly.

Last year, the Clinton Administration budget-trimmers reduced funding requests for a number of major flood control and other water-related projects that had previously been approved by Congress and were already under construction. According to the appropriations committee, the amount of underfunding last year totalled approximately \$1 billion. This year, the two energy and water development appropriations subcommittees—chaired respectively by Sen. Pete Domenici (R-NM) and Rep. Joseph McDade (R-PA)—now are under pressure to restore those lost revenues. That pressure is being exerted from representatives of areas benefiting from the water projects at the same time DOE is asking Congress to approve \$157 million for the first SNS construction stage. Next year's funding request represents a \$124-million

increase over the project's FY 1998 level. "It's unusual to go from \$23 million to \$157 million in one year," said one appropriations staffer. "They're asking a lot."

"We're still hopeful it will be fully funded," said Bill Appleton, Associate Laboratory Director for the SNS at Oak Ridge. "It's very strongly supported by DOE and OMB [Office of Management and Budget], and just about everyone agrees it's a worthy, needed, and useful project. We've been assured it's just a question of money."

A cutback in funding would be a serious blow to SNS, according to Appleton. "We're already 20 or 30 years behind the rest of the world" with existing neutron sources in the United States, he said. SNS, if completed on schedule, would leap ahead, becoming at least six times more powerful than any other neutron source. Current plans call for SNS to operate at an initial power level of 1 MW, then upgrading up to 5 MW, following additional testing and development of targeting materials. He said, "Any shortfall of funding will prolong construction, which will increase the overall cost."

SNS also is unprecedented because its development is the first truly cooperative effort among DOE's five national laboratories, according to Jose Alonso, deputy project director. When DOE chose Oak Ridge as the SNS site, although the laboratory had expertise in neutron scattering, its experience with accelerators was not extensive, Alonso said. Instead of trying to create a new staff of accelerator physicists, it was decided to work with the other national laboratories directly.

"A real collaboration has resulted," Alonso said. "And it makes sense to go to each laboratory that has a specific expertise." The Lawrence Berkeley National Laboratory has contributed "front end" tasks including design of the ion source and beam formation. The Los Alamos National Laboratory has developed the linear accelerator. Brookhaven has contributed work on particle transport lines and the accumulator ring. Argonne has provided experimentation with design concepts. And Oak Ridge is developing the target systems.

Once construction begins, three of the other laboratories—Brookhaven, Argonne, and Los Alamos—will continue to be involved in experimentation and develop-

ment of instrumentation. Appleton said this arrangement may provide a model for frequent collaborations among the laboratories in the future. "We think it's the best way to go," he said.

The SNS facility is expected to attract between 1,000 and 2,000 scientists worldwide each year, and perhaps many more through the internet.

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Study Reveals ATP's Successful Impact on Industrial R&D

According to a study by the National Institute of Standards and Technology's (NIST) Advanced Technology Program, the program is successful in promoting innovative industrial research and development, enabling significant technological breakthroughs rather than simple incremental advances, and that industry is actively pursuing commercialization of ATP-sponsored technologies. Based on the comprehensive study of more than 200 projects funded from 1993 to 1995, the study said that 86% of ATP-funded organizations indicate they are ahead in their R&D cycle as a result of ATP funding; of those, 39% believed they would not have started the project without ATP support.

The companies surveyed have identified more than 1,000 potential applications of the ATP-supported technologies and have developed commercialization plans for nearly 800 of those. According to the study, 29% of the resulting applications are expected to have performance improvements of 100–500% or more, demonstrating that with support of the ATP program, industry is pursuing relatively high-risk R&D.

Speed to market is considered "critical" or "important" for 98% of the commercial applications, and even at the early stage of R&D for most of the projects analyzed, about 15% had enabled advances that generated early revenues. Acceleration in time to market by two years or more is anticipated for 62% of the planned commercial applications. The results are documented in *Development, Commercialization, and Diffusion of Enabling Technologies: Progress Report for Projects Funded 1993–1995* (NISTIR 6098), one of a series of evaluation and analysis studies commissioned by the ATP. Copies of the report may be obtained from the ATP Economic Assessment Office, 301-975-4332; e-mail atp@nist.gov. □

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