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NUCLEAR ENERGY

DOE's Next Generation Nuclear Plant Project Is at an Early Stage of Development

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Highlights

Highlights of GAO-06-1110T, a testimony before the Subcommittee on Energy and Resources, Committee on Government Reform, House of Representatives

Why GAO Did This Study

Under the administration's National Energy Policy, the Department of Energy (DOE) is promoting nuclear energy to meet increased U.S. energy demand. In 2003, DOE began developing the Next Generation Nuclear Plant, an advanced nuclear reactor that seeks to improve upon the current generation of operating commercial nuclear power plants. DOE intends to demonstrate the plant's commercial application both for generating electricity and for using process heat from the reactor for the production of hydrogen, which then would be used in fuel cells for the transportation sector. The Energy Policy Act of 2005 required plant design and construction to be completed by 2021.

This testimony, which summarizes a GAO report being issued today (GAO-06-1056), provides information on DOE's (1) progress in meeting its schedule for the Next Generation Nuclear Plant project and (2) approach to ensuring the project's commercial viability. For the report, GAO reviewed DOE's research and development (R&D) plans for the project and the reports of two independent project reviews, observed R&D activities, and interviewed DOE, Nuclear Regulatory Commission (NRC), and industry representatives.

www.gao.gov/cgi-bin/getrpt?GAO-06-1110T.

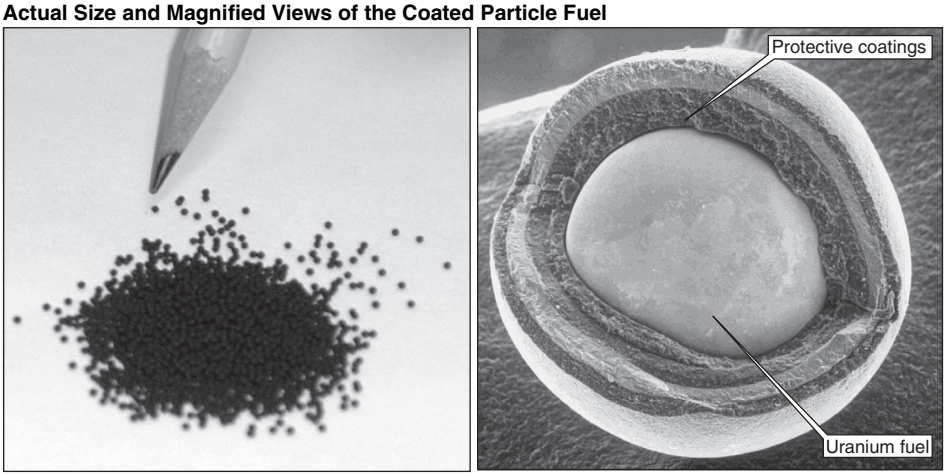
To view the full product, including the scope and methodology, click on the link above. For more information, contact Jim Wells at (202) 512-3841 or wellsj@gao.gov.

What GAO Found

DOE has prepared and begun to implement plans to meet its schedule to design and construct the Next Generation Nuclear Plant by 2021, as required by the Energy Policy Act of 2005. Initial R&D results are favorable, but DOE officials consider the schedule to be challenging, given the amount of R&D work that remains to be conducted. For example, while researchers have successfully demonstrated the manufacturing of coated particle fuel for the reactor, the last of eight planned fuel tests is not scheduled to conclude until 2019. DOE plans to initiate the design and construction phase in fiscal year 2011, if the R&D results support proceeding with the project. The act also requires that DOE and NRC develop a licensing strategy for the plant by August 2008. The two agencies are in the process of finalizing a memorandum of understanding to begin work on this requirement.

DOE is just beginning to obtain input from potential industry participants that would help determine the approach to ensuring the commercial viability of the Next Generation Nuclear Plant. In the interim, DOE is pursuing a more technologically advanced approach, compared with other options, and DOE has implemented some (but not all) of the recommendations made by two advisory groups. For example, as recommended by one advisory group, DOE lessened the need for R&D by lowering the reactor's planned operating temperature. In contrast, DOE has not accelerated its schedule for completing the plant, as recommended by the Nuclear Energy Research Advisory Committee. The committee was concerned that the time frame for completing the plant is too long to be attractive to industry, given that other advanced reactors may be available sooner. However, DOE believes the approach proposed by the committee would increase the risk of designing a plant that ultimately would not be commercially viable. GAO believes DOE's problems with managing other major projects call into question its ability to accelerate design and completion of the Next Generation Nuclear Plant.

Actual Size and Magnified Views of the Coated Particle Fuel



Sources: General Atomics (left); DOE (right).