



Highlights of [GAO-06-1056](#), a report to the Chairman, Subcommittee on Energy and Resources, Committee on Government Reform, House of Representatives

NUCLEAR ENERGY

Status of DOE's Effort to Develop the Next Generation Nuclear Plant

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.

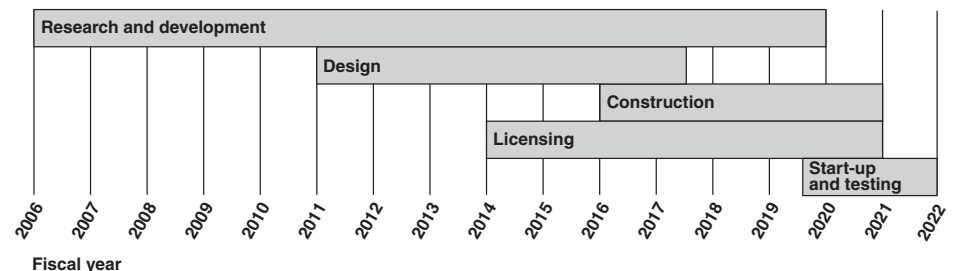
GAO was asked to examine (1) the progress DOE has made in meeting its schedule for the Next Generation Nuclear Plant and (2) DOE's approach to ensuring the commercial viability of the project. To meet these objectives, GAO reviewed DOE's research and development (R&D) plans for the project and the reports of two independent project reviews, observed R&D activities, and interviewed DOE, Nuclear Regulatory Commission (NRC), and industry representatives.

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 that remains to be conducted. For example, while researchers have successfully demonstrated in a laboratory setting the manufacturing of nuclear fuel for the reactor, the last of eight planned experiments to test fuel performance is not scheduled to conclude until 2019. DOE plans to initiate the design and construction phase, which also would continue R&D work, 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, and 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, for ensuring the plant's commercial viability, and DOE has implemented some (but not all) of the recommendations made by two advisory groups for improving the project. 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 recommendation was based on concern that the time frame for completing the plant is too long to be attractive for industry participation, 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. Historically, problems with DOE's management of other major projects call into question its ability to accelerate design and completion of the Next Generation Nuclear Plant.

DOE's Schedule for the Next Generation Nuclear Plant



Source: DOE.

www.gao.gov/cgi-bin/getrpt?GAO-06-1056.

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.