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## NRC Certifies GE-Hitachi New Reactor Design

The Nuclear Regulatory Commission today approved a rule to certify GE-Hitachi Nuclear Energy's Economic Simplified Boiling-Water Reactor (ESBWR) design for use in the United States. The rule will go into effect 30 days after its publication in the *Federal Register*.

The design certification process provides for early public participation and resolution of safety issues for proposed reactor designs. NRC certification, in the form of today's final rule, means the ESBWR meets the agency's applicable safety requirements. If an applicant for a nuclear power plant license references a certified design, the applicant need not submit safety information for the design. Instead, the license application and the NRC's safety review would address the remaining site-specific safety issues for the proposed nuclear power plant.

The certified design is fully described in a "design control document," which is approved (incorporated by reference) in the design certification rule. The NRC conducted an extensive technical evaluation of the design and issued a safety evaluation report in March 2011. The certification rule notice includes discussion of both public comments on a March 2011 proposed rule, as well as information in petitions submitted to the NRC after the Fukushima nuclear accident in Japan.

The NRC supplemented the draft certification rule in May 2014 to account for changes in analysis of the design's steam dryer, which prevents excess moisture from damaging a nuclear power plant's electricity-generating turbine. NRC reviewers asked for additional steam dryer information from GE-Hitachi between 2011 and 2013. The staff's examination of that information led to the supplement, which also formally incorporated several dozen reference documents as requirements in the draft certification rule. The NRC received no comments on the supplemental rule.

GE-Hitachi Nuclear Energy submitted its application for ESBWR certification on Aug. 24, 2005. The ESBWR is a 1,594 megawatt electric, natural circulation reactor. The design includes passive safety features that would cool down the reactor after an accident without the need for human intervention. These passive features include:

- enhanced natural circulation via a taller reactor vessel, a shorter core and improved water flow through the vessel;
- an isolation condenser system to control water levels and remove decay heat while the reactor is pressurized, and;

- a gravity-driven cooling system to maintain water levels when the reactor pressure has dropped.

More information about the ESBWR design review can be found on the NRC's [website](#). The NRC is currently reviewing two Combined License applications referencing the GEH design. Detroit Edison Company is seeking a license for [Fermi Unit 3](#) in Monroe County, Mich., and Dominion is seeking a license for [North Anna Unit 3](#) in Louisa County, Va. The NRC has certified four other standard reactor designs: the Advanced Boiling Water Reactor, System 80+, AP600, and AP1000.