



# Fact Sheet

## Nuclear Program Update

Safety is TVA's top priority. TVA's nuclear plants are designed, built and operated to run safely and to properly shut down when conditions warrant. The reactors are designed and maintained to handle situations that may result from natural or man-made disasters. TVA will incorporate lessons learned from events in Japan into its existing plants, the construction at Watts Bar and projects that may be considered in the future.

### **Background**

The March 11, 2011, earthquake and tsunami that damaged the Fukushima Nuclear Plant in Japan have prompted an industry-wide review, including by TVA, to make sure their nuclear plants are prepared to withstand significant natural and man-made disasters. TVA is confident in the safe operations of its plants, is reviewing enhancements to make them even safer, and believes nuclear energy is an important source of carbon-free power generation for the future.

### **Key points**

- Following the initial event in Japan, TVA established a Centralized Response Center to monitor and coordinate with the Institute of Nuclear Power Operations and the World Association of Nuclear Operators the evaluation of information about the evolving conditions at the Fukushima plant.
- Since the Fukushima emergency, TVA has reviewed the requirements and verified the approaches for responding to design basis events at each of its three operating plants (Sequoyah, Browns Ferry and Watts Bar).
- TVA is looking beyond the design basis by evaluating potential vulnerabilities from a chain of events, such as damage from a tornado or earthquake combined with flooding from a dam failure, and emergencies involving more than one reactor at a site.
- Short-term and longer-term (within 12 months) recommendations being considered to enhance already robust defenses include:
  - Moving additional nuclear fuel into dry cask storage.
  - Hardening cooling-water supply pipes to spent fuel pools.
  - Adding satellite phones and small electric generators for charging phone batteries and lights to maintain communications.
  - Adding a fifth diesel generator for backup power at Sequoyah and Watts Bar.
  - Hardening electrical switchyards to better withstand seismic impacts.
- All six of TVA's nuclear reactors are in areas that are not prone to frequent or extremely large earthquakes. They are designed, built and operated to withstand an earthquake of larger magnitude than any recorded in the geographic region, as required by the U.S. Nuclear Regulatory Commission.
- TVA nuclear plants have numerous redundant safety systems to assure safe shutdown should an extreme event occur. The safety systems include a multi-foot thick, air-tight, containment building which is designed to safely house the nuclear reactor and critical equipment in the event of an earthquake or other natural or man-made emergency.

- In 2010, the Nuclear Regulatory Commission re-evaluated all nuclear power plants in the Central and Eastern United States, including all six TVA reactors, using the latest earthquake information. The report found that the seismic design of currently operating reactors provides an adequate safety margin.

***Additional information (new and potential plants)***

Lessons learned from the events in Japan will be incorporated into the operations, designs and emergency features of our nuclear facilities, including those under construction and projects under consideration.

***Watts Bar Unit 2***

- The five-year, \$2.5 billion construction of the Unit 2 reactor at Watts Bar Nuclear Plant is proceeding as TVA gathers facts and gains a clear understanding about the events in Japan and any implications for TVA.
- Watts Bar Unit 2 will incorporate the same enhancements that are made to Watts Bar Unit 1 as a result of the Japanese events.
- Watts Bar Unit 2 is scheduled to be online by 2013.

***Bellefonte Site***

- Bellefonte remains an option for future nuclear generation and supports TVA's renewed vision to provide the region with cleaner, reliable low-cost energy.
- TVA will make a decision on moving ahead with Bellefonte construction after a clear and complete understanding of the Japanese nuclear situation and any potential impact on the project.
- Pre-decisional engineering work at Bellefonte is moving forward, including evaluations of potential seismic and flooding events.

***Small Modular Reactors***

- TVA has discussed with the Department of Energy a concept to develop small modular reactors for a site near Oak Ridge National Laboratory in Tennessee. The reactors are being designed with advanced safety features. The project is some years in the future.