

# TVA's Nuclear at a Glance



TVA began building nuclear power plants in the 1960s, responding to the growing prosperity of the Tennessee Valley and the rising demand for power. Today, TVA's three nuclear plants—Browns Ferry, Sequoyah, and Watts Bar—provide about 30 percent of TVA's power supply.

The six operating reactors provide more than 6,900 megawatts of clean, safe, and affordable electricity—enough to serve more than three and a half million homes in the Tennessee Valley.

## **Browns Ferry Nuclear Plant**

Browns Ferry, located on Wheeler Reservoir in North Alabama, was TVA's first nuclear plant. Construction began in 1967 and Unit 1 began commercial operation in 1974. All three units were online by 1977.

Browns Ferry Unit 1 and the rest of the TVA nuclear fleet were shut down in 1985. Units 2 and 3 were restarted in the 1990s. The TVA Board approved the restart of Unit 1 in May 2002 after a detailed schedule and cost study. After an extensive recovery effort, Unit 1 became the nation's first nuclear unit to come online in the 21st century when it was restarted in May 2007.

Unit 1 was returned to service within the projected five-year schedule and at a cost of about \$1.9 billion. TVA spent more than four million work-hours preparing the engineering and design specifications and more than 15 million work-hours modifying, replacing, and refurbishing systems and components to ensure Browns Ferry Unit 1 was ready for restart.

Currently, Unit 1 provides 1,155 megawatts of power. TVA plans to eventually increase capacity of all three boiling water reactor units to 1,280 megawatts following approval from the Nuclear Regulatory Commission (NRC) and installation and implementation of modifications.

Operating licenses for Browns Ferry Units 1, 2, and 3 were renewed in May 2006, which will allow continued operation of the units until 2033, 2034, and 2036.



## **Watts Bar Nuclear Plant**

TVA Watts Bar, a two-unit pressurized water reactor nuclear plant, is located on Chickamauga Reservoir in Spring City, Tennessee. Unit 1 at Watts Bar began operating in 1996, the last commercial nuclear unit in the United States to come online in the 20th century.

In August 2007, following detailed studies of energy needs, schedule, costs, environmental impacts, and financial risks, the TVA Board decided to complete construction of Watts Bar Unit 2 to help meet the Tennessee Valley's growing demand for power.

Initial construction on Unit 2 stopped in 1985. Completion will put an existing asset to work for TVA customers and is estimated to take five years and cost \$2.49 billion. When completed by 2013, Watts Bar Unit 2 will add 1,180 megawatts to the TVA power system.

TVA holds a construction permit for Watts Bar Unit 2 and will apply for an operating license from the NRC under the licensing process used for permitting the existing nuclear plants.

## **Sequoyah Nuclear Plant**

Sequoyah is a two-unit pressurized water reactor nuclear plant located on Chickamauga Reservoir near Chattanooga, Tennessee. Unit 1 began commercial operation in 1981 and Unit 2 in 1982.

## **Bellefonte Nuclear Site**

Bellefonte—the site of an unfinished nuclear plant near Scottsboro, Alabama—was selected in 2005 by NuStart Energy for the development of the reference combined license application for the Westinghouse Advanced Passive (AP1000) nuclear reactor design.

Though no decision to build new units at Bellefonte has been made, TVA, as the utility owner of the site, will be the applicant and will receive the combined license if approved and issued by the NRC.

Obtaining licenses will demonstrate the NRC's new permitting process, identify the potential challenges associated with the construction of new nuclear units, and provide more certainty about cost and schedule for any future decisions to build a new nuclear plant at the Bellefonte site.