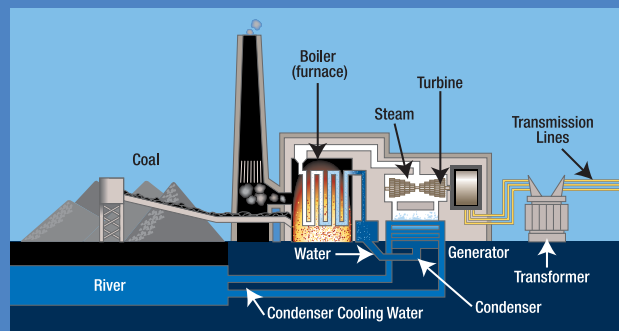


How a typical coal-fired power plant works

- Coal is pulverized into a fine powder and blown into the furnace where it is burned.
- The burning coal heats highly treated water in a boiler, turning the water into steam.
- The steam, under tremendous temperature and pressure, flows into a turbine, where the force of the steam spins the turbine blades.
- The turbine spins a magnet inside copper coils in a generator to produce the flow of electrons called electricity.
- The electricity travels through the transmission and distribution system's wires to provide power to homes and businesses.
- After leaving the turbine, the steam passes over tubes filled with river water in a condenser where the steam reverts to water that is used again and again.
- River water, used to condense the steam, is returned to the river at a slightly higher temperature in compliance with environmental regulations.



TVA's coal-fired plants

	Number of units	Winter Net Dependable Capacity,* megawatts	Construction Span
Allen	3	753	1956-59
Bull Run	1	870	1962-67
Colbert	5**	1198	1951-73
Cumberland	2	2530	1968-73
Gallatin	4	988	1953-59
John Sevier	4	712	1952-57
Johnsonville	10	1254	1949-59
Kingston	9	1456	1951-55
Paradise	3**	2273	1959-70
Shawnee	10	1369	1951-57
Widows Creek	8**	1629	1950-65

*The amount of dependable power that a plant can generate during the winter season, when the greatest demand for power has generally occurred in the past. Today such peaks may occur in summer or winter.

**Includes units added after initial construction.

For information on each of these generating plants, go to www.tva.com/sites.

TVA's plants are consistently ranked among the best-performing coal-fired facilities in the nation.

Bull Run has been ranked among the nation's 10 most efficient coal-fired plants every year since 1996. It has earned the top slot several times on the list, which is compiled annually by *Electric Light and Power* magazine.

Looking ahead

By emphasizing operational efficiency, safety, and innovation, TVA's fossil system will continue its trend of excellent service to the people of the Tennessee Valley. TVA's Fossil Power Group is prepared to meet the challenges of the future—protecting the environment through its extensive projects to reduce power plant emissions and helping TVA respond to competition and restructuring in the electric utility industry by continuing to provide the bulk of TVA's affordable, reliable power.

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Tennessee Valley Authority

Fossil Plants



The backbone of the TVA power system



TVA is the nation's largest public power provider, supplying electricity to large industries and 158 power distributors that serve 8.3 million consumers in seven southeastern states. TVA also offers economic development services and manages the Tennessee River and its tributaries to provide multiple benefits, including flood control, navigation, water quality, and recreation. Although TVA is owned by the federal government, all of its programs and business operations are self-financed.

Fossil plants are fired by fossil fuels such as coal, natural gas, and petroleum products, which are formed from animals and plants that died millions of years ago. TVA's fossil fleet includes coal-fired plants and combustion turbines that are fueled by natural gas and fuel oil.



The 59 units at TVA's 11 coal-fired plants represent about 50 percent of the company's generating capacity and provide nearly two-thirds of the power produced by TVA. In addition, 72 combustion turbines provide power during peak operating periods, when the demand for electricity is high.

The coal-fired and combustion turbine units contribute to TVA's diverse generating mix—which also includes, nuclear, hydropower, and renewable energy sources—helping to provide flexibility and reliability and keep costs competitive.

Safety

Safety is given the highest priority by TVA's Fossil Power Group. Based on data reported by the Edison Electric Institute, TVA's system of fossil plants ranks among the safest in the country.

Emission controls

More than half of the electricity produced in the U.S. comes from plants that burn coal. These coal-fired plants emit several substances, including sulfur dioxide (SO₂) and nitrogen oxides (NO_x), that are regulated by the Environmental Protection Agency (EPA).

A report issued in September 2002 by the EPA indicates that air quality in the Southeast and the nation has steadily improved over the past 10 years. And while TVA's coal plant emissions meet all EPA requirements for protecting public health and safety, TVA is further reducing emissions from its coal-fired power plants while continuing to provide a reliable supply of electricity.



Since the mid-1970s, TVA has invested more than \$3 billion in emission-control equipment at its 11 coal-fired power plants. Five additional scrubbers and control equipment to further reduce NO_x on 25 units will raise that total to nearly \$6 billion.



TVA has reduced emissions of SO₂, which contributes to acid rain, by more than 76 percent since 1976. Adding five more scrubbers and switching to lower-sulfur coals on some other units will reduce SO₂ emissions by 85 percent by 2010.

TVA has also lowered emissions of NO_x by more than 50 percent since 1995 and is now adding selective catalytic reduction (SCR) systems or a similar technology to 25 of its units in a project that will be completed by the summer of 2005 at a cost of more than \$1.3 billion. When all the controls are operational in 2005, NO_x emissions during the May-September ozone season will be reduced by about 75 percent.

TVA has avoided emitting almost 200 million tons of CO₂ over the past decade by improving the efficiency and capacity of its cleanest sources of power while improving the efficiency of its fossil system. In addition, through its Public Power Institute, TVA is exploring the establishment of forests that could uniquely capture carbon from fossil plants. A pilot project is under way at Paradise coal-fired plant. (To read about the project, see www.publicpowerinstitute.org.)

For more information about TVA's clean-air initiatives, go to www.tva.com/environment/air.

Combustion turbines

Combustion turbines (CTs) are industrial-sized gas turbines similar to jet engines that are used to make electricity. TVA's combustion turbines operate primarily on natural gas but can also burn fuel oil, adding to the flexibility and economical operation of the power system. The units are designed to start quickly and are operated on an as-needed basis, providing power during periods of high consumer demand.

There are 72 combustion turbine units at six CT sites in the Tennessee Valley. The CT units produced some 1.2 billion kilowatt-hours in 2002. While they accounted for only 0.8 percent of the total generation, the availability of these quick-start facilities at times of peak demand bolsters TVA's ability to ensure that its customers have affordable, reliable power at all times.

