



# Adding Value to the Valley

## What does TVA produce?

**T**his article is the third in a series to help employees better understand how TVA works. Previous issues dealt with the Big Picture of TVA as a corporation and Balancing TVA's Checkbook. This month we look at those things provided by TVA that are essential to the well-being of Tennessee Valley citizens and that reach beyond the Valley to affect the entire nation.

*It's important for all of us who work at TVA to understand our role in helping TVA provide the highest-quality products and services to the people of the Valley. The quality of our products and services is the foundation of TVA's reputation, and offering the highest-quality products and services will help TVA remain competitive in an everchanging industry.*

Like any other successful corporation, TVA offers products and services that people value. In TVA's case, those products and services contribute to a better quality of life for the people of the Valley. They fall into four main categories:

- **Electric power**
- **River-system management**
- **Economic development**
- **Technology development**

**This supplement will help you understand more about these products and services, how they add value to the Tennessee Valley and the nation, and what all this means to you as a TVA employee. Read on to learn more...**

# Power

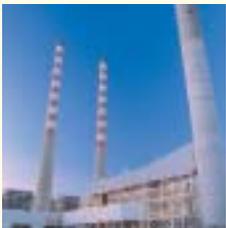
**T**VA's primary product is affordable, reliable electric power. TVA is the largest public power company in the United States and ranks among the biggest generators of power in the country, generating more than 150 billion kilowatt-hours of electricity in 2002. The TVA service territory covers 80,000 square miles that span parts of seven states.

TVA's diverse mix of power plants helps it remain competitive because it does not rely on any single source of fuel. TVA is able to continuously balance supply and demand while minimizing operating costs. This results in efficient distribution of energy on a moment-to-moment basis to meet changing load requirements.

The electricity TVA generates and sells is among the most affordable and reliable in the nation, and that's an important value for the people of the region.

## How is all that power generated? Let's take a look at each of TVA's power-generating sources individually...

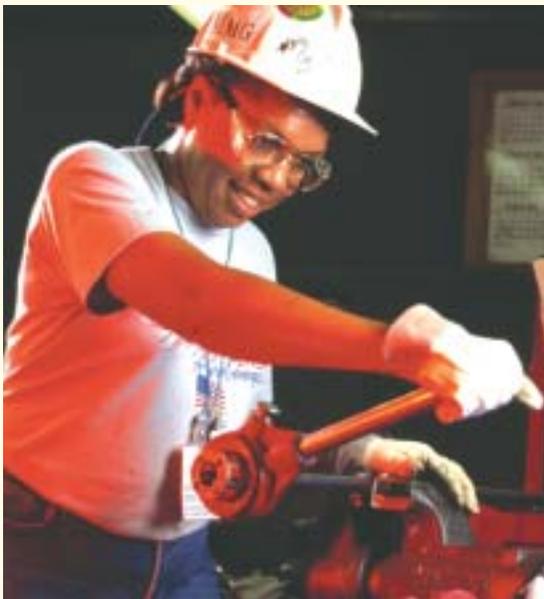
### Fossil power.



The mainstay of TVA's power-production resources is its fossil system, which generated 96 billion kilowatt-hours of electricity in 2002, or nearly two-thirds of the company's power generation.

The system includes 11 coal-burning plants and six combustion-turbine plants that burn natural gas or fuel oil and are used primarily to meet periods of high demand.

In the past two years, 17 of TVA's fossil units have set records for continuous runs, and TVA's Bull Run Fossil Plant was named the most efficient coal-fired plant in the nation.



### Nuclear power.



TVA's nuclear operations are critical to providing the base-load power needed to meet Valley demand. In 2002, TVA's three nuclear plants generated 45 billion kilowatt-hours of electricity, or about 30 percent of the company's total generation. All three of TVA's nuclear plants have earned an excellent rating from the Institute of Nuclear Power Operations, noting excellent performance in safety and reliability.

### Renewable energy.



TVA offers renewable energy through the Green Power Switch program. Nearly 7,000 residential customers have enrolled so far, and 64 local power distributors offer the option to consumers. The program earned a Federal Energy Management Award in 2002 for helping expand renewable energy among federal agencies.

Clean, renewable energy is produced from these sources:

- 15 solar sites located throughout the Valley
- Three wind turbines on Buffalo Mountain in East Tennessee
- One methane site, which uses methane gas from the Memphis wastewater-treatment plant as fuel

### Hydropower.



TVA's hydropower system, including 29 dams and the Raccoon Mountain Pumped-Storage Plant, generated more than 10 billion kilowatt-hours of electricity in 2002, or about 7 percent of TVA's total generation. These facilities are an important part of the TVA system because hydropower is clean, economical, reliable and can be brought online quickly when the demand for electricity is high.

TVA hydro plants proved their reliability in 2002 when they achieved an unplanned-outage rate of about 1.5 percent, much better than the industry average of 5 percent.

### "Plant X."



TVA's Bulk Power Trading maintains contracts with investor-owned utilities and power-marketing companies to trade power 24 hours a day, seven days a week. This capability ensures affordable, reliable power when customer demand exceeds the TVA power supply or when market prices are lower than TVA's generation cost. Bulk Power Trading also sells excess power in accordance with TVA's exchange-power arrangements to avoid the high cost of shutting down and restarting power plants. This flexibility represents an alternative generation resource referred to as the "Plant X" strategy.

In addition to power sales, TVA also provides many other services to distributors that help them serve their communities, including programs like *energy right* that promote energy efficiency.

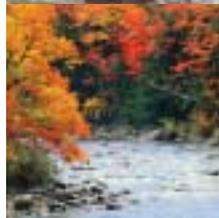
## So how does TVA get that power to the customers?

The electricity TVA generates is transmitted over 17,000 miles of transmission line. These lines stretch from TVA's power plants to the customers that buy power from TVA — 158 local distributors, 62 directly served customers, and 11 utilities with which TVA has power-exchange arrangements. TVA's Transmission/Power Supply Group has maintained 99.999-percent reliability in delivering power to customers over the past three years, and load-not-served — a measurement of the magnitude and duration of transmission-system outages that affect TVA customers — was at an all-time low of 4.88 minutes for fiscal year '02.

Consider these numbers to get an idea of the complexity of TVA's transmission system:

- 80,000 wood transmission-line structures
- 50,000 steel towers
- 27 line crews and 27 electrician crews
- 74 base locations for personnel
- 46 generation switchyards
- 1,487 power transformers

**The diversity of TVA's power-generating capabilities and the reliability of the transmission system are key factors in helping TVA provide affordable, reliable power.**



## River System Management

**I**n addition to generating power, TVA also manages the river system. What does it mean to “manage the river system”? It means that TVA works to appropriately balance the benefits of navigation, flood-risk management, power generation, recreation, and water supply and quality in a way that improves the quality of life in the Valley and provides many different benefits to people of the region.

### Here are some of the benefits TVA provides to the region by managing the river system:

**Flood-risk reduction.** TVA's river management helps avoid an average of about \$200 million in flood damage annually.

**Navigation.** The 800 miles of commercially navigable waterways carried about 50 million tons of cargo to ports in 18 states in 2002. Valley industries save about \$450 million each year on the cost of goods shipped by barge, compared to shipping by more expensive methods.

**Affordable, reliable power.** River water was used to generate more than 10 billion kilowatt-hours of electricity in 2002 from hydropower plants and to keep discharges from TVA's coal-fired and nuclear plants within water-temperature-permit limits during the hot, dry summer months.

**Recreation.** Besides ensuring the availability of water for boating, fishing and other forms of water-based recreation, TVA manages 100 recreation areas that offer opportunities for hiking, camping and other outdoor activities.

**High-quality water supply.** The people of the Tennessee Valley depend on a clean and abundant water supply for household use, economic development, industrial growth and other uses. A total of about 12 billion gallons of water is withdrawn from the river system every day, and water use is growing in the Valley as the population grows. TVA monitors the health of the Valley reservoirs and streams and works with other agencies, communities and industries to improve water quality for everyone's benefit.

**Land use.** TVA manages 293,000 acres of public land and 11,000 miles of public shoreline in the Tennessee Valley. In performing this function, TVA must consider the effects of its actions, as well as the actions of others, on the environment, recreational use and wildlife preservation.



## Economic Development

**J**obs are an important key to the good life, and TVA helps companies bring jobs to the Valley and keep them here. Beyond its role as a power provider, TVA offers direct assistance to industries that are starting up, expanding or considering a move to the Valley. TVA also offers attractive rates and innovative pricing arrangements that help attract new business and provide incentives for existing businesses to remain in the Valley.

With its economic-development partners, TVA helped companies attract or retain more than 48,000 jobs in 2002 and made more than \$22 million in loans to Valley companies. In addition, TVA's financial and technical assistance leveraged an additional \$1 billion in capital investment from economic-development partners.

### What types of products and services does TVA provide for economic development?

**Financial assistance.** TVA provides financial assistance to industries through its Economic Development Loan Fund and The Valley Advantage. In addition, small businesses and other economic-development partners can access other lending programs to support business growth and expansion. The Valley Coalition, a group of Valley banks that have agreed to partner with TVA, can also help new and expanding businesses by providing better access to loans and other technical resources.

**Marketing development.** In partnership with the Regional Industrial Development Associations, TVA helps industries wishing to locate or expand in the Valley by marketing available building and industrial sites to site-selection consultants, companies and economic-development professionals.

**Business growth and innovation.** TVA provides assistance to small businesses by providing technical, financial and other types of help. More than 20 business incubators have fostered 1,100 companies, and 6,100 jobs have been created. The Online Business Resource Center is also available from the TVA web page, and mentoring programs and support are also available from TVA Procurement.

**Technical services.** TVA staff members can help industries, businesses and communities with needs ranging from environmental reviews and engineering evaluations to economic analyses.

**Community development.** TVA helps communities develop strategic plans for their communities and improve leadership development to enhance their economic competitiveness. TVA is also developing a training program to help communities deal with land-use and water-quality issues.



**All of these products and services benefit the region, improve the economy and generate prosperity in the Tennessee Valley.**



# Technology Development

**J**ust as today's methods of producing electricity grew out of research done in the past, tomorrow's methods will depend on research done today. TVA invests in science and technology because it makes sense to prepare for the future and protect limited resources by increasing energy efficiency and reducing pollution. Through its Public Power Institute and its Energy Research & Technology Applications organization, TVA helps bring new ideas to electric-energy production, transmission and use, including using coal with near-zero emissions and developing new electronic devices that can improve power quality and reliability.

**TVA investments in science and technology have led to many commercial uses that positively impact the economy and the environment.**

**Here are some new technologies that have come out of TVA's efforts and have already made a difference in energy efficiency and pollution control:**

**Constructed wetlands.** These systems use natural processes to remove pollutants from wastewater. For example, a reciprocating wetland developed by TVA is treating up to 30,000 gallons per day of wastewater from a commercial swine-raising facility in Alabama.

**Geothermal heat pumps.** Through TVA's technical and other assistance, more than 10 million square feet of classrooms in the Valley are heated and cooled with this low-cost, low-maintenance technology. It's popular in schools because the temperature in each room can be controlled individually.

**Biomass technologies.** TVA has received national recognition for its application of this technology to fossil plants. Materials that would otherwise be wasted, such as wood chips and used tires, are co-fired with coal at the plants, reducing emissions of nitrogen oxides, sulfur dioxide and carbon dioxide.

**Transmission technologies.** TVA is on the leading edge of several new technologies such as Transmission UltraCAPacitor, a mobile system that provides backup support to system voltage, and SuperVAR, a high-temperature superconducting condenser that responds quickly to voltage sags and instabilities.

## So what does this mean for you?

**I**f you've ever gone into a store or business and tried to get service from an employee who was unhelpful or just plain rude, you know how important good customer service is to an organization. Every employee represents the face of TVA to the public, and the public's image of TVA as a provider of power, river management, economic-development services and technology development is a critical factor in helping TVA retain good will and remain the provider of choice in the Tennessee Valley.

*Your efforts count, because every employee contributes to the creation of the company's products and services, and the quality of those offerings is the foundation of TVA's reputation. TVA's Winning Performance Strategic Objectives are a way of measuring that quality and providing valuable feedback on the company's success. Keep a clear line of sight between your work and those objectives, and you'll be doing your part.*

*By working together and keeping our eyes on the Winning Performance Objectives, we can accomplish great things.*

A \$50-million expansion by Medtronic Sofamor Danek USA Inc. is an example of how TVA employees from many organizations worked together to help attract and retain good jobs for the people of the Tennessee Valley. Employees not only work to provide affordable, reliable power and cleaner air and water, but also support economic development to make the Valley an attractive location for businesses. TVA and Memphis Light, Gas & Water helped Memphis land the Medtronic expansion, which will provide 600 new jobs, paying an average of \$55,000 a year in the production of medical appliances.



### What You Can Do

- Understand the many ways in which TVA contributes to the quality of life for all citizens of the Valley and pass this information along to your friends and neighbors.
- Perform every task every day to the best of your ability.
- Be open to new ideas and new ways of doing things.
- Be willing to offer helpful feedback.
- Keep a clear line of sight between your work and TVA's Winning Performance Strategic Objectives.

**You can view this special insert on TVA's internal Web site.**

**For more about TVA operations and facilities, go to [www.tva.com](http://www.tva.com).**