

JOHN W. TURK, JR. POWER PLANT

The John W. Turk, Jr. Power Plant, which began commercial operation in December 2012, is the first ultra-supercritical generating unit to go into operation in the United States. It is among the cleanest, most efficient coal plants in the country.

Location: Near Fulton, Ark. in Hempstead County

Capacity: 600 Megawatts (MW)

Ownership: AEP Southwestern Electric Power Co. (SWEPCO) owns 73 percent (440 MW) and operates the plant. Co owners are Arkansas Electric Cooperative Corp. (AECC), 12 percent (70 MW); East Texas Electric Cooperative (ETEC), 8 percent (50 MW); Oklahoma Municipal Power Authority (OMPA), 7 percent (40 MW)

Investment: \$1.8 billion (SWEPCO's share \$1.3 billion)

Commercial Operation Date: Dec. 20, 2012

Technology: Ultra-supercritical steam generation

Fuel: Low-sulfur coal from Powder River Basin in Wyoming

Environmental Systems: Air quality control systems include a selective catalytic reduction (SCR) system and low nitrogen oxide (NOx) burners with close-coupled over-fire air for control of NOx; a dry flue gas desulfurization (FGD) system and pulse-jet fabric filter (baghouse) for sulfur dioxide and particulate control; and activated carbon injection to reduce mercury emissions.

Transmission interconnections: Two 138-kilovolt (kV) lines and one 345 kV line to existing stations in the Texarkana area in SWEPCO's electric system

Employees: 109 employees, annual payroll of \$9 million

Local impact: \$6 million in annual school and county property tax revenues in Southwest Arkansas

SWEPCO customers: The plant serves SWEPCO's wholesale customers in Arkansas and its retail and wholesale customers in Louisiana and Texas.

John W. Turk, Jr.: The plant is named for the late John W. Turk, Jr., President and CEO of SWEPCO from 1983-1988. Turk pioneered the addition of coal and lignite to diversify SWEPCO's generation fleet in the 1970s and 1980s.

SWEPCO's new generation strategy: The coal-fueled baseload Turk Plant is part of SWEPCO's balanced approach to new generation, announced in 2006, which also includes 800 megawatts of natural gas-fueled capacity – the 300-MW Mattison Plant, a peaking facility, completed in Tontitown, Ark., in 2007, and the 500-MW Stall Unit, an intermediate facility, completed in Shreveport in 2010.



Ultra-Supercritical Steam Generation

Ultra-supercritical (USC) steam generation represents an increase in steam cycle efficiency. A USC unit operates above supercritical pressure and at advanced steam temperatures above 1100 °F (593 °C), resulting in a more efficient steam cycle. This increased efficiency reduces fuel consumption, solid waste, water use and operating costs. It produces fewer emissions in generating the same amount of power as traditional pulverized coal units.