Welsh Power Plant
Retrofit of Units 1 and 3

AEP SOUTHWESTERN ELECTRIC POWER COMPANY℠
A unit of American Electric Power

Quick Facts: About Welsh Power Plant

- **Location: Cason, Texas**
- **Stack height: 325 feet**
- **Average annual coal use: 6.5 million tons**
- **Coal yard storage capacity: 1.3 million tons**
- **Average daily coal use: 17,500 tons**
- **Annual payroll: $9 million**
- **Certified Tree Farm (first one for AEP in Texas)**

How We Generate Electricity

Coal arrives by rail and is stored in the plant's coal yard. Conveyor belts carry the coal from the yard into the plant where pulverizers grind the coal into a fine, talcum powder-like consistency. The powdered coal is injected into the boilers where it burns at high temperatures, turning water that circulates in the boilers into steam.

The steam is then directed into the turbines, where it turns blades (much like wind turning a windmill). The spinning turbine drives a generator that produces electricity.

Because electricity cannot be stored, it is generated the instant a customer needs it. The generators produce electricity at 18,000 volts. Transformers outside the plant step up the voltage to 345,000 volts so that it can be transmitted efficiently to customers' homes and businesses.

Welsh Plant's three generating units provide total capacity of 1,584 megawatts (MW). Units 1, 2 and 3 became operational in 1977, 1980 and 1982 respectively, each with capacity of 528 MW.

Welsh Plant is a base load, coal-fueled, power plant located southeast of Mt. Pleasant in Titus County, Texas. The three units use sub-bituminous coal mined from the Powder River Basin in Wyoming and shipped to East Texas via rail.

The Welsh plant is 28 percent of SWEPCO's capacity, with a net value of $247 million for all three units. SWEPCO made a commitment in 2011 to retire Unit 2 by April 2016.

SWEPCO has begun a retrofit of Units 1 and 3 at a total investment cost of $411 million to meet the environmental compliance deadline of April 2015 (extended to April, 2016). The unit retrofits are the highest value for SWEPCO's customers.

Retrofit Decision and Local Community Impact

- 133 SWEPCO employees affected
- Additional employment effect to local contractors
- $4.126 million in local taxes, including $2.6 million for Daingerfield-Lone Star ISD and $235,000 to Northeast Texas Community College
- $278,000 in Texas state taxes

Southwestern Electric Power Company and American Electric Power

Southwestern Electric Power Company (SWEPCO), is an operating unit of American Electric Power. SWEPCO serves 524,000 customers in Louisiana, Texas and Arkansas. SWEPCO's headquarters are in Shreveport, La. American Electric Power is one of the largest electric utilities in the United States, delivering electricity to more than 5 million customers in 11 states. AEP ranks among the nation's largest generators of electricity, owning nearly 36,000 megawatts of generating capacity in the U.S. AEP also owns the nation's largest electricity transmission system, a nearly 39,000-mile network that includes more 765-kilovolt extra-high voltage transmission lines than all other U.S. transmission systems combined. AEP's headquarters are in Columbus, Ohio.

Protecting the Environment

AEP operates Welsh Plant under its Environmental Leadership Principles, which state in part: "We will actively seek to prevent pollution by minimizing our emissions to the environment. We will pay particular attention to the protection of the surrounding environment at existing facilities, company-owned land and when planning new facilities." Welsh Plant meets or exceeds the environmental standards set by state and federal regulations.

Welsh Plant employees take great pride in providing electricity while protecting air and water quality, recycling materials and maintaining an exemplary record of public and work safety.

- Low-NOx burners along with an overfire air system reduce nitrogen oxide (NOx) emissions by up to 60 percent. Low NOx burners control the way coal is burned to reduce the formation of NOx, a precursor to ozone, and an overfire air design injects air above the burning zone to enhance combustion. This infusion of air limits the formation of nitrogen dioxide, thereby reducing the formation of NOx.
- Electrostatic precipitators (ESP) remove more than 99 percent of all fly ash particles produced by coal combustion. In precipitators, fly ash from burning coal passes through electrically-charged plates, which pull the ash particles out of the exhaust gas stream. The ash can be marketed for use in land reclamation, in concrete and lightweight aggregate and in the production of paints, plastics and other products to reduce the amount of product that is landfilled.
- Powdered Activated Carbon Injection (ACI) is utilized down-stream of the ESP to reduce mercury emissions below newly enacted environmental standards. ACI works by adsorbing the mercury from the gas produced during coal combustion.
- A new Fabric Filter will be installed to capture the powdered activated carbon and the mercury it has removed from the process. The Fabric Filter, which contains thousands of fabric bags, works like an air filter on an automobile by allowing gases to pass through while capturing particulate matter such as powdered activated carbon and fly ash. The bags are periodically pulsed with compressed air to remove the captured material into hoppers below. The material is then transported to the plant landfill for disposal.
- Welsh Plant uses an automated continuous emission monitoring system (CEMS) to monitor stack gas emissions. This highly accurate system helps ensure compliance with clean air requirements for sulfur dioxide, NOx and carbon dioxide emissions and opacity.

Welsh Power Plant Emission Control Equipment