

# Beatrice Power Station Facts

**Generating Capacity**  
250,000 kilowatts (nominal)

**Type**  
Natural Gas / Steam

**Construction Cost**  
\$190 million

**Engineering/Construction**  
The Industrial Company of  
Steamboat Springs, Colo.  
Utility Engineering of Amarillo, Texas

**Turbine-Generator  
Manufacturer**  
Alstom (Siemens)

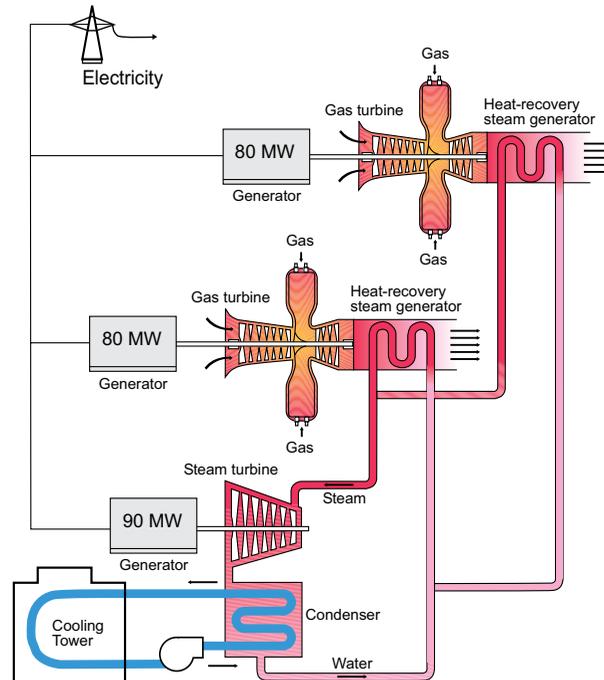
**Ground Breaking**  
June 26, 2003

**Commercial In-Service Date**  
January 7, 2005

**Station Personnel**  
14

## How does it work?

Air is drawn into the combustion turbine and compressed. Natural gas is added and ignited. The resulting combustion exhaust spins the turbine generator, while the heat from the combustion is used to heat water into steam in the heat recovery steam generator. The steam powers a steam turbine generator. One, two, or all three turbines are used to generate electricity.



## Commitment to Safety

**Safety shall always come first:**  
There is no condition that requires any  
of us to work in an unsafe manner.



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A Closer **Look** at...

**Beatrice  
Power**  
STATION



## The name...

**Beatrice Power Station (BPS)** is named after the city near which the station is located—Beatrice, Nebraska. BPS is the first major power plant built by Nebraska Public Power District since the early 1980s. This station is an important addition to Nebraska's reliable public power system.

## The location...

**The plant site is located in Gage County** about five miles northwest of Beatrice and sits on 247 acres of land. This site provides optimal access to major natural gas pipelines, existing electric transmission infrastructure, water supply and wastewater discharge.

## The plant...

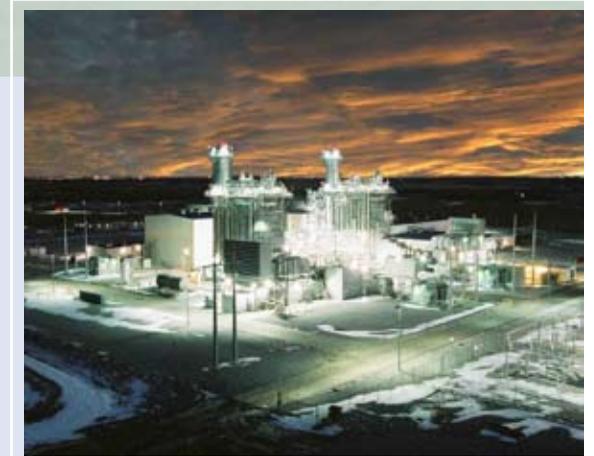
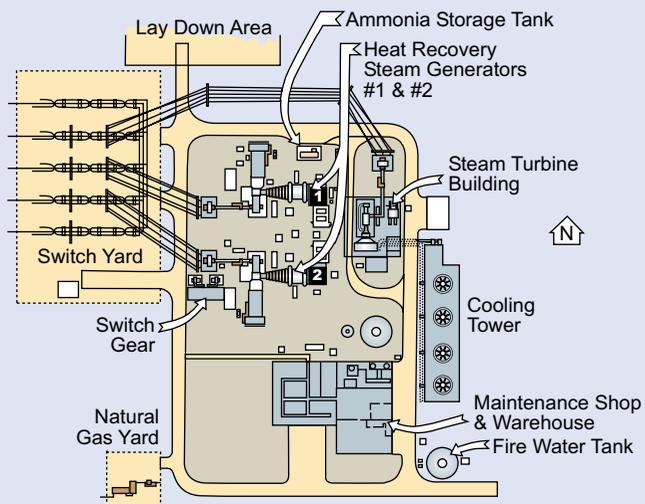
**Built to meet future electrical load growth**, add fuel diversity to NPPD's generation mix and provide a hedge against unexpected interruption at one of NPPD's other plants, BPS provides reliable electricity for Nebraskans across the state.

BPS is an intermediate plant, which means it will operate from 2 to 40 percent of the time, giving NPPD the operational flexibility to match power resources to customer load efficiently.

While not utilized every day, the availability of the Beatrice Power Station protects NPPD and its wholesale customers from the expense associated with costly replacement power during times of high energy use or in the event one of NPPD's other baseload plants is off-line.

The design of the plant includes two combustion turbines rated at 80 megawatts each and one steam turbine rated at 90 megawatts. Thus, the entire power station is 250 megawatts, nominal. The output decreases at higher ambient temperatures, so the summer operation of the plant is approximately 229 megawatts.

A combined-cycle power plant uses combustion and steam turbines in tandem to achieve a greater percentage of energy output efficiency. Efficiency ratings for both



the combustion turbine heating water to make steam to power the steam turbine), and the combined efficiency becomes 58 percent.

Higher efficiency means more megawatts can be generated from the same amount of fuel, which translates into lower costs for customers.



types of turbines illustrate the benefits of the technology. A combustion turbine by itself is about 40 percent efficient. A steam turbine is about 30 percent efficient. Add the two turbines together (with the exhaust heat from