

# Dry Fork Station Unit 1

## New Coal-Fired Unit Project Profile



**Client:** Basin Electric Power Cooperative  
**Facility:** Dry Fork Station Unit 1 (new unit at mine-mouth greenfield site)  
**Location:** Gillette, Wyoming  
**Fuel:** Powder River Basin (PRB) pulverized coal  
**Size:** 422 MW



**Overall Schedule:** 2007 - 2011  
**Key Milestones:** Commercial Operating Date - November 2011  
Air permit received - October 2007  
Site-related construction - Began after receipt of required permits

### Project Awards:

**2012:** The unit was named the “Best Industrial Project” in the annual *Engineering News-Record* (ENR) Mountain States competition. Judging for ENR’s Best Project honors is held in nine regions of the United States based on the project’s location. Owner Basin Electric Power Cooperative and project engineer Sargent & Lundy were recognized for the project’s accomplishments.

**2008:** In the 2008 Bentley Awards of Excellence Competition, the project won 1<sup>st</sup> Place honors in “Innovation in Power Generation Project Design.” The advanced-generation coal-fired station earned the award for effectively using a 3-D design model that exceeded 2000 files to facilitate design optimization and constructibility and to reduce total project cost and ongoing O&M costs.

### Project Description:

Sargent & Lundy was selected by BEPC to provide complete detailed design, procurement, and construction management services for the project. The plant was designed to add reliable and economical generating capacity to help meet the needs of BEPC’s more than 130 cooperative system members and of the Wyoming Municipal Power Agency. The project was performed with the active input and involvement of BEPC during design and construction as a collaboration to achieve the shared goal of meeting cost and schedule requirements.

The new mine-mouth power plant uses low-sulfur Powder River Basin coal and had to meet stringent environmental standards. The plant is a zero-discharge (liquid) facility and air emissions were minimized through state-of-the-art air quality technologies and controls:

- Selective catalytic reduction (SCR) for NO<sub>x</sub>
- Circulating dry scrubber for SO<sub>2</sub>
- Pulse jet fabric filter for particulate control
- Activated carbon injection (ACI) system for mercury control

Specific scope activities included:

- Development of plant performance criteria, heat balances, and water balances.
- Procurement and contract management of equipment for the power cycle, balance-of-plant, electrical systems, structural steel, switchyard equipment, secondary fuel systems, and plant auxiliary systems.
- Contracting for furnish and erection of the boiler, flue gas desulfurization, coal handling, air-cooled condenser, activated carbon injection, fire protection/detection/alarm, chimney, and elevators.
- Contracting for installation of site work, substructures and foundations, superstructures, switchyard, electrical systems, mechanical equipment, piping, and other services.
- Quality inspection, surveillance, and expediting.
- Construction management.
- Material and equipment control.
- Project planning, including overall project schedule integration.

The project was implemented using a multi-contract approach, with Sargent & Lundy providing balance-of-plant (BOP) engineering and procurement services not provided by suppliers of engineered equipment and providing project/construction management services. In this role Sargent & Lundy served as the project integrator, where procurement strategies were established and carefully coordinated, from design through installation and testing to maximize value to BEPC through reduced schedule, minimized cost, and optimal plant performance.

The multiple contracts were selected as part of the customized solution for the station based on geographical considerations, labor resource availability, and market conditions. Eighty-seven contracts were established as follows:

- 8 furnish-and-erect: boiler, air-cooled condenser, coal handling, fire protection, chimney, flue gas desulfurization, activated carbon injection, and elevator.
- 12 installation: electrical, mechanical, substructures, superstructures, piping, and HVAC.
- 67 supply: encompassing major equipment, piping, bulk cable, valves, and other BEPC-furnished materials.

---

**Sargent & Lundy Contact:**

James Malone, Director of Business Development  
312-269-6890