Cardinal Power Plant: How We Generate Electricity

Coal arrives at the station by truck, rail, or barge and is stored in the coal yard. Conveyor belts carry the coal into the plant, where pulverizers grind it into a fine, talcum-powder-like consistency. The powdered coal is injected into the steam generators, where it burns at high temperatures, turning water into steam.

The steam is directed into the turbines, where it turns blades, much like wind turns a windmill. The spinning turbine drives a generator that produces electricity. Exhaust steam from the turbine is cooled in the condenser and returned to the steam generator to start the process again.

Electricity is generated the instant that a customer needs it. Cardinal's generators produce electricity at 23,000 to 25,000 volts. Transformers outside the plant step up the voltage to 138,000 and 345,000 volts so it can be transmitted efficiently to consumers' homes, farms, and businesses.

Cardinal Plant occupies a unique place in the history of electric power generation. It represents the first alliance of an investor-owned electric utility — **American Electric Power (AEP)** — and a consumer-owned electric utility — **Buckeye Power**, the power generation arm of **Ohio's Electric Cooperatives** — to build and operate a power plant to serve both sets of consumers. Buckeye Power is owned and governed by 25 rural and suburban electric cooperatives that collectively serve about 1 million Ohioans.

In 2022, Buckeye Power completed its purchase of Cardinal Unit 1 from AEP. Buckeye Power now owns and operates all three units at the Cardinal Plant, for the benefit of Buckeye's members and AEP. Unit 1 was placed in commercial service in 1967. Unit 2 was placed in commercial operation later that same year. Each unit has generation capacity of 590 megawatts (MW). Unit 3 began operation in 1977 and has generating capacity of 620 MW.

OHIO'S ELECTRIC COOPERATIVES
Your Touchstone Energy® Cooperatives

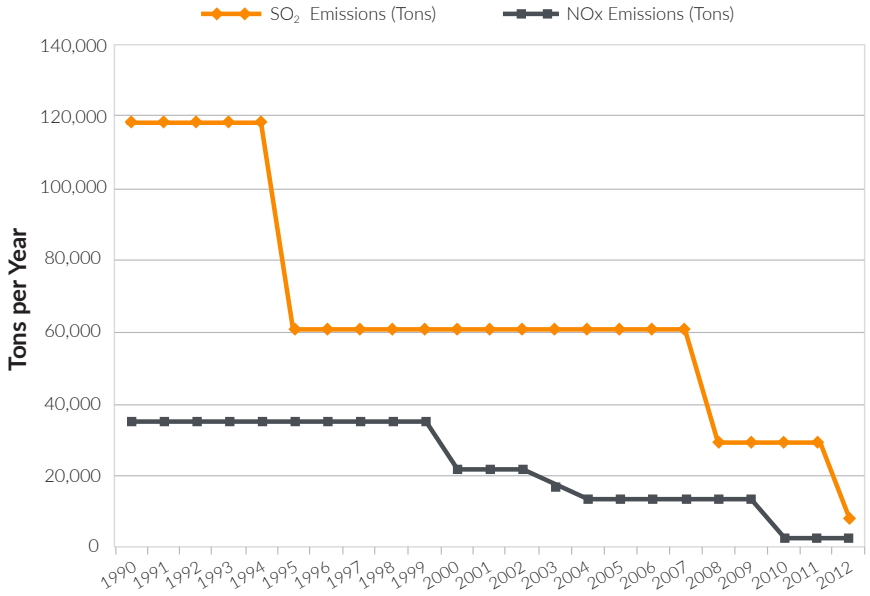
Buckeye Power: The wholesale power supplier serving 1 million consumer-members in 77 of Ohio's 88 counties.
Ohio Rural Electric Cooperatives: The statewide trade and services association for the 24 co-ops serving Ohio.
Together, we are **Ohio's Electric Cooperatives**.

www.ohioec.org

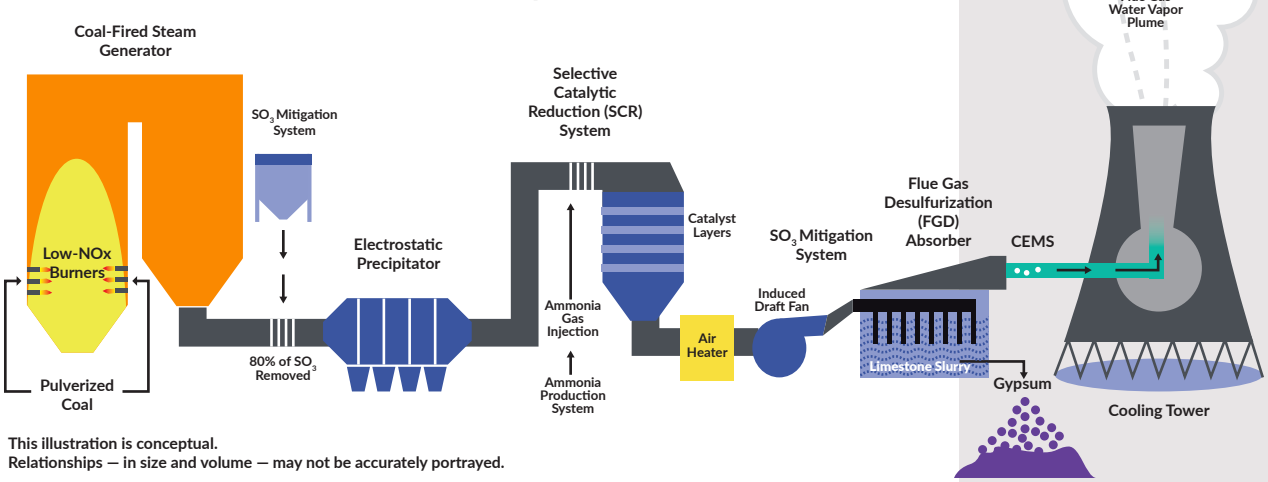
Ohio's Electric Cooperatives

Buckeye Power is a generation and transmission cooperative owned by and supplying electricity to the electric distribution cooperatives in Ohio. The cooperatives' certified service territory covers nearly 40 percent of the land area in the state and encompasses 77 of Ohio's 88 counties. The cooperatives collectively serve nearly 400,000 homes, farms, and businesses — about 1 million Ohioans in total.

SO_2 and NOx Emissions Trends from Cardinal Plant



Unit 3 Cardinal Plant Emission Control Systems — $1.2 billion



This illustration is conceptual.
Relationships — in size and volume — may not be accurately portrayed.

Quick Facts About Cardinal Power Plant

- Location: Along the Ohio River, south of Brilliant, Ohio
- Capacity: 1,800 MW total
- Units: 3
- Stack height of units 1 and 2: 1,000 feet
- Unit 3 cooling tower capacity: 16.8 million gallons per hour
- Average annual coal use: 5.2 million tons
- Coal yard storage capacity: 1.3 million tons
- Average daily coal use: 15,800 tons
- Employees: 300

OHIO'S ELECTRIC COOPERATIVES
Your Touchstone Energy® Cooperatives

Ohio's Electric Cooperatives
6677 Busch Blvd.
Columbus, OH 43229
614.846.5757 | 800.282.6962