

# Electric Generation and Environmental Stewardship



## Environmental Policy Mission Statement

Environmental stewardship is a basic value and belief for each one of us at Vectren. Our employees and their families live and work in the same cities and towns, breathe the same air and utilize the same natural resources as our customers. Each of us is committed to go beyond environmental regulation and ensure that our energy products and services not only meet customer needs, but also enhance the quality of life in each of our communities and leave behind a better environment for us all.

## Power Supply

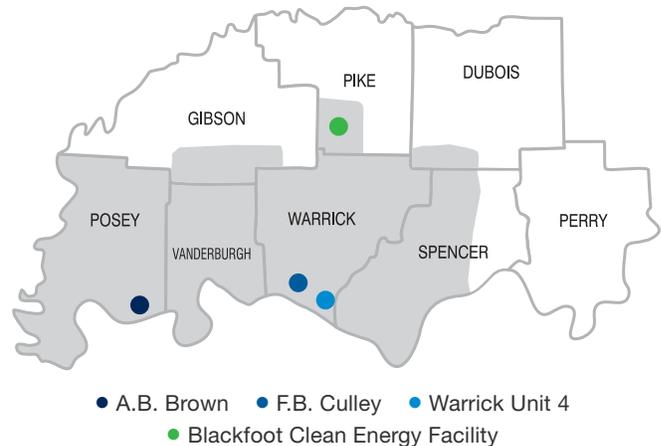
By taking advantage of abundant southwestern Indiana coal reserves, Vectren Power Supply generates electricity primarily with coal-fired units and then supplements that generation with natural gas-fired peaking units and a renewable energy. Our generation facilities include: F. B. Culley Generating Station; A.B. Brown Generating Station; Warrick Unit 4 whose operation and ownership is shared with Alcoa; Northeast Gas Turbines, Broadway Avenue Generating Station Gas Turbines and the Blackfoot Clean Energy Facility. Jointly, Vectren's electric generation fleet has the capacity to generate nearly 1,300 megawatts (MW) to serve 145,000 customers in a 7-county area including Dubois, Gibson, Pike, Posey, Spencer, Vanderburgh and Warrick counties.

## Multi-Emissions Control

Through the investment of more than \$500 million in emissions control equipment from 2001-2015, Vectren's power system is one of the cleanest and best-controlled in the Midwest.

- Vectren's entire electric generation fleet is 100% scrubbed for sulfur dioxide (SO<sub>2</sub>), 90% controlled for nitrogen oxide (NO<sub>x</sub>) and reduces mercury (Hg) emissions to meet reduction requirements.
- All units in the Vectren system are equipped with an electrostatic precipitator or a fabric filter that can remove particulate matter (PM) at an average of 99% efficiency.
- Vectren recycles its fly ash, a by-product of coal-fired generation, through a unique sustainability partnership with Geocycle US, a wholly-owned subsidiary of Holcim (US), Inc. The \$20 million project, which included the construction of storage, conveyor and loading equipment to transport the fly ash by river barges to Geocycle US's facility in Missouri where it is used to make cement, became operational in late 2009. This effort reduces the impact on the environment, in that fly ash, which was historically stored in a landfill or ash pond, is now used in cement manufacturing.
- Enhancements to Vectren's system to comply with the mercury and air toxics standards (MATS) began in 2014 with a focus on reducing sulfur trioxide (SO<sub>3</sub>) and mercury emissions as well as mercury reductions in wastewater.

## Vectren's Electric Service Territory



## Generation Fleet

### F.B. Culley Power Plant Newburgh, Ind., Warrick County

- Unit 2 - 90 MW, Coal-fired generation unit
- Unit 3 - 270 MW, Coal-fired generation unit

### A.B. Brown Power Plant Mt. Vernon, Ind., Posey County

- Unit 1 - 245 MW, Coal-fired generation unit
- Unit 2 - 245 MW, Coal-fired generation unit
- Unit 3 - 80 MW, Natural gas generation unit
- Unit 4 - 80 MW, Natural gas generation unit

### Warrick Unit 4 Newburgh, Ind., Warrick County

- Unit 4 - 150 MW, Coal-fired generation unit

### Natural Gas Peaking Units Evansville, Ind., Vanderburgh County

- Northeast 1 & 2 - 10 MWs each
- Bags 1 & 2 - 50 and 65 MW

### Renewable Energy

- Wind power 80 MW - purchased under two 20-year contracts through two Benton County, Ind., wind farms
- Blackfoot Clean Energy Facility - 3.2 MW, Landfill-gas-to-electricity project at Veolia's landfill in Winslow, Ind.

## Controlling Local Emissions

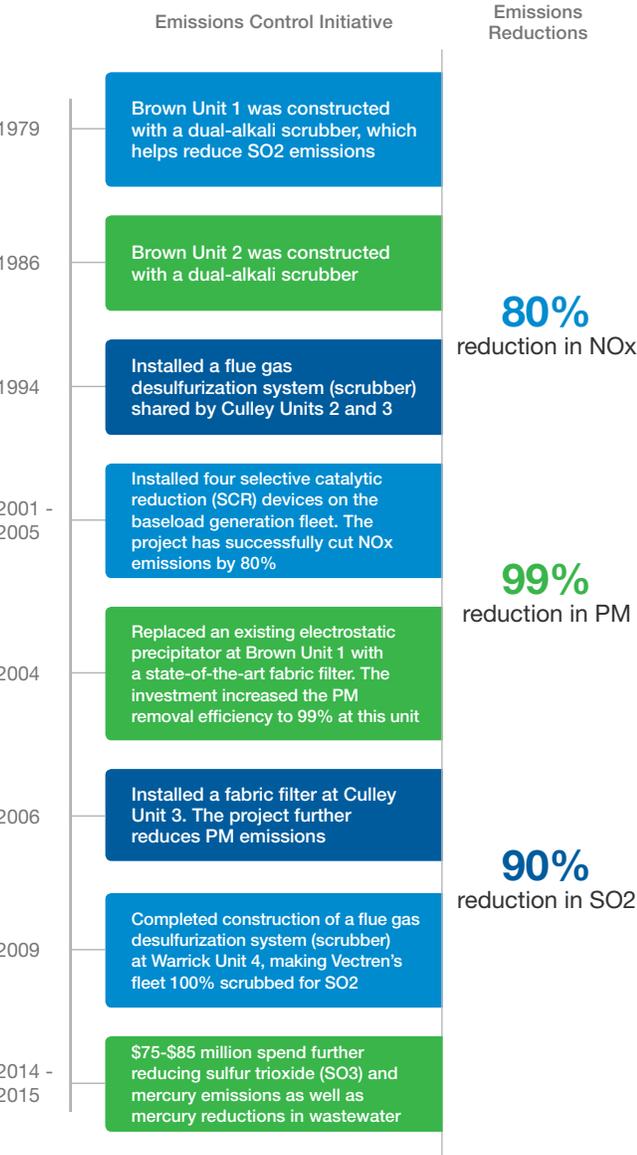
Nitrogen oxide (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), mercury (Hg) and particulate matter (PM) are produced as a result of burning coal to produce electricity. These emissions, if not controlled, can negatively impact local air quality. Vectren has invested more than \$500 million since 2001 in emissions control equipment to capture these pollutants and directly improve local air quality.

## Reducing Carbon Emissions

Greenhouse gases or carbon dioxide (carbon) are also emitted when burning coal (or any fossil fuel), however, carbon is considered a global emission as it does not directly impact local air quality. Many believe that carbon emissions are leading to global climate change. Because technology to capture carbon on existing coal-fired generation plants does not yet exist on a commercial scale, utilities like Vectren can only reduce carbon emissions by improving the efficiency of the turbines in their generation fleet and encouraging customers to use less energy, which allows the utilities to burn less coal.

Vectren takes the nation's focus on carbon reductions seriously, and we believe in operating our generation units efficiently – and in ensuring customers use energy wisely in their homes and businesses. The solution to curbing carbon emissions continues to be debated in Washington D.C., and the Environmental Protection Agency proposed new rules during the summer of 2014 putting the nation down a path of limiting carbon emissions from existing coal-fired power plants. We have been focused on reducing carbon emissions for nearly a decade and have done so with success. Vectren will continue to comply with federal guidelines and anticipates more activity on the state level by 2016.

### Vectren Emissions Control (1979-2016)



### Vectren Annual Carbon Reductions (2005-2016)



Since 2005, we have achieved a reduction in emissions of CO<sub>2</sub> of 31 percent (on a tonnage basis) through the retirement of F.B. Culley Unit 1, expiration of municipal contracts, electric conservation, the addition of renewable generation and the installation of more efficient dense pack turbine technology. Since emissions are further impacted by coal burn reductions and energy efficiency programs, emissions of CO<sub>2</sub> can vary year to year.