

Case Study of Duke Energy East Bend Generating Station

Keys to Success

-  **Project Description**
-  **Economic Value**
-  **Challenges & Advice**
-  **Benefits**
-  **Stewardship Meaning**

 Since the plant opened in the spring of 1981, Duke Energy—East Bend Generating Station, in Union, has generated more than 100 million megawatt hours of power. The plant is situated on 1,800 acres on the Ohio River and has 100 employees. Every hour, the plant generates a net amount of 600 megawatts of electricity.

As an environmental leader for the Commonwealth, this KY EXCEL member has undertaken multiple projects. After an area of land near the river had to be cut down because of a stormwater issue, the field would have had to be reseeded and planted, so wildflowers and native grasses were chosen to sow.

J.R. Wood, Environmental Coordinator for Duke Energy, says, “Duke worked with a contractor to identify opportunities for recycling of products currently disposed of in trash containers in the administrative offices. There are 40 bins around the office to collect paper, metal food/beverage containers, plastic and

glass, and are emptied into one six-yard recycling dumpster, which is picked up once a week. As far as out in the plant goes, we have had a recycling dumpster for heavy metals for many years.”

Two additional projects were to conduct studies of mercury and particulate matter emissions through stack testing and by the installation of mercury and particulate matter continuous emission monitoring systems. These projects are investment-intensive and undertaken to improve Duke’s knowledge of mercury and particulate matter.

“The public needs to be educated about the power industry and operating in a sustainable way. We’ve done lots to reduce the plant’s environmental impact.”

Another project was to host a site visit for a group of thirty local science teachers to improve their knowledge of electric power generation, including a discussion of pollution control processes. Teachers from Boone, Kenton and Campbell counties participated in the workshop. The project was a three-day learning event called the Teacher Immersion Program and took place in Union, Kentucky, at the plant

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and in Erlanger at the Envision Center. Agenda topics included Energy 101, Electric Generation and Sustainability, Renewables and Grid Modernization. The Envision Center is an interactive exhibit that demonstrates Duke Energy's integrated smart-grid vision. It features modernized power equipment, home energy management systems, solar panels and a power delivery work center with real-time monitoring capabilities.

\$ The monthly cost for the recycling dumpster is \$52, but Wood expects they will break even by not tipping the multiple 30-yard landfill waste dumpsters as often, with tipping fees in excess of \$200 each.

Duke's employees are enthusiastic about office recycling and doing even better than expected. A



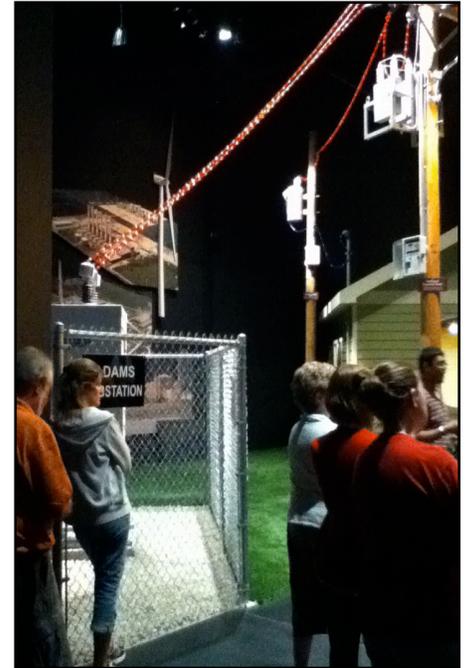
Duke Energy-East Bend generates a net of 600 megawatts per hour.

single-stream dumpster for recyclables was brought on-site, and employees are bringing things from home to recycle.

? For the Teacher Immersion Project, instructors at the Envision Center used their connections to locate science teachers to participate in the workshop. Once the teachers were on-site at the plant, one of the challenges was making sure the participants used and understood the protective equipment they needed to wear for the tour.

+ Power plants have not done much to publicize their efforts to minimize their impact on the environment. So, a benefit of the Teacher Immersion Program was that the teachers' environmental questions about power plants were answered. During the workshop, lesson plans were tailored to give the facts about using coal. The plant tour was enlightening, and the feedback received was positive.

The projects to study mercury and particulate matter emissions have provided increased amounts of data and improved Duke Energy's understanding of how different operating parameters



Science teachers participated in the Teacher Immersion Program.

affect emissions. The scrubber at the plant, which was there when operations began, has an efficiency rate of 98 or 99 percent, so nearly all of the sulfur is gone. Precipitators remove nearly all of the particulate matter.

🌿 "I'm passionate about the environment," says Wood. "The public needs to be educated about the power industry and operating in a sustainable way. We've done a lot long-term to reduce the impact of the power plant on the environment."

HELPFUL HINT: Educating others about industry issues and actions can lead to a better understanding of what is needed to protect the environment as we live and work together.