



ENCOURAGING
Environmental
EXCELLENCE

Encouraging Environmental Excellence Achievement Level Recognition

August 26, 2016

The Ohio EPA Encouraging Environmental Excellence Program targets those who reduce waste, improve efficiency and work to continuously improve as an environmental steward. The program has a three-level approach to provide recognition to Ohio businesses and other organizations completing environmentally beneficial activities. Higher levels of recognition are for those who exceed regulatory requirements or commit to future environmental stewardship efforts. The Achievement Level recognizes any applicants completing environmentally beneficial activities. Any business, trade association, professional organization or local government in Ohio may apply. Achievement Level participants must have demonstrated significant progress in one of the following main criteria: Impact to the Environment (Toxics and/or Waste Reduction); and/or Resource Conservation. Achievement Level participants must also demonstrate some level of progress in at least six additional environmental stewardship criteria and indicate they are in compliance with environmental laws and regulations.

Ohio EPA is recognizing the following organization that successfully met the criteria for the Achievement Level of the Encouraging Environmental Excellence Program. Below is a summary of their efforts.

Dayton Power and Light Company Yankee Solar Array – Montgomery County: The Dayton Power and Light Company (DP&L) opened a 1.1 megawatt solar array near its Yankee substation in Washington Township, Montgomery County, Ohio in June 2010. Construction of the array began in December 2009. DP&L's Yankee solar array consists of 9,120 solar panels constructed over 7 acres, and generates enough electricity to power the equivalent of 150 homes a year. Each panel can generate 125 watts of energy. The electricity is transferred to DP&L's transmission lines, where it can be distributed to homes and businesses.

A visitor center provides information about solar power and up-to-the-minute performance of the array. Solar panels are kept clean through natural processes. In Ohio's climate, normal rainfall is enough to keep the solar panels sufficiently clean.

The solar facility was constructed in partnership with a number of regional companies led by Ameridian Specialty Services of Cincinnati and including Miller Valentine Construction of Dayton, Square D/Schneider Electric of West Chester, and ESI Electric of Dayton provided electricians to wire the solar panels. It took 3 months and over 13,000 construction hours to build the solar array. The array cost approximately \$5 million to build. A solar array costs one and a half times as much to build as a new a coal plant (\$5,000 per kilowatt to build solar photovoltaic array vs. \$3,000 per kilowatt to build a coal plant).

The overall goal for this facility is to study the long-term potential for solar in southwestern Ohio. Tracking the performance of the Yankee solar array over the course of multiple years will help

gage its overall value to customers in meeting Ohio's energy needs. It will also help demonstrate how alternative energy sources can be used to generate electricity used by Ohioans.

Solar projects need to be close to transmission lines; easily secured or policed and as "construction ready" as possible. That is why the Yankee location is optimum due to the expanse of acreage near transmission lines. The site also did not require much clearing or preparation. DP&L plans to stay within the low-cost areas of this parcel of land if they expand.

Southwest Ohio is on a dividing line on the solar radiation resource maps (from National Renewable Energy Lab) which show the amount of full sunlight that each area of the U.S. receives for solar generation. DP&L needs performance data from the Yankee solar array for decision-making on future renewable energy investments. Although there is no specific date to complete this analysis, DP&L plans to track performance over the course of multiple years as weather conditions and available sunlight can vary from year to year.

Years before DP&L installed its solar arrays, the company invested approximately \$600 million in equipment to reduce emissions at its power plants. And, at these same plants, they are testing new renewable biofuels which are made from crops, wood waste, and grasses. The company has also tested and incorporated different renewable energy sources into its generation fuel mix. DP&L has also initiated a 1,000-acre prairie grass planting project that will enhance local environments by converting turf areas on some of DP&L's property to prairie meadows.

North Star BlueScope Steel – Delta: North Star BlueScope Steel LLC is an international supplier of hot rolled steel with 380 employees. Scrap metal is sent through electric arc furnaces (EAFs) to be melted and then sent to a rolling mill to produce coiled ductile steel. North Star BlueScope Steel is the largest scrap steel recycler in Ohio and uses about 1.5 million tons of scrap steel annually to produce its coiled steel product.

Since 2000, the facility has used an environmental management system, based on ISO 14001, to prioritize projects for continuous improvement. The facility has a goal of reducing electrical, gas, and water consumption in the manufacturing of steel. A cross-functional team of employees conducted an environmental aspects analysis to identify and evaluate activities that had environmental aspects. The identified aspects are an integral part of the facility's programs and procedures to reduce the environmental impact of the facility and have received top management support for implementing identified projects. One objective pursued was to minimize landfill waste and improve the trash to recycling ration by 10 percent.

North Star BlueScope Steel implemented standard recycling processes for all operations and non-hazardous waste. Recycling champions were established for each department to coordinate these efforts. EAF slag generated during production is sent to a recycler for construction use. The dust is sent to a separate recycler to recover materials including iron and zinc which can be reused for metal production. The facility uses 100 percent recycled roll shop fines and filter paper. They also sought an alternative to filter cake disposal, reduced the number of trash containers and increased the number of recycling containers.

A new brick editing process allows scale generated in production to be reentered into the steel making process. The facility's ABB furnace increases the power and production of the furnace while decreasing

the energy use and electrode consumption compared to other furnaces. LED lighting upgrades, adding a new heel to the EAF to preheat the new scrap material, and installing a dynamic reactor to the furnace to better control the EAF current has saved energy and reduced costs.

North Star BlueScope Steel has also implemented a number of storm water best management practices including adding retention ponds, silt fences, culverts, rip rap, ditches and swales to control run-off at the facility. With state and community support and participation the facility holds a biennial Wetlands Day event to educate community school children about environmental issues at the site of their constructed wetlands. They also have a web site with Information on the facility's environmental stewardship efforts, environmental policy, and recycling numbers.

For more information about the Encouraging Environmental Excellence Program and the three levels of recognition, visit www.epa.ohio.gov/ohioE3.aspx or call (800) 329-7518.