Frito-Lay Topeka installs biomass energy center, slashes natural gas consumption

Innovative sustainability strategy earns facility LEED Gold certification

By Joseph Monaco

Executive Summary

In recent years, various economic and environmental factors have prompted food manufacturers to find ways to decrease their natural gas consumption. In August 2010, Frito-Lay's Topeka manufacturing facility addressed this issue head-on by installing a biomass boiler that enabled the plant to offset 100 percent of its natural gas consumption used for steam generation and reduce the site CO2 footprint by more than 70%. This energy-saving technology – which was part of a larger sustainability strategy that included green redesign, water reduction and improved waste management – helped the facility become just the second food production site nationally to receive LEED Existing Building Gold Certification from the U.S. Green Building Council. Not surprisingly, the Topeka facility is already being recognized as a model throughout the food processing industry for companies looking to utilize biomass boilers to decrease their natural gas consumption and adopt comprehensive sustainability strategies.

Overview

Boilers are a critical element of U.S. industrial operations, consuming 20 percent of the natural gas used in the manufacturing sector. Within the U.S. manufacturing sector, the food processing industry alone utilizes over 10,000 boilers to serve its heating and power needs. More than 70 percent of these boilers consume natural gas, amounting to an annual consumption of 237 trillion British Thermal Units (BTUs). Frito-Lay Topeka was no exception, utilizing 360MM BTUs of natural gas annually to generate steam for use in the food production process.

Frito-Lay Topeka assumes leadership role

It's well documented that economic and environmental concerns are prompting U.S. manufacturers – including food producers – to develop energy-saving technologies and increase their use of renewable fuels. With these concerns in mind, Frito-Lay Topeka in spring 2010 partnered with engineering leader Burns & McDonnell to develop a biomass energy center that would enable the facility to slash its use of natural gas in the steam generation process and instead utilize wood waste and tire-derived fuel. This innovative biomass energy center would comprise a fuel storage area, a boiler building and a pipe rack to connect the center to existing plant utilities. The energy center would then be integrated into the Frito-Lay manufacturing plant's existing site procedures and operations and, when complete, allow the company to offset 100 percent of the natural gas consumption used for steam generation at the facility.

By September of 2010, the biomass energy center was online. The new center is one of the most innovative energy-saving technologies to be incorporated into an existing building. In fact, the U.S. Department of Energy – which provided a $1.6 million grant to support the biomass center – described the project as "research (that) will ultimately aim to reduce the food processing industry's large natural gas consumption through the development and demonstration of biomass boiler applications that can be widely commercialized." In other words, this was exactly the type of project the DOE wants other companies to emulate and adopt.

Success leads to national recognition

While the biomass energy project was, in and of itself, a noteworthy achievement, it was just one component of a larger Frito-Lay Topeka sustainability strategy that included green construction features, water reduction and improved waste management. In April 2010, that overall sustainability strategy resulted in Frito-Lay Topeka becoming the state's first manufacturing site – and just the second food manufacturing site nationally – to be awarded LEED Existing Building Gold Certification from the U.S. Green Building Council. Not surprisingly, the nearly 30-year-old Topeka facility is already being recognized as a model throughout the food processing industry by companies looking to utilize biomass boilers to decrease their natural gas consumption, as well as by companies looking to adopt overall sustainability practices. Thanks to Frito-Lay, all green-minded eyes are on now Topeka.

Frito-Lay project thrives in Topeka

It's easy to see why the Frito-Lay Topeka project has been such a success: Company officials identified an opportunity and seized it. But Frito-Lay officials are quick to cite the support they received from Topeka business leaders, including GO Topeka, the city and county's economic development organization, throughout the process. Company officials also cite Topeka's overall familiarity with sustainability issues and green development. For example, GO Topeka is currently developing the Kanza Fire Commerce Park, a completely sustainable 1,018- acre industrial park comprising 130 acres of green space, water features and walking trails. The city has also updated its corporate incentive portfolio to include green incentives for companies striving for LEED certification.

"We're proud of our efforts to retrofit this nearly 30-year-old-building and make it more environmentally friendly," said Allen Moore, Director of Engineering/Maintenance for Frito-Lay Topeka. "Achieving LEED EB Gold standards is another significant step on our company's sustainability journey, and solidifies our place as a leader in Kansas and in the United States. And we're grateful that we had the support and resources to make it happen here in Topeka. I know the best is yet to come for our company and this entire community."