

# Fine-tuning the foundry

*Waupaca Foundry's energy enhancements earn DOE commendation* By Rich Redman



**Waupaca Foundry has been recognized by the Department of Energy for its efforts to save energy at its facilities in Waupaca, Marinette, Indiana and Tennessee. The DOE's Better Buildings, Better Plants program is a nationwide initiative to encourage companies to pledge to reduce corporate-wide energy use by 25 percent within 10 years.**

helping the nation benefit from energy efficiency,” writes Kathleen Hogan, acting program manager in the Advanced Manufacturing Office of the Energy Department. “Together with the other partners in the Better Buildings, Better Plants Program, Waupaca Foundry’s actions will save billions in energy costs, create new manufacturing jobs, strengthen the nation’s economic competitiveness, and help protect the environment.”

Foundries are classic recyclers. “Approximately 94 percent of all the stuff that we’re using to make new stuff is recycled content,” says Bryant Esch, the foundry’s environmental coordinator. “If you looked at our charge yard, where all the scrap comes in, it’s stuff you’d recognize – old car parts, golf clubs, bicycles – that get made into new parts.”

While the company joined the Department of Energy program at its start, it had been aggressively addressing its energy use since the early 2000s. “Just look at the sheer physics of taking all that scrap iron that’s been pulled out of the public space, and making it into something that is new and functional again,” says Esch. “We have to get it up to 2,500-

**W**hen a foundry melts more than 8,500 tons of scrap iron each day, it uses a huge amount of energy. Need a visual? That’s more than the metal in the Eiffel Tower, which weighs 7,300 tons.

That’s why Waupaca Foundry has long realized the importance of saving energy. It not only helps the environment, it has a direct impact on the bottom line.

Waupaca Foundry, which has three plants in Waupaca and one in Marinette – in addition to facilities in Indiana and Tennessee – recently received a letter of commendation from the U.S. Department of Energy

for its energy-saving progress as part of the Better Buildings, Better Plants program.

Better Buildings, Better Plants is a national initiative in which companies pledge to reduce the corporate-wide energy intensity of their manufacturing operations by 25 percent within 10 years. Started in 2009, it now includes 118 firms, 14 of which are headquartered in Wisconsin. Six of those are based in the New North: BPM, Inc. (Peshtigo), Eck Industries and Manitowoc Grey Iron Foundry (Manitowoc), Neenah Foundry (Neenah), Thilmany Papers (Kaukauna) and Waupaca Foundry, Inc. (Waupaca).

“Waupaca Foundry’s efforts are

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plus degrees in order to melt it and remold it. Then, at some point, the iron cools and you have all this waste heat.

“In the old days, the foundry would just blow that heat out the roof,” continues Esch. “Then we developed a way to use that heat to heat our buildings in the winter.”

The company installed a closed-loop heat recovery system at Foundry Plant 1 in Waupaca, for example, that uses the waste heat to increase the temperature of a water/glycol system that pre-heats air for the plant. It provides nearly all the building heat for winter months, as well as year-round hot water. It has also resulted in an annual reduction of 4,600 metric tons of carbon dioxide. Within two years, it had paid for itself in energy savings.

With a closed-loop cooling system installed at the Marinette facility, machines are cooled by recycled non-contact cooling water. That has resulted in a 30 percent to 95 percent reduction in cooling water use, depending on the season.

Lighting upgrades also provide a great return on investment. As assistant maintenance superintendent at Marinette, Todd Tobison oversaw last year’s upgrade of more than 100 traditional fixtures, which drew 1,000 watts each, to LED fixtures, each of which draws 172 watts.

“It may sound like a simple change, but it’s giving us the biggest bang for our buck. I can put in five LED fixtures for the energy cost of one old fixture,” says Tobison.

Other efforts have focused on optimizing compressed air, improving HVAC controls by using computers and in-plant sensors, installing low-velocity,

high-volume fans to redistribute hot air from the ceiling throughout the workplace, and installing premium-efficiency electric motors.

So far, these efforts have already logged a 16.5 percent improvement against Waupaca Foundry’s 2009 baseline year – putting the company well on the way toward the Better Buildings program’s target of a 25 percent reduction by 2019.

“This whole thing is a big team effort,” Esch says. “Our brain trust gets together and determines what we can do.”

But he also knows that the secret is simply continuous improvement. “A lot of this isn’t rocket science,” says Esch. “It’s working with the tools that you have and developing your program. We’re happy with what we’ve done, but we’re looking forward to building our program, and seeing what kinds of things open up for us.” ①

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