CARGILL: 20+ YEARS OF SETTING & ACHIEVING ENERGY SAVINGS GOALS

Cargill operates the most energy independent meat processing plant in North America—the High River beef plant in Alberta, Canada—which uses a fluidized CHP system to turn waste fuel into steam and electricity. Photo courtesy Cargill, Inc.

ALLIANCE
FOR INDUSTRIAL EFFICIENCY

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—PETER DAHM
CARGILL SUSTAINABILITY DIRECTOR, OPERATIONS AND NATURAL RESOURCES

Cargill—one of the world's leading providers of food and agricultural products and services—also is perhaps one of the most experienced manufacturers in the United States when it comes to setting and achieving energy savings goals. Long before the company set its first public, corporate-wide energy savings target nearly 20 years ago, Cargill was already focused on making its operations as efficient as possible.

"ONE OF THE MAIN REASONS THAT CARGILL SET ENERGY EFFICIENCY GOALS 20 YEARS AGO was to drive operational efficiency and contribute to the growth of our business. Because there was a cost component to our targets, you could really make the business case based on expense savings. Cutting energy use is good for our bottom line, and the planet," said Peter Dahm, Cargill's Sustainability Director, Operations and Natural Resources.

It was in 1998, when the company conducted its first greenhouse gas inventory, that Cargill's leaders recognized the linkage between carbon emissions and energy use.

The following year, Cargill set its first public, corporate-wide energy efficiency target. Since then, the company has achieved a 16% reduction in energy use, saving the company a staggering $100 million per year.

"The benefits of setting public targets are numerous," Dahm said. "They help align and motivate the entire organization, provide focus and drive innovation. We also set public targets because our senior leadership saw the value in sustainability. They said, 'Cargill wants to be a leader in sustainability, and this is one action leading sustainability companies take.'"

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Cargill replaced diesel-run boilers at an animal nutrition facility in Honduras with a boiler fueled by sawdust from the local lumber industry. Switching from diesel fuel to sawdust has reduced carbon emissions by about 6,000 metric tons per year. Photo courtesy Cargill, Inc.

When Cargill started bringing Combined Heat and Power (CHP) systems online, the company realized that traditional ways of measuring energy efficiency would have to change. Prior to 2015, Cargill's energy efficiency goals were focused on reducing the company's *energy intensity*—meaning the amount of energy it took to produce a unit of product.

But by shifting some of its power supply from offsite to onsite with CHP, Cargill's *onsite* energy use naturally increased, along with the company's reported energy intensity. No surprise, it takes power to run a power system. However, producing energy onsite—in particular via CHP, is vastly more efficient and less carbon-intensive than relying on the same power generated by utilities.

When measuring energy efficiency, most companies simply measure grid electricity *after* it reaches their doorstep. Cargill chose to measure *source energy efficiency*, taking into account the energy required to produce electricity where it is originally generated—at the power plant.

"When you take on a CHP system, you are far more efficient in producing that energy than a utility company is. You don't have transportation and distribution losses like you have in a grid system. That was something we stumbled into as we brought more CHP systems online," said Dahm. "We switched from measuring onsite energy efficiency to measuring source energy efficiency. That allowed us to recognize the positive impact of CHP on energy efficiency."

Today, Cargill has more than 30 CHP systems operating on a global basis and plans to ramp up to 40 systems in the future.

Cargill's energy efficiency goal setting evolved even further in February of 2018 when the company committed to science-based targets, which are increasingly common across industries and are collectively intended to keep the global rise in temperature below 2 degrees Celsius.

Cargill is now working toward reducing its absolute greenhouse gas emissions by a minimum of 10 percent by 2025, against a 2017 baseline. This is the equivalent of taking 270,000 cars off the road or cutting the emissions of someone flying round-trip from New York City to Shanghai 300,000 times.

To meet this goal, Cargill plans to accelerate efforts to improve energy efficiency; increase renewable energy use; and deploy low carbon solutions systems, such as CHP, to reduce greenhouse gas emissions while growing the business.

"We've almost come full circle. Concern over climate change drove our initial corporate-level efforts to improve energy efficiency. Now, using science-based targets, we can set an explicit carbon reduction goal, rather than an indirect goal that uses energy efficiency as a proxy for carbon reductions," said Dahm. In the end, Cargill's initial corporate energy efficiency targets paved the way for the company to set increasingly ambitious energy and sustainability goals, and helped guide the company's energy saving efforts.