



# Big machines equal big savings at American Crystal Sugar Company



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Aaron Bjerke

Business Development Engineer

## Sweet savings

Energy savings can come in all shapes and sizes. At American Crystal Sugar Company's Moorhead facility, it came in the form of a giant sugarbeet pulp press. They needed the press to reduce costs at the plant and hoped that the energy savings they knew they would achieve would be eligible for an Xcel Energy rebate. They were in for good news.

## Reducing moisture, increasing efficiency

American Crystal Sugar Company, or ACSC, is an agricultural cooperative owned by 3,000 shareholders in Northwestern Minnesota and Eastern North Dakota involved in the growing and processing of sugarbeets. It is the largest beetsugar producer in the United States, with five factories in the upper Midwest.

For approximately 280 days of every year, those five factories operate 24/7 churning out 150 pounds of sugar every second or about 3 billion pounds of sugar every processing season. That includes 800,000 tons of agri-products used for cattle feed, distributed throughout the U.S, Asia and Europe.

With that volume of output, there's no time to slow down. So Aaron Bjerke, business development engineer, and factory personnel constantly look for ways to improve their operations and increase energy efficiency.

In the sugar industry, reducing moisture content in the pulp is a priority. Lower-moisture content decreases natural gas use in the pulp dryers.

"These pulp presses are huge, heavy, highly-mechanical pieces of equipment that we get from manufacturers in Norway, Germany and Italy," explains Bjerke. Due to their size, one of Bjerke's presses took eight months to fabricate and ship. The entire project took two years to complete. "It's worth it once we have it in place because we know it'll save us energy."

American Crystal Sugar Company's Xcel Energy account representative, Jeff Kosak, says it also took some time to figure out the rebates.



Project snapshot	
Project	Install new, more efficient sugarbeet pulp press at the Moorhead plant; install two, low-flow methane burners at the East Grand Forks plant
Xcel Energy rebate	\$378,877
Energy savings	757,774 therms
Annual cost savings	\$398,459

"As you can imagine, not everyone is upgrading their pulp presses so this was new territory for us," says Kosak. "But in the interest of encouraging our customers to save gas where they can, we worked with our engineers to analyze how much they would save so we could determine how much money they could get back."

The project went through Xcel Energy's Process Efficiency and Custom Efficiency programs.

"This is one of those unique, eye-opening projects because it shows the unusual types of things we can actually rebate," says Kosak.

This wasn't ACSC's first project with Xcel Energy. They also completed a low-flame biogas burner project at its East Grand Forks facility which helped them realize gas savings of 296,990 therms and a rebate of nearly \$150,000.

### Savings worth the wait

The process was a long one but Bjerke says the savings were worth the wait. The internal rate of return or IRR on the addition of the press was approximately 15 percent, and the rebate increased the IRR by an additional one percent.

"All too often we focus on simple payback but there are metrics like the IRR that are important measures of efficiency," says Kosak. "We applaud our customers for taking the time to provide us with a lot of complicated information so we can get these projects to closure."

The work earned ACSC a \$378,877 rebate and annual energy savings of \$398,459.

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### Next steps

Now that they've gotten a taste for efficiency, ACSC is already moving on to the next project. They're looking at yet another pulp press at a different facility and a blower and mixer valve project which is already preapproved for an \$86,000 rebate and will save them an additional 172,000 therms of natural gas.

As each project is completed, Bjerke makes sure to go through an audit to prove the project's worth to the board of directors. He says that helps get approvals for the next project to keep the efficiency wheels turning.



Not sure where to start? Tell us about your project and an energy efficiency specialist will be in touch to see if it qualifies for a rebate. You may also visit [xcelenergy.com/ProcessEfficiency](https://www.xcelenergy.com/ProcessEfficiency) for more details or call **855.839.8862**.