

Shared Savings fuels mega savings for Minn. ethanol plant

In 2004, farmer-owned Corn Plus LLC in Winnebago, Minn., produced 45 million gallons of ethanol from corn. But the high cost of the natural gas needed to fuel the process was cutting deeply into its profit margin. In search of a way to lower its fuel costs, Corn Plus called on the problem-solving expertise of Alliant Energy.

“Corn Plus had two problems,” explained Alliant Energy Strategic Account Manager **Dave Wentzel**. “First, the company was faced with the possibility that the value of Distiller’s Dry Grain (DDG), a by-product of the ethanol process, would decrease due to oversupply.

“Secondly, the Minnesota Pollution Control Agency (MPCA) and the Environmental Protection Agency (EPA) had determined that ethanol facilities in Minnesota are in a non-compliance status for both volatile organic compound (VOC) and opacity (particulate) emissions.”

Syrup fuels generating system

To solve these problems, Alliant Energy proposed using a fluidized bed bio-fuel steam generating system. Fluidized bed reactors have been used in similar applications in paper mills for over 30 years, but they are relatively new to the ethanol industry. It works this way:

- The system generates steam in sufficient quantities necessary to sustain the operation of the plant.
- Corn syrup is used as the primary source of fuel for the fluidized bed in combination with necessary quantities of DDG, therefore, saving on natural gas.
- The system enables DDG production, and revenue from its sale, to continue.
- It provides a safe and effective method to remove VOCs from the dryer exhaust and particulates from air emissions.

The cost of the fluidized bed facility, between \$13 and \$15 million, will displace in excess of 70 percent of the natural gas formerly used by Corn Plus, creating a savings of \$5 to \$6 million in fuel costs, annually.

Most energy-efficient plant

This project has the potential to really change the energy balance in producing ethanol, according to Wentzel. “If Corn Plus can displace close to 70 percent of the natural gas used at their plant, they will have one of the most energy-efficient plants in the country today.”

Corn Plus also discovered another “plus” in working with Alliant Energy. “We can take advantage of the Shared Savings program for the energy-efficient motors and additional process improvements associated with the project without using our capital,” said Corn Plus General

Manager Keith Kor. “And Shared Savings will allow us to pay for them out of the energy savings.”



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Keith Kor, Corn Plus general manager, thanks Shared Shavings for simplifying the purchase of the new, energy-efficient equipment. Here, he displays a rendering of the plant's new fluidized bed bio-fuel steam generating system.