



VFDS FUEL ENERGY SAVINGS AT PACIFIC ETHANOL

In a sprawling campus nestled on the banks of the Illinois River, Pacific Ethanol transforms corn into clean, renewable energy. With renewed interest in its own energy use, the ethanol producer partnered with Ameren Illinois to get their motors running at the right speed.

“I first heard about the Ameren Illinois Energy Efficiency Program from our electrical engineer, Tom Tejjido,” says Kevin Adams, Director of Technical Operations at the company’s Pekin facility. Their motivation to become more energy efficient took a quantum leap forward after taking a closer look at their power bills.

“When we realized our company was paying into the program every month, but not actively submitting projects that it could support us on, we started to look for opportunities,” says Adams.

With 2,000 motors running in the 650,000 square-foot facility, they didn’t have to look for long.

Motors make an easy target for efficiency efforts. Designed to handle maximum loads, motors typically offer only two speeds — “off” or “full speed.”

In contrast, motors equipped with variable frequency drives (VFDs) don’t work any harder than they need to, which can lead to dramatic reductions in energy use.

Scott Schultz, an energy program engineer for Ameren Illinois, compares VFDs to a kind of cruise control that automatically adjusts motor speed to meet changing demands.

“If a motor needs more power, then the VFD provides it; but if you’re going ‘downhill’ and need less power, the VFD reduces the speed of the motor,” says Schultz. “The motor is not constantly running at 100% and wasting energy.”

Pacific Ethanol partnered with Illinois Electric Works, a Program Ally, to identify fans, motors and pumps that would gain the most from variable frequency drives. That survey identified roughly 100 motors that would benefit from VFDs.

To whittle down that list, Pacific Ethanol targeted VFD projects with payback periods of one year or less. That left them with a manageable project: installing VFDs on 12 motors ranging from 75 to 400 horsepower.

“Many of our motors run at full speed, and use a control valve or damper to control the flow of liquids or gases,” says Adams. “The VFD allows the motor to speed up or slow down to provide the necessary pressure — eliminating the need for dampers and valves.”

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“It’s not common to install VFDs on 400 horsepower motors. Those are some very, very big dogs — but the bigger the motor, the bigger the savings.”

— Scott Schultz, Energy Program Engineer

Benefits to Pacific Ethanol:

- \$298,228 annual savings
- 4.26 million kWh annual energy savings
- \$170,775 in incentives
- Less impact on the environment



Discover the Power of Efficiency with Ameren Illinois!

"Once you understand the program, it's easy — and it has been well worth it."

— Kevin Adams, Pacific Ethanol



Get Your Money Back from Ameren Illinois!

Did you know? Ameren Illinois' energy efficiency program is funded through a small, state-mandated charge on Ameren Illinois customer bills (Rider EDR for electricity customers and Rider GER for natural gas customers). Why not try to get some of that money back?

"When we saw the amount of money we were putting into the program, it motivated us to get involved," says Kevin Adams, Director of Technical Operations at Pacific Ethanol. "Once you understand the program, it's easy — and it has been well worth it."

Take a lesson from Pacific Ethanol and make the most of your company's investment in Ameren Illinois' energy efficiency program. Call us today to get started!

The sheer size of some of those motors made the Pacific Ethanol project unique.

"It's not common to install VFDs on 400 horsepower motors," says Schultz. "Those are some very, very big dogs — but the bigger the motor, the bigger the savings."

In fact, by modifying just 12 motors, Pacific Ethanol has reduced its annual electrical use by more than 4.2 million kWh a year. Those energy savings boost the bottom line by nearly \$300,000 every year — and help the environment, too.

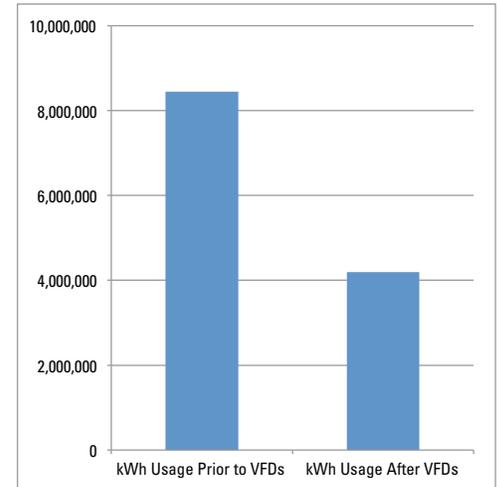
To help fund the improvements, Ameren Illinois provided more than \$170,000. The incentive money cut Pacific Ethanol's project costs by more than half.

"This is probably the only way we could have done this project," says Adams. "There is a very limited amount of money for capital projects. The fact that we got incentive money helped push the project to the forefront."

The project proved to be a wake-up call to the power of energy efficiency — and the allies you'll find.

"The Ameren Illinois energy efficiency program is a very generous program for helping you to reduce energy, and the team's support has been indispensable," says Adams. "We woke up to the

PACIFIC ETHANOL ENERGY USE



opportunity — and now it's become a part of the culture."

With an eye for energy efficiency, the team at Pacific Ethanol hopes to transform their workplace — originally built in 1899 as a sugar processing facility — one project at a time. In fact, the company is already pursuing a number of new projects.

As Adams says, "In a very old facility like this, we have great opportunities to do things in a smarter, better way."

Get Your Motor Running . . . at the Right Speed!

Ameren Illinois offers great incentives for new projects that add variable frequency drives (VFDs) to motors on fans or pumps. In fact, we'll cover a percentage of project costs for a quicker payback.

"The paybacks on VFD projects are amazing — and the incentives are the highest they've ever been," says Scott Schultz, Energy Program Engineer.

"Some plant managers think VFDs are expensive; but these days, they are very affordable and can be put on motors as small as five horsepower," says Schultz. "Any facility with fans and pumps has motors that can benefit from VFDs."

To learn more or download an application, go to AmerenIllinoisSavings.com/VFD.

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