

ENERGYwise

FOR YOUR BUSINESS



Variable Frequency Drives

Are motors part of your business? Did you know you can save money and energy by changing the speed of the motor as the demand of the motor changes? Plus, you could be eligible for valuable rebates from Dakota Electric for improving the energy-efficiency of your operations.

Value for your business

Most motors operate at a nearly constant speed. They are designed to operate most efficiently at their horsepower rating. However, sometimes the load or work motors need to perform is less than the maximum design speed, and you can save energy by only using the power you need from the motor.

This speed reduction can be accomplished with a variable frequency drive (VFD). The drive varies the shaft speed to the driven load. Slowing a pump or fan in this manner reduces energy consumption.

Variable frequency drives also provide soft starting, allowing a motor to start slowly and then speed up. This reduces the mechanical stress on both the motor and equipment driven by the motor. This also can reduce the voltage sag that can occur when a large motor starts quickly. A VFD varies the frequency of the alternating current power. The motor speed varies in proportion to the drive operated frequency.

The increased sophistication of these drives has pushed energy savings into HVAC, pumps, fans, conveyor motors and other smaller applications in a variety of commercial and industrial areas. If the load fluctuates, there is potential for a drive to save money.

Rebates extend your savings

Rebates are available for new variable frequency drives. Drives must be tied to an automated control system and have a true power factor of .90 or greater.

Approved applications for variable frequency drives include:

- HVAC fans
- Pumps
- Cooling towers
- Process equipment
- Industrial fans

Please submit rebate requests for variable frequency drive controlled chillers, refrigeration compressors and air compressors through Dakota Electric's custom EnergyGrant® program, to be evaluated in conjunction with the equipment operating efficiency and loading. The rebate is based on the rated variable frequency drive controlled horsepower or horsepower of the motor, whichever is lowest. Rebates are not available on replacement variable frequency drives, soft starts, power factor correction or related equipment.

Who can participate?

Any commercial or industrial Dakota Electric member can participate.



Your Touchstone Energy® Partner 

Save money and energy by changing the speed of the motor as the demand of the motor changes



It is not surprising that motor use typically represents more than half of most manufacturers' electric bills. What is surprising is that most of us still feel that a slight improvement in efficiency does not warrant a motor replacement, even when the payback period can be less than one year. Motors are one of the few electrical devices with a significantly higher operating cost than capital cost.

What you'll receive

A \$30 rebate per horsepower based on rated variable frequency drive control horsepower or horsepower of motor, whichever is lower.

What you need to do

1. You are responsible for checking with Dakota Electric to verify funding availability and program parameters.
2. Installation must be complete before funds will be issued.
3. Itemized invoices from equipment vendors must accompany rebate application.
4. Invoices must itemize labor charges, quantity and price of the equipment installed.
5. Invoices must include manufacturer and model numbers for the installed equipment.
6. Dakota Electric reserves the right to conduct inspections.
7. The maximum rebate amount is limited to 50 percent of the project costs and \$100,000 annually per member.

Success Story:

East Bay Municipal Utility District Wastewater Department serves more than 600,000 residential and 20,000 commercial customers in seven San Francisco Bay communities. It replaced five old 700 horsepower influent pumps and motors and four old 1,000 horsepower effluent pumps and motors with high-efficiency pumps and energy-efficient motors with variable frequency drives. This resulted in reducing annual energy costs from \$535,000 to \$262,000.

Source: U.S. Department of Energy

Contact the Energy Experts®

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