

# Variable Speed Drives

NIPSCO ENERGY EFFICIENCY PROGRAMS FOR BUSINESSES



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## Smart Control, Big Savings

Is your industrial space ready for improvement? Explore the power of Variable Speed Drives (VSDs) to reduce energy consumption, support decarbonization goals and deliver a fast financial return on investment.

### How do they work?

Variable Speed Drives (VSDs), also known as Variable Frequency Drives (VFDs), optimize the performance of motors by adjusting their speed and torque to match the specific needs of the equipment. They work by converting the fixed-frequency power supply into a variable-frequency output, allowing precise control of motor speed. This not only reduces energy consumption but also minimizes wear and tear on mechanical components, often extending equipment life.

### Where can VSDs be used?

VSDs are ideal for applications that don't always require full motor speed. Popular industrial applications that can benefit from the addition of a VSD may include:

- Air compressors
- Process boiler and chiller feedwater pumps & motors
- HVAC & process control tower fans
- Air handler supply/return fans
- Exhaust fans
- Dust collection systems
- Waste water treatment plants
- Conveyors

### Why invest in VSDs?

VSDs are a smart solution to help lower energy consumption. By matching motor output to exact needs, you can significantly reduce energy use. For example, reducing rotating equipment speed (flow) by 20% can reduce input power requirements by approximately 50%.<sup>1</sup>

#### Source:

<sup>1</sup> [www.energy.gov/eere/amo/articles/adjustable-speed-drive-part-load-efficiency](https://www.energy.gov/eere/amo/articles/adjustable-speed-drive-part-load-efficiency)

<sup>2</sup> <https://www.eia.gov/todayinenergy/detail.php?id=13431>



## Did you know?

*Machine drives, which are primarily electric motors, pumps and fans, account for about half of the manufacturing sector's delivered electricity use and 8% of the sector's total fuel consumption.<sup>2</sup>*

### CASE STUDY

## Water treatment facility adds VSD's to pump station motors

**Total HP:** 1,328

**Incentive earned:** \$151,491.36

**Annual savings (estimated):** 1,262,428 kWh

### Project overview:

Municipality improvements to a local water treatment facility included upgrading lift station pumps and motors and installing variable frequency drives for precise speed control requirements. The installation of 410 HP, controlled at 98 HP with the addition of the VSD's, resulted in reduced electrical consumption annually, smoother facility operation and reduced maintenance requirements.

\* NIPSCO's energy efficiency programs are administered by TRC, a third-party implementation specialist that helps homes and businesses save energy.

**NIPSCO.com/Business**  
**Call TRC at 1-800-299-2501**

# Benefits of Variable Speed Drives (VSDs)

This is just a shortlist of energy-saving benefits of VSDs. To learn more about this measure, contact TRC.\*



**Energy efficiency:** VSDs reduce energy consumption by adjusting motor speed to match demand, avoiding unnecessary power use when full speed is not required.

**Cost savings:** Lower energy usage leads to significant reductions in energy bills and operating costs over time.

**Enhanced process control:** Precise control over motor speed allows for smoother and more accurate operation in applications like pumps, fans and conveyors.

**Extended equipment lifespan:** By reducing mechanical stress during startup and operation, VSDs minimize wear and tear, extending the life of motors and connected equipment.

**Reduced maintenance costs:** Smoother motor operation reduces the likelihood of mechanical failures, lowering maintenance needs and costs.

**Improved system flexibility:** VSDs allow motors to operate at variable

speeds, enabling systems to adapt to different conditions and requirements.

**Lower noise levels:** Motors running at reduced speeds generate less noise, creating a quieter operating environment.

**Environmental benefits:** Reduced energy use translates to lower greenhouse gas emissions, supporting sustainability goals.

**Soft start capability:** VSDs enable smooth motor startups, reducing inrush current and preventing electrical system stress.

## Get started saving!

Now that you know more about what to upgrade, visit [trcsavesenergy.com/TradeAlly/TradeAllySearch](https://trcsavesenergy.com/TradeAlly/TradeAllySearch) to find an experienced contractor in your area. Have questions? Contact a TRC\* Field Engineer in your area by visiting [trcsavesenergy.com/Home/ContactUs](https://trcsavesenergy.com/Home/ContactUs) or contacting a TRC Program representative by calling **1-800-299-2501** or emailing [NIPSCO.Savings@TRCcompanies.com](mailto:NIPSCO.Savings@TRCcompanies.com)



Click or scan to explore the full list of NIPSCO's 2025 energy-saving measures.\*

[bit.ly/2025-Incentives](https://bit.ly/2025-Incentives)



Discover other resources to guide your energy-saving journey.\*

[bit.ly/nipsco-tools](https://bit.ly/nipsco-tools)



### CASE STUDY

## Local school uses VSDs to aid HVAC supply fans

**Total HP:** 14.5

**Incentive earned:** \$1,763.19

**Annual savings (estimated):** 16,029 kWh

### Project overview:

A local school district replaced HVAC equipment with more efficient units equipped with variable speed drives, which resulted in boosted temperature space control, reduced sound levels in classrooms and reduced electrical consumption annually.

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