



# What is the best route to capturing wasted energy in a motor-drive system?

Look ahead to Siemens variable frequency drives with regenerative in-feed technology

When considering energy savings for electric motors, we typically think of pumps, fans, and compressors. However, it is easy to overlook significant energy savings on applications with frequent braking or overhauling loads.

While motors represent over 65% of the total industrial power demand, approximately 70% of the installed motors today do not use optimal motor control – bad news for a greener world. The good news is that almost every company has the potential to tap into enormous energy savings by using Siemens variable frequency drives (VFDs) for motor control. The energy savings potential is substantial – up to 70%.

But that's just the beginning of your journey. Energy-efficient VFD systems can assist you in a number of other ways. They help to reduce production costs, improve product quality, and ultimately, lower CO<sub>2</sub> emissions.

In energy intensive industries with regenerative applications (overhauling loads or braking), switching to VFDs has immediate measurable effects. For many applications, the returns on investment can be achieved within a few short months, with overall operating costs decreased significantly.

## Concerned about initial capital investment?

Despite the savings potential when using drives technology, it is usually the initial investment that is of most concern.

## Let Siemens help you.

Now a creative and flexible energy savings finance program provided by Siemens Financial Services allows your initial outlay to be recovered within a few months. Combined with federal, state, and local energy tax incentives, never before has it been so easy to take full advantage of Siemens VFDs. A much greener future is down the road – a greener world, and the ROI kind of green that results from inherent energy savings.

Drive to a greener future

[www.usa.siemens.com/energysavings](http://www.usa.siemens.com/energysavings)

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## Regeneration

When evaluating an efficiency upgrade in your facility, a common mistake is to only optimize the performance of a specific piece of equipment. It is important to factor in the benefits available from a complete system perspective.

Regeneration is an integral part of a complete drive solution that will make a considerable difference in the ROI on your complete energy efficiency upgrade efforts.

By capturing the electrical energy normally wasted when stopping or cycling a motor, regenerative in-feed technology allows the wasted energy to be returned back to your facility power grid for use elsewhere, thereby reducing the overall power demand, and ultimately reducing your energy costs.

### Buy new or upgrade?

There are savings potential to be realized in almost every industry. The decision on whether to introduce a completely new concept or upgrade your existing equipment must be made on a case-by-case basis. With new systems, it is relatively easy to calculate how quickly the additional costs for an energy-efficient drive system will be recovered.

When considering an upgrade, it is important to look at the application. The more energy-intensive the application or the longer a motor operates at partial load, the faster an energy-efficient VFD system will pay off.

### Siemens SINAMICS VFDs for wasted energy recovery

Siemens SINAMICS family of drives features several solutions for regenerative applications. In the low-voltage range, these include the SINAMICS G120, S120, S120CM, and S150. Siemens drives are equipped with an array of innovative functions for optimum motor control. What's more, our all-new Intelligent Operator Panel (IOP) significantly simplifies operator control.

### SINAMICS regenerative in-feed drives

Regenerative infeed drives return energy back into the supply system instead of wasting the energy in the form of heat or inertial load losses. Efficient In-feed Technology offered on the SINAMICS G120 brings you the smallest regenerative drive for general purpose applications.

Smart Infeed Technology provides a low cost regenerative drive for larger ratings typically in large, high performance industrial installations and for motion control.

Active Infeed Technology, as provided by the SINAMICS S120 series, combines regenerative operation with power quality management, improving overall systems efficiency. By virtually eliminating



harmonics and optionally providing power factor control to compensate for poor power factor from other loads, Active Infeed drives can provide stable operation of the load on very weak supply systems with voltage fluctuations, and can also help to stabilize the supply system.

### Ask Siemens about the applications and benefits of SINAMICS regenerative infeed technology

- Continuous braking with 100% of the rated power
- Conserves energy by regenerating (returning excess energy generated from braking or high inertia loads) back into the power system for use by other equipment
- Does not produce additional heat during braking
- Eliminates the cost and time required to design/engineer, mount and wire additional components, such as braking resistors, braking choppers, and cables
- Efficient compact design
- Reduces input power
- Regenerative technology for all needs, from low HP general purpose applications to high performance industrial installations and for motion control
- Some models feature power quality management, by virtually eliminating harmonics and optionally providing power factor control to compensate for poor power factor from other loads — can help to stabilize the supply system, improving overall systems efficiency

### Contact your local Siemens representative today to put you on the road to energy savings.

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