

## Improve Motor System Efficiency with MotorMaster+

### Facts & Figures

- An independent study (published in 2000) credited MotorMaster+ with nationwide annual savings of more than \$2.4 million and 50,687 MWh.
- Motor-driven equipment accounts for 64% of the electricity used in the U.S. industrial sector.

### Benefits of MotorMaster+

- Create lists of motors that meet user-specific requirements.
- Calculate the savings and simple payback period for premium-efficiency motors versus standard-efficiency units.
- Optimize the motor repair-versus-replace decision and to develop a Premium Efficiency Motor-Ready (PEM-Ready) spares inventory.
- Manage motor systems comprehensively.

### Resources

To download MotorMaster+ and other free software tools and learn more about DOE Qualified Specialists and training opportunities, visit the ITP Web site, [www.eere.energy.gov/industry/bestpractices](http://www.eere.energy.gov/industry/bestpractices).

Additionally, you can contact the EERE Information Center at 1-877-EERE-INF (1-877-337-3463), or via the Web at [www.eere.energy.gov/informationcenter](http://www.eere.energy.gov/informationcenter).

### MotorMaster+ Version 4.0 Software Aids Replace/Rewind Decisions

Whether you're a novice or an expert at managing motor systems, MotorMaster+ is designed for you. The separate but communicating modules make the software exceptionally flexible and easy to learn and use. Developed by the U.S. Department of Energy (DOE) Industrial Technologies Program, this software tool handles everything from calculating the simple payback on a single motor purchase to comprehensive, integrated motor system management.

MotorMaster+ allows users to create or import an inventory of in-plant operating and spare motors. Motor load, efficiency at the load point, annual energy use, and annual operating costs can be determined after taking field measurements. The software quickly identifies inefficient or oversized facility motors and computes the savings that can be achieved by replacing older, standard efficiency motors with premium efficiency models. The software runs on local or wide-area networks for access by multiple users.

In response to comments and suggestions from diverse industrial facilities, MotorMaster+ 4.0 contains expanded capabilities for inventory management, maintenance logging, lifecycle costing, savings tracking and trending, conservation analysis, savings evaluation, energy accounting, and environmental reporting. The software can accommodate motors with constant or variable loads. It continues to serve as a respected, nonbiased source for motor data.

*"We've saved a significant amount of energy in our forest products plants and increased reliability through an aggressive motor management plan that relies on DOE motor system publications and MotorMaster+."*

**- John Holmquist, Senior Scientist, Weyerhaeuser Company**

*"MotorMaster+ is easy for us to work with...It gave me the numbers I need to justify the purchase."*

**- Irma Grogan, Foreman, Ellensburg Wastewater Treatment Plant**



## Helpful Features

- Expanded list of more than 17,000 motors from 14 manufacturers, including National Electrical Manufacturers Association (NEMA) Premium® efficiency medium-voltage (>600 volt) motors.
- Improved predictive maintenance testing—facilitates rapid data entry, sorting by condition, and rewind/replace recommendations.
- Enhanced user manual—new reporting methods and efficient predictive maintenance practices.
- Technical data to help optimize drive systems, such as data on motor part-load efficiency and power factor; full-load speed; and locked-rotor, breakdown, and full-load torque.
- Motor purchasing information, including list prices, warranty periods, catalog numbers, motor weights, and manufacturer addresses.
- Capability to calculate energy savings, dollar savings, simple payback, cash flows, and the after-taxes rate of return-on-investment for energy programs—taking into account such variables as load factor, motor efficiency, purchase price, energy costs, hours of operation, and utility rebates.

## MotorMaster+ Gets Results

A large motor repair shop uses MotorMaster+ to assist customers in making sound motor purchase and replacement decisions. One of these applications at a large facility in Indiana led to the replacement of 125 motors with premium-efficiency motors, saving the plant approximately \$80,000 per year. MotorMaster+ also specified premium-efficiency motors on new OEM equipment at the facility for another \$128,000 in annual savings.

In 2001, the Ellensburg Wastewater Treatment Plant in Washington had to decide whether to replace or rewind two large 50-horsepower aerator motors. Initial use of the MotorMaster+ software indicated that it would be more cost-effective to purchase new motors than to rewind the existing motors. In a second run, MotorMaster+ compared the cost effectiveness and simple payback periods of various new 50-horsepower motors and helped justify the purchase of new standard-efficiency units.

*ITP provides U.S. industries with software assessment tools, training, technical information, and assistance. These resources and energy management practices help plants improve the energy efficiency of their process heating, steam, pumps, compressed air, and other systems; reduce operating costs; and improve their bottom line.*

## Support and Training

ITP offers a 1-day workshop to help facility personnel—maintenance staff, plant managers, and plant engineers—gain an understanding of electric motor systems management and skills to help them manage motor systems for reduced energy cost and increased reliability. This session identifies resources, such as organizations, standards, guidebooks, and technical assistance providers, that can help plant personnel establish and manage industrial motor systems. In addition, the workshop provides an overview of DOE's MotorMaster+ software and a demonstration of the tool's basic functions and applications. Visit ITP's online Training Calendar for a list of upcoming sessions: [www.eere.energy.gov/industry/bestpractices/events\\_calendar.asp](http://www.eere.energy.gov/industry/bestpractices/events_calendar.asp).

## A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

### For More Information, please contact:

Industrial Technologies Program (ITP)  
[www.industry.energy.gov](http://www.industry.energy.gov)

EERE Information Center  
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