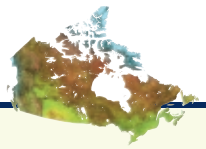
ENERGUIDE FOR INDUSTRY

Technical fact sheet

CanMOST – Canadian Motor Selection Tool



Motor-driven systems use 39 percent of all electrical energy consumed in Canada. This adds up to an estimated $14 billion annually.[1] In the case of industry, where motor use is more prevalent, motors consume about half of the total electricity – and that figure can go as high as three quarters of total electrical consumption for many industries.

Choosing an energy-efficient industrial motor can dramatically reduce the energy consumption and utility cost of running a motor-driven system over its lifetime. And improving energy efficiency reduces greenhouse gas (GHG) emissions that contribute to climate change.

Although energy-efficient motors can sometimes cost more, the price of a motor represents less than 3 percent of the electricity costs of running a motor-driven system over its lifetime. So it pays to invest in a higher efficiency model.

Analysing the costs and benefits of different industrial motors can be a daunting task. The Canadian Motor Selection Tool – **CanMOST** – makes the job simpler.

Modelled on the successful U.S. industrial motor energy management software program MotorMaster+, **CanMOST** was developed for Natural Resources Canada by the Washington State University Extension Energy Program as part of the International Motor Selection and Savings Analysis (IMSSA) project. Other sponsors of this international effort include the International Copper Association, the United States, the United Kingdom, the European Commission and Chile.

[1] Natural Resources Canada data

CanMOST introduces a suite of features tailored to the Canadian marketplace, including

- A **bilingual** user interface
- An **expanded motor catalogue table** containing price and performance data for **43 000 North American and European motors**, including some 575-volt motors available only in Canada
- Cost savings that reflect **Canadian utility rate structures** (incorporating both electricity use and peak demand charges)
- Costs, demand charges and savings calculated and displayed in **Canadian dollars**
- Annual **GHG emissions reductions** computed and displayed

Who should use this tool?

- Designers and engineers
- Plant managers and energy managers
- Electric utilities staff
- Electric maintenance service staff
- Electric motor dealers and sales staff
- People concerned with installing, replacing and/or repairing electric motors

With CanMOST, you can

- Compute the energy and demand savings associated with the purchase of a new energy-efficient or premium-efficiency motor.
- Predict expected energy and cost savings from replacing a failed or operable standard-efficiency motor with a more energy-efficient one.

Natural Resources Canada | Ressources naturelles Canada

Canada

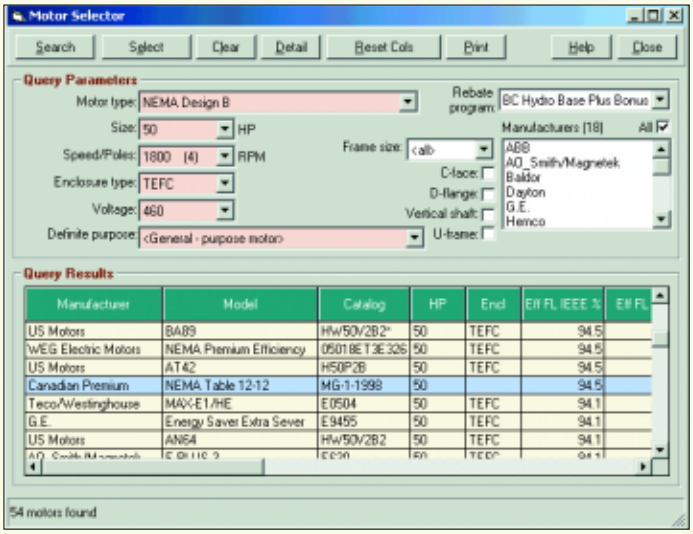
- Select the best available premium-efficiency motor for a given application.
- Identify inefficient or oversized facility motors.
- Compare the operating costs of various motors, based on motor efficiency at a selected load point and annual operating hours.
- Calculate the rate of return on a motor system efficiency investment.

Easy to use

The menu-driven program allows you to select a motor and determine the energy and cost savings associated with its purchase and use.

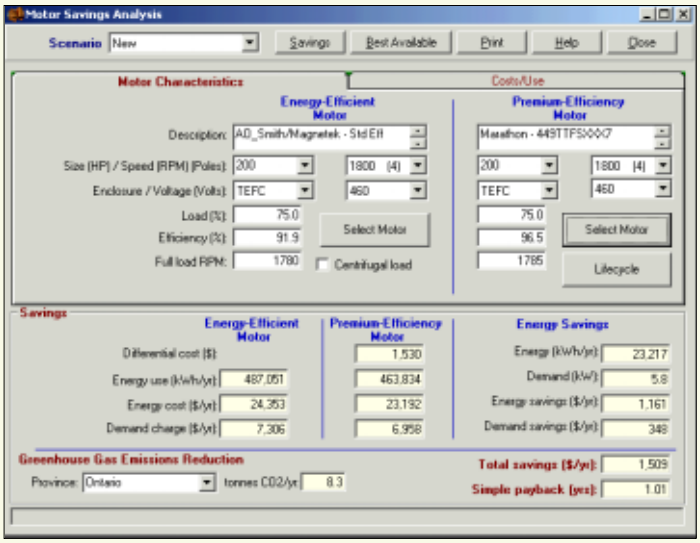
Motor selector

Find the most efficient motor for a given application by entering your specifications – size, synchronous speed, enclosure type, operating voltage, motor load – in the fields provided. The software uses this information to search for all available motors that meet the specified criteria. It creates a list ranked in descending order of full-load efficiency. You can request and print a report showing performance and purchase information for each of the motors that meets your specifications.



Motor savings analysis

Calculate the annual reduction in electricity use and the Canadian dollar savings associated with selecting a specific energy-efficient motor over its lower-efficiency counterpart for three scenarios.



1. Compare the costs of acquiring and operating a new premium-efficiency motor compared with a standard energy-efficient model.
2. Compare the cost-effectiveness of rewinding a failed standard-efficiency motor with the cost of purchasing and installing an energy-efficient replacement.
3. Analyse the cost-effectiveness of replacing an operable standard-efficiency motor with a new premium-efficiency or energy-efficient model.

Analyse this!

CanMOST features include

- A regularly updated motor table catalogue (in Microsoft Access format) containing price and performance data for 43 000 IEC and 60-Hz NEMA Design B, C and D three-phase motors, including special and definite-purpose motors, from 18 manufacturers.
- A master database containing detailed technical data on each motor, including insulation class; rotor inertia; winding resistance; part-load efficiency and power factor; full-load speed; locked-rotor, breakdown and full-load torques; and no-load and locked-rotor amperage (with full- and part-load motor-efficiency values calculated in accordance with the IEEE 112 testing protocols).
- The ability, when selecting motors for comparison, to specify the size (1 to 2000 hp), speed (900, 1200, 1800 and 3600 rpm), voltage (200, 208, 203, 460, 575, 220/440, 796, 2300, 4000 and 6600), frame size, enclosure type (open drip-proof, totally enclosed fan-cooled, totally enclosed non-ventilated, weather-protected, totally enclosed air-over, totally enclosed blower-cooled, and explosion-proof), special features (U-frame, vertical shaft, C-face and D-flange) and manufacturer.
- The ability to display the full-load speed, power factor, list price and locked-rotor torque of any listed motor.
- The ability to customize default tables containing such data as motor rewind and installation costs and performance values; annual escalation rates for utility energy use and demand charges; manufacturers' discount rates; and utility rebate program parameters.
- The ability to calculate energy savings, dollar savings, GHG emissions reductions, simple payback and rate of return on investment associated with an energy-efficient or premium-efficiency motor in either a new purchase or a retrofit application.
- The ability to compute annual cash flows and rate of return on a motor system efficiency investment.
- Context-sensitive on-screen help.

To download CanMOST or learn more about energy-efficient industrial equipment, visit Natural Resources Canada's EnerGuide for Industry Web site: oee.nrcan.gc.ca/egi.

Minimum hardware requirements: IBM-compatible computer; Pentium microprocessor; 8 MB RAM; 15 MB available hard disk space.

Software requirements: Microsoft Windows (Windows 95, Windows for Workgroups, Windows 98, Windows NT, Windows 2000 or Windows XP).

Simplify comparison-shopping for energy-efficient industrial motors. **CanMOST** calculates and compares the electricity consumption, cost and GHG emissions reductions associated with any motor purchase, repair or retrofit scenario.

A new initiative of Natural Resources Canada's Office of Energy Efficiency (OEE), EnerGuide for Industry joins the OEE's well-established Industrial Energy Efficiency programs to encourage the use of more energy-efficient off-the-shelf industrial equipment. Its goal is to strengthen Canada's economic competitiveness while reducing greenhouse gas emissions that contribute to climate change.

Building on the trusted EnerGuide name, EnerGuide for Industry offers comprehensive Web-based information that enables equipment buyers to compare the energy performance of products and select the most energy-efficient model that meets their needs.

EnerGuide for Industry

oee.nrcan.gc.ca/egi

Leading Canadians to Energy Efficiency at Home, at Work and on the Road

The Office of Energy Efficiency of Natural Resources Canada
strengthens and expands Canada's commitment to energy efficiency
in order to help address the challenges of climate change.

Canada

ISBN 0-662-37412-6
Cat. No. M144-46/2004E
Aussi disponible en français sous le titre : OSMCan – Outil de sélection des moteurs au Canada