MOTOR CHALLENGE

FACT SHEET

Frequently Asked Questions on:

THE IMPACTS OF THE ENERGY POLICY ACT OF 1992 ON INDUSTRIAL END USERS OF ELECTRIC MOTOR-DRIVEN SYSTEMS

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In general, what are the impacts of the Energy Policy Act of 1992 on motor end-users of electric motor-driven systems?

Starting in October 1 997, the Act requires most general-purpose polyphase squirrel cage induction motors manufactured for sale in the United States in sizes between 1 and 200 horsepower to meet minimum efficiency standards. While many manufacturers now sell premium motors that meet these efficiency standards, most currently available motors do not. The Act should increase the availability of energy-efficient motors for many end use applications. In addition to motor efficiency standards, the Act requires new testing procedures and labeling. As of July 1 994, the implementation of the minimum efficiency standards was further along than the proposed testing procedures and labeling rules.

To what kinds of electric motors will the new efficiency standards apply?

The Act applies to general-purpose, T-Frame, single-speed, foot mounted, continuous rated, polyphase squirrel cage induction motors of National Electrical Manufacturers Association (NEMA) design A and B. The subject motors are designed to operate on 230/460 volts and 60 Hertz and have open and closed enclosures. The Act applies to motors rated in sizes between 1 and 200 horsepower with speeds of 1200, 1800, and 3600 RPM. These motors dominate industrial and commercial applications above 1 horsepower. The Act does not apply to definite-purpose motors (i.e., those designed for use under unusual conditions or for use on a particular type of application which cannot be used in most general applications) or special purpose motors (i.e., those designed for a particular application with special operating characteristics or mechanical construction).

What are some examples of motors that will be exempt from the electric motor efficiency standards?

The Act specifically applies only to the new general-purpose motors described above. All other motors are excluded from the Act.
Examples of motors excluded from the minimum efficiency standards include:

- Non-NEMA frame motors (except for International Electrotechnical Commission (IEC) equivalents to NEMA design A and B motors covered by the Act),
- Definite-purpose motors and special-purpose motors,
- All motors less than 1 horsepower or greater than 200 horsepower,
- NEMA design C and D polyphase induction motors,
- All synchronous, direct-current, permanent magnet, reluctance. shaded-pole, and wound rotor motors,

- Motors that are not foot-mounted (e.g. vertical-mounted),
- Motors manufactured in the United States for export,
- Multi-speed motors, and
- Rebuilt, repaired or rewound motors.

While these motors are excluded from the efficiency standards, parts of the testing procedures and labeling rules may apply to them.

Will the now efficiency standards apply to existing motors?

The Act applies only to motors manufactured after October 24, 1997. Existing motors and those manufactured between now and the implementation date are not governed by the Act. Motors installedor in stock at industrial motor end-user facilities are unaffected by the Act.

What are the electric motor efficiency levels prescribed in the Energy Policy Act of 1992, and how were they determined?

The table below, which appears in the Act, shows the efficiency level requirements. The Act prescribes nominal full-load efficiency standards based on enclosure types and horsepower ratings consistent with what was, at the time, the Suggested Standard for Future Design, Efficiency Levels of Energy Efficient Polyphase Squirrel-Cage Induction Motors, in the NEMA Publication MG 1-1 2.55A (Table 12-6C).

Are any motors currently being manufactured in compliance with the new efficiency standards?

Most motor manufacturers' current top-of-the-line energy-efficient motors meet the new efficiency levels in some sizes for enclosed and open motors. For some motor sizes and enclosures, a majority of manufacturers' current line of high-efficiency motors meet the standards, while for other sizes only a few manufacturers currently meet the standards. Almost without exception, currently available standard-efficiency motors do not meet the new efficiency standards.

Who will test and certify the efficiency of motors?

Currently, manufacturers test and certify their own motors using IEEE/NEMA standards. The National Electrical Manufacturers Association is working in conjunction with The National Voluntary Laboratory Accreditation Program to establish an accreditation program for laboratories. Under a rule that may be adopted by the U.S. Department of Energy (DOE), manufacturers may be required to have their testing labs certified or use an independent testing and certification program for motor efficiency testing. The Act does not specify a time table for DOE to require manufacturer lab certification or testing by independent labs.

Do the new efficiency standards apply to imported motors and motors purchased as components of other pieces of industrial equipment?

The standards apply to both imported motors and motors purchased as components of other pieces of equipment. For example, general-purpose polyphase induction motors (1-200 hp) in packaged industrial air compressor systems would be covered by the Act. Motors made in the United States for export are not subject to the standards.

	Nominal Full-Load Efficiency					
	OPEN MOTORS			CLOSED MOTORS		
Number of Poles	6	4	2	6	4	2
Motor Horsepower						
1	80.0	82.5	-	80.0	82.5	75.5
1.5	84.0	84.0	82.5	85.5	84.0	82.5
2	85.5	84.0	84.0	86.5	84.0	84.0
3	86.5	86.5	84.0	87.5	87.5	85.5
5	87.5	87.5	85.5	87.5	87.5	87.5
7.5	88.5	88.5	87.5	89.5	89.5	88.5
10	90.2	89.5	88.5	89.5	89.5	89.5
15	90.2	91.0	89.5	90.2	91.0	902
20	91.0	91.0	90.2	90.2	91.0	90.2
25	91.7	91.7	91.0	91.7	92.4	91.0
30	92.4	92A	91.0	91.7	92.4	91.0
40	93.0	93.0	91.7	93.0	93.0	91.7
50	93.0	93.0	92A	93.0	93.0	92.4
50	93.6	93.6	93.0	93.8	93.6	93.0
75	93.6	94.1	93.0	93.6	94.1	93.0
100	94.1	94.1	93.0	94.1	94.5	93.6
125	94.1	94.5	93.6	94.1	94.5	94.5
150	94.5	95.0	93.6	95.0	95.0	94.5
200	94.5	95.0	94.5	95.0	95.0	95.0

Does the Act prescribe overall efficiency levels for entire electric motor-driven systems used in manufacturing, such as packaged compressed air systems?

The Act does not prescribe overall efficiency standards for any traditional industrial electric motor driven systems, although it does contain efficiency standards for electric motor-driven systems such as air conditioners, which are used in the residential, commercial and industrial sectors.

When will the new efficiency standards go into effect?

Covered motors manufactured in or imported into the U.S. after October 24, 1997, must meet the efficiency standards prescribed by the Act. All motors manufactured or imported before that date can still be legally sold. Motors that require listing or certification with safety testing laboratories have an additional two years to meet the efficiency standards. In addition, small manufacturers of motors (less than $8 million in gross revenue) may petition for a two-year exemption. After five years, the efficiency levels will be reevaluated by DOE to determine if more stringent standards should be developed and implemented.

Does the Energy Policy Act of 1992 give the U.S. Department of Energy (DOE) the authority to prescribe any additional efficiency standards for electric motors?

The Act provides DOE with the authority to prescribe efficiency standards and testing procedures for small/fractional horsepower motors if DOE determines the standards would be technologically feasible, economically justifiable, and would result in significant energy savings. DOE must prescribe test procedures for small motors by April 24, 1995, and efficiency standards within 18 months of the test procedures.

At this time, no additional standards have been prescribed. The Act also gives DOE the authority to prescribe testing and labeling standards for motors, and to fund programs for advanced electric motor system technologies.

Will local and state regulations be affected by the new efficiency standards?

After the implementation of the efficiency standards prescribed by the Act, state and local regulations concerning energy efficiency or energy use by motors will be preempted, unless they are identical to the new Federal standards.

How else will the Energy Policy Act of 1992 affect industrial end-users of motors?

The Act should increase the range of energy-efficient motors that are available in the marketplace. At the same time, the U.S. Department of Energy (DOE) is planning a number of initiatives to promote the use of energy-efficient industrial motor-driven systems through the Motor Challenge, which is a voluntary collaboration between DOE and electric motor-driven systems stakeholders.

How can I get more information on the impacts of the Energy Policy Act of 1992 on electric motor end-users and the Motor Challenge?

By becoming a Partner in the Department of Energy's Motor Challenge, industrial motor end-users can keep up-to-date on the latest developments concerning the Energy Policy Act of 1992, and receive other reliable information to enhance the quality and profitability of electric motor-driven system strategies and decisions.

For More Information

Contact the Motor Challenge Information Clearinghouse: **1-800-862-2086**

The Motor Challenge Information Clearinghouse is your one-stop resource for objective, reliable, and timely information on electric motor-driven systems.

About Motor Challenge

Motor Challenge is a partnership program between the U.S. Department of Energy and the nation's industries. The program is committed to increasing the use of industrial energy-efficient electric motor systems and related technologies.

The program is wholly-funded by the U.S. Department of Energy and is dedicated to helping industry increase its competitive edge, while conserving the nation's energy resources and enhancing environmental quality.

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