



CONSORTIUM FOR ENERGY EFFICIENCY, INC.

Expanding Markets for Super-Efficient Technologies™

One State Street Suite 1400 Boston, MA 02109-3507 Phone: 617-589-3949 Fax: 617-589-3948 Web: www.CEEforMT.org Email: CEE@CEEforMT.org

**DISCUSSION PAPER:
WHY LABEL “PREMIUM-EFFICIENCY” MOTORS?**

Ted Jones, Consortium for Energy Efficiency

May 3, 2000

One of the provisions of the Energy Policy Act of 1992 (EPAcT) requires that most industrial and commercial motors manufactured or imported after October 1997 meet new minimum efficiency standards. The new motor efficiency standards were based on National Electrical Manufacturers Association (NEMA) Standard MG-1 (Table 12-10) and Institute of Electrical and Electronic Engineers (IEEE) test procedure 112b. As of April 1999, a final implementation ruling on motor efficiency has yet to be issued by DOE, but is expected soon. Today, most U.S. motor manufacturers sell products that are EPAcT compliant. For those who have decided to offer products that perform above EPAcT levels, a growing number of manufacturers are designing products that meet CEE’s premium-efficiency specifications.

In anticipation of the EPAcT rulemaking, a number of utilities, states, and market transformation organizations joined with the Consortium for Energy Efficiency (CEE) to develop CEE’s *Premium Efficiency Motors Initiative*. The initiative’s goal is to encourage the widespread and easy availability of motors that exceed the minimum efficiency standards required by law. To achieve this goal, CEE and its partners created a common premium-efficiency specification that promises greater energy and financial savings over the life of the motor. The initiative is voluntary, but has been embraced by motor manufacturers and utility programs.

The CEE motor specifications are promoted nationally by a variety of energy-efficiency programs focusing on education and incentives. On average, CEE’s motor efficiency specifications are 1-2 percent higher than the federal requirements. Since CEE began the initiative 3 years ago, utilities serving 11 percent of the nation have signed on as partners and helped persuade motor manufacturers to offer product lines that exceed EPAcT’s minimum efficiency standards. When all appropriate applications for premium efficiency motors are realized, they will save approximately 4 billion kWh/year and \$200 million in annual energy costs.

Unfortunately, some confusion about motor efficiency remains. Essentially, there are two major types of energy-efficient motors in the market today: those that meet EPAcT’s minimum standards and those that meet or exceed CEE’s “premium-efficiency” specifications. Assuming that the buyer knows that two motor-efficiency levels exist, there is no obvious way to tell the difference between them, or which is more appropriate for a particular application. Part of the problem is that buyers and specifiers are unaware that there is a more “efficient” motor alternative. Even if they are aware of alternatives, there is a good chance they are hearing a mixed message with some marketers claiming that all EPAcT-compliant motors are “energy-efficient”, while others claim that only products meeting the CEE spec are energy-efficient. The resulting confusion has hurt the sale of premium-efficiency motors, jeopardizing potential energy savings.

This discussion paper proposes that higher efficiency motors that meet CEE requirements should have a label to differentiate them in the marketplace. ENERGY STAR is widely recognized for labeling high-efficiency products and is a natural choice for labeling motors. However, before approaching DOE and EPA about a label, it is important to understand how ratepayer, efficiency programs as well as motor manufacturers would support it.

Background

The Consortium for Energy Efficiency's Premium-Efficiency Motors Initiative takes advantage of the new motor standards required by the Energy Policy Act of 1992 (EPAct). Under this act, federal regulations require that most commercial and industrial motors manufactured or imported in the U.S. after October 1997 meet a new higher minimum standard. The initiative's goal is to encourage the widespread and easy availability of motors that exceed this standard. To achieve this goal, CEE teamed with several utility and other partners nationwide to create a common premium-efficiency level that promises greater energy and financial savings.

In today's marketplace, there are now two major types of energy-efficient motors: those that meet federal minimum standards and those that meet CEE's "premium-efficiency" standards. The difficulty is that motor specifiers and buyers are having a hard time telling the difference between EPAct- and CEE-compliant motors, and knowing which products to select. Labeling is one approach to increase the visibility of products that exceed federal minimum energy-efficiency requirements and to educate consumers. This approach would require working closely with motor manufacturers and requesting the Department of Energy and the Environmental Protection Agency to establish a label under the ENERGY STAR program for qualified motors. CEE's premium-efficiency specification is the presumptive level of efficiency for the label.

ENERGY STAR Label

ENERGY STAR® is a voluntary partnership between the U.S. Department of Energy, the U.S. Environmental Protection Agency, product manufacturers, local utilities, and retailers. Manufacturing Partners help promote efficient products by labeling with the ENERGY STAR logo and educating consumers about the benefits of energy efficiency. The ENERGY STAR label and other activities raise awareness about the environmental and economic benefits of energy efficient products and help consumers easily identify them when shopping.

The ENERGY STAR label is used by manufacturers to help consumers identify high-quality, energy efficient products that will, as the tag line suggests, save consumers money and help save the environment. The label represents a constructive way to achieve meaningful energy savings using voluntary standards and consumer information rather than defining mandatory minimum standards for energy consumption. In order for a product to receive an ENERGY STAR rating, it must exceed the minimum Federal standards. Today, there are over 3400 different ENERGY STAR-labeled product models in 25 product categories, including:

Appliances: Clothes Washers, Dishwashers, Refrigerators, Room Air Conditioners

Exit Signs

Heating and Cooling Products: Central Air Conditioners, Furnaces, etc.

Home Electronics: TVs, VCRs, Home Audio, and DVDs

Office Equipment: Computers, Monitors, Copiers, Printers etc.

Residential Lighting Fixtures including Torchieres

Transformers: Utility, Commercial, and Industrial

Windows, Doors, and Skylights

A key advantage with ENERGY STAR labeling for motors is product differentiation. Utilities, public interest groups and government agencies are already using CEE specifications in their programs to distinguish standard efficiency motors (EPA-compliant) from high-efficiency products (CEE-compliant). An ENERGY STAR label would give motor designers, specifiers and buyers a highly visible way to identify motors that perform at CEE levels. More importantly it would provide consumers a way to take into consideration the total life-cycle costs of motor ownership.

History of Cooperation

In the past, both CEE and equipment manufacturers have worked closely with ENERGY STAR to help establish appropriate energy efficiency specifications for products.

Lighting

Lighting is a primary focus for many CEE members' energy-efficiency programs. CEE's Residential and Small Commercial Lighting Initiative works to increase the production, distribution, purchase, and installation of compact fluorescent lamps (screw-based CFLs) in the consumer and small business markets. This initiative is based primarily on manufacturer incentives offered by our utility and other partners. Both CEE and NEMA worked closely with DOE to develop a draft specification for the ENERGY STAR screw-based CFL. Thanks to NEMA and CEE member efforts, a final specification is expected soon.

In the fixtures arena, ENERGY STAR has established a specification that is the basis for each of the current and planned programs. Thus far, more than 20 manufacturers have signed MOUs with EPA to begin labeling their qualifying products. The ENERGY STAR program provides a unifying influence for the regional fixtures efforts. Many CEE members support this ENERGY STAR specification for their programs.

Commercial and Industrial Transformers

Although standard models of transformers are generally efficient, some electricity is lost in the process of stepping down the voltage within buildings, and customers pay for this lost electricity. EPA launched the ENERGY STAR Commercial and Industrial (C&I) Transformers Program in April 1998 to encourage transformer manufacturers to offer highly efficient low voltage transformers to their commercial and industrial building customers. This program evolved from the CEE Energy Efficiency Transformer Initiative. The ENERGY STAR program was developed in cooperation with NEMA, and used NEMA's standard definition of high-efficiency transformers, TP-1.

Motors

High-efficiency motors represent another opportunity to use a voluntary program to benefit both energy efficiency and manufacturers.

Benefits to Manufacturers

The labeling of commercial and industrial transformers and compact fluorescent lighting are good examples of prior cooperative efforts among NEMA, CEE and the ENERGY STAR program. The same process could be applied to motors. After the label is established, manufacturers that wanted products to have an ENERGY STAR label would then agree to make high efficiency available, label them and market them to their customers. As indicated below, the production and marketing of highly efficient products benefit the manufacturer as well as the consumer.

- **Differentiation in the Marketplace** – By using the ENERGY STAR label, a nationally recognized symbol for energy efficiency, Manufacturing Partners differentiate their products from the commodity-like market for energy efficient products.
- **Access to Evaluative Software and Support** – ENERGY STAR can make software tools and support available to Manufacturing Partners. EPA’s Commercial and Industrial Transformer Cost Evaluation Model (CITCEM) and DOE’s Motor Master Plus are two such software tools that enable building managers and contractors to consider the costs associated with product purchases.
- **Marketing Assistance** – ENERGY STAR offers marketing tools to help Manufacturing Partners promote their participation in ENERGY STAR programs and to raise customer awareness of the benefits of purchasing energy efficient products. In addition, all Partners are encouraged to use the ENERGY STAR label on their existing and future marketing materials, such as packaging and other tools.
- **Public Recognition** – ENERGY STAR offers participants public recognition for their achievements and dedication to the reduction of greenhouse gases. The ENERGY STAR Program lists all current partners, their compliant products, and contact information. This recognition allows customer to more easily seek out more efficient products.

CEE Supports a Motors Label

Several CEE members, including large utilities and other administrators of state and regional efficiency programs, are openly supportive of an ENERGY STAR label for motors and plan to support it through their programs. Specifically, they plan to incorporate the label into their motor-efficiency programs and attempt to generate greater awareness of high-efficiency motors using the label. If this is the case, motor manufacturers will need to be onboard to make sure that labeled products are available in the field and that their representatives are ready to respond.

In a recent conference call, several CEE members shared how they could support the label.

Northeast Energy Efficiency Partnerships (NEEP) – Jon Linn said that the pace of installing new “high-efficiency” motors in the Northeast had been slow and that an ENERGY STAR label could help in raising visibility and selection of premium motors.

National Grid USA – Pete Bardhi said that he thought an ENERGY STAR label could definitely help by giving greater visibility. Distributors in the Northeast were not pushing premium products and some weren’t even aware that high-efficiency products even existed. Manufacturers in the region agree that it is a problem.

Northwest Energy Efficiency Alliance – Susan Hermenet said the ENERGY STAR for motors would be great for market awareness and that the NW Alliance was currently in the process of getting more involved with the ENERGY STAR program so that they could support other products.

NYSERDA – Priscilla Richards said that NYSERDA is in the middle of 3-year efficiency program and that they would gladly incorporate an ENERGY STAR motor label into the program. In addition, NYSERDA is investing over \$1 million vendor programs that could be used to promote the label.

PG&E – Al Hardwick commented that he has seen a lot transition in the motors market. He explained that PG&E’s motor programs are targeted to distributors and that there was a lot of confusion with regard to efficiency. He has found that there is a lot of leverage in working with distributors on what products they keep in stock. An ENERGY STAR label would figure directly into inventory decisions.

SCE – Babu Joseph of Southern California Edison commented that an ENERGY STAR label is needed for SCE programs that are trying to educate industrial customers about energy efficient motors post-EPAAct. Without the label it is a very confusing market. With the label, he can begin to help customers address whether a premium efficiency motor is the right choice.

San Diego Gas and Electric – Bill Daiber said that SDG&E would support the concept. He sees the label as a necessary next step in promoting premium efficiency motors in the marketplace. SDG&E is working directly with motor dealers to change their stocking practices and the use of an ENERGY STAR label will help provide differentiation in the market. Currently, dealers, and their customers, identify energy efficiency with EPAAct and have very little awareness of the next level of efficiency.

Sacramento Municipal Utility District – Harlan Coomes said that SMUD would be very interested in incorporating an ENERGY STAR label into their C&I programs and would actively promote it to local motor repair shops as well as to industrial customers. He commented that CEE should take steps to make sure that vendors and distributors are aware of the label so that they can advise customers if they have questions.