

PPL Electric Utilities Energy Efficiency and Conservation Program

Motor Measures

Measure	Qualification		Incentive Amount
Premium efficient Motors	Qualification before 12/19/2010	Qualification After 12/19/2010	
	NEMA Premium Efficiency for chilled, hot water, condenser water pumps and HVAC fans and cooling tower fans of same size.	CEE Premium Efficiency for chilled, hot water, condenser water pumps and HVAC fans and cooling tower fans of same size.	See schedule of motor incentives
Adjustable Speed Drives and Variable Speed Drives	ASD/VSD's with Motor HP > 5 and = 200		\$30/HP

All Information Subject to Change

Current as of 3/15/10

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CEE Premium Efficiency Motors

Measure Description: Premium efficiency motors are more efficient than federal standard efficiency motors. CEE premium efficiency standards will apply as of December 19, 2010. Premium efficiency motors are suitable for pump and fan applications. Incentives are for chilled, hot water, condenser water pumps and HVAC fans and cooling tower fans.

Equipment Eligibility: Motors that are eligible for incentives must be new, three phase, induction motors, and CEE Premium Efficiency rating for chilled, hot water, condenser water pumps and HVAC fans and cooling tower fans with the following criteria:

Horsepower (HP)	1-200
Type	Open Drip Proof (ODP) Totally Enclosed Fan Cooled (TEFC)
RPM	3600 1800 1200

Minimum premium efficiency requirements will be found at Consortium for Energy Efficiency, Inc. (CEE) under Nominal Full-Load Efficiency ratings from motor nameplates. CEE has not yet posted the efficiency ratings as of October, 2009. Until that that information is available, contact your vendor to determine whether other motor classifications or sizes qualify for incentives.

Industrial applications, three phase motors >200 hp may be eligible under the Custom Program.

Incentive:

Measure	Qualification	Incentive Amount
Motors	CEE Premium Efficiency	See schedule of motor incentives

Detailed Information:

Open Drip Proof (ODP), this type of enclosure is designed with vents to allow air flow, but to prevent liquids and solids from entering the enclosure. This type is typically specified in applications free of contaminants. Totally Enclosed Fan Cooled (TEFC), this type is the most common and can be used in dirty, moist, and semi corrosive environments since no outside air enters the motor.¹

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law (Public Law 140-110). The National Electrical Manufacturers Association (NEMA) actively participated in crafting major provisions on EISA. A critical provision that NEMA focused on was increased motor

¹ Sourced from Siemens description of motor types.

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efficiency levels. As a result, effective December 19, 2010, the current NEMA standard will be replaced with NEMA Premium efficiency rating. CEE stepped in to provide the next tier in efficiency levels, CEE Premium efficiency rating.

All Information Subject to Change

Current as of 3/15/10

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NEMA Premium Efficiency Motors

Measure Description: Premium efficiency motors are more efficient than federal standard efficiency motors. NEMA premium efficiency rating standards apply prior to December 19, 2010. Premium efficiency motors are suitable for pump and fan applications. Incentives are for chilled, hot water, condenser water pumps and HVAC fans and cooling tower fans.

Equipment Eligibility: Motors that are eligible for incentives must be new, three phase, induction motors, and NEMA Design A & B, chilled, hot water, condenser water pumps and HVAC fans and cooling tower fans with the following criteria:

Horsepower (HP)	1-200
Type	Open Drip Proof (ODP) Totally Enclosed Fan Cooled (TEFC)
RPM	3600 1800 1200

Minimum efficiency requirements shown in Table: Requirements-1 below are the NEMA Nominal Full-Load Efficiency rating from the motor nameplate as determined in accordance with IEEE Standard 112, Test Method B. Contact your vendor to determine whether other motor classifications or sizes qualify for incentives. Savings from premium motors are typically in the 1 to 4 percent range depending on size and motor loading.

Industrial applications, three phase motors >200 hp may be eligible under the Custom Program.

Table: Requirements-1

Horsepower (HP)	Speed (RPM)	Open Drip Proof (ODP) Minimum Efficiency (%)	Totally Enclosed Fan Cooled (TEFC) Minimum Efficiency (%)
1	3600	77.0%	77.0%
	1800	85.5%	85.5%
	1200	82.5%	82.5%
1.5	3600	84.0%	84.0%
	1800	86.5%	86.5%
	1200	86.5%	87.5%
2	3600	85.5%	85.5%
	1800	86.5%	86.5%
	1200	87.5%	88.5%
3	3600	85.5%	86.0%
	1800	89.5%	89.5%
	1200	88.5%	89.5%

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5	3600	86.5%	88.5%
	1800	89.5%	89.5%
	1200	89.5%	89.5%
7.5	3600	88.5%	89.5%
	1800	91.0%	91.7%
	1200	90.2%	91.0%
10	3600	89.5%	90.2%
	1800	91.7%	91.7%
	1200	91.7%	91.0%
15	3600	90.2%	91.0%
	1800	93.0%	92.4%
	1200	91.7%	91.7%
20	3600	91.0%	91.0%
	1800	93.0%	93.0%
	1200	92.4%	91.7%
25	3600	91.7%	91.7%
	1800	93.6%	93.6%
	1200	93.0%	93.0%
30	3600	91.7%	91.7%
	1800	94.1%	93.6%
	1200	93.6%	93.0%
40	3600	92.4%	92.4%
	1800	94.1%	94.1%
	1200	94.1%	94.1%
50	3600	93.0%	93.0%
	1800	94.5%	94.5%
	1200	94.1%	94.1%
60	3600	93.6%	93.6%
	1800	95.0%	95.0%
	1200	94.5%	94.5%
75	3600	93.6%	93.6%
	1800	95.0%	95.4%
	1200	94.5%	94.5%
100	3600	93.6%	94.1%
	1800	95.4%	95.4%
	1200	95.0%	95.0%
125	3600	94.1%	95.0%
	1800	95.4%	95.4%
	1200	95.0%	95.0%
150	3600	94.1%	95.0%
	1800	95.8%	95.8%
	1200	95.4%	95.8%
200	3600	95.0%	95.4%
	1800	95.8%	96.2%
	1200	95.4%	95.8%

All Information Subject to Change

Current as of 3/15/10

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Incentive:

Measure	Qualification	Incentive Amount
Motors	NEMA Premium Efficiency (prior to December 19, 2010)	See schedule of motor incentives

Detailed Information:

Open Drip Proof (ODP), this type of enclosure is designed with vents to allow air flow, but to prevent liquids and solids from entering the enclosure. This type is typically specified in applications free of contaminants. Totally Enclosed Fan Cooled (TEFC), this type is the most common and can be used in dirty, moist, and semi corrosive environments since no outside air enters the motor.²

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law (Public Law 140-110). The National Electrical Manufacturers Association (NEMA) actively participated in crafting major provisions on EISA. A critical provision that NEMA focused on was increased motor efficiency levels. As a result, effective December 19, 2010, the current NEMA standard will be replaced with NEMA Premium efficiency rating. CEE stepped in to provide the next tier in efficiency levels, CEE Premium efficiency rating.

² Sourced from Siemens description of motor types.

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Motor Measures

Adjustable Speed Drive/Variable Speed Drive

Measure Description: Program pertains to Adjustable Speed Drives/Variable Speed Drive (ASD/VSD) controls for suitable motors applications. ASD/VSD controls allow motor speed to vary to better match the required load of the application thereby increasing the efficiency over a single-speed drive motor.

Equipment Eligibility: ASD/VFDs with Motor HP > 5 and = 200

Incentive:

Measure	Qualification	Incentive Amount
ASD/VSD	VFD's with Motor HP > 5 and = 200	\$30/HP

Detailed Information: Adjustable/Variable Speed Drives are an economical and efficient retrofit option for existing motor installations. ASD/VSDs are electrical devices that vary the speed of the motor by changing the frequency of the motor's electrical power between zero and 60 Hertz. ASD/VSDs allow the motor to vary in speed depending on actual operating needs rather than continuously operating at full speed. This added variability reduces the motor's workload and total energy consumption in installations with varying motor workload requirements.³

For more information, see:

http://www1.eere.energy.gov/industry/bestpractices/pdfs/motor_tip_sheet11.pdf

³ http://www.energystar.gov/index.cfm?c=business.EPA BUM_CH8_AirDistSystems