

## Motor & Variable Frequency Drive Technologies

Pacific Power provides incentives for many types of energy efficient technologies. Please read the following sections carefully to ensure that you purchase and install qualifying equipment.

Incentives for additional measures may be available. For more information about the FinAnswer Express program, eligibility requirements, incentive levels or other general inquiries, contact Pacific Power or your local dealer. You can also visit the program's Web site at [www.pacificpower.net/casave](http://www.pacificpower.net/casave) or you can call our **Energy Services Hotline** at 1-800-222-4335.

### VARIABLE FREQUENCY DRIVES FOR HVAC FANS & PUMPS (VFD)

**Measure Description:** Variable Frequency Drives (VFDs) are electronic controls that regulate motor speed and torque, resulting in reduced energy consumption under part load conditions.

**Applicability:** *For retrofit projects:* For HVAC installations where a variable load is present and the system is throttled with a device such as inlet vanes, bypass dampers, and throttling valves. Throttling devices must be removed or permanently disabled prior to applying for the incentive. Incentives are not available for retrofits of existing VFDs.

*For New Construction projects:* Incentives are not available where VFDs are required by code. California energy code requires a VFD on HVAC fans and pumps greater than 10 horsepower (when a variable flow system is required).

**Equipment Eligibility:** The incentives listed for this measure apply to fan and pump applications on HVAC distribution systems. The maximum fan or pump size is 100 hp.

VFDs larger than 100 hp or installed on non-HVAC equipment may be eligible for custom incentives. For more information about custom incentives through FinAnswer Express or Energy FinAnswer, contact Pacific Power or your vendor before purchasing your equipment.

**Items to submit with application:** 1. Dated sales receipt/invoice

**Prequalification Required?** Pre-qualification is not required for eligible installations. (Pre-approval is required for custom incentives for non-qualifying VFD applications.)

<u>Equipment Code</u>	<u>Measure Description</u>	<u>Incentive</u>
VDFAN	VFD on HVAC Fan	\$ 65/ hp
VDFPMP	VFD on HVAC Pump	\$ 65/ hp

### ELECTRONICALLY COMMUTATED MOTORS (ECM)

**Measure Description:** An electronically commutated motor (ECM) is a fractional horsepower direct current (DC) motor used most often in commercial refrigeration applications such as display cases, walk-in coolers/freezers, refrigerated vending machines, and bottle coolers. ECMs can also be used in HVAC applications, primarily as small fan motors for packaged terminal units or in terminal air boxes. ECMs generally replace shaded pole (SP) motors and offer significant energy savings.

**Applicability:** New construction and retrofit installations are eligible

**Equipment Eligibility:** All ECMs up to 1 HP in size may qualify for an incentive

**Items to submit with application:** 1. Dated sales receipt/invoice  
2. Manufacturer's equipment specification sheet

**Prequalification Required?** No

<u>Equipment Code</u>	<u>Measure Description</u>	<u>Incentive</u>
ECMREF	Refrigeration Application	\$ 0.50/ nameplate watt
ECMHVC	HVAC Application	\$ 50/ nameplate hp

**PREMIUM EFFICIENCY MOTORS**

**Measure Description:** Premium efficiency motors are more efficient than standard efficiency motors.

**Applicability:** New construction and retrofit installations are eligible.

**Equipment Eligibility:** Motors that are eligible for incentives under the FinAnswer Express include new, three phase, induction motors, NEMA Design A & B, 1-200 HP, Open Drip Proof (ODP) or Totally Enclosed Fan Cooled (TEFC), 1200, 1800, or 3600 RPM. Minimum efficiency requirements shown in Table M-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. Eligible motors can be placed in inventory and still qualify for incentives. Custom incentives may be available for >200 hp motors. Contact Pacific Power or your dealer to determine whether other motor classifications or sizes qualify for incentives. The NEMA Premium efficiency ratings listed are nominal full-load efficiency ratings.

**Items to submit with application:** 1.Dated sales receipt/invoice

**Prequalification Required?** Incentives for new construction and retrofit installations of premium efficiency motors are available via a post-purchase incentive application process. Applying prior to placing purchase orders is recommended but not required.

**Table M-1. Motor Efficiency Requirements, Incentive Levels, & Equipment Codes**

Equipment Code →		Nominal Full Load Efficiencies (%)					
		MTRO12	MTRT12	MTRO18	MTRT18	MTRO36	MTRT36
Horsepower	Customer Incentive (\$/motor)	1200 RPMs	1200 RPMs	1800 RPMs	1800 RPMs	3600 RPMs	3600 RPMs
		ODP	TEFC	ODP	TEFC	ODP	TEFC
1	\$45	82.5	82.5	85.5	85.5	77.0	77.0
1.5	\$45	86.5	87.5	86.5	86.5	84.0	84.0
2	\$54	87.5	88.5	86.5	86.5	85.5	85.5
3	\$54	88.5	89.5	89.5	89.5	85.5	86.5
5	\$54	89.5	89.5	89.5	89.5	86.5	88.5
7.5	\$81	90.2	91.0	91.0	91.7	88.5	89.5
10	\$90	91.7	91.0	91.7	91.7	89.5	90.2
15	\$104	91.7	91.7	93.0	92.4	90.2	91.0
20	\$113	92.4	91.7	93.0	93.0	91.0	91.0
25	\$117	93.0	93.0	93.6	93.6	91.7	91.7
30	\$135	93.6	93.0	94.1	93.6	91.7	91.7
40	\$162	94.1	94.1	94.1	94.1	92.4	92.4
50	\$198	94.1	94.1	94.5	94.5	93.0	93.0
60	\$234	94.5	94.5	95.0	95.0	93.6	93.6
75	\$270	94.5	94.5	95.0	95.4	93.6	93.6
100	\$360	95.0	95.0	95.4	95.4	93.6	94.1
125	\$540	95.0	95.0	95.4	95.4	94.1	95.0
150	\$630	95.4	95.8	95.8	95.8	94.1	95.0
200	\$630	95.4	95.8	95.8	96.2	95.0	95.4