



DTE Energy's Your Energy SavingsSM Commercial & Industrial Program

Policies and Procedures Manual

2010 Program Year

DTE Energy's Your Energy Savings Program provides incentives for business customers who upgrade their facilities with energy efficient equipment. This program is available to all business customers who receive electric or natural gas delivery service from DTE Energy. This document conveys the rules, policies and procedures that govern program administration and customer participation. It is a companion document to the Incentive Application forms.

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P.1 PROGRAM OVERVIEW

DTE Energy is offering a comprehensive set of incentives under the Your Energy Savings Program to facilitate the implementation of cost-effective energy efficiency improvements for business customers.

The various program offerings are summarized below. The following sections provide detailed information on the actual measures and specific program details related to each of the various offerings. Application forms for all programs are available on DTE Energy's Your Energy Savings website: www.YourEnergySavings.com.

P.1.1 Incentives

Prescriptive Incentives are available for energy efficiency equipment upgrades and replacements including lighting, HVAC, gas water heating, and motors. Incentives are paid based on the quantity, size, and efficiency of the equipment. Incentives are provided for one-for-one replacements, retrofits or new installations of qualified equipment. For example, replacing a 4-lamp, 4', T12 lighting fixture with a 4-lamp, 4', T8 lighting fixture is a listed prescriptive measure.

Custom Incentives are available to customers for less common or more complex energy saving measures installed in qualified retrofit and equipment replacement projects. Custom measure incentives are paid based on the first-year energy (kWh or MCF) savings. Projects involving measures not covered by the prescriptive incentive portion of the program are eligible for a custom incentive. For example, adding a variable frequency drive to a primary chilled water pump is not listed as a prescriptive measure and may therefore be submitted as a custom measure. Customers may put custom and prescriptive measures on one application. Mixed Incentives are available to customers with energy efficiency projects containing both prescriptive and custom components. Prescriptive incentives must be applied to the prescriptive portions of the project and custom incentives applied to the custom portions. For example, when installing exterior LED lighting with bi-level controls, the exterior LED lighting is eligible for a prescriptive incentive. However, the bi-level control incentive applies only to HID lighting therefore the controls on LED lighting would be handled as a custom measure.

P.2 PROGRAM EFFECTIVE DATES

DTE Energy's Your Energy Savings Program offers incentives for a current program year until approved funds are exhausted or until December 15th of each program year, whichever comes first. To be eligible for the current program year's incentive levels, all work must be completed and final application submitted with all required documents including specifications and invoices by December 15 of the current program year. The important dates of DTE Energy's Your Energy Savings Program and application submittal requirements are as follows:

Any energy efficient equipment or service purchased, installed, completed, or commissioned prior to June 3, 2009 is not eligible for an incentive.

To be eligible for 2010 incentive levels, Final Applications with all required documents including manufacturer's specifications and dated, itemized invoices must be submitted by December 15th 2010.

Subsequent program year budgets and plans will be made available at www.YourEnergySavings.com near the end of the existing program year.

P.3 CUSTOMER ELIGIBILITY

Customer eligibility parameters for DTE Energy's Your Energy Savings Program are as follows:

- This program is available to commercial and/or industrial business customers of DTE Energy. Customers that are billed on non-residential rates are classified as business customers.
- Qualified measures must be installed at facilities served by DTE Energy, and projects must result in an improvement in energy efficiency as set forth in section P.12.
- Equipment must meet the specifications as set forth in Section P.8 and in the Program Application.
- For each site there must be at least one meter that is on an eligible rate schedule.
- Customers must be in good standing prior to final application being processed. A final check of account status will be completed for all applicants. If a customer is not in good standing, they will be advised that they have 30 days from date of contact to get account in good standing or the application will be cancelled.

This program is not available to DTE Energy customers in multifamily buildings or complexes consisting of five or more units per building. These customers are eligible to participate in the Multifamily Program for energy saving upgrades to both tenant and common areas.

P.4 PROJECT REQUIREMENTS

Project requirements for DTE Energy's Your Energy Savings Program include the following:

- Projects must involve a facility improvement that results in a permanent¹ reduction in electrical and/or gas energy usage (kWh and/or MCF).
- Project savings must be sustainable for a period of five years or for the life of the product, whichever is less.

Projects that are **NOT** eligible for an incentive include the following:

- Fuel switching (e.g., electric to gas or gas to electric)
- Changes in operational and/or maintenance practices or simple control modifications that do not involve capital costs
- On-site electricity generation
- Projects that involve peak-shifting with no kWh savings
- Projects involving renewable energy

Any measures installed at a facility must be sustainable and provide 100 percent of the energy benefits as stated in the Application for a period of five (5) years or for the life of the product, whichever is less.

If the customer ceases to be a delivery service customer of DTE Energy, or removes the equipment or systems at any time during the 5-year period or the life of the product, the customer may be required to return a prorated amount of incentive funds to DTE Energy.

DTE Energy reserves the right to inspect proposed projects pre- and post- equipment installation.

¹ For the life of the product

P.5 INCENTIVE CAPS AND LIMITS

Incentives are subject to limits to encourage equitable distribution of the funds among as many utility customers as possible.

P.5.1 Facility/Customer Limits

Program incentives are limited per facility, per year and per customer. Customer incentive limits are across all facilities under one tax identification number. A facility is defined as any single meter or multiple meters on a single property for which a single customer is responsible for paying the DTE Energy electricity and/or gas bill.

Customers installing electric eligible measures may receive up to \$150,000 per facility per program year for electric measures; the total customer cap (across all facilities saving electricity) is \$500,000 per program year. Customers installing eligible gas measures may receive up to \$25,000 per facility per program year for gas measures; the total customer cap (across all facilities saving gas) is \$100,000 per program year.

Table 5-1: Program Year Incentive Limits

Cap Level	Electricity	Gas
Facility	\$150,000	\$25,000
Customer	\$500,000	\$100,000

The incentive limits are based on actual payments per facility and customer and apply even if payments for some or all projects are paid to one or more contractors.

P.5.2 Custom Project Incentive Caps

In addition to the incentive limits above, incentives for custom projects are limited to 50% of the sum of all custom measure costs (MC). Internal customer labor costs cannot be included in the total project cost. Used equipment is not eligible. DTE Energy reserves the right to apply this cap to individual custom measures when measure costs are significantly higher than typical costs seen in this program.

P.6 PRESCRIPTIVE INCENTIVES

DTE Energy's Your Energy Savings Program offers prescriptive incentives for energy efficient improvements in areas of lighting, HVAC, motors and drives, gas water heaters, industrial processes, food service, and other miscellaneous measures. Prescriptive incentives are available for one-for-one change outs, replacements, or upgrades unless explicitly stated otherwise in the Program Application.

P.6.1 Prescriptive – Lighting

Incentives are paid per unit or fixture as noted in the Tables 6-1 to 6-8 below. Detailed specifications are provided in Section P.8.

**Table 6-1: Prescriptive Lighting Incentives – CFLs and LEDs Retrofit
Incandescent to CFL or LED**

Equipment Type	Incentive	Unit Definition
CFL - Screw-in (\leq 31 Watts) *Excludes bulbs previously discounted by DTE Energy (see lighting specifications)	\$1.50	Lamp
CFL - Screw-in ($>$ 31 Watts)	\$8.00	Lamp
CFL Reflector Flood Lamps	\$8.00	Lamp
Compact Fluorescent Fixture	\$22.00	Fixture
42W 8 Lamp High Bay Compact Fluorescent Fixture	\$35.00	Fixture
ENERGY STAR® Qualified LED Recessed Down Light	\$20.00	Fixture

**Table 6-2: Prescriptive Lighting Incentives – Standard Linear Fluorescent Retrofit
(T12 to T8 or T5)**

Equipment Type	Incentive	Unit Definition
1 Lamp 4 ft T5	\$4.00	Fixture
2 Lamp 4 ft T5	\$4.00	Fixture
3 Lamp 4 ft T5	\$9.00	Fixture
4 Lamp 4 ft T5	\$8.00	Fixture
1 lamp, 4ft T8	\$4.00	Fixture
2 lamp, 4ft T8	\$7.00	Fixture
3 lamp, 4ft T8	\$10.00	Fixture
4 lamp, 4ft T8	\$13.00	Fixture
1 lamp, 8ft T8	\$4.00	Fixture
2 lamp, 8ft T8	\$7.00	Fixture
1 lamp, 2ft T8	\$3.00	Fixture
2 lamp, 2ft T8	\$4.00	Fixture
3 lamp, 2ft T8	\$6.00	Fixture
4 lamp, 2ft T8	\$8.00	Fixture
1 lamp, 3ft T8	\$3.00	Fixture
2 lamp, 3ft T8	\$4.00	Fixture
3 lamp, 3ft T8	\$5.00	Fixture
4 lamp, 3ft T8	\$7.00	Fixture

Table 6-3: Prescriptive Lighting Incentives – Conversion to High Output (HO) Linear Fluorescents (T12 to T8HO or T5HO)

Equipment Type	Incentive	Unit Definition
1 lamp, 8ft T8 HO	\$9.00	Fixture
2 lamp, 8ft T8 HO	\$17.00	Fixture
1 Lamp, 4 ft T5 HO	\$5.00	Fixture
2 Lamp, 4ft T5 HO	\$7.00	Fixture
3 Lamp, 4ft T5 HO	\$9.00	Fixture
4 Lamp, 4ft T5 HO	\$18.00	Fixture

Table 6-4: Prescriptive Lighting Incentives – High Performance (HP) and Low Wattage (LW)
All Linear Fluorescents are 4ft in length unless stated otherwise

Equipment Type	Incentive	Unit Definition
LW T8 (Lamps Only)	\$0.75	Lamp
1 lamp HP T8, replacing T8	\$2.00	Fixture
2 lamp HP T8, replacing T8	\$3.00	Fixture
3 lamp HP T8, replacing T8	\$4.00	Fixture
4 lamp HP T8, replacing T8	\$5.00	Fixture
1 lamp LW HP T8, replacing T8	\$3.00	Fixture
2 lamp LW HP T8, replacing T8	\$5.00	Fixture
3 lamp LW HP T8, replacing T8	\$7.00	Fixture
4 lamp LW HP T8, replacing T8	\$9.00	Fixture
1 lamp HP T8, replacing T12	\$7.00	Fixture
2 lamp HP T8, replacing T12	\$10.00	Fixture
3 lamp HP T8, replacing T12	\$13.00	Fixture
4 lamp HP T8, replacing T12	\$16.00	Fixture
2 lamp HP T8, replacing T12 8ft 1 lamp	\$5.00	Fixture
4 lamp HP T8, replacing T12 8ft 2 lamp	\$6.00	Fixture
2 lamp HP T8, replacing T12 HO 8ft 1 lamp	\$15.00	Fixture
4 lamp HP T8, replacing T12 HO 8ft 2 lamp	\$25.00	Fixture

Table 6-5: Prescriptive Lighting Incentives – Interior HID Conversion to Fluorescent Fixtures
All linear fluorescent fixtures are 4 ft in length unless stated otherwise.

Equipment Type	Incentive	Unit Definition
3 Lamp T5 HO, replacing 250W HID	\$35.00	Fixture
4 Lamp T5 HO, replacing 400W HID	\$70.00	Fixture
6 Lamp T5 HO, replacing 400W HID	\$30.00	Fixture
Two 6 Lamp T5 HO, replacing 1000W HID	\$120.00	Fixture
4 Lamp 32W T8, replacing 250W HID	\$50.00	Fixture
6 Lamp 32W T8, replacing 400W HID	\$75.00	Fixture
8 Lamp 32W T8, replacing 400W HID	\$50.00	Fixture
Two 8 lamp 32W T8, replacing 1000W HID	\$160.00	Fixture
Pulse Start Metal Halide (retrofit only)	\$30.00	Fixture

Table 6-6: Prescriptive Lighting Incentives – Exterior and Garage
HID Conversions to LED or Induction

Equipment Type	Incentive	Unit Definition
Exterior ≤175W HID	\$45.00	Fixture
Exterior 176W to 250W HID	\$65.00	Fixture
Exterior 251W to 400W HID	\$120.00	Fixture
Garage ≤175W HID	\$100.00	Fixture
Garage 176W to 250W HID	\$150.00	Fixture
Garage 251W to 400W HID	\$180.00	Fixture

Table 6-7: Prescriptive Lighting Incentives – Exit Signs and LED Traffic Signals

Equipment Type	Incentive	Unit Definition
LED Exit Signs Electronic Fixtures (Retrofit Only)	\$12.50	Fixture
Auto Traffic Signals	\$20.00	Signal
Pedestrian Signals	\$15.00	Signal

Table 6-8: Prescriptive Lighting Incentives – Controls and Light Tubes

Equipment Type	Incentive	Unit Definition
Occupancy Sensors (\leq 500 Watts Controlled)	\$20.00	Sensor
Occupancy Sensors ($>$ 500 Watts Controlled)	\$50.00	Sensor
Central Lighting Control	\$600.00	10,000 SF
Switching Controls for Multilevel Lighting	\$500.00	10,000 SF
Daylight Sensor Controls	\$900.00	10,000 SF
Exterior Lighting Bi-level Control w/ Override, 150W to 1000W HID	\$50.00	Fixture
Light Tube	\$35.00	Tube

Table 6-8.1: De-lamping (**Reservation Application is Required**)

Equipment Type	Incentive	Unit Definition
T12 2 ft Lamp Removed (combined with T8/ballast retrofit)	\$3.00	Lamp Removed
T12 3 ft Lamp Removed (combined with T8/ballast retrofit)	\$4.00	Lamp Removed
T12 4 ft Lamp Removed (combined with T8/ballast retrofit)	\$5.00	Lamp Removed
T12 8 ft Lamp Removed (combined with T8/ballast retrofit)	\$10.00	Lamp Removed

P.6.2 Prescriptive – HVAC (Electric)

Detailed product specifications are provided in Section P.8. Cooling equipment must meet the minimum qualifying efficiency levels as shown in the tables below.

Table 6-9: Prescriptive HVAC (Electric) Incentives

Equipment Type	Size Category	Qualifying Efficiency	Incentive (per ton)
Unitary and Split Air Conditioning Systems	≤ 65,000 Btu/h(5.4 tons) 1 Phase	14.0 SEER	\$10.00
	≤ 65,000 Btu/h(5.4 tons) 3 Phase	13.0 SEER	\$10.00
	> 65,000 Btu/h(5.4 tons), ≤ 135,000 Btu/h(11.3 tons)	11.0 EER	\$15.00
	> 135,000 Btu/h(11.3 tons), ≤ 240,000 Btu/h(20 tons)	11.0 EER	\$15.00
	> 240,000 Btu/h(20 tons), ≤ 760,000 Btu/h(63.3 tons)	10.0 EER	\$10.00
	> 760,000 Btu/h(63.3 tons)	10.0 EER	\$10.00
Air Source Heat Pumps	≤ 65,000 Btu/h(5.4 tons) 1 Phase	14.0 SEER	\$20.00
	≤ 65,000 Btu/h(5.4 tons) 3 Phase	13.0 SEER	\$10.00
	> 65,000 Btu/h(5.4 tons), ≤ 135,000 Btu/h(11.3 tons)	11.0 EER	\$20.00
	> 135,000 Btu/h(11.3 tons), ≤ 240,000 Btu/h(20 tons)	10.0 EER	\$25.00
	>240,000 Btu/h(20 tons)	10.0 EER	\$30.00
Water Loop Heat Pump	≤ 17,000 Btu/h(1.4 tons)	11.5 EER	\$10.00
	> 17,000 Btu/h(1.4 tons), ≤ 65,000 Btu/h(5.4 tons)	12.3 EER	\$8.00
	> 65,000 Btu/h(5.4 tons), ≤ 135,000 Btu/h(11.3 tons)	12.3 EER	\$8.00
Room Air Conditioners	≤14,000 Btu/h(1.17 tons)	ENERGY STAR®	\$10.00
	>14,000 Btu/h(1.17 tons)	ENERGY STAR®	\$25.00
Package Terminal Air Conditioner	All	9.2 EER	\$5.00
Package Terminal Heat Pump	All	9.0 EER	\$10.00
Ground-Source Heat Pump	≤ 135,000 Btu/h (11.3 tons)	EER = 17	\$22.50
		EER = 19	\$30.00
Ground Source Heat Pump - Air Source Base	≤ 135,000 Btu/h (11.3 tons)	EER = 17	\$150.00
		EER = 19	\$175.00
Air-cooled Chiller	ALL	Full Load Efficiency ≤ 1.16 kW/ton	\$25.00

Table 6-10: Other Prescriptive HVAC (Electric) Incentives

Measure Name	Unit Definition	Size Category	Incentive Per Unit
Programmable Thermostat (Air Conditioning)	Unit	ALL	\$20.00
Energy Management System	1,000 SF of Conditioned Floor Area	ALL	\$5.00
Hotel Guestroom Energy Management Control (Air Conditioning)	Unit	ALL	\$30.00
Chilled Water Reset - Air Cooled	Ton	≤ 100 tons	\$1.00
		> 100 tons, ≤ 200 tons	\$1.00
		> 200 tons, ≤ 300 tons	\$1.00
		> 300 tons, ≤ 400 tons	\$1.00
		> 400 tons, ≤ 500 tons	\$1.00
Chilled Water Reset - Water Cooled	Ton	≤ 1,000 tons	\$1.00
		> 1,000 tons, ≤ 2,000 tons	\$0.50
		> 2,000 tons, ≤ 3,000 tons	\$0.50
Variable Frequency Drive - VAV Supply or Return Air Fan	Fan HP	ALL	\$60.00
Variable Frequency Drive - Secondary Chilled Water Pump	Pump HP	ALL	\$60.00
Economizer	Ton	ALL	\$8.00
Cool Roof	1,000 SF Roof Area	ALL	\$20.00
High Performance Glazing	100 SF of Glazing	ALL	\$30.00
Window Film	100 SF of Glazing	ALL	\$30.00

Table 6-11: Water-cooled Centrifugal Chiller Prescriptive HVAC (Electric) Incentives

Equipment Type and Capacity Range (tons)	Qualifying Full Load Efficiency (kW/ton)	Qualifying IPLV (kW/ton)	Incentive (\$ per ton)
Centrifugal Chiller ≤ 150 tons	0.56	0.34	45.00
		0.40	40.00
		0.43	35.00
		0.46	30.00
		0.53	25.00
	0.63	0.38	30.00
		0.45	25.00
		0.48	20.00
		0.51	15.00
		0.60	10.00
	0.70	0.42	20.00
		0.50	15.00
		0.53	10.00
0.57		5.00	
Centrifugal Chiller >150 tons, ≤ 300 tons	0.51	0.30	45.00
		0.36	40.00
		0.39	35.00
		0.41	30.00
		0.48	25.00
	0.57	0.34	30.00
		0.40	25.00
		0.43	20.00
		0.46	15.00
		0.54	10.00
	0.63	0.38	20.00
		0.45	15.00
		0.48	10.00
0.51		5.00	
Centrifugal Chiller > 300 tons	0.46	0.28	45.00
		0.33	40.00
		0.35	35.00
		0.37	30.00
		0.44	25.00
	0.52	0.31	30.00
		0.37	25.00
		0.39	20.00
		0.42	15.00
		0.49	10.00
	0.58	0.35	20.00
		0.41	15.00
		0.44	10.00
0.47		5.00	

Table 6-12: Water-cooled Screw Chiller Prescriptive HVAC (Electric) Incentives

Equipment Type and Capacity Range (tons)	Qualifying Efficiency(kW/ton)	Qualifying IPLV(kW/ton)	Incentive (\$ per ton)
Screw Chiller < 150 tons	0.63	0.38	50.00
		0.41	45.00
		0.44	40.00
		0.47	35.00
		0.50	30.00
		0.56	25.00
	0.71	0.43	40.00
		0.46	35.00
		0.50	30.00
		0.53	25.00
		0.56	20.00
	0.79	0.63	15.00
		0.47	30.00
		0.51	25.00
		0.55	20.00
0.59		15.00	
Screw Chiller 150-300 tons	0.57	0.62	10.00
		0.34	50.00
		0.37	45.00
		0.40	40.00
		0.43	35.00
		0.45	30.00
	0.65	0.51	25.00
		0.39	40.00
		0.42	35.00
		0.45	30.00
		0.48	25.00
		0.51	20.00
	0.72	0.57	15.00
		0.43	30.00
		0.47	25.00
0.50		20.00	
0.54		15.00	
		0.57	10.00

Table 6-12 cont'd: Water-cooled Screw Chiller Prescriptive HVAC (Electric) Incentives

Equipment Type and Capacity Range (tons)	Qualifying Efficiency(kW/ton)	Qualifying IPLV(kW/ton)	Incentive (\$ per ton)
Screw Chiller > 300 tons	0.51	0.31	50.00
		0.33	45.00
		0.36	40.00
		0.38	35.00
		0.40	30.00
		0.46	25.00
	0.58	0.35	40.00
		0.37	35.00
		0.40	30.00
		0.43	25.00
		0.45	20.00
		0.51	15.00
	0.64	0.38	30.00
		0.42	25.00
		0.45	20.00
		0.48	15.00
		0.51	10.00

P.6.3 Prescriptive – HVAC (gas)

Incentives are paid per unit except as noted in Table 6-13 below. Detailed product specifications are provided in Section P.8.

Table 6-13: Prescriptive HVAC (Gas) Incentives

Equipment Type	Incentive	Unit
Steam Traps		
Leaking Steam Trap Repair or Replacement	\$50.00	Trap
Space Heating Boilers		
High Efficiency Boilers	\$2.00	MBH
Boiler Controls		
Boiler Tune-Up	\$350.00	Boiler
Boiler Modulating Burner Control Retrofit (5:1 or 10:1 turn-down)	\$1,250.00	Boiler
Boiler Reset Control	\$400.00	Boiler
Other		
Pipe Wrap - Steam Boiler	\$6.00	Linear Foot
High Efficiency Furnace	\$350.00	Furnace
Infrared Heaters	\$2.50	MBH
Chiller Water Reset	\$1.00	Ton
Variable Frequency Drive on Secondary Chilled Water Pump	\$10.00	Pump HP
Roof Insulation	\$100.00	1,000 SF Roof Area
Programmable Thermostat (Gas Heat)	\$50.00	Thermostat
Energy Management System	\$5.00	1,000 SF of Conditioned Floor Area
Demand Control Ventilation	\$50.00	1,000 SF
Hotel Guestroom Energy Management Control (Gas Heat)	\$35.00	Room

P.6.4 Prescriptive – Gas Water Heaters

Incentives are paid on a per unit basis, except as noted in Table 6-14 below. Detailed product specifications are provided in Section P.8.

Table 6-14: Prescriptive Gas Water Heater Incentives

Equipment Type	Incentive	Unit
Pipe Wrap - Hot Water Boiler	\$4.00	Linear foot
Gas Water Heater (< 75 gal, < 75,000 Btuh)	\$35.00	Heater
Gas Tankless Water Heater	\$150.00	Heater
High Efficiency Pool Heater (gas heat)	\$2.00	MBH
Pool Covers	\$0.25	SF surface area
High Efficiency Clothes Washer (Gas Water Heat, Electric Dryer)	\$50.00	Washer
High Efficiency Clothes Washer (Gas Water Heat, Gas Dryer)	\$50.00	Washer

P.6.5 Prescriptive – NEMA Premium Efficiency Motors

The incentives are available for premium efficiency motors ranging in size from 1 to 250 horsepower that meet or exceed the efficiency standard listed in Table 6-15.

Table 6-15: Prescriptive Motors Qualifying Efficiencies / Incentives

Horse Power	3600 RPM		1800 RPM		1200 RPM		Incentive per HP
	Open	Closed	Open	Closed	Open	Closed	
1	77.0%	77.0%	85.5%	85.5%	82.5%	82.5%	\$3.00
1.5	84.0%	84.0%	86.5%	86.5%	86.5%	87.5%	\$3.00
2	85.5%	85.5%	86.5%	86.5%	87.5%	88.5%	\$3.00
3	85.5%	86.5%	89.5%	89.5%	88.5%	89.5%	\$3.00
5	86.5%	88.5%	89.5%	89.5%	89.5%	89.5%	\$3.00
7.5	88.5%	89.5%	91.0%	91.7%	90.2%	91.0%	\$3.00
10	89.5%	90.2%	91.7%	91.7%	91.0%	91.0%	\$3.00
15	90.2%	91.0%	93.0%	92.4%	91.7%	91.7%	\$3.00
20	91.0%	91.0%	93.0%	93.0%	92.4%	91.7%	\$3.00
25	91.7%	91.7%	93.6%	93.6%	93.0%	93.0%	\$2.00
30	91.7%	91.7%	94.1%	93.6%	93.6%	93.0%	\$2.00
40	92.4%	92.4%	94.1%	94.1%	94.1%	94.1%	\$2.00
50	93.0%	93.0%	94.5%	94.5%	94.1%	94.1%	\$2.00
60	93.6%	93.6%	95.0%	95.0%	94.5%	94.5%	\$2.00
75	93.6%	93.6%	95.0%	95.4%	94.5%	94.5%	\$2.00
100	93.6%	94.1%	95.4%	95.4%	95.0%	95.0%	\$2.00
125	94.1%	95.0%	95.4%	95.4%	95.0%	95.0%	\$1.50
150	94.1%	95.0%	95.8%	95.8%	95.4%	95.8%	\$1.50
200	95.0%	95.4%	95.8%	96.2%	95.4%	95.8%	\$1.50
250	95.0%	95.8%	95.8%	96.2%	95.4%	95.8%	\$1.50

P.6.6 Prescriptive – Miscellaneous (Electric)

Incentives for applicable electric measures that were not listed in the lighting, HVAC, motors, industrial process, or food service sections are available on a per unit basis, as noted in the table below. Detailed product specifications are discussed in Section P.8.

Table 6-16: Prescriptive Miscellaneous (Electric) Incentives

Equipment Type	Incentive	Unit
Occupancy Sensors and Controls		
Beverage Vending Machine Controllers	\$50.00	machine
Plug Load Occupancy Sensor	\$37.50	sensor
Intelligent Surge Protector	\$8.00	protector
High Efficiency Heat Pump Water Heater		
10 to 50 MBH	\$1,500.00	heater
51 to 100 MBH	\$3,000.00	heater
101 to 300 MBH	\$5,000.00	heater
301 to 500 MBH	\$7,000.00	heater
> 500 MBH	\$9,000.00	heater
Energy Efficient Ice Machines		
< 500 lbs	\$150.00	machine
500 to 1000 lbs	\$250.00	machine
1001 to 1500 lbs	\$500.00	machine
Clothes Washers		
High Efficiency Clothes Washer (Electric Water Heat, Electric Dryer)	\$50.00	washer
High Efficiency Clothes Washer (Electric Water Heat, Gas Dryer)	\$50.00	washer

P.6.7 Prescriptive – Industrial Process (Electric)

Incentives for applicable industrial process measures, including high efficiency pumps and variable frequency drives on pumps, are available as noted in the tables below. Detailed product specifications are provided in Section P.8.

Table 6-17: Prescriptive Industrial Process Incentives – Pumps and VFDs

Equipment Type	Incentive	Unit
High Efficiency Process (non-HVAC) Pumps		
1.5 HP	\$20.00	HP
2 HP	\$20.00	HP
3 HP	\$20.00	HP
5 HP	\$20.00	HP
7.5 HP	\$20.00	HP
10 HP	\$20.00	HP
15 HP	\$20.00	HP
20 HP	\$20.00	HP
Variable Frequency Drive on Process (non-HVAC) Pumps		
1.5 HP	\$60.00	HP
2 HP	\$60.00	HP
3 HP	\$60.00	HP
5 HP	\$60.00	HP
7.5 HP	\$60.00	HP
10 HP	\$60.00	HP
15 HP	\$60.00	HP
20 HP	\$60.00	HP
25 HP	\$60.00	HP
30 HP	\$60.00	HP
40 HP	\$60.00	HP
50 HP	\$60.00	HP

Table 6-18: Prescriptive Industrial Process Incentives – Other

Equipment Type	Incentive	Unit
Compressed Air Engineered Nozzle	\$100.00	Nozzle
Barrel Wraps for Injection Molders & Extruders	\$1.00	Machine Ton
Insulated Pellet Dryer Ducts - 3" diameter	\$10.00	Linear Foot
Insulated Pellet Dryer Ducts - 4" diameter	\$15.00	Linear Foot
Insulated Pellet Dryer Ducts - 5" diameter	\$20.00	Linear Foot
Insulated Pellet Dryer Ducts - 6" diameter	\$25.00	Linear Foot
Insulated Pellet Dryer Ducts - 8" diameter	\$30.00	Linear Foot

P.6.8 Prescriptive – Food Service (Electric)

Incentives for electric food service measures are available as noted in Table 6-19 below. Detailed product specifications are discussed in Section P.8.

Table 6-19: Prescriptive Food Service (Electric) Incentives

Equipment Type	Incentive	Unit
New or Replacement Refrigerators and Freezers		
ENERGY STAR® Commercial Solid Door Refrigerators (< 20 cu ft)	\$125.00	Refrigerator
ENERGY STAR® Commercial Solid Door Refrigerators (20 - 48 cu ft)	\$200.00	Refrigerator
ENERGY STAR® Commercial Solid Door Refrigerators (> 48 cu ft)	\$300.00	Refrigerator
ENERGY STAR® Commercial Solid Door Freezers (< 20 cu ft)	\$100.00	Freezer
ENERGY STAR® Commercial Solid Door Freezers (20 - 48 cu ft)	\$100.00	Freezer
ENERGY STAR® Commercial Solid Door Freezers (> 48 cu ft)	\$100.00	Freezer
New or Replacement Steam Cookers		
ENERGY STAR® Steam Cookers (3 Pan, Electric)	\$450.00	Cooker
ENERGY STAR® Steam Cookers (4 Pan, Electric)	\$600.00	Cooker
ENERGY STAR® Steam Cookers (5 Pan, Electric)	\$750.00	Cooker
ENERGY STAR® Steam Cookers (6 Pan, Electric)	\$900.00	Cooker
New or Replacement Hot Holding Cabinets		
ENERGY STAR® Hot Holding Cabinets (Half Size)	\$300.00	Cabinet
ENERGY STAR® Hot Holding Cabinets (Three Quarter Size)	\$400.00	Cabinet
ENERGY STAR® Hot Holding Cabinets (Full Size)	\$600.00	Cabinet

Table 6-19 (continued): Prescriptive Food Service (Electric) Incentives

Other		
Anti-Sweat Heater Controls	\$80.00	Door
Night Covers	\$2.00	Linear Foot
Efficient Refrigeration Condenser	\$100.00	Ton
Floating Head Pressure Controls	\$8.00	Ton

P.6.9 Prescriptive – Food Service (Gas) and Miscellaneous

Incentives for applicable gas food service measures are available as noted in the table below. Detailed product specifications are provided in Section P.8.

Table 6-20: Prescriptive Food Service (Gas) & Miscellaneous Incentives

Equipment Type	Incentive	Unit
New or Replacement Steam Cookers		
ENERGY STAR® Steam Cookers (5 Pan, Gas)	\$750.00	cooker
ENERGY STAR® Steam Cookers (6 Pan, Gas)	\$900.00	cooker
New or Replacement Ovens		
Convection Ovens	\$300.00	oven
Combination Ovens	\$900.00	oven
Rack Oven Single	\$400.00	oven
Rack Oven Double	\$800.00	oven
New or Replacement Fryers/Griddles		
ENERGY STAR® Fryer	\$225.00	fryer
Large Vat Fryer	\$300.00	fryer
Griddles	\$200.00	griddle
Miscellaneous		
Furnace Tube Inserts (Gas)	\$75.00	furnace
Pre-Rinse Sprayers (gas water heat)	\$30.00	sprayer

P.7 CUSTOM INCENTIVES

DTE Energy's *Your Energy Savings* Program offers custom incentives for eligible improvements not included in the prescriptive measure list. Custom measures include measures that result in a reduction in electric and/or gas energy due to an improvement in system efficiency, i.e. a net decrease in energy use without a reduction in the level of service. For example, installing a lower wattage lamp in place of a higher wattage lamp OF THE SAME TYPE will not qualify for an incentive. However should the lighting system (i.e., lamp, ballast and fixture) demonstrably improve the total lumens per watt delivered, an incentive will be considered. The decision as to whether or not an improvement is eligible for a custom incentive is within the sole discretion of DTE Energy.

Examples of custom measures include, but are not limited to, the following:

- Exhaust heat recovery
- Constant volume to variable volume water or air distribution
- Process improvements
- Upgrade of a refrigeration compressor
- Air compressor improvements
- Energy Management Systems for DX systems

Projects that are **NOT** eligible for an incentive include, but are not limited to, the following:

- Fuel switching (e.g. electric to gas or gas to electric)
- Changes in operational and/or maintenance practices or simple control modifications not involving capital costs
- On-site electricity generation
- Projects that involve peak-shifting (and not kWh savings)
- Projects involving renewable energy

Incentives for custom measures are based on the first years electrical and/or gas energy savings that result from the energy efficiency measure installation. The applicant must provide sufficient project information, equipment performance data, operating assumptions, measurements and calculations to support the energy savings estimates. Guidelines for calculating custom measure energy savings are in Section P.12.

The gas and electric incentives are shown in Table 7-1, and the simple payback period must be between one and eight years. The total eligible custom incentive will not exceed 50% of the measure cost, as described in Section P5.2 above (Project Incentive Caps).

Table 7-1: Custom Incentives

Incentive	\$0.08/kWh or \$4.00/MCF
Minimum Payback Period	One Year
Maximum Payback Period	Eight Years

Simple payback period is calculated as follows:

$$\text{Payback period} = \frac{\text{Measure Cost}}{(\text{Annual kWh saved} \times \text{Electricity Rate}) + (\text{Annual MCF saved} \times \text{Gas Rate})}$$

P.8 EQUIPMENT SPECIFICATIONS

All final applications must include manufacturers' specification sheets. Lighting applications must include manufacturer's specification for lamps (light bulbs) and ballasts. All incentives are for one-for-one replacements except as noted.

Note: All replaced equipment must be recycled/disposed of according to state, federal and local regulations. Information about the requirements for the State of Michigan can be found at the Michigan Department of Environmental Quality website: <http://www.michigan.gov/deq/>.

LIGHTING

To assist in rebate processing, provide a room-by-room fixture schedule with the Final Application.

P.8.1 Compact Fluorescent Lamps, Screw-In (\leq 31 Watts)

Incentives are available for the replacement of incandescent lamps with CFLs that are ENERGY STAR® qualified or that meet ENERGY STAR® criteria. The lamps must have a luminous efficacy of \geq 50 lumens per watt (LPW). Incentive is per lamp.

Note: This incentive is not available for CFLs purchased at retail stores participating in the DTE Energy CFL discount program. Incentive for CFLs purchased from those retailers is included in the discounted price.

P.8.2 Compact Fluorescent Lamps, Screw-In ($>$ 31 Watts)

Incentives are available for the replacement of incandescent lamps with high wattage CFLs. The new lamp must have a luminous efficacy of \geq 65 lumens per watt (LPW). Incentive is per lamp.

Note: This incentive is not available for CFLs purchased at retail stores participating in the DTE Energy CFL discount program. Incentive for CFLs purchased from those retailers is included in the discounted price.

P.8.3 Compact Fluorescent Fixtures

Incentives are available for replacing interior non-fluorescent fixtures with hardwired compact fluorescent fixtures. Replacement fixtures must be new fixtures or modular hardwired retrofits with hardwired electronic ballasts. The compact fluorescent ballast must be programmed start or programmed rapid start with a power factor (PF) \geq 0.90 and a total harmonic distortion (THD) \leq 20%. Incentive is per fixture.

P.8.4 Compact Fluorescent Reflector Flood Lamps

Incentives are available to replace incandescent reflector flood lamps with CFL reflector flood lamps. The CFL reflector flood lamps must have a luminous efficacy of \geq 33 lumens per watt (LPW). Incentive is per lamp.

Note: This incentive is not available for CFL's purchased at retail stores participating in the DTE Energy CFL discount program. Incentive for CFLs purchased from those retailers is included in the discounted price.

P.8.5 42W 8- Lamp Compact Fluorescent High Bay Fixture

Incentives are available in high-bay applications (ceiling heights over 15 feet) for replacing any lighting fixtures greater than or equal to 350W with 42 Watt, 8 lamp compact fluorescent fixtures. Replacement fixtures must contain specular reflectors and electronic ballasts with a power factor (PF) ≥ 0.90. Incentive is per fixture.

P.8.6 ENERGY STAR® Qualified LED Recessed Down Light

Incentives are available to replace incandescent recessed lights with ENERGY STAR® qualified LED recessed down lights. Replacement lights must have a minimum efficacy of 35 lumens per watt. Incentive is per lamp.

Note: This incentive is not available for lamps purchased at retail stores participating in the DTE Energy lamp discount program. Incentive for lamps purchased from those retailers is included in the discounted price.

P.8.7 Standard Linear Fluorescent Retrofit

Incentives are available for replacing existing T12 lamps and magnetic ballasts with T8 or T5 lamps and electronic ballasts. The new fixture lamps must have a color rendering index (CRI) ≥ 80. The electronic ballast must be high frequency (≥ 20 kHz), UL listed, and warranted against defects for a minimum of 5 years. Ballasts must have a power factor (PF) ≥ 0.90. Ballasts for 4-foot lamps must have total harmonic discharge (THD) ≤ 20 % at full power output. For 2 and 3-foot lamps, ballasts must have THD ≤ 32 % at full light output. Incentive is per fixture.

P.8.8 High Output T8/T5 Lamp and Ballast replacing T12 Fluorescent Lamp

Incentives are available for replacing existing T12 lamps and magnetic ballasts with T5HO or T8HO lamps and electronic ballasts. The replacement lamps must have a CRI ≥ 80. Incentive is per fixture.

P.8.9 Low Wattage 4-foot T8 Lamps (Lamps Only)

Incentives are available for replacing 32 Watt T8 lamps with reduced (low) wattage T8 lamps when an electronic ballast is already present. The lamps must be reduced wattage in accordance with the Consortium for Energy Efficiency® (CEE®) specifications, which are available at www.cee1.org and are summarized in below. Low wattage lamps must be either 25W or 28W and CEE® Listed. A list of qualified products can be found at <http://www.cee1.org/com/com-lt/com-lt-main.php3>. Incentive is per lamp.

P.8.10 High Performance 4-foot T8 Lamp and Ballast

Incentives are available for replacing existing T12 or T12HO lamps and magnetic ballasts or standard T8 lamps and electronic ballasts with high performance T8 lamps and electronic ballasts. Replacement fixtures must high performance in accordance with the Consortium for Energy Efficiency® (CEE®) high performance T8 specification, which are available at www.cee1.org and are summarized below. A list of qualified lamps and ballasts can be found at: <http://www.cee1.org/com/com-lt/com-lt-main.php3>. Both the lamp and ballast must meet the specifications in order to be eligible for an incentive. Incentive is per fixture.

Table 8-1: High Performance T8 Specifications

High Performance T8 Characteristics	
Mean System Efficacy	≥ 90 Mean Lumens per Watt (MLPW) for Instant Start Ballasts

	≥ 88 MLPW for Programmed Rapid Start Ballasts			
Performance Characteristics for Lamps				
Color Rendering Index (CRI)	≥ 80			
Minimum Initial Lamp Lumens	≥ 3100 Lumens ²			
Lamp Life	≥ 24,000 Hours			
Lumen Maintenance or Minimum Mean Lumens	≥ 94% or ≥ 2900 Mean Lumens			
Performance Characteristics for Ballasts				
	Lamps	Low BF ≤ 0.85	Norm 0.85 < BF ≤ 1.0	High BF ≥ 1.01
	Instant Start Ballast (BEF)			
	1	> 3.08	> 3.11	NA
	2	> 1.60	> 1.58	> 1.55
	3	≥ 1.04	≥ 1.05	≥ 1.04
	4	≥ 0.79	≥ 0.80	≥ 0.77
	Programmed Rapid Start Ballast (BEF)			
	1	≥ 2.84	≥ 2.84	NA
	2	≥ 1.48	≥ 1.47	≥ 1.51
	3	≥ 0.97	≥ 1.00	≥ 1.00
	4	≥ 0.76	≥ 0.75	≥ 0.75
Ballast Frequency	20 to 33 kHz or ≥ 40 kHz			
Power Factor	≥ 0.90			
Total Harmonic Distortion	≤ 20%			

P.8.11 Low Wattage 4-foot T8 Lamp and Ballast

Incentives are available for replacing T12 systems with reduced (low) wattage lamp and electronic ballast systems. The lamps and ballasts must meet the Consortium for Energy Efficiency[®] (CEE[®]) specifications, which are available at www.cee1.org and are summarized in below. A list of qualified lamp and ballast products can be found at <http://www.cee1.org/com/com-lt/com-lt-main.php3>. Both the lamp(s) and ballast(s) must qualify in order to receive an incentive for the system. Incentive is per fixture.

Table 8-2: Reduced (Low) Wattage 4-foot Lamps and Ballasts

Performance Characteristics for Lamps ³	
Mean System Efficacy	≥ 90 MLPW
Color Rendering Index (CRI)	≥ 80
Minimum Initial Lamp Lumens	≥ 2585 Lumens for 28 W
	≥ 2400 Lumens for 25 W
Lamp Life ⁴	≥ 18,000 hrs at three hours per start
Lumen Maintenance –or- Minimum Mean Lumens ⁵	≥ 94% -or-
	≥ 2430 Lumens for 28 W
	≥ 2256 Lumens for 25 W
Performance Characteristics for 28 and 25 W Ballasts	

² For lamp with color temperatures ≥ 4500k. 2950 minimum initial lamp lumens are allowed.

³ Lamps ≥4500 K and/or 24,000 hours have a system efficacy specified ≥ 88 MLPW. Minimum initial and mean lumen levels are specified as follows: for 28 W lamps, limits are 2600/2340. For 25 W lamps, limits are 2300/2185.

⁴ Life rating is based on an Instant Start Ballast tested in accordance with ANSI protocols. When use for Programmed Start Ballast, life may be increased depending upon the operating hours per start.

⁵ Mean lumens measures at 7,200 hours

Ballast Frequency	20 to 33 Hz or ≥ 40 kHz	
Power Factor	≥ 0.90	
Total Harmonic Distortion	$\leq 20\%$	
Performance Characteristics for Ballasts⁶, 28 W systems		
Ballast Efficiency Factor (BEF)	Instant Start Ballast (BEF)	
BEF = [BF x 100]/Ballast Input Watts Based on: Type of ballast No. of lamps driven by ballast Ballast Factor	Lamps	All BEF Ranges
	1	≥ 3.52
	2	≥ 1.76
	3	≥ 1.16
	4	≥ 0.88
Performance Characteristics for Ballasts⁶, 25 W systems		
Ballast Efficiency Factor (BEF)	Instant Start Ballast (BEF)	
BEF = [BF x 100]/Ballast Input Watts Based on: Type of ballast No. of lamps driven by ballast Ballast Factor	Lamps	All BEF Ranges
	1	≥ 3.95
	2	≥ 1.98
	3	≥ 1.32
	4	≥ 0.99

P.8.12 High Output 4-foot T5 and T8 New Fixture Replacing HID

Incentives are available for replacing HID fixtures with T8 or T5HO lamps and electronic ballasts. The T8 or T5HO lamps must have a color rendering index (CRI) ≥ 80 . The electronic ballast must be high frequency (≥ 20 kHz), UL listed, and warranted against defects for 5 years. Ballasts must have a power factor (PF) ≥ 0.90 . Ballasts for 4-foot lamps must have total harmonic distortion (THD) $\leq 20\%$ at full light output. This incentive is available for high-bay and low-bay fluorescent applications. Incentive is per fixture.

P.8.13 Pulse Start Metal Halide (retrofit only)

Incentives are available for replacing existing HID fixtures with pulse start metal halide fixtures in high-bay applications. Incentive is per fixture.

P.8.14 Exterior or Garage HID to LED/Induction Lighting Retrofit

Incentives are available for exterior and garage applications for replacing existing high intensity discharge fixtures with LED or Induction fixtures. Fixture replacement must result in at least a 40% power reduction. LED fixtures must have a minimum efficacy of 35 lumens per watt. Eligible applications include canopy lighting and wall-packs. Incentive is per fixture.

P.8.15 Exit Signs

Incentives are available for high-efficiency exit signs replacing or retrofitting an existing incandescent exit sign. Electroluminescent, T1, and LED exit signs are eligible. Non-electrified and remote exit signs are not eligible. All replacement exit signs must be UL or ETL listed, have a minimum lifetime of 10 years, and have an input wattage ≤ 5 Watts per face or be ENERGY STAR[®] qualified. Incentive is per sign.

⁶ Multi-Voltage Ballasts must meet or exceed the listed Ballast Efficiency Factor when operated on at least one of the intended operating voltages.

P.8.16 LED Traffic and Pedestrian Lights

Incentives are available for LED traffic lights, including arrows that replace or retrofit an existing incandescent traffic signal. At minimum, red and green lamps must be retrofitted to qualify for the signal incentive. LED Signals must have an input wattage ≤ 17 Watts per signal. Incentives are not available for spare lights. Lights must be hardwired, with the exception of pedestrian hand signals. Incentive is per signal.

P.8.17 Occupancy Sensors

Incentives are available for adding occupancy sensors to low occupancy interior areas not having existing automatic controls. Sensors must automatically turn lights on when movement is detected. The minimum amount of time for the lights to stay on when no movement is sensed (delay set time) must be 10 minutes. The sensors can be passive infrared (PIR) or ultrasonic. All sensors must be hard-wired and control interior lighting fixtures. To assist in rebate processing, provide the inventory of the controlled fixtures with the Final Application. Incentive is per sensor.

P.8.18 Central Lighting Control

Incentives are available for adding automated central lighting control systems to existing lighting systems having no such control. Automated system must have override capabilities. This measure includes time clocks, package programmable relay panels, and complete building automation controls. Photo-sensors may also be incorporated into the central lighting control system. Incentive is per 10,000 square feet of controlled floor area.

P.8.19 Switching Controls for Multilevel Lighting

Incentives are available to add switching controls for multilevel lighting to existing lighting systems having no such control. The switching controls may be used with daylight or occupancy sensors. If combined with daylight sensors, the controls must be commissioned in order to ensure proper sensor calibration and energy savings. This measure is applicable to spaces that require various lighting schemes such as classrooms, auditoriums, conference rooms and warehouses with skylights. Incentive is per 10,000 square feet of controlled floor area.

P.8.20 Daylight Sensor Controls

Incentives are available for adding daylight sensor controls to existing lighting systems having no such control. Spaces must have reasonable amounts of sunlight exposure and task lighting must not be critical. The controls can be on/off, stepped, or continuous (dimming). The on/off controller must turn off artificial lighting when the interior illuminance meets the desired indoor lighting level. Daylight sensor controls are required to be commissioned in order to ensure proper sensor calibration and energy savings. Incentive is per 10,000 square feet of controlled floor area.

P.8.21 Exterior Lighting, Bi-Level Control with Override

Incentives are available for retrofitting existing, exterior HID lighting with bi-level controls that reduce lighting levels by at least 50% when the space is unoccupied. The HID lighting must have an electronic ballast capable of reduced power levels and be coupled with motion sensors to bring the light back to full lumen output for security reasons. Eligible controls include on-off controls, dimmers, and hi-lo ballast controls. This measure is applicable to exterior fixtures that are on during the night. Incentive is per fixture.

P.8.22 Light Tube

Incentives are available for new light tubes 10 inches to 21 inches in diameter. This measure is applicable to spaces that normally require electric lighting during peak hours (1 - 4 p.m. weekdays during the summer). The light tube must allow an adequate amount of light during overcast conditions and must be coupled to daylight sensing controls. Incentive is per tube.

P.8.23 Delamping

Incentives are available for the permanent removal of existing fluorescent lamps. Permanent lamp removal is the net reduction in the quantity of lamps after a project is completed. Customers are responsible for determining whether reflectors are necessary in order to maintain adequate lighting levels. Lighting retrofits are expected to meet the Illuminating Engineering Society of North America (IESNA) recommended light levels. Unused lamps, lamp holders, and ballasts must be removed permanently from the fixture and disposed of in accordance with local regulations. This measure is applicable when retrofitting from T12 lamps to T8 lamps only. Removal of lamps from a T12 fixture that is not being retrofitted with T8 lamps is not eligible for this incentive, but may be eligible for other incentives. Incentive is per lamp removed.

HVAC (ELECTRIC)

P.8.24 Unitary and Split Air Conditioning Systems and Air Source Heat Pumps

Incentives are available to install replacement air conditioning units or air source heat pumps that meet or exceed the qualifying cooling efficiency shown below. Replacement equipment can be either split systems or single package units. Water-cooled systems, evaporative coolers, and water source heat pumps are not eligible for this incentive, but may be eligible for a custom incentive. All packaged and split system cooling equipment must meet applicable Air Conditioning and Refrigeration Institute (ARI) standards (210/240, 320 or 340/360), be UL listed, and use a minimum ozone-depleting refrigerant (e.g., HCFC or HFC). Disposal of the existing unit must comply with local codes and ordinances. Incentive is per ton of refrigeration.

Table 8-3: Efficiencies for Unitary and Split A/C Systems and Air Source Heat Pumps

Equipment Type	Size Category	Qualifying Efficiency
Unitary and Split Air Conditioning Systems	≤ 65,000 Btu/h(5.4 tons) 1 Phase	14.0 SEER
	≤ 65,000 Btu/h(5.4 tons) 3 Phase	13.0 SEER
	> 65,000 Btu/h(5.4 tons), ≤ 135,000 Btu/h(11.3 tons)	11.0 EER
	> 135,000 Btu/h(11.3 tons), ≤ 240,000 Btu/h(20 tons)	11.0 EER
	> 240,000 Btu/h(20 tons) ≤ 760,000 Btu/h(63.3 tons)	10.0 EER
	> 760,000 Btu/h(63.3 tons)	10.0 EER
Air Source Heat Pumps	≤ 65,000 Btu/h(5.4 tons) - 1 Phase	14.0 SEER

	≤ 65,000 Btu/h(5.4 tons) - 3 Phase	13.0 SEER
	> 65,000 Btu/h(5.4 tons), ≤ 135,000 Btu/h(11.3 tons)	11.0 EER
	> 135,000 Btu/h(11.3 tons)	10.0 EER

P.8.25 Water Loop Heat Pumps

Incentives are available to install replacement water loop heat pumps that meet or exceed the qualifying cooling efficiency shown in Table 8-4 below. All packaged cooling equipment must meet applicable Air Conditioning and Refrigeration Institute (ARI) Standards (210/240, 320 or 340/360), be UL listed, and use a minimum ozone-depleting refrigerant (e.g., HCFC or HFC). Disposal of the existing unit must comply with local codes ordinances.

Table 8-4: Efficiencies for Water Loop Heat Pumps

Size Category	Qualifying Efficiency
≤ 17,000 Btu/h (1.4 tons)	11.5 EER
> 17,000 Btu/h (1.4 tons)	12.3 EER

P.8.26 Room Air Conditioners

Incentives are available to install replacement room air conditioning units that are through-the-wall (built-in), self-contained units. Unit must have a capacity of 2 tons or less and must be ENERGY STAR® qualified or meet ENERGY STAR® energy criteria. Units can be with or without louvered sides, must be without reverse cycle (i.e., heating), and must have a casement. Disposal of existing units must comply with local codes and ordinances. Incentive is per ton of refrigeration.

P.8.27 Package Terminal AC and Heat Pump Units (PTAC/PTHP)

Incentives are available to install replacement package terminal air conditioners and heat pumps that are through-the-wall self, contained units with a capacity of 2 tons (24,000 Btu/h) or less. The qualifying efficiencies are provided in Table 8-5 below. All EER values must be rated at 95°F outdoor dry-bulb temperature. Disposal of existing unit must comply with local codes and ordinances. Incentive is per ton of refrigeration.

Table 8-5: Qualifying Package Terminal Unit Efficiencies

Equipment Type	Qualifying Efficiency
Packaged Terminal Air Conditioner	9.2 EER
Packaged Terminal Heat Pump	9.0 EER

P.8.28 Ground-Source Heat Pumps

Incentives are available to install replacement ground source heat pumps with a capacity less than or equal to 135,000 Btu/h and that have an Energy Efficiency Ratio (EER) of ≥ 17 . Incentives are also available for ground source heat pumps that replace an existing air source heat pump, have a capacity less than or equal to 135,000 Btu/h, and have an Energy Efficiency Ratio (EER) of ≥ 17 . All equipment must meet applicable Air Conditioning and Refrigeration Institute (ARI) Standards (325 or 330) and be UL listed. EER is the efficiency at standard (ARI/ISO) conditions of 77°F entering water for closed-loop models and 59°F entering water for open-loop systems. Disposal of the existing unit must comply with local codes and ordinances. Incentive is per ton of refrigeration.

P.8.29 Air-cooled Chillers

Incentives are available for replacement air-cooled chillers that have an ARI rated full load efficiency that is less than or equal to 1.16 kW/ton. The chillers must meet ARI Standards 550/590-2003, be UL listed, and use a minimum ozone-depleting refrigerant (e.g., HCFC or HFC). The ARI net capacity value must be used to determine the chiller tons. Incentive is per ton of refrigeration.

P.8.30 Programmable Thermostat Setback/Setup (Air Conditioning)

Incentives are available for replacing existing non-programmable thermostats with programmable thermostats that are ENERGY STAR® qualified or that meet ENERGY STAR® criteria to automatically adjust the temperature at pre-selected times. To meet ENERGY STAR® criteria, they must be capable of maintaining at least two separate programs to address the requirements of weekdays and weekends and each program must have at least four time periods with independent temperature setpoint scheduling. A List of qualified products can be found at http://downloads.energystar.gov/bi/qplist/prog_thermostat_prod_list.pdf. Incentive is per thermostat.

P.8.31 Energy Management System

Incentives are available for energy management system (EMS) upgrades that include combining chilled water temperature reset controls with pump controls to turn off hydronic hot water, chilled water and condenser water pumps when heating and/or cooling are not needed in a system that previously operated 8,760 hours per year with a constant chilled water set point and a constant pump flow rate. Upgrades must include hardware installation for new controls. This incentive is per 1,000 square feet of the conditioned floor area affected by the EMS upgrade.

P.8.32 Hotel Guest Room Energy Management Control (Air Conditioning)

Incentives are available for adding automatic occupancy sensors that control PTAC, heat pump, and other HVAC units in individual hotel rooms to existing equipment having no such control. Sensors controlled by a front desk system are not eligible. Incentive is per guest room controlled. For multi-room suites with separate HVAC units in each room, the incentive per room controlled.

P.8.33 Chilled Water Reset – Air and Water Cooled Chillers

Incentives are available for retrofitting existing chilled water systems with chilled water reset controls that allow the chilled water temperature to increase by at least 5°F during periods of low-flow (low load). Upgrades must include hardware installation for new controls, and the system must include an economizer. Incentive is per ton of refrigeration.

Table 8-6: Chilled Water Reset – Incentive Size Categories

Measure Name	Size Category
Chilled Water Reset - Air Cooled	≤ 100 tons
	> 100 tons, ≤ 200 tons
	> 200 tons, ≤ 300 tons
	> 300 tons, ≤ 400 tons
	> 400 tons, ≤ 500 tons
Chilled Water Reset - Water Cooled	≤ 1,000 tons
	> 1,000 tons, ≤ 2,000 tons
	> 2,000 tons, ≤ 3,000 tons

P.8.34 Variable Frequency Drives – VAV Fans and Secondary Chilled Water Pumps

Incentives are available for installing variable frequency drives (VFDs) on existing supply and return air fans of variable air volume (VAV) comfort cooling air handling systems. Redundant or back-up fans are not eligible. Integrated VFDs on new equipment may be eligible for other incentives. The installation of a VFD must accompany the permanent removal or disabling of any throttling devices such as inlet vanes, bypass dampers, and throttling valves. Incentive is per horsepower (hp) of the supply or return air fan.

Incentives are also available for installing variable frequency drives (VFDs) on existing secondary chilled water pumps of comfort cooling chilled water systems having a primary-secondary pumping arrangement. Redundant or back-up pumps are not eligible. Integrated VFD's on new equipment may be eligible for other incentives. The installation of a VFD must accompany the permanent removal or disabling of any throttling devices such as inlet vanes and throttling valves. Incentive is per horsepower (hp) of the secondary chilled water pump.

P.8.35 Economizer

Incentives are available for retrofitting existing HVAC systems having fixed outdoor air settings to include air-side economizers. Incentive is per ton of refrigeration of the system upgraded with the economizer.

P.8.36 Cool Roofs

Incentives are available for upgrading existing roofs to cool roofs that have a solar absorptance (ε) of ≤ 0.3 (reflectance of ≥ 0.7) and that are installed over an area cooled by equipment using

a vapor-compression refrigeration cycle. Spaces cooled by evaporative-cooling or absorption chillers are not eligible. Incentive is per 1,000 square feet of roof area.

P.8.37 High Performance Glazing

Incentives are available for high performance glazing replacing clear double-pane glass or lesser performing glazing. The replacement glazing must have a Solar Heat Gain Coefficient (SHGC) value of ≤ 0.39 , a U-value of ≤ 0.57 , a manufacturer's warranty of at least 5 years, and must be installed in a wall having an east, west, or southern exposure. The space upgraded with the glazing must be cooled by equipment using a vapor-compression refrigeration cycle. Spaces cooled by evaporative cooling or absorption chillers are not eligible. To convert Shading Coefficient (SC) to SHGC, multiply SC x 0.87. If SC is given in percent form, convert it to decimal form before multiplying. Incentive is per 100 square feet of glazing replaced.

P.8.38 Window Film

Incentives are available for window film added to existing clear double-pane glass or lesser performing glazing. The installed window film must have a Solar Heat Gain Coefficient (SHGC) value of ≤ 0.39 , a U-value of ≤ 0.72 , a manufacturer's warranty of at least 5 years, and must be installed on glazing having an east, west, or southern exposure. The space upgraded with the film must be cooled by equipment using a vapor-compression refrigeration cycle. Spaces cooled by evaporative cooling or absorption chillers are not eligible. To convert Shading Coefficient (SC) to SHGC, multiply SC x 0.87. If SC is given in percent form, convert it to decimal form before multiplying. Incentive is per 100 square feet of glazing upgraded with the film.

P.8.39 Water-Cooled Chillers

Incentives are available for replacement water-cooled chillers that have a rated Full Load efficiency (kW/ton) and Integrated Part Load Value (IPLV) that are less than or equal to a qualifying efficiency shown. The chiller efficiency rating must be in accordance with ARI Standard 550/590-2003. The chillers must meet ARI Standards 550/590-2003, be UL listed, and use a minimum ozone-depleting refrigerant (e.g., HCFC or HFC). The ARI net capacity value must be used to determine the chiller tons. Incentive is per ton of refrigeration.

GAS

General Clause for Heating Measures

Prescriptive incentives are available only for retrofit projects using natural gas as the primary fuel source. If a dual-fuel system is used, or if natural gas is the back-up or redundant fuel, the custom incentive application must be used. All prescriptive boiler-related incentives, except those for steam traps, are only available for equipment used in space heating conditions. Equipment for process load may be eligible for custom incentives.

P.8.40 Steam Trap Repair/Replacement

Incentives are available for the repair or replacement of steam traps that have failed open and that are leaking steam. Incentive is not available for traps that have failed closed or that are plugged. Replacement with an orifice trap is not eligible. Incentive is available once per 24

month period, per facility. Steam trap repair work must be recorded and the service report must be attached to the incentive application. Incentive is per repaired or replaced trap. The report must contain:

- Name of Repair Technician
- Repair Date
- System nominal steam pressure
- Annual hours of operation
- Number of steam traps serviced
- Per repaired or replaced steam trap:
- ID tag number, location and type of trap
- Pre- and post-repair/replacement conditions (e.g., Functioning/Not Functioning, Leaking/Not Leaking)
- Orifice size

P.8.41 High Efficiency Space Heating Water Boiler

Incentives are available for replacement boilers used for space heating. Boilers for backup or redundancy are not eligible. Boilers must be modulating with a minimum turndown ratio of 5:1 and be of the sealed combustion type. The ratings are as defined per ANSI Standard Z21.13. Qualifying efficiencies are shown in Table 8-7 below. Incentive is per MBH.

Table 8-7: Minimum Efficiency Requirements for High Efficiency Space Heating Boilers

Input Rating (Btu/h)	Minimum Efficiency
< 300,000	88% AFUE
≥ 300,000	88% Combustion Efficiency

P.8.42 Pipe Wrap – Steam Boiler

Incentives are available for insulation applied to bare steam boiler piping in existing systems. Insulation must have an applied thickness of 1 inch and an thermal resistance of R-4. A minimum of 10 linear feet of pipe must be insulated. The bare pipe size must be ½ inch or larger. Incentive is per linear foot of insulation.

P.8.43 Infrared Heaters

Incentives are available for replacement infrared heaters with electronic ignition and used in space heating applications. Both high-intensity and low-intensity heaters are eligible. Low-intensity heaters must use non-conditioned, outside air for combustion. Incentive is per MBH.

P.8.44 Chilled Water Reset – Air and Water Cooled Chillers

Incentives are available for retrofitting existing chilled water systems with chilled water reset controls that allow the chilled water temperature to increase by at least 5°F during periods of low-flow (low load). The building must have hydronic reheat. Upgrades must include hardware installation for new controls, and the system must include an economizer. VAV systems are not eligible. Incentive is per ton of refrigeration of the chiller affected by the control upgrade.

P.8.45 Variable Frequency Drives – Secondary Chilled Water Pumps

Incentives are available for installing variable frequency drives (VFD's) on existing secondary chilled water pumps of comfort cooling chilled water systems having a primary-secondary pumping arrangement. Redundant or back-up pumps are not eligible. Integrated VFD's on new equipment may be eligible for other incentives. The installation of a VFD must accompany the permanent removal or disabling of any throttling devices such as inlet vanes and throttling valves. Incentive is per horsepower (hp) of the secondary chilled water pump.

P.8.46 Roof Insulation

Incentives are available for adding roof insulation to existing buildings that require space heating and/or cooling. The pre-retrofit insulation level must be R-12 or less and the final insulation level must be at least R-18 or the minimum required by the local jurisdiction. All materials must be new, must meet or exceed all applicable local, state and federal standards and must be installed according to manufacturer requirements. Attic and roof/ceiling insulation is eligible for incentive only when installed between conditioned and unconditioned spaces. Insulation above dropped commercial ceilings is not eligible. Incentive is per 1,000 SF of roof area.

P.8.47 Programmable Thermostat Setback/Setup (Gas Heat)

Incentives are available for replacing existing non-programmable thermostats with programmable thermostats that are ENERGY STAR[®] qualified or that meet ENERGY STAR[®] criteria to automatically adjust the temperature at pre-selected times. To meet ENERGY STAR[®] criteria, they must be capable of maintaining at least two separate programs to address the requirements of weekdays and weekends and each program must have at least four time periods with independent temperature setpoint scheduling. A List of qualified products can be found at http://downloads.energystar.gov/bi/qplist/prog_thermostat_prod_list.pdf. Incentive is per thermostat.

P.8.48 Energy Management System

Incentives are available for energy management system (EMS) upgrades that include combining chilled water temperature reset controls with pump controls to turn off hydronic hot water, chilled water and condenser water pumps when heating and/or cooling are not needed in a system that previously operated 8,760 hours per year with a constant chilled water set point and a constant pump flow rate. Upgrades must include hardware installation for new controls. This incentive is per 1,000 square feet of the conditioned floor area affected by the EMS upgrade.

P.8.49 Demand Control Ventilation

Incentives are available to retrofit existing buildings with ventilation controls that adjust the percentage of outside air based on varying occupancy as determined by carbon dioxide (CO₂) measurement. Only buildings with space heating and cooling applications are eligible. Conditioned spaces must be kept between 65°F and 75°F during operating hours. Systems must have current fresh air requirements equal or greater to 10% of supply air requirements. Carbon dioxide sensors must be installed in conjunction with fully functioning air side economizers. Dual temperature air-side economizers with zone-level CO₂ sensors for rooftop units are eligible. Return system CO₂ sensors for built up systems are eligible. Incentive is per 1,000 sq. ft. of controlled floor area.

P.8.50 Guestroom Energy Management Control (Gas Heat)

Incentives are available for adding automatic occupancy sensors that control PTAC, heat pump, and other HVAC units in individual hotel rooms to existing equipment having no such control. Sensors controlled by a front desk system are not eligible. Incentive is per guest room controlled. For multi-room suites with separate HVAC units in each room, the incentive per room controlled.

P.8.51 Boiler Tune-up (Space Heating Boilers only)

Incentives are available for tune-ups to natural gas fired, space heating boilers. Burners must be adjusted to improve combustion efficiency as needed. The incentive is available once in a 24 month period. Boiler size must be 110 MBH or greater. The service provider must perform before and after combustion analyses and attach the tune-up report to the Final Application. Incentive is per boiler. Tune-up report must contain the following information:

Name of the technician performing tune-up
Date of tune-up
Boiler type (hot water, low pressure steam, high pressure steam)
Boiler nameplate information (make, model, capacity)
Annual hours of operation
Pre-and Post combustion analysis results (an electronic flue gas analyzer must be used) including:
Combustion efficiency
Stack temperature
Flue gas levels of O₂, CO₂ and CO
Statement that the following were performed:
Check and adjust combustion air flow and air intake as needed
Check burner and gas input
Check draft control dampers
Clean burners, nozzles, combustion chamber and heat exchanger surface (when weather or operating schedule permits)
Check combustion chamber seals
Check for proper venting
Complete visual inspection of system piping and installation
Check safety controls

P.8.52 Boiler Modulating Burner Control

Incentives are available for retrofitting existing non-modulating boilers with modulating burner controls added to boilers. The control must have a minimum turn-down ratio of 5:1. Boiler must operate a minimum of 4,000 hours per year. Incentive is only available for equipment used in space heating conditions. Incentive is per boiler.

P.8.53 Boiler Water Reset Control

Incentives are available for boiler water temperature reset controls added to existing boilers operating with a constant supply temperature. Incentives are for existing space heating boilers only. A replacement boiler with boiler reset controls is not eligible. The system must be set so that the minimum temperature is not more than 10°F above manufacturer's recommended minimum return temperature. For controls on multiple boilers to be eligible, control strategy

must stage the lag boiler(s) only after the lead boiler fails to maintain the desired boiler water temperature. Incentive is per boiler.

P.8.54 High Efficiency Gas Furnace

Incentives are available for replacement furnaces that have an AFUE of 95% or greater and have a sealed combustion unit. Furnaces must vary output by using a variable speed blower motor (ECM or brushless DC) and have at least two firing stages. Two-speed and multi-speed motors are not eligible. Air handlers are not eligible. Equipment for backup or redundancy is not eligible. Incentive is only available for equipment used in space heating conditions. Incentive is per furnace.

P.8.55 Pipe Wrap – Hot Water Boiler

Incentives are available for insulation applied to bare hot water boiler piping in existing systems. Insulation must have an applied thickness of 1 inch and an thermal resistance of R-4. A minimum of 10 linear feet of pipe must be insulated. The bare pipe size must be ½ inch or larger. Incentive is per linear foot of insulation.

P.8.56 Gas Storage Water Heater

Incentives are available for water heaters that have an Energy Factor ≥ 0.62 and that replace existing natural gas storage water heaters with a capacity of $<75,000$ Btu/h and storage tank holding capacity of < 75 gallons . Incentive is per heater.

P.8.57 Gas Tankless Water Heater

Incentives are available for water heaters replacing existing natural gas water heaters. Replacement unit must be power vented with an Energy Factor of ≥ 0.82 . Incentive is per heater.

P.8.58 High Efficiency Pool Heater

Incentives are available for replacement pool heaters. Replacement heater must have a thermal efficiency $\geq 84\%$, must be rated between 500,000 Btu and 2,000,000 Btu, must have an on/off switch, and must have no standing pilot light. The pool heater may not be used as a back-up for solar water-heating. Incentive is per rated MBtu.

P.8.59 Pool Covers

Incentives are available for covers for pools between 400 and 4,000 square feet in size. Incentive is per square foot of pool surface area.

P.8.60 High Efficiency Clothes Washer (Gas Water Heater)

Incentives are available for high efficiency clothes washers that use a gas water heater. Washers must be CEE© Tier 2 qualified or must have a Modified Energy Factor (MEF) ≥ 2.00 and a Water Factor (WF) ≤ 6.00 . Incentive is per washer.

MOTORS

P.8.61 NEMA Premium Motors

Motors eligible for an incentive are new three-phase AC induction motors, 1-250 HP, of open drip-proof (ODP) and totally enclosed fan-cooled TEFC classifications. Rewound motors are not eligible. Incentives vary based on the motor's Nominal Full Load Efficiencies, tested in accordance with IEEE (Institute of Electrical and Electronics Engineers) Standard 112, Method B. Eligible motors meet or exceed the NEMA Premium Efficiency standards on the Motor Incentives Worksheet. Incentive is per motor horsepower (hp).

NOTE: Program incentives for this measure are available until new federal standards take effect (anticipated during the 3rd quarter of 2010). Per new federal efficiency standards enacted in H.R. 6, all general purpose motors (manufactured after the standard change, with a power rating between 1 and 200 horsepower) are required to have nominal full-load efficiencies equal to or greater than the NEMA MG-1 (2006) Table 12-12 ("NEMA Premium®" Efficiency) levels.

MISCELLANEOUS

P.8.62 Beverage Vending Machine Controllers

Incentives are available for retrofitting existing vending machines with beverage vending machine controllers. The controller must include a passive infrared occupancy sensor to turn off fluorescent lights and other vending machine systems when the surrounding area is unoccupied for 15 minutes or longer. Control logic should power up the machine at a minimum of every 2 hours to maintain product temperature and provide compressor protection. Incentive is per vending machine controlled.

P.8.63 Plug Load Occupancy Sensor

Incentives are available for installing passive infrared and/or ultrasonic load detectors only. Plug-load sensor must control electricity using equipment in offices or cubicles, including shared copiers and/or printers. The sensor must control at least three devices. Incentive is per sensor.

P.8.64 Intelligent Surge Protector

Incentives are available for applying surge protectors with built-in plug-load detection and control capabilities. The intelligent surge protector (power strip) must include at least one uncontrolled socket into which a primary device (usually a computer) is connected. Turning the primary device on or off will subsequently turn the associated devices (ex. printers, monitors, etc.) in the power strip on or off. The intelligent power strip may also contain sockets for other uncontrolled devices that require a constant supply of power. Devices connected to these sockets will not be affected by the status of the control device. Incentive is per protector.

P.8.65 High Efficiency Heat Pump Water Heater

Incentives are available for replacing existing electric hot water heater with heat pump water heaters having a COP \geq 3.0. Incentive is per heater.

P.8.66 Energy Efficient Ice Machines

Incentives are available for replacement ice machines generating ice that is flaked, crushed, fragmented or in cubes weighing 60 grams (2 oz.) or less. Replacement machines must be rated in accordance with ARI Standard 810 and must be ENERGY STAR® qualified or CEE® Tier 2 qualified. Only air-cooled machines (self-contained, ice-making heads, or remote condensing) are eligible. The machine must have a minimum capacity of 101 lbs of ice per 24-hour period. A list of ENERGY STAR® qualified products is available at www.energystar.gov/index.cfm?c=comm_ice_machines.pr_crit_comm_ice_machines. A list of CEE® Tier 2 qualified products is available at www.cee1.org. Incentive is per ice machine.

P.8.67 High Efficiency Clothes Washer (Electric Water Heater)

Incentives are available for high efficiency clothes washers that use a electric water heater. Washers must be CEE® Tier 2 qualified or must have a Modified Energy Factor (MEF) ≥ 2.00 and a Water Factor (WF) ≤ 6.00. Incentive is per washer.

INDUSTRIAL PROCESS

P.8.68 Variable Frequency Drives for Process Pumping

Incentives are available for retrofitting existing process (non-HVAC) pumps with VFDs. Pumps must operate at least 2,000 hours per year. VFDs for redundant or back-up pumps are not eligible. VFDs replacing existing VFDs are not eligible. The installation of a VFD must accompany the permanent removal or disabling of any throttling devices such as throttling valves. Incentive is per controlled HP of the process pump.

P.8.69 High Efficiency Pumps

Incentives are available for replacing process pumps with high efficiency pumps. Pump performance curve must indicate that pump meets the efficiencies listed in Table 8-8 below. Pumps must operate at least 2,000 hours per year. Incentive is per pump horsepower.

Table 8-8: Qualifying Pump Efficiency

Horsepower	Pump Efficiency
1.5 – 2	≥ 63%
3	≥ 65%
5	≥ 68%
7.5	≥ 73%
10	≥ 75%
15 - 20	≥ 77%

P.8.70 Engineered Nozzle

Incentives are available for engineered nozzles that replace simple open pipe/tube assemblies connected to a compressed air system. The engineered nozzles must be between 1/8” and 1/2” in diameter. Air jets and nozzles must have an SCFM (standard cubic feet per minute) rating at 80 psig less than or equal to those rated in Table 8-9 below. Nozzles must be in use ≥ 2,000 hours per year. Incentive is per nozzle.

Table 8-9: Qualifying SCFM Ratings for Engineered Nozzles

Size (inch)	SCFM
1/8	10
1/4	17
3/8	18
1/2	18

P.8.71 Barrel Wraps (Insulation) for Injection Molding and Extruding Machines

Incentives are available for installing insulating blankets on the barrels of extruding or injection molding machines. Blankets must be installed in accordance with manufacturer recommendations on previously un-insulated barrels. Incentive is per machine ton.

P.8.72 Insulation for Pellet Dryer Tanks and Ducts

Incentives are available for insulation added to the tanks and flexible ducts of pellet dryers. Insulation must be installed on previously un-insulated duct with a diameter of 3 to 8 inches, or on centralized, recirculating hoppers in accordance with manufacturer's recommendations. Insulation may not be placed on transportable drums. Incentives are only applicable to insulation products capable of maintaining duct steady-state temperatures of $\leq 200^{\circ}\text{F}$. Incentive is per linear foot of insulation.

FOOD SERVICE (ELECTRIC) & REFRIGERATION

P.8.73 ENERGY STAR® Commercial Solid Door Refrigerator

Incentives are available for replacement units that are ENERGY STAR® qualified. Cases with remote refrigeration systems are not eligible. Incentive is per refrigerator.

P.8.74 ENERGY STAR® Commercial Solid Door Freezer

Incentives are available for replacement units that are ENERGY STAR® qualified. Cases with remote refrigeration systems are not eligible. Incentive is per freezer.

P.8.75 ENERGY STAR® Steam Cookers (Electric)

Incentives are available for replacement electric steamers that are ENERGY STAR® qualified with a Cooking Energy Efficiency of 50% for all size units. Used or rebuilt equipment is not eligible. Incentive is per cooker.

P.8.76 ENERGY STAR® Hot Holding Cabinets

Incentives are available for replacement units that are ENERGY STAR® qualified and consume <40 W per cubic foot. Cook-and-hold equipment is not eligible. Used or rebuilt equipment is not eligible. Incentive is per cabinet.

P.8.77 Anti-Sweat Heater Controls

Incentives are available for adding anti-sweat heater controls to existing display cases with no such control. Eligible control devices sense either the relative humidity in the air outside the display case or the onset of condensation on the door glass and modulate the anti-sweat heaters to prevent condensation. Incentive is per door controlled.

P.8.78 Night Covers

Incentives are available for night covers added to grocery store open refrigerated display cases to reduce the amount of heat loss from the display cases during non-operating hours. The store must have a minimum of 6 non-operating hours per day. Incentive is per linear foot of cover.

Note: Applicant should ensure the case manufacturer has no objections to the use of a night cover.

P.8.79 Efficient Refrigeration Condenser

Incentives are available for the design and installation of oversized condensers that reduce the approach (difference in refrigerant and ambient dry bulb temperature), lower the head pressure and conserve compressor horsepower for existing multiplex refrigeration systems. For air-cooled systems, the new condenser must result in 85 Btu/hr of heat rejection per watt of fan power. For evaporative cooled equipment, the new condenser must result in a minimum of 195 Btu/hr/watt. Incentive is per ton of refrigeration.

Table 8-10: Oversized Condenser Approach Requirements

Condenser Category	Typical Design Approach	Oversized Condenser Approach (at or below)
Air cooled low temperature	10°F	8°F
Air cooled medium temperature	15°F	13°F
Evaporative cooled	20°F	18°F

P.8.80 Floating Head Pressure Controls

Incentives are available for adding automatic controls that allow condenser head pressure to decrease with decreasing ambient temperatures for multiplex refrigeration systems. The controls must replace existing constant pressure or manually controlled systems and must maintain either a minimum saturated condensing temperature of 70°F or a 20°F differential between design and actual head pressures (saturated condensing temperatures) during mild weather conditions. Incentive is per ton of refrigeration.

FOOD SERVICE (GAS) & MISCELLANEOUS GAS

P.8.81 ENERGY STAR® Steam Cookers (Gas)

Incentives are available for replacement gas steamers that are ENERGY STAR® qualified with a Cooking Energy Efficiency of 38% for both 5- and 6-pan units. Used or rebuilt equipment is not eligible. Incentive is per cooker.

P.8.82 Convection Ovens

Incentives are available for replacement gas units that have a Cooking Energy Efficiency of at least 40%. Used or rebuilt equipment is not eligible. Incentive is per oven.

P.8.83 Combination Ovens

Incentives are available for replacement gas units that have a Cooking Energy Efficiency of at least 40%. Used or rebuilt equipment is not eligible. Incentive is per oven.

P.8.84 Rack Oven

Incentives are available for replacement gas units that have a heavy load Cooking Energy Efficiency of at least 50% for both single and double rack ovens. Used or rebuilt equipment is not eligible. Incentive is per oven.

P.8.85 ENERGY STAR® Fryers

Incentives are available for replacement gas units that are ENERGY STAR® qualified with a heavy load Cooking Energy Efficiency of at least 50%. Used or rebuilt equipment is not eligible. Incentive is per fryer.

P.8.86 Large Vat Fryers

Incentives are available for replacement gas units that have a heavy load Cooking Energy Efficiency of at least 50%. Used or rebuilt equipment is not eligible. Multi vat units are considered one fryer. Incentive is per fryer.

P.8.87 Griddles

Incentives are available for replacement gas units that have a Cooking Energy Efficiency of at least 38%. Used or rebuilt equipment is not eligible. Incentive is per griddle.

P.8.88 Furnace Tube Inserts

Incentives are available for retrofitting existing heat treating furnaces by adding spiral ceramic radiant tube inserts in the exhaust leg of the burner tubes. The inserts must be new and be inserted in existing U, W, or trident shaped burner tubes. Incentive is per tube insert.

P.8.89 Pre-Rinse Sprayers (Gas Water Heater)

Incentives are available for low-flow, high efficiency pre-rinse sprayers using ≤ 1.6 gallons per minute (gpm). Sprayer must replace an existing sprayer using 2.2 gpm or more. Water heating must be with a natural gas appliance. Incentive is per sprayer.

CUSTOM

P.8.90 Custom Measures

Pre-notification is required for all custom incentive applications. Pre-notification provides an assurance that the methodology meets the program requirements. The applicant must provide sufficient information and calculations to estimate the energy impacts. DTE Energy Your Energy SavingsSM Program staff engineers are available to work with customers, their installing contractor and/or consultants to review the proposed savings methodology and to identify the information necessary to support the savings estimate and verification activities. In some cases, power measurements or monitoring may be required for a period of time before and after the measure is installed in order to confirm that actual energy savings are consistent with the estimates. All final incentive amounts will be based on the first year energy savings documented in the Final Application and may be greater or less than the incentive amount originally estimated in the Pre-notification (Reservation) Application. See Section P.12 for additional details on approaches to energy modeling for custom incentives.

Custom projects must involve a facility improvement that results in a permanent reduction in electrical (kWh) and/or natural gas energy usage (MCF) due to an increase in system efficiency. Projects that result in reduced energy consumption without an improvement in system efficiency are not eligible for a custom incentive. However, projects that involve an automated control technology such as energy management system programming may be eligible for an incentive.

Custom and prescriptive measures may be included on one application. Mixed measures, those with both prescriptive and custom aspects, must be separated into prescriptive and custom components. Prescriptive measures, or portions thereof, are only eligible for prescriptive incentives and custom measures, or portions thereof, are only eligible for custom incentives.

For custom measures or portions thereof, incentives are limited to 50% of the sum of all custom measure costs (MC) and the simple payback period for installing the measure must be between 1 and 8 years. The MC is the cost of implementing a measure less any costs incurred to achieve non-energy related project benefits. Only costs associated with the rebated energy savings measure should be included in the MC. The MC is the basis for determining the simple payback period for custom measures and is defined as:

1. for equipment replacement measures, the cost differential between equipment meeting program efficiency criteria and equipment meeting the minimum efficiency allowable by code or industry standard; or
2. for retrofit and new technology measures, the cost of new equipment, components or materials added to existing equipment for the purpose of improving its energy efficiency

For example, when replacing an existing injection molding machine that is at the end of its useful life with a new, high efficiency model, the price differential between the high efficiency model and a standard efficiency model is the MC. However, when adding a variable frequency drive to an existing boiler pump or when changing high pressure sodium light fixtures to fluorescent fixtures, the MC is the installed cost (equipment and installation) of the VFD or light fixtures.

For custom measures or portions thereof, the simple payback period (SPP) for installing the measure must be between 1 and 8 years. Simple payback period is defined as the project measure cost divided by the annual cost savings.

P.9 HOW TO APPLY

The process of applying for an incentive under DTE Energy's Your Energy SavingsSM Program is designed to be simple and to involve as few steps as possible. The Program staff is available during normal business hours to facilitate the application process.

P.9.1 Pre-Notification Application

Funding is limited and Pre-notification Applications are not a guarantee that incentives will be provided. Actual incentives are based on Final Applications. DTE Energy will review all Final Applications for eligibility and completeness.

A Pre-notification Application **is required** for all Custom projects. Pre-notification is **strongly encouraged** for prescriptive projects. Pre-notification reserves funds for a specific project provided that:

Measures are completely installed within 90 days of project approval

Work commences on the proposed measures within 30 days of project approval

It is the responsibility of the applicant to contact DTE Energy's Your Energy SavingsSM Team if a project is delayed, substantially changed or cancelled.

Funds that have been reserved for specific applications are not transferable to other projects, facilities/campuses, and/or customers.

A completed, mailed, faxed, or emailed copy of the Pre-notification Application form initiates the review process. Funds are only reserved for a given project when the project details have all been approved.

The Pre-notification Application for prescriptive measures must include sufficient information (quantities, etc.) to estimate the incentive amount.

The Pre-notification Application for custom incentives must include a project description, equipment performance data, operating schedules, and load profiles in addition to an estimate of the annual energy savings.

P.9.2 Detailed Program Steps

Step 1. Eligibility Check. Verify that your project is eligible and meets the project requirements as set forth in Customer Eligibility (Section P.3), Project Requirements (Section P.4), and Incentive Caps and Limits (Section P.5).

Step 2. Obtain, Complete and Submit a Pre-Notification Incentive Application. Obtain a hard copy or access DTE Energy's Your Energy SavingsSM Application form on-line at www.YourEnergySavings.com. Complete all the required information as listed on the Incentive Checklist page of the application. Pre-notification is required for custom projects and is strongly recommended for other projects. Contractors may complete the form on behalf of their customers, but all of the DTE Energy customer information and a DTE Energy customer contact name must be provided.

For all projects requiring pre-notification, a pre-inspection may be required prior to the start of work. If a pre-inspection is required for your project, you will be notified by Program staff.

Following application review, a reservation letter will be provided for all reserved projects. Reservation letters are not a guarantee that incentives will be provided. Actual incentives are based on Final Applications that meet all program criteria.

Step 3. Project Installation. Install the equipment or systems within 90 days of reservation.

Step 4. Obtain, Complete, and Submit a Final Application. Obtain a hard copy, or complete and print out the Final Application form from the DTE Energy website:

www.YourEnergySavings.com. Note that the Final Application form is the same document as the Pre-notification Application document. If a Pre-notification Application was submitted, be sure to correct any incorrect information and update the application so that it reflects the equipment and quantities actually installed. Check the "Final Application" box under the Application Type section. **A Customer signature is required for payment.** Sign and submit the Final Application only after all equipment has been installed. Submit Final Application along with all necessary supporting documents including manufacturer's specifications, itemized invoices and any additional documentation that may be required. The documents should clearly indicate the equipment model numbers, quantities and energy performance that is indicated in the Incentive Application. Labor and material costs should be shown separately. If the project equipment is included on several invoices it will be helpful if the applicant prepares a summary sheet that totals the quantities and shows how the quantities match the quantities in the application. Final Applications must be received within 60 days after project completion or by **December 15, 2010** for the 2010 program year; whichever comes first. Program funds are limited and submission of a final application does not guarantee an incentive payment.

Step 5. Final Application Review. DTE Energy's Your Energy Savings Staff will review the Final Application and the final project documentation. A post-inspection may be required for verification purposes. Please note that the actual incentive amount paid will be based on review of the Final Application and supporting project documentation of equipment installed, and will be subject to program specifications, terms and conditions. It is essential that both customers and contractors understand and comply with all specifications and program terms and conditions. Equipment specifications and program terms and conditions can be found on www.YourEnergySavings.com. Please note that a reservation does not guarantee an incentive. Multiple projects and reservations for projects at the same facility or customer may be subject to an annual cap.

Incentive payments will be sent within 4 to 8 weeks from the time that all the documentation is received and the field inspection is complete.

Step 6. Measurement & Verification. Some projects will be chosen for measurement and verification (M&V) independent from DTE Energy's Your Energy Savings Program purposes. If so, the customer will be contacted by a utility representative. M&V may include obtaining logged data on individual project components.

P.9.3 Discrepancies

If it is determined that there are significant discrepancies between the incentive application and DTE Energy's on-site analysis, the processing staff will contact the customer to review these differences. This provides an opportunity for the customer (or contractor) to dispute the inspection results. After a period of **10 calendar days**, if the customer (or contractor) has not contacted DTE Energy's Your Energy SavingsSM Program Staff to discuss inspection results, incentive levels will be revised to coincide with DTE Energy's on-site findings and will be deemed final. If the customer (or contractor) disputes the inspection results, DTE Energy's

representatives and the customer (or contractor) shall thereupon attempt in good faith to resolve such dispute promptly.

P.9.4 Reservation Extension Process

If the Customer receives approval to move forward with a project but requires more than 90 days to complete the project, the Customer may provide proof the project is progressing toward completion and request an extension of the reservation. DTE Energy's Your Energy SavingsSM Staff may, but is not required to, grant an extension after reviewing project details. Length of extensions granted will depend on project type. The granting or denial of an extension is within the sole discretion of DTE Energy. Up to two (2) extension requests can be granted. When the second extension expires, the customer must provide the Final Application, along with all required final documentation. DTE Energy will not grant subsequent reservation extensions and all incentive payments will be subject to funding availability.

P.9.5 Forms

DTE Energy's Your Energy SavingsSM Application form acts as both a Pre-notification Application form as well as a Final Application form.

If submitting a Pre-notification Application, check off the relevant documents that will be submitted with the incentive application under the Pre-notification header on the Incentive Checklist page of the application. Mail, fax or email the completed application to DTE Energy's Your Energy Savings Team for pre-notification and the reservation of funds.

To request payment for a completed project, submit the same form with the relevant attached documents checked off under the "Final Application" heading on the Incentive Checklist page. The Final Application must be fully completed and returned with an original signature before incentives will be paid. Signed applications received by fax or email will be treated the same as original applications received by mail. The Final Application must also include all necessary final documentation such as paid, itemized invoices and/or receipts, cut sheets, and commissioning (operation) reports (See Section P.10 below).

Please note: DTE Energy reserves the right to conduct both pre- and post-inspections of all projects.

P.10 PAYMENT PROCESS

DTE Energy's Your Energy SavingsSM **incentive will be paid directly to customers OR to a designated recipient.** Indicate the exact name of the designated payee and the appropriate Tax ID Number on the Customer Information page of the Incentive Application, and on the Payment Release Authorization section on the Final Application Agreement page for direct payment to a third-party. Third party payees must sign the Payment Release Authorization section on the Final Application Agreement Page and provide a Tax ID Number.

P.11 DOCUMENTATION

For prescriptive measures, the final project documentation required includes detailed, itemized invoices listing specific equipment model numbers and quantities purchased. Copies of invoices must be indicated as "paid", and itemized with the costs for equipment, labor, supplies, and other costs. Location or business name on the invoice must be consistent with the application

information. Incentives will only be submitted for eligible expenses incurred during the term of the program.

Applicants may be asked to provide more detailed information on the equipment location and to aid in the pre and post-inspection process. Manufacturer's product literature, product brochures, cut sheets, or other certified performance data for the specific model numbers and sizes of the equipment installed that documents the performance factors used as a basis for the incentive must be submitted with the Final Application. If the documented capacity or performance differs from the performance in the Pre-notification Application, the incentive will be adjusted accordingly. Failure to provide the documentation will delay the payment process and may result in no incentive payment.

For custom measures, final documentation may include plans or specifications for the equipment or systems that are modified, paid itemized invoices, equipment specification sheets or other information indicating performance over the full range of operation, documentation of operating schedule and loading profiles, commissioning reports or other documentation required by DTE Energy's Your Energy SavingsSM engineering staff. Power or other operating measurements or monitoring may be required for verification of estimated energy savings prior to approval of incentive payments. See Section P.12 for guidelines on calculating and documenting energy savings of custom measures.

All Final Applications must be complete with all required documentation and have an original signature of the customer and, if applicable, the designated third party recipient of the incentive. Completed Final Applications must be received by **December 15, 2010** to apply for the 2010 program.

P.12 GUIDELINES FOR CALCULATING AND DOCUMENTING ENERGY SAVINGS OF CUSTOM MEASURES

These guidelines provide suggestions for submitting project documentation to insure that your project qualifies as a DTE Energy's Your Energy SavingsSM custom measure and the savings estimates and incentive applied for are actually realized. This section provides information to assist you in calculating/measuring energy savings associated with your project.

These analysis methods and documentation details are recommendations, not requirements. Following these guidelines will help speed our review of your project ensuring that you meet the program requirements and estimate your energy savings with industry recognized methods.

The incentives for DTE Energy's Your Energy SavingsSM Program's custom projects are based on the calculated first year kilowatt-hour (kWh) or 1000 cubic feet of natural gas (MCF) savings. To be accepted as a basis for the incentive, the savings calculations must be developed using acceptable engineering calculation techniques supported by site-specific operating and equipment performance data. Applicants must also be aware that the incentive estimates are not final until after the measures have been installed and DTE Energy has performed various measurement and verification (M&V) activities. The final incentive payment may be different from the reserved amount if the post-retrofit system operation or performance is not in agreement with the assumptions and models used to set the reserve amount.

Before submitting an application for a custom project, confirm that the measures are not included in the list of prescriptive measures.

For certain projects, in addition to energy savings calculations, the program may require measurement and verification (M&V) in order to qualify for an incentive. We encourage custom incentive applicants to review the International Performance Measurement and Verification Protocol (IPMVP) available at (www.ipmvp.org/download.html). Any operational data that you have available to support the energy usage claims for your project can help validate your savings calculations so provide this data with your application. If you need assistance in identifying appropriate M&V procedures, contact the program team for assistance.

P.12.1 General Guidelines

To estimate first year energy (kWh or MCF) savings for retrofit projects, calculate the difference between the pre-retrofit, or base case, system energy (kWh or MCF) use and the post-retrofit or efficient case system kWh or MCF. The Applicants must define and describe the base case and efficient case system as well as operating conditions.

The general requirements that are common to all Custom projects are listed below:

Provide the name and contact information of the person(s) conducting the savings calculations so that DTE Energy's Your Energy Savings Staff can discuss any questions.

Concise project description: Describe BOTH the existing (pre-retrofit or "base case") system and the proposed (post-retrofit or "efficient-case") system. Be as precise, yet concise, as possible in the descriptions - include specific quantities and equipment descriptions.

Identify equipment using the terminology or numbering system used by the customer. (e.g. "Replace compressor #3 with a new variable speed compressor" or "install a VFD on VAV AHU #3,5,7,8,9").

Provide copies of sketches, drawings, equipment lists, or inventories that help to clarify the scope.

Describe BOTH the facility operating hours and the equipment operating schedule for each day of the week. Where equipment operation varies with days of the week or seasons, be sure to provide a description of the operation for all days of the week and all seasons.

Describe equipment load conditions for the hours the equipment typically operates.

Provide the quantity, make, model number and rated capacity of BOTH the existing and the new equipment that is being installed. Also provide other nameplate information like operating voltage and rated full load amps where appropriate. **The scope of work from the proposal to the customer is often helpful to describe the new equipment.**

Describe the locations where the equipment is installed.

Provide copies of the manufacturer's specification sheets and/or performance rating sheets and the website address where further technical information about the equipment performance might be found.

Use accepted engineering algorithms and procedures from recognized technical organizations such as ASHRAE, SMACNA, ANSI, etc.

Annotate all assumptions or constants used in engineering calculations.

Use rated performance factors tested under accepted procedures specified by recognized rating agencies such as ARI, AGA, ANSI, ASTM, etc. Provide an explanation when equipment performance rating conditions vary from standard conditions.

Acceptable Calculation Methods

Whole Building Metering

For projects where the savings are a significant fraction (10 percent or more) of the total monthly (or annual) kWh or MCF usage, a "bills before minus bills after" approach may be used. This approach assumes that conditions are identical before and after the project, such as

building occupancy levels or operating hours. Usually, a regression must be included in this approach to adjust for uncontrolled variables, such as weather.

If a whole system or building model is used, be sure to provide sufficient documentation or annotation so that the differences between the base case and high-efficiency case can be understood and verified by the reviewers.

Whole building metering models must be calibrated to actual energy use (electric or gas bills) and be normalized for weather and other known variances.

Equipment or Process Sub-Metering

When measures are installed that affect large individual systems or sets of equipment (for example an air-compressor, chiller, process blower or induction molding machine), sub-metering may be the best way to document the savings. This may require the installation of temporary portable monitoring equipment that measures and records the equipment power at short intervals over several days or weeks. When sub-metering is used, a method must be developed to extrapolate the savings for the measurement period to a full year of operation. Component sub-metering may often include observation of other variables like outside air temperature, operating hours, or production quantities during the measurement period to allow for this extrapolation.

Engineering Calculations

For measures with impacts over several small systems, sub-metering may not be feasible. For these measures, an engineering calculation method is probably the simplest method to document savings. For most equipment and efficiency measures there are well-established engineering procedures and there are a number of publicly available performance models that are available to calculate pre- and post- energy use.

Whole Building Modeling Methods

For measures that have building-wide impacts or impacts across a number of systems, engineering modeling using generally accepted, commercially available software is acceptable to document savings. When using any model, the applicant must provide a report showing both the pre- and post-upgrade input and output data. Models that do not reflect the actual systems and their operation (i.e. defaults instead of building-specific equipment) are not acceptable. Initial savings estimates that are submitted based on manufacturers' proprietary performance models may be acceptable for initial estimates of savings, but additional information and actual on site operating data or measurements verifying the model assumptions will usually be required to confirm the final savings. Applicants planning to use whole building models to estimate savings as a basis for the incentive should contact the program staff early in the project development process.

P.12.2 Custom Lighting Measures

The following information should be provided when submitting custom lighting measures.

Project description – for example, “Replace 200 quantity – 400 watt hi-bay HID lighting fixtures in the warehouse with 220 suspended 6-lamp high output T8 fixtures equipped with daylight controls.”

Provide a detailed lighting inventory that includes the following:

Location (area, aisle #, etc.)

Existing and new fixture description

Existing and new fixture wattage

Existing and new fixture quantity
Existing and new controls
Existing and new annual operating hours (different if installing controls)
Interior or exterior fixtures

Provide the electrical plan sheet that shows the existing and proposed lighting layout or a reflected ceiling plan and the lighting fixture schedule, when available.

The use of standard default fixture wattages is acceptable. A table of default fixture wattages for common fixture/lamp types is available upon request. If the fixture type being installed is not on the table, specification sheets showing the wattage of all retrofit fixtures must be provided with the lighting inventory.

Use the following general equations to calculate the savings:

Base Case Lighting kW = [(# base case fixtures X base case fixture wattage X fraction of fixtures that are typically operating) / (1000 watts/kW)]

Base Case Lighting kWh = Base case lighting kW X base case annual operation hours

Post Retrofit Lighting kW = # post-retrofit fixtures X kW per fixture X fraction of fixtures that are expected to be operating

Post Retrofit Lighting kWh = Post-retrofit lighting kW X post-retrofit annual operation hours

Annual kWh Savings = Base case lighting kWh – post retrofit lighting kWh

Other Guidelines

When preparing the project information, please consider:

Operating hours are typically the operating hours of the facility except as noted below. If the lighting is on a different operating schedule from the facility, consider using lighting or power data loggers to document the fixture operating hours.

Exit signs and emergency lighting and many hallway and stairway fixtures are typically on 24 hours a day, 7 days a week, and therefore use 8,760 hours per year.

In order to provide more accurate operation hours, consider dividing the fixtures into usage groups – offices, common areas, restrooms, conference rooms, etc. to define operating hours by usage group

Pre-retrofit and post-retrofit operation hours are often the same. However, if the project includes the installation of control technologies such as occupancy sensors, timers, etc., new (lower) hours of operation usually result. Justification for the lower hours must be provided.

Installing a lower wattage lamp of the same type is NOT considered an eligible measure unless it can be established that the replacement fixture is more efficient (i.e. the lumens per watt) than the fixture that it replaces.

There may be cases when the program team will ask for validation of operating hours.

Be aware that the review team will check for inconsistencies between the quantities of fixtures used in the savings calculation, shown in the invoice documentation and observed in the post-inspection.

P.12.3 Custom HVAC Measures

Note that many of the most common HVAC measures are included in the list of prescriptive measures. These measures, including HVAC chiller or packaged AC unit replacement and variable frequency drives (VFDs or VSDs) for HVAC motors, should be applied for under the prescriptive application. Common custom measures that may be applied for under the Custom HVAC Category might include:

- Water-side economizer, also known as “free cooling” (e.g. plate and frame heat exchanger, closed-loop tower, or “glycooler”)
- Exhaust heat recovery equipment (heat exchangers)
- Conversions from constant volume to variable volume for water or air distribution
- Adding variable-speed control to centrifugal equipment (other than HVAC fans or pumps) that are throttled by less efficient means
- Control upgrades or energy management system programming changes⁷. To qualify for a Custom incentive, an energy management system needs to include a strategy not included in the standard specification.

Most (but not all) HVAC system measures are weather-dependent. As such, the preferred methods of estimating energy savings are building or system models that integrate local weather conditions with system loads and performance or “temperature bin” models. This section includes several acceptable methods for providing the savings analysis for HVAC measures. In all cases, it is important to document the pre- and post-retrofit conditions thoroughly. For most projects, the analysis will need to be calibrated and adjusted to reflect the weather variances, occupancy variations an/or internal load changes.

The following techniques may be employed for calculating project savings:

Building models that are publicly available and well-documented, such as eQUEST, Energy Plus, and DOE2 are recommended for measures with building-wide or interactive effects. Proprietary vendor programs such as Trane Trace, Carrier HAP etc. may be accepted with appropriate documentation. Without sufficient documentation, these models cannot be utilized and offer little confidence in the results⁸.

ASHRAE-based simplified calculation methodologies including the “bin methods” are usually useful to estimate the savings of many weather-dependent strategies such as economizer systems (water and air), heat recovery, ventilation control, or even VAV conversions. These methods can be easily calculated in a spreadsheet format so that the underlying assumptions can be easily followed. In many cases for retrofit projects the existing building energy use and energy use patterns can provide the basis for calibration for these methods.

Simple spreadsheet analysis may be used for certain stand-alone retrofits such as carbon monoxide sensors for parking garages.

For certain projects, a monitoring/metering approach may be the best means to document savings. The applicant should remember that it is simpler to verify the post-case, but it is the base case condition that requires documentation for program verification. Be sure to consider

⁷ Except for specific upgrade noted under prescriptive measure.

⁸ The Your Energy SavingsSM review team may need to duplicate savings estimates using other tools and must be provided sufficient information to do so.

pre-project measurements when planning a future project. The following are some suggestion parameters for measuring pre- and post-retrofit:

- Power (kW), energy (kWh), gas use (MCF)
- Air flows, temperatures, water flows
- Outdoor temperatures and humidity (however may be available from other sources)
- Building activity (people, hours, etc)

P.12.4 Custom Building Envelope Measures

Common custom measures that may be applied for under this category might include:

- Window treatments like external or internal shading
- Insulation
- Door or window opening treatments that reduce infiltration
- Shading

Accurately estimating energy savings resulting from envelope improvement is often difficult because impacts involve a high degree of system and interactive effects. The best way to estimate the impacts of envelope treatments is to use a whole building model as described in the previous section. The models described provide the opportunity to describe the pre- and post-retrofit insulation and surface characteristics and do an excellent job of including all interactive effects.

However, setting up a whole building model to estimate the savings for envelope improvements is often not practical. There are a number of simplified degree-day or weather-based “bin analysis” methods that are sufficient to estimate the impacts of these measures. These methods are described in detail in the ASHRAE Handbooks. ASHRAE combined with local weather data files will provide most of the information and calculation procedures necessary to estimate savings resulting from building envelope measures. Some of the more common methodologies have been put into spreadsheet format and are available commercially online. The Department of Energy and some states have supported the development of analytical tools that are useful in isolating the savings for various envelope improvements such as the Cool Roof Rating Council (<http://www.coolroofs.org/>) tool. It is useful in estimating the impacts of roof insulation and treatments. The performance characteristics and properties of various coatings and materials are also provided.

P.12.5 Custom Process and Refrigeration Measures

Some typical measures that may fall in this category are:

- “Tower-free cooling” for process cooling (e.g. plate and frame heat exchanger, closed-loop tower, or “glycooler”)
- Waste heat recovery equipment (heat exchangers)
- Constant volume to variable volume water or air distribution
- Upgrade of a refrigeration compressor
- Air compressor improvements
- Process Improvements

There are several methods that can be used to document energy savings for process measures. Nearly all process measures will require some degree of monitoring, measurement or hourly log observations to establish the load profile for the equipment, the energy use, and

the savings, which are then extrapolated to a full year period. In all cases, it is important to consider any seasonal, weekly, or monthly variations in operation.

Short-term pre- and post-retrofit measurements extrapolated by production. Energy use for process systems can often (but not always) be related to production output. One method to document annual savings is to compare the pre- and post-retrofit systems over a representative production period (which may include multiple shifts) and then extrapolate the results to a full year. The method is as follows:

1. Determine the pre-retrofit system kWh per unit of production per shift, production run or equipment cycles, as appropriate.
2. Determine the post-retrofit kWh per unit of production per shift, production run or equipment cycles, as appropriate.
3. Adjust the baseline using the post-retrofit production levels.
4. Extrapolate to a full year by multiplying the difference by the annual production.

Short-term measurements extrapolated by shifts or operating time. In some cases the energy use does not relate to production, but to equipment operating time or availability instead. In this case the savings are similar to the above except the time in days or number of shifts is the factor used to extrapolate the savings to the full year.

Short-term monitoring extrapolated to a full year. A short term pre- and post monitoring of a week or two can be carried out and the results extrapolated to a full year based on time. The difference is then multiplied by the ratio of annual hours to the monitored hours.

Post-retrofit energy monitoring and calculated base case energy, extrapolated to a full year. This method is useful when the performance or efficiency of the base case equipment is known, but the load profile was not monitored prior to the project. This method often applies to compressed air systems or large refrigeration systems. In this case, the post-retrofit system power and output (cfm or tons) is measured for a period of a week or more. The base case power for the same period is then calculated by multiplying the output by the base case equipment performance. The savings are then extrapolated to a full year by extrapolating based on the projected loading pattern.

P.12.6 Unacceptable Documentation

This section lists methods that are not acceptable for calculating the energy savings for custom measures:

Vendor-specific or proprietary analysis software will not be accepted unless the methods used are available for review and the input parameters are specific to the site.

Simple percent of total kWh or MCF savings or percent of end use energy savings are not acceptable.

Factors or percentages of savings achieved at other sites are not acceptable as documentation for custom savings unless there is an extensive body of statistically valid results.

Using rules of thumb for calculating savings is not acceptable.

Marketing materials from the manufacturer or distributor, their company's case studies, or savings claims based on non-standardized methods are not acceptable. For example, a manufacturer or distributor product savings claim that has not been verified by a certified third party will not be accepted.

For intermittently operating equipment, the hours of operation must be documented in some fashion – either from logs, elapsed time meters, or daily observation of occupancy hours. If documentation is not provided, very conservative estimates must be used.

Spot measurements as documentation of power or energy use are typically not acceptable for variable load equipment.

Amperage can often be used as a proxy for true power (kW) measurements EXCEPT for systems where the power factor may vary significantly, as in variable speed drive situations (where the voltage may vary as well as the amperage). Contact DTE Energy's Your Energy SavingsSM Team to verify monitoring needs where VSDs are installed.

P.13 DEFINITIONS

Applicant: The entity, either the customer or the customer's representative, submitting the incentive application.

BEF: Ballast Efficacy Factor

Btu/h: British Thermal Units per hour

CEE: Consortium of Energy Efficiency[®]

CFL: Compact Fluorescent Lamp

CRI: color rendering index

COP: Coefficient of Performance

Customer: The utility customer-of-record responsible for paying the utility bill(s) for the principal account (the account with the largest kWh or MCF consumption) that is affected by the project. The primary criterion for determining the customer is the Account Name and Tax ID Number.

Custom Project: A project comprised of efficiency improvement measures which are not included in the List of Eligible Prescriptive Measures.

EER: Energy Efficiency Ratio

Facility: A single meter or multiple meters on a single property for which a single customer is responsible for paying the DTE Energy electricity and/or gas bill

Final Application: Once the project has been completed, the Applicant is to submit a copy of the Application form with any information not completed in the Pre-Notification Application. The Final Application must include a signature and all appropriate supporting documentation, including dated, itemized invoices and manufacturer's specifications.

IPLV: Integrated Part Load Value

LED: Light Emitting Diode

LPW: Lumens per watt

MC: The Measure Cost (MC) is the cost of implementing a measure less any costs that would have been incurred to achieve all of the project benefits, except those resulting in the rebated energy savings. The MC is:

1. for equipment replacement measures, the cost differential between equipment meeting program efficiency criteria and equipment meeting the minimum efficiency allowable by code or industry standard; or
2. for retrofit and new technology measures, the cost of new equipment, components or materials added to existing equipment for the purpose of improving its energy efficiency

For example, when replacing an existing injection molding machine that is at the end of its useful life with a new, high efficiency model, the price differential between the high efficiency model and a standard efficiency model is the MC. However, when adding a variable frequency drive to an existing boiler pump or when changing high pressure sodium light fixtures to fluorescent fixtures, the MC is the installed cost (equipment and installation) of the VFD or light fixtures.

Incentive: The incentive is the amount to be paid to the customer or contractor once the final project documentation has been approved.

Lighting Fixture: Apparatus attached to a building to hold lamps and ballasts. The fixture is defined by the number of lamps it holds, regardless of the number of ballasts used.

Mixed Project: A project comprised of efficiency improvement measures, some of which are included in the List of Eligible Prescriptive Measures and some of which are not.

MBtu/h: 1,000 Btu/h

MMBtu/h: 1,000,000 Btu/h

MLPW: Mean Lumens per Watt

PF: Power Factor

Pre-Notification: Pre-Notification is the process of informing the Program Team of your project plans. Pre-Notification is required for all custom projects, and strongly encouraged for prescriptive projects.

Prescriptive project: A project comprised solely of measures included in the List of Eligible Prescriptive Measures

PTAC: Package Terminal Air Conditioner

Program Year: The 2010 program year starts on January 1, 2010 and ends on December 15, 2010. All Final Applications must be submitted before or on December 15, 2010.

THD: Total Harmonic Distortion

TMY: Typical Meteorological Year

Reservation Expiration Date: Date after on which a customer's reservation is cancelled unless an extension has been granted. If a reservation spans more than one Program Year, eligible incentives are paid according to the incentive schedule in place at the time the completed Final Application is submitted along with all required supporting documentation.

P.14 SATISFACTION

DTE Energy's Your Energy SavingsSM Team will take every possible step to ensure a high level of satisfaction with all aspects of the program. However, if any problems or concerns should arise, we encourage you to contact DTE Energy's Your Energy SavingsSM Program Hotline at 866.796.0512.

If you have questions that the hotline staff cannot answer, they can provide you with the appropriate contact information or other resources to help answer your questions.

P.15 TAX IMPLICATIONS

Paid incentives are reported to the IRS on Form 1099. Incentive payments may have tax implications for businesses and/or contractors who receive them. The recipient is responsible for any and all tax payments that may result from an incentive payment. Participating businesses and contractors are encouraged to consult their accountant or tax experts to determine implications.

P.16 DISCLAIMER

Neither DTE Energy nor any of its affiliates guarantees the energy savings or makes any warranties associated with the measures eligible for incentives under this program. DTE Energy has no obligations regarding, and does not endorse or guarantee, any claims, promises, work, or equipment made, performed, or furnished by any contractors or equipment vendors that sell or install any energy efficiency measures. Payment of incentives is for the installation of energy-saving equipment only and does not guarantee or imply that the equipment installation complies with any state or local code. DTE Energy has no obligation to pay any incentive described herein unless the minimum requirements of the Program have been met and funds allocated for such incentives are available for distribution.

P.17 CONTACT INFORMATION

Program Hotline: 866.796.0512

Email Address: YourEnergySavings@kema.com

Website: www.YourEnergySavings.com

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