DTE Energy

Energy Efficiency Program for Business

# 2017 Measures and Specifications Catalog

DTE Energy®

Know Your Own Power®

## Table of Contents

# Application Process:

The DTE Energy Efficiency Program for Business has prepared this Catalog to provide information about the specific incentive programs available under this initiative.

To apply for incentives, you will need to complete the separate Program Application.

# Follow This Easy Process:

## 1. Are you eligible?

To apply for incentives, you must be a DTE Energy Commercial or Industrial customer in good standing (for electricity, if you're applying for electric incentives, and natural gas, if applying for natural gas incentives). Your project must be installed at a facility served by DTE Energy (one facility per Application). An exception is limited to agricultural customers that are on both residential and commercial rate codes: they have access to a special list of energy efficiency measures designed to specifically meet the needs of the farming, dairy and greenhouse communities. These incentives are available only to commercial rate and residential rate customers whose primary source of income if from agricultural operations and activities.

## 2. About the measures

Become familiar with qualifying energy-saving measures offered in this Catalog. Additional details are available in our Policies and Procedures Manual, available on our website. Equipment installed must meet the specifications detailed in this Catalog. Consult the incentive worksheets in the Application for specific information on each measure available. If you need assistance with understanding technical information or the feasibility of installing certain measures, contact our Program Team or one of our Designated Trade Allies, all of whom have received training and are familiar with the Program. A searchable directory is available online. You are not required to use a Designated Trade Ally to complete your project.

## 3. Reservation Applications

Project not completed or even started? Submit your Application to reserve incentives from our limited funds. Our Application can be found at dteenergy.com/savenow. Email, mail or fax us a completed copy of the Application. Reservation Applications are strongly encouraged for all projects and are required prior to starting any custom and some prescriptive projects (see the Application for more information).
A custom project is one with measures that are not on our list of prescriptive measures. For more information, see page 35 or call us.
Is your prescriptive project already completed? See step 5 below.

NOTE: Some Prescriptive incentives and all Custom incentives require a Reservation Application prior to beginning your project.

## 4. Installation

Complete your project within 90 days of receiving a Reservation Letter from us that confirms we are holding incentives for you or by Nov. 30, 2017 – whichever comes first.

## 5. Project Completion (Final Applications)

Submit electronically or by email, mail or fax a signed and completed copy of the Final Application and all required documentation to us, including dated, itemized invoices, manufacturers' specification sheets for the items installed, and the Incentive Summary, Final Agreement Information and Account Holder Signature Page signed by the CUSTOMER. The Final Application must be submitted within 60 days of completion of your project or by Nov. 30, 2017, whichever comes first. Applications submitted after that date will be canceled.

Submit completed PDF Applications electronically or send to:

| | |
|---|---|
| Email | saveenergy@dteenergy.com |
| Mail | DTE Energy Efficiency Program For Business<br>P.O. Box 11289<br>Detroit, MI 48211 |
| Fax | 313.664.1950 |

Please note: We will contact you within five business days of receipt of faxed Application. If you are not contacted about your Application, please call the Program office.

If you need assistance, call **866.796.0512** (press Option 3)
Please visit our website: dteenergy.com/savenow

## Program and Project Eligibility

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

The incentive Program offers business customers prescriptive incentives for many common energy efficiency measures and custom incentives for other eligible energy efficiency improvements. This Program is not available to DTE Energy customers in multifamily buildings or residential complexes. These customers are eligible to participate in the Multifamily Program for energy saving upgrades to both tenant and common areas.

For custom measures, the maximum allowable incentive is limited to 50 percent of the allowable implementation cost of all eligible custom measures. Internal customer labor costs cannot be included in project costs.

Program incentives are limited per customer for each Program year. The customer is defined as the business entity, with a unique taxpayer ID number, that is responsible for the DTE Energy utility bill for one or more facilities.

Funds are limited and incentive payments are dependent on fund availability. Completed Final Applications for the 2017 Program year must be received by Nov. 30, 2017. Applications received after that date will be canceled. LEED Whole Building New Construction Reservation Applications must be submitted within 18 months of the start of the 2017 Program Year. Systems Approach New Construction Reservation Applications must be submitted within six months of the start of the 2017 Program Year.

## 2017 Program Year Incentive Limits

Participation in the Program is subject to incentive limits as follows:

| | Electricity | Gas |
|---|---|---|
| **Customer** | $1,000,000 | $300,000 |

## Reservation Application Process

A reservation is required for all custom and certain prescriptive measures, such as linear LED and VSD air compressors, and strongly encouraged for all other prescriptive measures in order to pre-approve incentive levels and reserve potential funding. If your project requires a reservation, do not begin any part of your project (including removal of old fixtures) until after you have submitted your Reservation Application, allowed us the opportunity (up to 14 days) to conduct any pre-upgrade inspections that may be required and have issued you a Reservation Letter confirming that funds have been reserved for your project and that you can proceed with the work. The Energy Efficiency Program for Business Team will review project eligibility and will contact you to conduct any pre-upgrade inspections that may be necessary to reserve Program funds. Neither an Application nor a reservation will guarantee an incentive. Actual incentives will be calculated based on the Final Application. Project funds will be reserved for 90 days, or until Nov. 30, 2017, whichever comes first. Notify us at reservation submittal if your project will take longer than 90 days to complete. However, no project will be extended beyond Nov. 30, 2017.

## Final Application Review Process

Final Applications must be submitted within 60 days of project completion or by Nov. 30, 2017, whichever comes first.

Applicants who submit incomplete Applications will be notified of deficiencies. Final Applications for each site must include project documentation, including copies of dated, itemized invoices for purchases and, if applicable, cost of installation of the energy efficient equipment and manufacturers' product specifications. Multiple projects using the same invoices must be itemized by site and the sum of all quantities of equipment per site must not exceed the total invoice quantity.

The project invoice must provide sufficient detail to separate the project cost from the cost of other services, such as repairs and building code compliance, as well as show the location where the measures were installed. Invoices must be dated and itemized, and must clearly identify the equipment pertaining to the project for which incentives are requested. Attach or insert to all related specifications, invoices and other supporting documentation the reference number(s) related to each measure. Reference numbers are listed alongside each measure within the Program Application. DTE Energy reserves the right to request additional supporting documentation as deemed necessary to ensure measure eligibility and verify that the expected energy savings will occur. Requested information may include: equipment purchase dates, installation dates, proof that the equipment is operational, warranty information and proof of customer payment. Applicants should call 866.796.0512 (press option 3) if they have any questions about documentation requirements. All customer information will be held in confidence.

Once all required project information is received, the Team will evaluate it to confirm that the project meets the Program eligibility criteria and perform necessary inspections and/or technical reviews. Incentive checks can be expected 4-6 weeks after project final approval.

## Inspections

DTE Energy reserves the right to inspect all projects to verify compliance with Program rules and verify the accuracy of project documentation. This may include pre-installation and/or post-installation inspections. Detailed lighting layout descriptions, metering, data collection, interviews and other information may be requested as appropriate.

# List of Eligible Prescriptive Electric Measures

(Some measures have more than one type)

## Lighting



## HVAC Electric



## Miscellaneous Electric



## Process Electric



## Food Service & Refrigeration Electric



: This icon denotes measures that can be installed as part of a New Construction project under the Systems Approach.

: This icon denotes measures that appear in both the Electric and Gas sections of the Catalog and Application.

# List of Eligible Prescriptive Gas Measures

(Some measures have more than one type)

## HVAC Gas



## Hot Water and Laundry



## Insulation



## Process Gas



## Boiler/Furnace Tune-up



## Food Service Gas



# Other Measures

## Custom



## Agriculture

### HVAC Electric



### Miscellaneous Electric



### Process Electric



### HVAC Gas



## Greenhouses



## New Construction



## Appendix



: This icon denotes measures that can be installed as part of a New Construction project under the Systems Approach.

: This icon denotes measures that appear in both the Electric and Gas sections of the Catalog and Application.

# 2017 Special Incentives

## DLC Listed Products

Customers who install DesignLights Consortium® (DLC) listed products are eligible to receive higher incentives than non-DLC products. In order to receive a higher incentive, please apply for DLC-listed measures, which are highlighted in **orange**. In order to receive an incentive, you must list the DLC product ID in the field on the Application. You **must** attach DLC specification sheets to your Reservation Application. Always check the DLC site for the latest product information and listings.

## Dual-Fuel Measures

Measures marked with this icon mean that they appear in both the gas and electric sections of the Application. If you are an electric and a gas customer of DTE Energy, then you may apply for these measures in both sections of the Application.

## New Construction

Measures marked with this icon are eligible for the New Construction Program. When applying for New Construction measures, please indicate that you are completing a New Construction or Major Renovation project, as well as select your project type on page 3. Specifications for Systems Approach (prescriptive) measures have the same specifications listed in the Program Catalog; however, for new construction and major renovation projects, references to "replacing" equipment should be understood to mean installing "new" equipment.

# Prescriptive Electric Measures and Specifications

## Lighting Specifications (continued)

**Certain Prescriptive measures require a Reservation Application. See individual specifications and the Application for more information. All Final Applications must include manufacturers' specification sheets for lamps and ballasts demonstrating compliance with the specifications listed below.** All incentives are for one-for-one replacements except as noted. Note: These incentives are 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.

### LEDs (Incandescent/Halogen/CFL to LED)

| Equipment Type | Unit |
|---|---|
| LED Recessed Down Light Fixture | Fixture |

#### LL-3 – LED Recessed Down Light Fixture

Incentives are available to replace incandescent/halogen/CFL recessed down light fixtures in ceilings or walls with new LED recessed down light fixtures. Replacement lights must be ENERGY STAR®-rated. Incentive is per fixture.

### Exit Sign Conversion

| Equipment Type | Unit |
|---|---|
| LED Exit Signs Electronic Fixtures Retrofit or Replacement | Fixture |

#### LL-29 – Exit Signs

Incentives are available for high-efficiency exit signs replacing or retrofitting an existing incandescent or CFL 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. Incentive is per sign.

### Interior Low Bay LED Fixtures (Reservation Required)

| Equipment Type | Unit |
|---|---|
| Interior Low Bay LED Fixtures (Reservation Required) | Kilowatt Reduced |

#### L-1 to 5 – Interior Low Bay LED Fixtures (Reservation Required)

Incentives are available for LED Interior low bay (ceiling heights less than 15 feet) measures replacing existing fluorescent lamps or replacing the whole fixture. Incentives are available for replacing existing HID fixtures with LED fixtures. The LED lamps or fixtures must have a minimum efficacy of 80 lumens per watt (lm/W). Fixture quantity must remain the same before and after retrofit. If not, project may qualify for custom incentive. Incentive is per kilowatt reduced.

### DLC Lighting

For the measures found on this page, products listed by the DesignLights Consortium® (DLC) are considered the "standard" for this type of lighting and will receive a higher incentive. To determine whether your equipment is DLC-listed, visit www.designlights.org. In order to receive the higher incentive, you must list the DLC product ID in the appropriate field on the Application. **A Reservation Application is required for DLC measures and specification sheets must be attached to the Reservation Application.**




# Lighting Specifications

## Interior High Bay LED Fixtures (Reservation Required)

| Equipment Type | Unit |
|---|---|
| Interior High Bay LED Fixtures (Reservation Application required) | Kilowatt Reduced |

### LL-17 to 19 – Interior LED High Bay (Reservation Required)

Incentives are available in high-bay applications (ceiling heights over 15 feet) for LED interior high bay fixtures replacing existing incandescent, HID or fluorescent fixtures. Incandescent replacements must be whole fixtures, lamp only replacements are not qualified for incentive. LED fixtures must have a minimum efficacy of 80 lumens per watt (lm/W). Fixture quantity must remain the same before and after retrofit. If not, project may qualify for custom incentive. Incentive is per kilowatt reduced.

## Interior LED Fixtures (24/7 Operation) (Reservation Required)

| Equipment Type | Unit |
|---|---|
| Interior LED Fixtures (24/7 Operation) (Reservation Application required) | Kilowatt Reduced |

### LL-34 to 36- Interior LED Fixtures (24/7 Operation) (Reservation Required)

Incentives are available for replacing existing fluorescent and HID fixtures with LED lamps or fixtures. Existing fixtures must operate 8,760 hours per year (24 hours/day), such as emergency lights. The LED lamps or fixtures must have a minimum efficacy of 80 lumens per watt (lm/W). Verification of hours of operation is required. Incentive is per kilowatt reduced.

## Exterior or Garage HID to LED Lighting Retrofit

| Equipment Type | | Unit |
|---|---|---|
| Annual Hours Less Than 8,760 | replacing ≤ 150W HID | Fixture |
| | replacing 151W to 250W HID | Fixture |
| | replacing 251W to 400W HID | Fixture |
| Annual Hours Equal to 8,760 | replacing ≤ 175W HID | Fixture |
| | replacing 176W to 250W HID | Fixture |
| | replacing 251W to 400W HID | Fixture |

### LL-20 to 22 – Exterior or Garage HID to LED Lighting Retrofit (annual operating hours less than 8,760) (Reservation Required)

Incentives are available for replacing existing HID fixtures with LED fixtures. Existing fixtures must operate less than 8,760 hours per year (less than 24 hrs/day). Fixture replacement must result in at least a 40% power reduction. LED fixtures must have a minimum efficacy of 80 lumens per watt. Incentive is per fixture.

### LL-23 to 25 – Exterior or Garage HID to LED Lighting Retrofit (annual operating hours equal to 8,760) (Reservation Required)

Incentives are available for replacing existing HID fixtures with LED fixtures. Existing fixtures must operate 8,760 hours per year (24 hours/day). Fixture replacement must result in at least a 40% power reduction. LED fixtures must have a minimum efficacy of 80 lumens per watt. Incentive is per fixture.

## Traffic Signal Conversion

| Equipment Type | Unit |
|---|---|
| LED Auto Traffic Signals | Signal |
| LED Pedestrian Signals | Signal |

### LL-30 to 31 – LED Traffic and Pedestrian Lights

Incentives are available for LED traffic lights on a per-signal basis (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 a wattage of ≤ 17 watts per signal. Incentives are not available for spare lights. Incentive is per signal.

### DLC Lighting

For the measures found on this page, products listed by the DesignLights Consortium® (DLC) are considered the "standard" for this type of lighting and will receive a higher incentive. To determine whether your equipment is DLC-listed, visit www.designlights.org. In order to receive the higher incentive, you must list the DLC product ID in the appropriate field on the Application. **A Reservation Application is required for DLC measures and specification sheets must be attached to the Reservation Application.**

# Lighting Specifications (continued)

## Controls

| Equipment Type | Unit |
|---|---|
| Interior Occupancy Sensors | Sensor |
| Interior Central Lighting Control | 10,000 Sq. Ft. |
| Interior Switching Controls for Multilevel Lighting | 10,000 Sq. Ft. |
| Interior Daylight Sensor Controls | Watt Controlled. |
| Interior Combined Occupancy and Daylight Sensor | Sensor |
| Interior Stairwell Lighting Controls (Reservation Required) | Kilowatt Controlled. |
| Exterior Lighting, Bi-Level Control with Override | Fixture. |
| Exterior Dimming Timer Controls | Watt Controlled. |

NOTE: Incentives are available for only one lighting control measure for a given space. There must be no previously existing automated control in the area for which incentives are being applied.

### LO-1 to 2 – Interior Occupancy Sensors

Incentives are available for occupancy sensors for intermittent occupancy interior areas, which automatically turn lights off when not occupied. 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.

### LO-3 – Interior Central Lighting Control

Incentives are available for automated central lighting control systems with override capabilities. This measure includes time clocks, package programmable relay panels and complete building automation controls. Incentive is per 10,000 square feet of controlled area. Fractional values are allowed for areas that are not multiples of 10,000 square feet. Floor plan must be submitted verifying square footage.

### LO-4 – Interior Switching Controls for Multilevel Lighting

Incentives are available to install switching controls for multilevel lighting. This measure is applicable to spaces that require various lighting levels such as classrooms, auditoriums, conference rooms and warehouses with skylights. Incentive is per 10,000 square feet of controlled area. Fractional values are allowed for areas that are not multiples of 10,000 square feet. Floor plan must be submitted verifying square footage.

### LO-5 – Interior Daylight Sensor Controls

Incentives are available for daylight sensor controls in spaces with reasonable amount of sunlight exposure. The controls can be used to turn lights on/off, stepped dimming or continuous dimming based on light level from available daylights. Incentive is per watt controlled. This incentive cannot be combined with incentives for tubular skylights if they are in the same area.

### LO-6 to 7 – Interior Combined Occupancy and Daylight Sensor

Incentives are available for sensors that detect both occupancy and light levels, and automatically turn lights off when not needed. For interior areas with intermittent occupancy and exposure to natural light. 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. This incentive cannot be combined with incentives for tubular skylights if they are in the same area. To assist in rebate processing, provide the inventory of the controlled fixtures with the Final Application. Incentive is per sensor.

### LO-8 – Interior Stairwell Lighting Controls (Reservation Required)

Incentives are available for interior stairwell lighting controls in which stepped dimming occupancy controls consist of a lighting system that operates at full power and full light output when the space is occupied, then at a reduced power level and reduced light output when non-occupied. In order to qualify for this incentive, the occupancy sensor must be installed in an interior stairwell or passageway applications requiring continuous lighting (24 hours a day) by code. The occupancy sensor must be hard-wired, it can be a passive infrared (PIR) or a microwave occupancy sensor and the sensor must reduce the fixture output to use no more than 50 percent of full power. Incentive is per kilowatt controlled.

### LO-9 – 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 outdoor area 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.

### LO-10 – Exterior Multi-Step Dimming Timer Controls

Incentives are available for timing controls that automatically reduce an exterior light fixtures' power usage during periods of low traffic. New controls must contain a time clock system featuring multistep dimming capabilities. Fixture power usage must be reduced by at least 50%, for at least five hours per night, during low traffic periods. A detailed controls scheme must be submitted indicating how the lights will be controlled. Incentive is per watt controlled.



# Lighting Specifications (continued)

## Controls (continued)

| Equipment Type | Unit |
|---|---|
| Exterior LED Lighting Bi-level Controls | Fixture |
| Garage LED Lighting Bi-level Controls | Fixture |
| Garage LED Bi-level Controls w/ Photocell | Fixture |

NOTE: Incentives are available for only one lighting control measure for a given space. There must be no previously existing automated control in the area for which incentives are being applied.

### LO-13 – Exterior LED Lighting Bi-level Controls

Incentives are available for bi-level controls on exterior LED lighting that reduce lighting levels by at least 50% when the area is unoccupied. The LED lighting must be coupled with hard-wired motion sensors to bring the light back to full lumen output for security reasons. This measure is applicable to exterior fixtures that are on during the night. Incentive is per fixture.

### LO-14 – Garage LED Lighting Bi-level Controls

Incentives are available for bi-level controls on parking garage LED lighting that reduce lighting levels by at least 50% when the area is unoccupied. The LED lighting must be coupled with hard-wired motion sensors to bring the light back to full lumen output for security reasons. This measure is applicable to parking garage fixtures that are on 8,760 hours per year. Incentive is per fixture.

### LO-15 – Garage LED Lighting Bi-level Controls with Photocell

Incentives are available for bi-level controls on parking garage LED lighting that reduce lighting levels by at least 50% when the area is unoccupied and photocell controls turn off the lighting when adequate daylight is available. The LED lighting must be coupled with hard-wired motion sensors and photocells to bring the light back to full lumen output for security reasons. This measure is applicable to parking garage fixtures that are on 8,760 hours per year. Incentive is per fixture.

## Daylighting

| Equipment Type | Unit |
|---|---|
| Tubular Skylights (Light Tubes) | Tube |

### LO-11 – Tubular Skylights

Incentives are available for new tubular skylights (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). Must be used in combination with daylight sensor controls on surrounding light fixtures. This incentive cannot be combined with incentives for daylight sensor controls. Incentive is per tube.

## Food Service Lighting

| Equipment Type | Unit |
|---|---|
| LED Refrigerated Case Door Lighting | Door |
| Occupancy Sensors for LED Refrigerated Case Lighting | Door |

### LL-32 – LED Refrigerated Case Door Lighting

Incentives are available to replace T12 or T8 fluorescent case lighting. LED fixtures must have a minimum efficacy of 40 lumens per watt. Incentive is per door. Note: This incentive cannot be combined with incentives for Refrigeration savings due to lighting wattage reduction. (See Page 27.)

### LL-33 – Occupancy Sensors for LED Refrigerated Case Lighting

Incentives are available for adding occupancy sensor controls to LED lighting in refrigerated coolers and freezers. Incentive is per door. Note: This incentive cannot be combined with incentives for Refrigeration savings due to lighting wattage reduction. (See Page 27)

### DLC Lighting

For the measures found on this page, products listed by the DesignLights Consortium® (DLC) are considered the "standard" for this type of lighting and will receive a higher incentive. To determine whether your equipment is DLC-listed, visit www.designlights.org. In order to receive the higher incentive, you must list the DLC product ID in the appropriate field on the Application. **A Reservation Application is required for DLC measures and specification sheets must be attached to the Reservation Application.**

# HVAC – Electric Specifications

**All Final Applications MUST include manufacturers' equipment specification sheets**

All equipment must be Air Conditioning, Heating and Refrigeration Institute (AHRI) rated.

## Air Conditioning Systems and Heat Pumps (excluding Open Loop Ground Source Heat Pumps)

| Equipment Type | Size Category | Qualifying Efficiency | Unit |
|---|---|---|---|
| Unitary and Split Air Conditioning Systems | ≤ 65,000 Btu/hr (5.4 tons) – 1 Phase | 14.0 SEER | Tons |
| | ≤ 65,000 Btu/hr (5.4 tons) – 3 Phase | 14.0 SEER | Tons |
| | > 65,000 Btu/hr (5.4 tons), ≤ 135,000 Btu/hr (11.3 tons) | 12.0 EER | Tons |
| | > 135,000 Btu/hr (11.3 tons), ≤ 240,000 Btu/hr (20 tons) | 12.0 EER | Tons |
| | > 240,000 Btu/hr (20 tons), ≤ 760,000 Btu/hr (63.3 tons) | 10.3 EER | Tons |
| | > 760,000 Btu/hr (63.3 tons) | 9.7 EER | Tons |
| Air Source Heat Pumps | ≤ 65,000 Btu/hr (5.4 tons) – 1 Phase | 15.0 SEER | Tons |
| | ≤ 65,000 Btu/hr (5.4 tons) – 3 Phase | 15.0 SEER | Tons |
| | > 65,000 Btu/hr (5.4 tons), ≤ 135,000 Btu/hr (11.3 tons) | 11.3 EER | Tons |
| | > 135,000 Btu/hr (11.3 tons), ≤ 240,000 Btu/hr (20 tons) | 10.9 EER | Tons |
| | >240,000 Btu/hr (20 tons) | 10.3 EER | Tons |
| Closed Loop Water Source Heat Pump | ≤ 17,000 Btu/hr (1.4 tons) | 11.5 EER | Tons |
| | > 17,000 Btu/hr (1.4 tons), ≤ 65,000 Btu/hr (5.4 tons) | 12.3 EER | Tons |
| | > 65,000 Btu/hr (5.4 tons), ≤ 135,000 Btu/hr (11.3 tons) | 12.3 EER | Tons |
| Room Air Conditioners | ≤14,000 Btu/hr (1.17 tons) | 11.3 EER | Unit |
| | > 14,000 Btu/hr (1.17 tons) | 11.2 EER | Unit |
| Package Terminal Air Conditioner | ALL | 9.2 EER | Tons |
| Package Terminal Heat Pump | ALL | 9.0 EER | Tons |

### HE-1 to 11 – Unitary and Split Air Conditioning Systems and Air Source Heat Pumps

Incentives are available to install replacement air conditioning systems or air source heat pumps that meet or exceed qualifying cooling efficiency. They can be either split systems or single packaged 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. Split system efficiency must be for air handling and condensing unit combined. Incentive is per ton of refrigeration.

### HE-12 to 14 – Closed Loop Water Source Heat Pumps

Incentives are available to install replacement closed loop heat pumps that meet or exceed qualifying cooling efficiency. Incentive is per ton of refrigeration.

### HE-15 to 16 – Room Air Conditioners

Incentives are available to install replacement room air conditioning units that are through-the-wall (or built-in), self-contained units that are 2 tons (24,000 Btu/hr) or less and that meet ENERGY STAR® criteria. These units are without reverse cycle (i.e., heating). Incentive is per unit.

### HE-17 to 18 – Packaged Terminal AC and Heat Pump Units (PTAC/PTHP)

Incentives are available to install replacement packaged terminal air conditioners and heat pumps that are through-the-wall, self contained units. The qualifying efficiencies are provided in the table at left. Incentive is per ton of refrigeration.

## Ground Water Source Heat Pumps

| Equipment Type | Size | Efficiency | Unit |
|---|---|---|---|
| Ground-Source Heat Pump (GSHP) | ≤ 135,000 Btu/h (11.3 tons) | 17.0 EER | Tons |
| | | 19.0 EER | Tons |
| Ground-Source Heat Pump (replacing Air-Source Heat Pump) | ≤ 135,000 Btu/h (11.3 tons) | 17.0 EER | Tons |
| | | 19.0 EER | Tons |

### HE-19 to 22 – Ground-Source Heat Pumps

Incentives are available to install ground-source heat pumps (GSHP) that replace existing GSHP or air-source heat pumps. New GSHP must have a capacity less than or equal to 135,000 Btu/hr and have an Energy Efficiency Ratio (EER) of ≥ 17. Incentive is per ton of refrigeration.

# HVAC – Electric Specifications (continued)



## HVAC Controls

| Equipment Type | Unit |
|---|---|
| Programmable Thermostat (Air Conditioning) | Thermostat |
| Chilled Water Reset with Pump on/off Control | 1,000 Sq. Ft. |
| Setback-Setup Controls (Air Conditioning) | 1,000 Sq. Ft. |
| Hotel Guestroom Energy Management Control (Air Conditioning) | Room |
| Web-Based Building Automation System (Reservation Required) | 1,000 Sq. Ft. |

### HE-23 – Programmable Thermostat (Air Conditioning)

Incentives are available for programmable thermostats that replace any non-programmable thermostat to automatically adjust the temperature at pre-selected times. Thermostats must be capable of maintaining two separate programs for weekdays and weekends and at least four temperature settings for each program. Incentive is per thermostat.

### HE-24 – Chilled Water Reset with Pump on/off Control

Incentives are available for new energy management systems (EMS) or upgrades to existing EMS that include combining chilled water reset controls with hydronic hot water, chilled water and condenser water pump on/off controls to turn the pumps off when heating and/or cooling are not needed. The pre-existing system must operate 8,760 hours per year (24 hours/day) with a constant chilled water set point and a constant pump flow rate. Upgrades must include hardware installation for new controls. Incentive is per 1,000 square feet of the conditioned floor area affected by the EMS upgrade. Fractional values are allowed for areas that are not multiples of 1,000 square feet of conditioned floor space. Note: This incentive cannot be combined with incentives for Chilled Water Reset, setback-set-up controls or Web-Based Building Automation Systems. Floor plan must be submitted verifying square footage.

### HE-25 – Setback – Setup Controls (Air Conditioning)

Incentives are available for customers who install new setback controls utilizing an EMS. Previous controls must have no setback capability. Setback – Setup must be at least 8 degrees and for at least 56 hours a week. Replacement of programmable thermostats with the EMS is not eligible. Setback using programmable thermostats are not eligible for this incentive. Projects implementing demand controlled ventilation may be eligible for other incentives in addition to the Setback incentive. Cannot be combined with Chilled Water Reset with Pump on/off Control Incentive and Web-based Building Automation System. Incentive is per 1,000 square feet of conditioned floor space. Fractional values are allowed for areas that are not multiples of 1,000 square feet. Floor plan must be submitted verifying square footage. Not applicable for small office and assembly facilities.

### HE-26 to 27 – Hotel Guestroom Energy Management Control (Air Conditioning)

Incentives are available for new sensors that control PTACs, heat pumps and other HVAC units for individual hotel rooms. Sensors must control electric heating elements. Guest rooms must be controlled by automatic occupancy detectors. Guest rooms controlled by a front desk system are not eligible. Replacement or retrofits of existing occupancy-based controls are not eligible for this incentive. Incentive is per guest room controlled. For multi-room suites, the incentive is per room controlled when a sensor is installed in each room.

### HE-28 – Web-Based Building Automation System (Reservation Required)

Incentives are available for installing a web-based building automation system in existing buildings that currently have no digital automated HVAC controls or have outdated pneumatic control systems with inoperable time control functions. Existing HVAC control systems must not have time-of-day scheduling. Upgrading obsolete EMS HVAC system with inoperable time clock functions will be reviewed on a case-by-case basis for incentive eligibility. This incentive cannot be combined with incentives for programmable thermostats, setback-setup controls, or chilled water reset with pump on/off control. Must include the controls strategy and a scaled floor-plan with controlled areas highlighted. Incentive is per 1,000 square feet of conditioned floor space.

HVAC BAS systems must be new and include:

- Central time clock control
- Web-based interface with PC-based controls and graphic
- Building performance Tracking
- Open-protocol architecture controls system shall consist of either LonTalk (ANSI/CEA 709.1) or BACNet (ASHRAE/ANSI 135) protocol being used between all controlled and controlling devices and every node on the network
- Minimum setback period must exceed 2,200 hours per year
- A minimum setback space temperature of at least 10°F when heating and 5°F when cooling.
- Ability to adjust schedules and settings remotely over the internet
- Report generation describing energy and operating trends

## HVAC Occupancy Sensor, Large Office Building

| Equipment Type | Unit |
|---|---|
| With CV Chilled Water System | 1,000 Sq. Ft. |
| With VAV Chilled Water System | 1,000 Sq. Ft. |

### HE-37 to 38 – HVAC Occupancy Sensor for Large Office Buildings

Incentives are available for installing HVAC occupancy sensor controls used to reset space temperatures and reduce ventilation air supplied to individual zones when they are unoccupied. To be eligible, the building must be office space 100,000 square feet or larger and must utilize a chilled water system for comfort cooling. The incentive is paid per 1,000 square feet of conditioned space. Fractional values are allowed for areas that are not multiples of 1,000 square feet. Floor plan must be submitted verifying square footage.

# HVAC - Electric Specifications (continued)

## Other HVAC

| Equipment Type | | Unit |
|---|---|---|
| Chilled Water Reset – Air Cooled (≤ 500 tons) | | Ton |
| Chilled Water Reset – Water Cooled | ≤ 1,000 tons – ≤ 3,000 tons | Ton |
| Variable Frequency Drive – VAV Supply or Return Air Fan | | Fan HP |
| Variable Frequency Drive – Secondary Chilled Water Pump | | Pump HP |
| Economizer | | Ton |
| Cool Roof | | 1000 Sq. Ft. |
| High Performance Glazing – Windows | | 100 Sq.Ft. |
| Window Film | | 100 Sq. Ft. |
| EC Motors on Small Commercial Furnaces replacing non-EC Motors | | HP |
| Efficient Chilled Water Pump | | Pump HP |
| Efficient Hot Water Pump | | Pump HP |

### HE-29 to 36 - 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. This measure is not available on new chillers over 25 tons. This incentive is per ton of refrigeration and is based on the capacity of the chiller affected by the control upgrade.

### HE-39 to 40 - Variable Frequency Drives - VAV Supply and Return Air Fans and Secondary Chilled Water Pumps

Incentives are available for adding variable frequency drives (VFD) to 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 are not eligible for this incentive. The installation of a VFD must accompany the permanent removal or disabling of any throttling devices such as inlet vanes and bypass dampers. Incentive is per horsepower (hp) of the supply or return air fan.

Incentives are available for adding variable frequency drives (VFD) to 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 VFDs on new equipment are not eligible for this incentive. The installation of a VFD must accompany the permanent removal or disabling of any throttling devices such as throttling valves. Incentive is per horsepower (hp) of the secondary chilled water pump.

### HE-41 - Economizer

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

### HE-42 - Cool Roofs

Incentives are available for upgrading existing roofs to cool roofs that have a solar absorptance of ≤ 0.3 (reflectance of ≥ 0.7) and that are installed over an electrically air conditioned area. Incentive is per 1,000 square feet of roof area. Fractional values are allowed for areas that are not multiples of 1,000 square feet. Floor plan must be submitted verifying square footage.

### HE-43 - High Performance Glazing - Windows

Incentives are available for high performance glazing having an east, west or southern exposure and a minimum 5-year manufacturer's warranty. Glazing must replace clear double-pane glass or lesser performing glazing. The new glazing must have a Solar Heat Gain Coefficient (SHGC) value of ≤ 0.39 and a U-value of ≤ 0.57. The space upgraded with the glazing must be an electrically air conditioned area. 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. Fractional values are allowed for areas that are not multiples of 100 square feet. Documentation must be submitted verifying square footage.

### HE-44 - Window Film

Incentives are available for film applied to windows having an east, west or southern exposure and a minimum 5-year manufacturer's warranty. Film must be applied to clear double-pane glass or lesser performing glazing. The installed window film must have a Solar Heat Gain Coefficient (SHGC) value of ≤ 0.39 and a U-value of ≤ 0.72. The space upgraded with the glazing must be an electrically air conditioned area. 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. Fractional values are allowed for areas that are not multiples of 100 square feet. Documentation must be submitted verifying square footage.

### HE-45 - EC Motors on Small Commercial Furnaces replacing non-EC Motors

Incentives are available for replacing a shaded pole or PSC (permanent split capacitor) motor with an ECM (electronically commutated motor) on a small commercial furnace. Qualifying motors should be 7.5 HP or less. Incentive is per HP.

### HE-46 - Efficient Chilled Water Pump

Incentives are available for high efficiency chilled water pumps. Pump performance curve must indicate that the pump meets a minimum efficiency of 75%. Pumps must operate at least 2,000 hours per year. Incentive is per pump HP.

### HE-47 - Efficient Hot Water Pump

Incentives are available for high efficiency hot water pumps. Pump performance curve must indicate that the pump meets a minimum efficiency of 75%. Pumps must operate at least 2,000 hours per year. Incentive is per pump HP.

# HVAC – Electric Specifications (continued)



## Other HVAC (continued)

| Equipment Type | Unit |
|---|---|
| Variable Frequency Drive Hot Water Pump | Pump HP |
| Variable Frequency Drive Primary Chilled Water Pump | Pump HP |
| Variable Frequency Drive Cooling Tower Fan | Fan HP |
| Variable Frequency Drive Condenser Water Pumps | Pump HP |

### HE-51 – Variable Frequency Drives for Hot Water Pumps

Incentives are available for converting constant flow hot water systems for space heating to variable flow systems by adding variable frequency drives (VFD) to existing hot water pumps. The existing 3-way valves must be converted to or replaced with 2-way valves. VFDs added to redundant or back-up pumps are not eligible. Incentive is per horsepower (hp) of the hot water pump.

### HE-52 Variable Frequency Drives for Primary Chilled Water Pumps

Incentives are available for converting constant flow chilled water systems for space cooling to variable flow systems by adding variable frequency drives (VFD) to existing primary chilled water pumps. Conversions of both primary only and primary-secondary systems are eligible. Any existing 3-way valves must be converted to or replaced with 2-way valves. Redundant or back-up pumps are not eligible. Incentive is per horsepower (hp) of the chilled water pump.

### HE-53 – Variable Frequency Drives for Cooling Tower Fans

Incentives are available for replacing ON/OFF cycled cooling tower fan control with variable speed fan control by adding variable frequency drives (VFD) to existing cooling tower fans. The following are not eligible for this incentive: upgrades to towers with 2-speed motors or adjustable pitch fans; redundant or back-up tower fans; and integrated VFDs on new equipment. Incentive is per horsepower (hp) of the cooling tower fan. For multi-cell towers, incentive is per the combined horsepower (hp) of all motors to which a VFD is added.

### HE-54 – Variable Frequency Drives for Condenser Water Pumps

Incentives are available for converting constant flow HVAC condenser water pumps to variable flow systems by adding variable frequency drives (VFD) to existing condenser water pumps Any existing 3-way valves must be converted to or replaced with 2-way valves. Redundant or back-up pumps are not eligible. Incentive is per horsepower (hp) of the condenser water pump.

# HVAC – Electric Specifications (continued)

## HVAC Tune-Ups

| Equipment Type | Unit |
|---|---|
| Refrigerant Charging Correction on RTU AC | Ton |
| DX Condenser Coil Cleaning | Ton |
| Chiller Tune-Up | Ton |

### HE-48 – Refrigerant Charging Correction on RTU AC

An incentive is available for adjusting undercharged refrigerant so that it is within manufacturer specifications. Incentive is per ton of refrigeration.

The AC must meet the following criteria:

- Must be a rooftop unit meeting minimum efficiency per ASHRAE 90.1 2007 Table 6.8.1A (see appendix in back)
- Cannot be located on a grocery, high school, or large office
- Measurements must show that the refrigerant charge is ±20% rated charge

### HE-49 – DX Condenser Coil Cleaning

An incentive is available for cleaning direct expansion condenser coils. Incentive is per ton of refrigeration.

The coil must meet the following conditions:

- Must not have been cleaned within the past three years.
- Measurements must show that the coil airflow is below original specifications
  - Airflow measurements must be taken at 9 different locations on the coil and averaged
  - Measurements should not be taken within 2 inches of the coil housing perimeter
- Cleaning must be done by a qualified technician following standard practices

### HE-50 – Chiller Tune-Up

An incentive is available for the tune-up of any air-cooled or water-cooled chiller, greater than 20 tons, used for either space or process cooling. The incentive is available once in a 24-month period. Each individual chiller is considered one unit. Incentive is per ton of refrigeration.

Cooling service tune-ups must include the following maintenance items, if applicable:

- Inspect and correct oil level and pressure at full load operation
- Clean the air-cooled condenser coil
- Check and adjust the system pressure
- Inspect and/or replace filter
- Inspect and/or replace belt
- Check and repair the electrical contactors
- Check and repair evaporator condition
- Validate compressor amp draw
- Validate supply motor amp draw
- Validate condenser fan(s) amp draw
- Check liquid line temperature
- Check suction pressure and temp
- Check refrigerant temperature and pressure
- Validate low-pressure controls
- Validate high-pressure controls
- Validate crankcase heater operation
- Clean water cooled chiller condenser tubes
- Clean water cooled chiller evaporator tubes (if performance warrants)
- Check and repair economizer operation
- Validate sub-cooling and superheat
- Validate suction temperature and pressure
- Inspect all refractory
- Patch and wash coat as required
- Check safety controls
- Check for proper venting
- Lubricate all motors
- Check coupling alignment

# HVAC - Electric Specifications (continued)



## Air-Cooled Chillers

| Equipment Type | Unit |
|---|---|
| Reciprocating Chiller | Tons |
| Screw or Scroll Chiller | Tons |

### CH-1 to 22 – Air-Cooled Chillers

Incentives are available for air-cooled chillers that have a rated Full Load efficiency (kW/ton) and Integrated Part Load Value (IPLV) that is less than or equal to the qualifying efficiencies. The chillers must meet AHRI Standards 550/590-2003 and be UL listed. The AHRI net capacity value must be used to determine the chiller tons. Incentive is per ton of refrigeration.

### CH-23 to 115 – Water-Cooled Chillers

Incentives are available for 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 the qualifying efficiencies shown on the table. The chiller efficiency rating must be in accordance with AHRI Standard 550/590-2003. The chillers must be UL listed. The AHRI net capacity value must be used to determine the chiller tons. Incentive is per ton of refrigeration.

## Water-Cooled Centrifugal Chillers

| Capacity | Full Load Efficiency (kW/ton) | IPLV (kW/ton) | Unit |
|---|---|---|---|
| < 150 tons | 0.56 | 0.34 | Tons |
| | | 0.40 | Tons |
| | | 0.43 | Tons |
| | | 0.46 | Tons |
| | | 0.53 | Tons |
| | 0.63 | 0.38 | Tons |
| | | 0.45 | Tons |
| | | 0.48 | Tons |
| | | 0.51 | Tons |
| | | 0.60 | Tons |
| | 0.70 | 0.42 | Tons |
| | | 0.50 | Tons |
| | | 0.53 | Tons |
| | | 0.57 | Tons |
| 150-300 tons | 0.51 | 0.30 | Tons |
| | | 0.36 | Tons |
| | | 0.39 | Tons |
| | | 0.41 | Tons |
| | | 0.48 | Tons |
| | 0.57 | 0.34 | Tons |
| | | 0.40 | Tons |
| | | 0.43 | Tons |
| | | 0.46 | Tons |
| | | 0.54 | Tons |
| | 0.63 | 0.38 | Tons |
| | | 0.45 | Tons |
| | | 0.48 | Tons |
| | | 0.51 | Tons |
| > 300 tons | 0.46 | 0.28 | Tons |
| | | 0.33 | Tons |
| | | 0.35 | Tons |
| | | 0.37 | Tons |
| | | 0.44 | Tons |
| | 0.52 | 0.31 | Tons |
| | | 0.37 | Tons |
| | | 0.39 | Tons |
| | | 0.42 | Tons |
| | | 0.49 | Tons |
| | 0.58 | 0.35 | Tons |
| | | 0.41 | Tons |
| | | 0.44 | Tons |
| | | 0.47 | Tons |

# HVAC - Electric Specifications (continued)

## Water-Cooled Screw or Scroll Chillers

| Capacity | Full Load Efficiency (kW/ton) | IPLV (kW/ton) | Unit |
|---|---|---|---|
| < 150 tons | 0.63 | 0.38 | Tons |
| | | 0.41 | Tons |
| | | 0.44 | Tons |
| | | 0.47 | Tons |
| | | 0.50 | Tons |
| | | 0.56 | Tons |
| | 0.71 | 0.43 | Tons |
| | | 0.46 | Tons |
| | | 0.50 | Tons |
| | | 0.53 | Tons |
| | | 0.56 | Tons |
| | | 0.63 | Tons |
| | 0.79 | 0.47 | Tons |
| | | 0.51 | Tons |
| | | 0.55 | Tons |
| | | 0.59 | Tons |
| | | 0.62 | Tons |
| 150-300 tons | 0.57 | 0.34 | Tons |
| | | 0.37 | Tons |
| | | 0.40 | Tons |
| | | 0.43 | Tons |
| | | 0.45 | Tons |
| | | 0.51 | Tons |
| | 0.65 | 0.39 | Tons |
| | | 0.42 | Tons |
| | | 0.45 | Tons |
| | | 0.48 | Tons |
| | | 0.51 | Tons |
| | | 0.57 | Tons |
| | 0.72 | 0.43 | Tons |
| | | 0.47 | Tons |
| | | 0.50 | Tons |
| | | 0.54 | Tons |
| | | 0.57 | Tons |

## Water-Cooled Screw or Scroll Chillers (continued)

| Capacity | Full Load Efficiency (kW/ton) | IPLV (kW/ton) | Unit |
|---|---|---|---|
| > 300 tons | 0.51 | 0.31 | Tons |
| | | 0.33 | Tons |
| | | 0.36 | Tons |
| | | 0.38 | Tons |
| | | 0.40 | Tons |
| | | 0.46 | Tons |
| | 0.58 | 0.35 | Tons |
| | | 0.37 | Tons |
| | | 0.40 | Tons |
| | | 0.43 | Tons |
| | | 0.45 | Tons |
| | | 0.51 | Tons |
| | 0.64 | 0.38 | Tons |
| | | 0.42 | Tons |
| | | 0.45 | Tons |
| | | 0.48 | Tons |
| | | 0.51 | Tons |

# Miscellaneous Electric Specifications

**All Final Applications MUST include manufacturers' equipment specification sheets**

## Sensors and Controls

| Equipment Type | Unit |
|---|---|
| Intelligent Multi-Socket Surge Protector | Protector |
| PC Network Energy Management Controls | PC |

### ME-1 – Intelligent Multi-Socket Surge Protector

Incentives are available for surge protectors with built-in plug-load detection and control capabilities. The intelligent surge protector (power strip) must include at least one uncontrolled socket to which a primary device can be connected. Incentive is per protector.

### ME-2 – PC Network Energy Management Controls

Incentives are available for implementing a desktop personal computer (PC) power management program for networked PCs. The power management software must dynamically control processing units and monitors from one central location; must collect consumption data over time; and must offer a system-wide energy savings reporting function. Laptops, thin clients and other network devices are not eligible for this incentive. Incentive is per PC controlled.

## Clothes Washers

| Equipment Type | Unit |
|---|---|
| High Efficiency Clothes Washer (Electric Water Heat, Electric Dryer) | Washer |
| High Efficiency Clothes Washer (Electric Water Heat, Gas Dryer) | Washer |

### ME-3 to 4 – High Efficiency Clothes Washer (Electric Water Heater)

Incentives are available for high efficiency clothes washers that use an electric water heater. Qualified clothes washers must meet ENERGY STAR requirements and have a Modified Energy Factor (MEF) ≥ 2.2. Incentive is per washer.

## Miscellaneous

| Equipment Type | Unit |
|---|---|
| Heat Pump Storage Water Heater | Heater |
| Electric Tankless Water Heater | Heater |
| High Efficiency Hand Dryer | Dryer |

### ME-5 – Heat Pump Storage Water Heater

Incentives are available for replacing existing electric domestic water heater with air source heat pump (HP) domestic water heater system that is used in commercial applications. The HP water heater must be installed in conditioned space where the ambient air remains in the range of 40°- 90°F all year (ex: mechanical room). The locations should also provide at least 1,000 cu. ft. of air space around the HP water heater to ensure that there is enough air space for the HP to pull heat out of and transfer into the domestic hot water system. A tank style domestic hot water heat pump must be ≤55 gallons, have an EF ≥1.92 and it should replace an existing electric domestic water heater. All other commercial HPs must have a COP ≥3.0. Incentive is per heater.

### ME-6 – Electric Tankless Water Heater

Incentives are available for tankless/instantaneous electric water heaters that replace existing electric storage water heaters. Replacement unit must have an Energy Factor ≥0.98. Incentive is per heater.

### ME-7 – High Efficiency Hand Dryer

Incentives are available for high efficiency hand dryers that replace standard efficiency hand dryers. High efficiency hand dryers must have a demand rating ≤ 1,500 Watts and have a drying cycle time ≤ 15 seconds. Replacement of paper towel dispensing and other non-electrical units do not qualify for incentive. Incentive is per dryer.

## Miscellaneous Electric Specifications

**All Final Applications MUST include manufacturers' equipment specification sheets**



### Process Pumps and Fans

| Equipment Type | Unit |
|---|---|
| High Efficiency Pumps | HP |
| Variable Frequency Drive for Process Pumps | HP |
| Variable Frequency Drive for Process Fans ≤ 50HP | HP |
| VFD on Computer Room AC Supply Fans | HP |

### PE-1 to 8 – High Efficiency Pumps

Incentives are available for high efficiency process pumps. Pump performance curve must indicate that pump meets the efficiencies listed in Table 1. Pumps must operate at least 2,000 hours per year. Incentive is per pump horsepower.

**Table 1: Qualifying Pump Efficiency**

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

### PE-9 to 20 – Variable Frequency Drives (VFD) 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.

### PE-21 – Variable Frequency Drives (VFD) for Process Fans

Incentives are available for retrofitting existing process (non-HVAC) fans ≤50 HP with VFDs. The installation must accompany the permanent removal or disabling of any throttling devices. VFD speed must be automatically controlled by differential pressure, flow, temperature, or other variable signal. VFDs for redundant or back-up fans are not eligible. Incentive is per controlled HP of the process fan.

### PE-22 – VFD on Computer Room AC Supply Fans

Incentives are available for installing VFDs on existing telecommunications or Computer Room Air Conditioning (CRAC) units. The units must operate continuously all year. Replacement of existing VFDs is not eligible. Redundant or backup units are not eligible. Incentive is per supply fan motor HP.

# Process Electric Specifications

## Compressed Air

| Equipment Type | | Unit |
|---|---|---|
| Compressed Air Engineered Nozzle | | Nozzle |
| Compressed Air Pressure Flow Controller (Reservation Application Required) | | HP |
| Compressed Air Audit with Leak Repair (Reservation Application Required prior to leak repair) | | CFM |
| VSD Air Compressor | | HP |
| VSD Air Compressor <50 HP | | HP |
| Efficient Compressed Air Dryers | Refrigerated, Cycling Thermal Mass | CFM |
| | Refrigerated, Variable Speed Compressor | CFM |
| | Refrigerated, Digital Scroll | CFM |
| Refrigerated Air Dryer replacing Desiccant Air Dryer | | SCFM |
| No-loss Condensate Drains | | Drain |
| Compressed Air Storage Tank | | HP |

### CA-23 – Engineered Nozzle

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

**Table 2: Qualifying SCFM ratings for Engineered Nozzles**

| Size (inch) | 1/8 | 1/4 | 3/8 | 1/2 |
|---|---|---|---|---|
| SCFM | 10 | 18 | 35 | 60 |

### CA-24 – Compressed Air Pressure Flow Controller

Incentives are available for installing a pressure flow controller downstream from the storage/receiver tank (if applicable) in compressed air systems. The controller must be installed on a main pressure header. Replacement of an existing controller does not qualify. The air compressor must be at least 50 hp and the resulting discharge pressure must be reduced by at least 5 psig. The incentive is paid per compressor horsepower. (Reservation Required)

### CA-25 – Compressed Air Audits with Leak Repair

Incentives are available for compressed air audits that result in repair of air leaks. Audit must consist of metered compressor kW, pressure and flow rate, as well as a leak detection survey. Survey must identify system leaks by location (or tag number) and size (cfm). Amount of leaks repaired must be ≥50% of the total leakage rate (cfm). Compressed air systems must be electrically driven and must have a rated power of at least 50 HP. The air compressor must have at least 2,000 annual run hours (excluding back-up). The complete audit report with leak location, size and repair information must be submitted with Final Application. Incentive is available once per year. Incentive is per SCFM of repaired leaks.

### CA-26 – VSD Air Compressor

Incentives are available for variable speed air compressors (50-300 hp) that replace constant speed air compressors which use inlet modulation or load/no-load control. Adding a VSD to an existing compressor does not qualify. The VSD compressor must be set up to control load variations (non-base load). Only one VSD compressor on a system is eligible. Redundant or back-up compressors are not eligible. Instead of receiving the prescriptive incentive, a customer may instead submit a VSD compressor project as a custom measure, but then must fulfill all pre-install and post-install data requirements. Incentive is per compressor HP.

### CA-34 VSD Air Compressor <50HP

Incentives are available for variable speed air compressors less than 50HP that replace constant speed air compressors. Adding a VSD to an existing compressor is not eligible. Only one VSD compressor on a compressed air system is eligible. Air compressors on multiple-compressor systems must operate the VSD compressor at least 4,000 hours per year and be set up to not be base loaded. Redundant and back-up compressors are not eligible. Incentive is per compressor HP.

### CA-27 to 29 – Efficient Compressed Air Dryers

Incentives are available for replacing refrigerated, non-cycling, compressed air dryers with efficient refrigerated dryers. The new compressed air dryer may use cycling thermal mass, variable speed or digital scroll technology. The new dryer may be free-standing or integral to the air compressor as a factory-installed option. The incentive is per dryer corrected air flow-rate (SCFM).

### CA-30 – Refrigerated Air Dryer replacing Desiccant Air Dryer

Incentives are available for replacing an existing desiccant air dryer with a refrigerated air dryer. The compressed air system must be 50HP or greater. The new dryer may be free-standing or integral to the air compressor as a factory-installed option. Incentive is per dryer SCFM.

### CA-31 – No-loss Condensate Drains

Incentives are available for replacing existing timed or manual drains with no-loss condensate drains on compressed air systems. The drain must continuously monitor the level of condensate and drain it without also leaking compressed air. Manual drains, timed drains, electronic solenoid drains, and drains factory-installed in equipment, such as compressor and dryers, are not eligible. Incentive is per drain replaced.

### CA-32 – Compressed Air Storage Tank

Incentives are available for the installation of a compressed air storage tank to augment the capacity of trim (not base-load) compressors. Tank must be supplied by rotary screw compressors operating at greater than 90 psig. Tank must provide a storage capacity of least 5 gal/cfm of trim capacity. Replacement of existing storage tanks with equal or lower-sized tanks is not eligible. Installation of tanks to support base-loaded compressors is not eligible. Incentive is per HP of trim compressor(s).

# Process Electric Specifications (continued)

## Compressed Air (continued)

| Equipment Type | | Unit |
|---|---|---|
| Variable Displacement Air Compressor | | HP |
| Heated Desiccant Air Dryer | VSD Compressor | SCMF |
| | VD Compressor | SCMF |
| | LNL Compressor | SCMF |
| Blower Purge Desiccant Air Dryer | VSD Compressor | SCMF |
| | VD Compressor | SCMF |
| | LNL Compressor | SCMF |



### CA-33 – Variable Displacement Air Compressor

Incentives are available for variable displacement screw air compressors that replace screw air compressors which use modulating control or load/no-load control. The variable displacement compressor must be set up to control load variations (non-base load). Only one variable displacement compressor on a system is eligible. The air compressor system must be ≥ 50 HP. Redundant or back-up compressors are not eligible. Instead of receiving the prescriptive incentive, a customer may instead submit a variable displacement compressor project as a custom measure, but then must fulfill all pre-install and post-install data requirements. Incentive is per compressor HP.

### CA-35 to CA-37 Heated Desiccant Air Dryers

Incentives are available for replacing a heatless desiccant air dryer with a desiccant air dryer that uses a heater to pre-heat the desiccant purge air. Incentive is per SCFM of the air dryer installed.

### CA-38 to CA-40 Blower Purge Desiccant Air Dryers

Incentives are available for replacing a heatless desiccant air dryer with a desiccant air dryer that uses a blower to purge the desiccant material, instead of compressed air. Incentive is per SCFM of the air dryer installed.

# Process Electric Specifications (continued)

## Miscellaneous Process

| Equipment Type | | Unit |
|---|---|---|
| Industrial 3-Phase HF Battery Charger | 1 shift Operation | Charger |
| | 2 shift Operation | Charger |
| | 3 shift Operation | Charger |
| Electrically Commutated Plug Fans | In-Cabinet | Fan |
| | Under-Cabinet | Fan |
| Computer Room Air Conditioning (CRAC) Units | | MBH of cooling capacity |
| Barrel Wraps for Injection Molders & Extruders | | Square Foot |
| Computer Room Air Conditioner Air Side Economizer | <65 MBH | Output MBH |
| | 64-240 | Output MBH |
| | >240 | Output MBH |
| Computer Room Air Conditioner Refrigerant Economizer | <65 MBH | Output MBH |
| | 64-240 | Output MBH |
| | >240 | Output MBH |

### PE-23 to 25 – Industrial 3 Phase High Frequency Battery Chargers

Incentives are available for replacing Ferroresonant and Silicon Controlled Rectifier chargers with new 3-phase high frequency chargers. The new chargers must have a minimum power conversion efficiency of 92% and must be utilized at least 5 days per week, one 8-hour shift per day, year round. This measure is available for battery chargers for electric vehicles, such as forklifts, golf carts and automatic guided vehicles, etc. The incentive is per charger installed.

### PE-26 to 27 – Electronically Commutated Plug Fans for Data Centers

Incentives are available for plug fans with electronically commutated motors that replace constant speed, belt-driven centrifugal fans and motors in floor-mounted, down-flow computer room air conditioning units serving data centers. Fans may be located in-cabinet or under-cabinet. Plug fans with electronically commutated motors for other unit configurations are not eligible for this incentive, but may be eligible for custom incentives. The incentive is per fan installed.

### PE-28 to 30 – Computer Room Air Conditioning (CRAC) Units

Incentives are available to install replacement computer room air conditioning (CRAC) units that have a sensible coefficient of performance (SCOP) that meets or exceeds qualifying cooling efficiencies. Incentive is per MBH of cooling capacity.

| Size Category | Qualifying Efficiency (SCOP) |
|---|---|
| <65 MBH | 2.86 |
| 65-240 MBH | 2.73 |
| >240 MBH | 2.47 |

### PE-31 – Barrel Wraps for Injection Molders and Extruders

Incentives are available for installing insulating blankets on the barrels of extruding or injection molding machines. Blankets must be installed on previously un-insulated barrels. Include summary sheet identifying machine, circumference of heater band, width between thermocouples and calculated blanket square footage. Incentive is per square foot.

### PE-51 to 53 – Computer Room Air Conditioner Air Side Economizer

Incentives are available for installing an air-side free cooling economizer on mechanically direct expansion (DX) cooled computer room air conditioners (CRAC). Installing new CRAC units with economizers or retrofitting existing CRAC units qualify. Replacing CRAC units with existing economizers or non-functioning economizers does not qualify. Incentive is per output MBH of the CRAC unit installed.

### HG-42 to 45 – Computer Room Air Conditioner Refrigerant Economizer

Incentives are available for installing a glycol free cooling economizer, or a pumped refrigerant economizer on mechanically direct expansion (DX) cooled computer room air conditioners (CRAC). Installing new CRAC units with economizers or retrofitting existing CRAC units qualify. Replacing CRAC units with existing economizers or non-functioning economizers does not qualify. Incentive is per output MBH of the CRAC unit installed.

# Process Electric Specifications (continued)



## Miscellaneous Process (continued)

| Equipment Type | | Unit |
|---|---|---|
| Insulated Pellet Dryer Ducts | 3" diameter | Linear Foot |
| | 4" diameter | Linear Foot |
| | 5" diameter | Linear Foot |
| | 6" diameter | Linear Foot |
| | 8" diameter | Linear Foot |
| Tank Insulation – 1" | Low Temp (120°F-170°F) | Square Foot |
| | High Temp (>170°F) | Square Foot |
| Tank Insulation – 2" | Low Temp (120°F-170°F) | Square Foot |
| | High Temp (>170°F) | Square Foot |
| Electric Motors replacing Pneumatic (Air) Motors | | HP |
| High Efficiency Welders - Inverter Style (Reservation Required) | | Welder |
| Air Blowers replacing Compressed Air Blow-off | | Blower |
| Electric Tools replacing Pneumatic (Air) Tools | | Tool |
| Fiber Laser Cutter replacing $CO_2$ Laser Cutter | | kW |
| All-Electric Injection Molding Machines replacing Hydraulic Injection Molding Machines | | Ton |
| Hybrid Injection Molding Machines replacing Hydraulic Injection Molding Machines | | Ton |
| Cordless Electric Tools Replacing Pneumatic (Air) Tools | | Tool |

### PE-32 to 36 – Insulation for Pellet Dryer Ducts

Incentives are available for insulation placed on flexible ducts of pellet dryers. Insulation must be installed on previously un-insulated duct with a diameter of 3 to 8 inches. Incentive is per linear foot of insulation.

### PE-37 to 40 – Tank Insulation

Incentives are available for adding insulation to existing hot-fluid storage or process tanks that are not insulated. Replacement insulation is not eligible. Tank must be uninsulated, bare or painted steel, and in use 8,760 hours/year. Insulation added must have an R-value of at least 3.2 hr-ft$^2$ °F/Btu/inch. Incentive is per square foot of insulation.

### PE-41 – Electric Motors replacing Pneumatic (Air) Motors

Incentives are available for electric-driven motors that replace existing pneumatic-driven motors. The pneumatic motors must be fed by a compressed air system and operate at least 400 hours per year. The compressed air branch headers must be demolished from the existing pneumatic motor back to the compressed air header. Incentive is per HP.

### PE-42 – High Efficiency Welders – Inverter Style (Reservation Required)

An incentive is available for replacing an existing transformer rectifier power source welder with a new inverter power sourced welder. The facility must operate the welding process a minimum of 2,000 hours per year. A production log or schedule is required to show operational activity. The welder must operate in "Arc Mode" at least 15% of the operational period. Incentive is per welder.

### PE-43 – Air Blowers replacing Compressed Air Blow-off

Incentives are available for air blowers that replace compressed air blow-off nozzles or pipes. The existing compressed air blow-off system must operate at a pressure ≥ 80 psig. The blowers must be used in a manufacturing production environment where the pressure conditions are ≤ 15 psig. The blow-off system must operate ≥ 1,000 hours per year. Incentive is per HP of the air blower.

### PE-44 – Electric Tools replacing Pneumatic (Air) Tools

Incentives are available for electric-driven tools that replace existing pneumatic-driven tools. The pneumatic tools must be fed by a compressed air system and operate at least 400 hours per year. Qualified pneumatic tools for replacement must use ≥ 15 CFM per tool. Pneumatic bevellers, nailers, riveters and staplers do not qualify for this incentive. The compressed air branch headers must be demolished from the existing pneumatic tool back to the compressed air header. The electric tool must be corded and permanently installed. Incentive is per tool.

### PE-48 Cordless Electric Tools replacing Pneumatic (Air) Tools (Reservation Required)

Incentives are available for cordless tools that replace existing pneumatic-driven tools. To qualify for this incentive, the existing pneumatic hand tool must be replaced with a cordless electric (i.e. 18V Lithium- Ion Brushless Cordless) hand tool. The pneumatic tools must be fed by a compressed air system and operate a least 400 hours per year. Qualified pneumatic tools for replacement must use ≥ 15 CFM per tool. Pneumatic hand tools that do not qualify for this measure include: bevellers, nailers, riveters and staplers. Portable air hand tools or hand tools used for maintenance are not eligible for this incentive. The compressed air branch headers must be sealed without leaks from the existing pneumatic tool back to the compressed air header. The existing air hand tool must be permanently installed. Incentive is per pneumatic tool replaced.

### PE-45 – Fiber Laser Cutter replacing $CO_2$ Laser Cutter

Incentives are available for fiber optic laser cutters that replace carbon dioxide laser cutters. The laser cutter must be cutting 0.2" (5 mm) stock or less the vast majority of the time. The laser cutter must operate ≥ 4,000 hours per year and be mechanically cooled year round. Incentive is per output kW of the fiber laser cutter.

### PE-46 – All-Electric Injection Molding Machines replacing Hydraulic Injection Molding Machines

Incentives are available for all-electric or hybrid (electric/hydraulic hybrid or servo hydraulic) injection molding machines that replace hydraulic injection molding machines. Incentive is per ton of the new injection molder.

### PE-47 – Hybrid Injection Molding Machines replacing Hydraulic Injection Molding Machines

Incentives are available for all-electric or hybrid (electric/hydraulic hybrid or servo hydraulic) injection molding machines that replace hydraulic injection molding machines. Incentive is per ton of the new injection molder.

# Food Service Electric & Refrigeration Specifications

**All Final Applications MUST include manufacturers' equipment specification sheets**

## ENERGY STAR® Refrigerators and Freezers

| Equipment Type | | Unit |
|---|---|---|
| Commercial Solid Door Refrigerators | < 15 cu. ft. | Refrigerator |
| | 15 – 30 cu. ft. | Refrigerator |
| | 31 – 50 cu. ft. | Refrigerator |
| | > 50 cu. ft. | Refrigerator |
| Commercial Solid Door Freezers | < 15 cu. ft. | Freezer |
| | 15 – 30 cu. ft. | Freezer |
| | 31 – 50 cu. ft. | Freezer |
| | > 50 cu. ft. | Freezer |

### FE-1 to 4 – ENERGY STAR® Commercial Solid Door Refrigerators

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

### FE-5 to 8 – ENERGY STAR® Commercial Solid Door Freezers

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

## ENERGY STAR® Steam Cookers and Hot Holding Cabinets

| Equipment Type | | Unit |
|---|---|---|
| Steam Cookers | 3 Pan | Cooker |
| | 4 Pan | Cooker |
| | 5 Pan | Cooker |
| | 6 Pan | Cooker |
| Hot Holding Cabinets | Half Size | Cabinet |
| | Three Quarter Size | Cabinet |
| | Full Size | Cabinet |

### FE-9 to 12 – ENERGY STAR® Steam Cookers (Electric)

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

### FE-13 to 15 – ENERGY STAR® Hot Holding Cabinets

Incentives are available for replacement units that are ENERGY STAR® listed and consume < 40 watts per cubic foot. Half size units are <10 cubic feet, three quarter size units are 10-15 cubic feet and full size units are >15 cubic feet. Cook-and-hold equipment is not eligible. Used or rebuilt equipment is not eligible. Incentive is per cabinet.

## Controls

| Equipment Type | Unit |
|---|---|
| Beverage Vending Machine Controllers | Controller |
| Anti-Sweat Heater Controls | Door |
| Floating Head Pressure Controls | Ton |

### FE-16 – 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. Incentive is per controller.

### FE-17 – Anti-Sweat Heater Controls

Incentives are available for anti-sweat heater controls. Eligible control devices that sense the relative humidity in the air outside of the display case and reduces or turns off the glass door (if applicable) and frame anti-sweat heaters at low-humidity conditions. Technologies that can turn off anti-sweat heaters based on sensing condensation on the inner glass pane are also eligible. Incentive is per total number of doors controlled.

### FE-18 – Floating Head Pressure Controls

Incentives are available for installing automatic controls to lower condensing pressure at lower ambient temperatures in multiplex refrigeration systems. Controls installed must vary head pressure to adjust condensing temperatures in relation to outdoor air temperature. The controls must replace existing constant pressure or manually controlled systems to achieve lowered head pressure in order to maintain a minimum saturated condensing temperature of 70°F, or a 20°F variance below design head pressure during mild weather conditions. Incentive is per ton of refrigeration.

## ENERGY STAR® Ice Machines

| Equipment Type | Unit |
|---|---|
| < 500 lbs. | Machine |
| 500 to 1,000 lbs. | Machine |
| > 1,000 lbs. | Machine |

### FE-19 to 21 – Energy Efficient Ice Machines

Incentives are available for ice machines that generate crushed, fragmented or cubed ice of 60 grams (2 oz.) or lighter. Only air-cooled machines (self-contained, ice-making heads or remote condensing) are eligible. Flake and nugget machines are not eligible. The machine must have a minimum capacity of 101 lbs of ice per 24-hour period. The minimum efficiency required is per ENERGY STAR®. Incentive is per ice machine.

# Food Service Electric & Refrigeration Specifications (continued)



## Refrigeration

| Equipment Type | Unit |
|---|---|
| Efficient Refrigeration Condenser | Ton |
| ECM Motor for Reach-in Refrigerated Display Case | Motor |
| ECM Motor for Walk-in Cooler and Freezer | Motor |
| Evaporator Fan Motor Control for Walk-in Coolers and Freezers | Controller |
| Walk-in Cooler/Freezer Evaporator Fan Motor Reduction (Reservation Required) | Fan |
| Night Covers (Vertical) | Linear Foot x Hrs/Day |
| Strip Curtains on Walk-in Cooler and Freezer Doors | Square Foot |
| Door Gaskets on Walk-in Coolers and Freezers | Linear Foot |
| Automatic Door Closers for Refrigerated Walk-in Coolers/Freezers Doors (Reservation Required) | Door |
| Reach-in Refrigerated Display Case Door Retrofit | Linear Foot |

### FE-22 – Efficient Refrigeration Condenser

Incentives are available for the design and installation of oversized condensers for multiplex refrigeration systems. A design reducing the approach (difference in exiting refrigerant and ambient dry bulb temperature) lowers the head pressure and conserves compressor horsepower (see Table 3). Incentive is per ton of refrigeration.

**Table 3: Oversized Condenser Approach Requirements**

| Condenser Category | Typical Design Approach | 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 |

### FE-23 – ECM Motor for Reach-in Refrigerated Display Case

Incentives are available for retrofitting existing refrigerated display cases with an ECM (electronically commutated motor) replacing an existing standard efficiency Shaded Pole (S-P) or Permanent Split Capacitor (PSC) evaporator fan motor. Incentive is per motor.

### FE-24 – ECM Motor for Walk-in Freezer and Cooler

Incentives are available for an ECM (electronically commutated motor) replacing shaded pole motors or PSC (permanent split capacitor) motor on existing walk-in freezer and walk-in cooler evaporator fans. Qualifying motors should be 1/3 hp or less. Incentive is per motor.

### FE-25 to 26 – Evaporator Fan Motor Control for Walk-in Cooler or Freezer

Incentives are available for controllers that lower fan air-flow and reduce motor power consumption by at least 75% during compressor off cycles. Each controller must control at least two evaporator fan motors with motor sizes of 1/20 hp or larger. Motor types must be ECM or PSC motors. Incentive is per controller.

### FE-27 – Walk-in Cooler/Freezer Evaporator Fan Motor Reduction (Reservation Required)

Incentives are available for replacing existing evaporator fan/motor assemblies for walk-in coolers (medium-temperature) and freezers (low temperature). The installation must include evaporator or fan housing upgrades with similar cooling capacity in conjunction with the motor reduction. Blanking off existing fan ports or just reducing the motor HP of existing fans does not qualify. The existing evaporator fan motor must be at least 1/20 HP and less than 1/5 HP. The new evaporator fan/motor assemblies cannot increase the individual assembly's motor size. Incentive not applicable if the existing evaporator fan motor does not run at full speed all the time. Incentive is per fan motors removed.

### FE-28 – Vertical Night Covers

Incentives are available for vertical night covers installed on open refrigerated display cases. Incentive is per linear foot of cover per hours that the store is closed per day. Incentive does not include horizontal covers.

### FE-29 to 30 – Strip Curtains on Walk-in Cooler and Freezer Doors

Incentives are available for installing new strip curtains on doorways to walk-in coolers and freezers. Replacement of existing strip curtains is not eligible. Display cases are not eligible. Incentive is per square foot of doorway.

### FE-31 – Door Gaskets on Coolers and Freezers

Incentives are available for replacing existing leaky gaskets on doorways to coolers and freezers. An incentive is available every four years and for doors ≥ 5 feet in height. Site survey detailing total number of doors, location and number of leaky gaskets must be provided at Reservation Application. Stand alone ice and specialty coolers and freezers do not qualify. Incentive is per linear foot.

### FE-32 – Automatic Door Closers for Refrigerated Walk-in Coolers/Freezers Doors (Reservation Required)

An incentive is available for installing an auto-closer to the main insulated opaque door(s) of a walk-in cooler or freezer. The auto-closer must firmly close the door when the door is within 1 inch of full closure. This measure has an eight -year life and is eligible for incentives every eight years. Incentive is per door.

### FE-33 to 34 – Reach-in Refrigerated Display Case Door Retrofit

Incentives are available for installing new vertical glass doors on existing open, vertical (or multi-deck), low temperature (LT) or medium temperature (MT) display cases, or for replacing existing, open, vertical (or multi-deck) display cases with new reach-in glass door display cases. The air temperature inside the cases must range from 0°-32°F (LT), or 33°- 50°F (MT). The case length must be equal to, or shorter than, the original case. The incentive is per horizontal linear foot.

# Food Service Electric & Refrigeration Specifications (continued)

## Food Service Lighting

| Equipment Type | | Unit |
|---|---|---|
| LED Refrigerated Case Door Lighting | | Door |
| Occupancy Sensors for LED Refrigerated Case Lighting | | Door |
| Refrigeration Savings due to Lighting Savings | -20°F to 0°F | Lighting watt reduced |
| | 0°F to 20°F | Lighting watt reduced |
| | 20°F to 40°F | Lighting watt reduced |

### LL-32 – LED Refrigerated Case Door Lighting

For incentive description, please see Food Service Lighting on page 12 in Lighting Specifications.

### LL-33 – Occupancy Sensors for LED Refrigerated Case Lighting

For incentive description, please see Food Service Lighting on page 12 in Lighting Specifications.

### FE-35 to 37 – Refrigeration Savings Due to Lighting Wattage Reduction (Reservation Required)

Incentives are available for the reduction in refrigeration load as a result of a reduction in lighting wattage. This incentive is only available in conjunction with an eligible lighting retrofit. The refrigerated space must be maintained between -20°F and 40°F at all times. Incentive is per lighting watt reduced. (Note: See Page 11 for other conditions.)

## Miscellaneous

| Equipment Type | Unit |
|---|---|
| Pre-Rinse Sprayer (Electric Water Heat) | Sprayer |

### FE-38 – Pre-Rinse Sprayers (Electric Water Heat)

Incentives are available for low-flow, high-efficiency pre-rinse sprayers using less than or equal to 1.6 gallons per minute (gpm). Water heating must be with an electrical appliance. Incentive is per sprayer.

# Prescriptive Gas Measures and Specifications

# HVAC - Gas Specifications

**All Final Applications MUST include manufacturers' equipment specification sheets.**

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.

## Boilers and Furnaces

| Equipment Type | Unit |
|---|---|
| Boiler Modulating Burner Control Retrofit | Unit |
| Boiler Water Reset Control Retrofit | Input MBH |
| High Efficiency Furnace 95% Efficient | Unit |
| High Efficiency Furnace 92% Efficient | Unit |
| High Efficiency Boiler (Space Heating) | Input MBH |
| Leaking Steam Trap Repair or Replacement | Trap |
| Steam Trap Monitoring System - Space Heating | Trap |
| Boiler Oxygen Trim Controls | MBH |

### HG-1 - 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.

### HG-2 - Boiler Water Reset Control

Incentives are available for temperature reset controls added to existing boilers operating with a constant supply temperature. A replacement boiler with boiler reset controls is not eligible. 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 available only for equipment used in space heating conditions. Incentive is per input MBH.

### HG-3 to 4 - High Efficiency Gas Furnace/ Unit Heater

Incentives are available for replacement furnaces and unit heaters that have an AFUE of 92% or greater and have a sealed combustion unit. Air handlers are not eligible. Equipment purchased for backup or redundancy is not eligible. Incentive is only available for equipment used in space heating conditions. Incentive is per furnace and is based upon unit efficiency and input MBH.

### HG-5 - High Efficiency Space Heating Boiler

Incentives are available for replacement boilers used for space heating. Boilers purchased 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. Qualifying efficiencies are shown in Table 4. Incentive is per input MBH.

**Table 4: Minimum efficiency requirements for High Efficiency Space Heating Boilers**

| Input Rating (MBH) | Minimum Efficiency |
|---|---|
| < 300 | 88% AFUE |
| ≥ 300 | 88% Thermal Efficiency |

### HG-6 - 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 trap. 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 Survey/Repair Technician
- Survey/Repair Date
- System nominal steam pressure
- Annual hours of operation
- Number of steam traps serviced
- Per steam trap:
  - ID tag number, location and type of trap
  - If repair or replaced:
- Orifice Size
- Pre-and Post Conditions (e.g., Functioning/Not Functioning, Leaking/Not Leaking)

### HG-41 Steam Trap Monitoring System - Space Heating

Incentives are available for the installation of steam trap monitoring systems. Pre-existing automatic steam trap monitoring systems are not eligible. Provide supporting documentation and must provide characteristics for the steam system, including number of steam traps, boiler efficiency, steam trap orifice size(s), operating pressure. Monitoring systems must provide real time data to identify leaking and failed steam traps. Incentive is per trap.

### HG-32 - Boiler $O_2$ Trim Controls

Incentives are available for adding boiler oxygen trim controls to existing boilers without linkageless boiler controls. Both space heating and process boilers are eligible for this incentive. Redundant and backup boilers do not qualify for this incentive. This incentive cannot be combined with incentives for linkageless boilers controls. Incentive is per input MBH.

# HVAC – Gas Specifications (continued)

## Boilers and Furnaces (continued)

| Equipment Type | Unit |
|---|---|
| Linkageless Boiler Controls | MBH |
| Boiler Linkageless Controls and $O_2$ Trim Controls | MBH |
| Boiler Stack Economizer | MBH |

### HG-33 – Linkageless Boiler Controls

Incentives are available for adding linkageless boiler controls to existing boilers without boiler oxygen trim controls. Both space heating and process boilers are eligible for this incentive. Redundant and backup boilers do not qualify for this incentive. This incentive cannot be combined with incentives for boiler oxygen trim controls. Incentive is per input MBH.

### HG-34 – Boiler Linkageless Controls and $O_2$ Trim Controls

Incentives are available for adding both boiler oxygen trim controls and linkageless boiler controls to existing boilers. Both space heating and process boilers are eligible for this incentive. Redundant and backup boilers do not qualify for this incentive. Incentive is per input MBH.

### HG-38 to 40 – Boiler Stack Economizer

Incentives are available for adding stack economizers that recover flue gas waste heat from existing boilers. Boilers must be used for space heating. Economizer must reduce net stack temperature (flue gas exit temperature minus the inlet combustion air temperature) at least 80°F and must offset a heating load. Both water and steam boilers are eligible. This incentive can be combined with incentives for new boilers. Economizers on redundant or back-up boilers are not eligible. Incentive is based on minimum net stack temperature reduction and is per boiler input capacity (MBH).

## Other HVAC

| Equipment Type | Unit |
|---|---|
| Infrared Heaters | MBH |
| Variable Frequency Drive on Secondary Chilled Water Pump | Pump HP |
| Destratification Fans (Reservation Application Required) | 1,000 Sq. Ft. |
| Direct Fired Make-Up Air Units | MBH |

### HG-7 – Infrared Heaters

Incentives are available for infrared heaters with electronic ignition replacing unit heaters. Applicable heaters must have a greater than 80% thermal efficiency. Low-intensity heaters must use non-conditioned, outside air for combustion. Incentive is available for heaters used for building space heating. Incentive is per input MBH.

### HG-8 – Variable Frequency Drives – Secondary Chilled Water Pumps

Incentives are available for installing variable frequency drives (VFD) 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 VFDs on new equipment are not eligible for this incentive. 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.

### HG-9 – Destratification Fans (Reservation Required)

Incentives are available for adding destratification fans to spaces that are heated and that have a floor area ≥5,000 square feet and a ceiling height ≥20 feet. Destratification fans must reduce the vertical air temperature gradient between thermostat height (5 feet above finished floor) and ceiling by ≥10°F. Incentive is per 1,000 square foot of floor area. Floor plan must be submitted verifying square footage.

### HG-10 – Direct Fired Make-Up Air Units

Incentives are available for replacing standard efficiency, forced-air, space heating equipment (less than 84% efficient, i.e., indirect fired natural gas unit heater, steam air handling unit, 80/20 makeup air handling unit, etc.) with a direct-fired HVAC system. Applications where there is an increase in outside air mechanically provided to or removed from the space do not qualify for this incentive. The customer must provide the Annual Fuel Utilization Efficiency (AFUE) and capacity of the new direct fired unit(s). This can be combined with ventilation reduction. Incentive is per output MBH.

### HG-11 – Outside Air Ventilation Reduction (Reservation Required)

Incentives are available for permanently reducing the outside air ventilation rate to a space with gas heat, during the heating season. Complete outside airflow rate measurements, in CFM, must be clearly documented and provided for both the existing and reduced ventilation system to verify the CFM reduced. The new outside air volume flow rate should comply with all local and/or state codes. Incentive is per outside air CFM reduced.

# HVAC - Gas Specifications (continued)

## Other HVAC (continued)

| Equipment Type | | Unit |
|---|---|---|
| Sensible Energy Recovery Ventilation | | CFM |
| Total Energy Recovery Ventilation | | CFM |
| Automatic High Speed Doors – Exterior Doors | | Sq. Ft. |
| Condenser Heat Recovery DWH | Water-Cooled - HVAC Cooling | Ton |
| | Air-Cooled - HVAC Cooling | Ton |

### HG-35 - Sensible Energy Recovery Ventilation

Incentives are available for sensible heat energy recovery ventilators (ERV) (i.e. flat plate heat exchangers). Both whole unit replacements with integrated ERV and retrofits to existing HVAC units are eligible. Sensible heat ERV should have a recovery effectiveness of 55%. The space being served by the ERV must be heated with natural gas. This incentive can be combined with incentives for high efficiency HVAC units when performing a whole unit replacement with qualifying efficiency. Incentive is per CFM (supply volume flow rate) being introduced into the space.

### HG-36 - Total Energy Recovery Ventilation

Incentives are available for total heat energy recovery ventilators (ERV) (i.e. enthalpy wheels). Both whole unit replacements with integrated ERV and retrofits to existing HVAC units are eligible. Total heat ERV should have a recovery effectiveness of 70%. The space being served by the ERV must be heated with natural gas. This incentive can be combined with incentives for high efficiency HVAC units when performing a whole unit replacement with qualifying efficiency. Incentive is per CFM (supply volume flow rate) being introduced into the space.

### HG-37 - Automatic High Speed Doors - Exterior Doors

Incentives are available for installing automatic high speed doors that replace standard roll-up doors between a conditioned space and an unconditioned space. Conditioned space must be heated with natural gas. Incentive is per sq. ft. of the door.

## HVAC Controls

| Equipment Type | Unit |
|---|---|
| Programmable Thermostat (Gas Heat) | Thermostat |
| Chilled Water Reset with Pump on/off Control | 1,000 Sq. Ft. |
| Setback/Setup Controls (Gas Heat) | 1,000 Sq. Ft. |

### HG-12 - Programmable Thermostat (Gas Heat)

Incentives are available for new programmable thermostats that replace any non-programmable thermostat to automatically adjust the temperature at pre-selected times. Thermostats must be capable of maintaining two separate programs for weekdays and weekends and at least four temperature settings for each program. Incentive is per thermostat.

### HG-13 - Chilled Water Reset with Pump on/off Control

Incentives are available for energy management system (EMS) upgrades that include combining chilled water reset controls with hydronic hot water, chilled water and condenser water pump on/off controls to turn the pumps off when heating and/or cooling are not needed. Pre-existing system must operate 8,760 hours per year (24 hours/day) with a constant chilled water set point and a constant pump flow rate. Upgrades must include hardware for new controls. Incentive is per 1,000 square feet of the conditioned floor area affected by the EMS upgrade. Fractional values are allowed for areas that are not multiples of 1,000 square feet. Floor plan must be submitted verifying square footage. Note: Incentive cannot be combined with incentives for chilled water reset or setback-setup controls.

### HG-14 - Setback - Setup Controls (Gas Heat)

Incentives are available for customers who install setback controls utilizing an EMS system. Previous controls must have no setback capability. Setback – Setup must be at least 8 degrees and for at least 56 hours a week. Replacement of programmable thermostats with the EMS is not eligible. Setback using programmable thermostats are not eligible for this incentive. Projects implementing demand controlled ventilation may be eligible for other incentives in addition to the Setback incentive. Cannot be combined with the Chilled Water Reset with Pump on/off Control Incentive and Web-based Building Automation System Incentive. Incentive is per 1,000 square feet. Fractional values are allowed for areas that are not multiples of 1,000 square feet. Floor plan must be submitted verifying square footage.

# HVAC – Gas Specifications (continued)

## HVAC Controls (continued)

| Equipment Type | | Unit |
|---|---|---|
| Demand Controlled Ventilation $CO_2$ Sensor-based | | 1,000 Sq. Ft. |
| HVAC Occupancy Sensor, Large Office Building | w/CV Chilled Water System | 1,000 Sq. Ft. |
| | w/VAV Chilled Water System | 1,000 Sq. Ft. |
| Hotel Guestroom Energy Management Control (Gas Heat) | | Room |
| Web-Based Building Automation System (Reservation Required) | | 1,000 Sq. Ft. |
| Optimized Snow Melt Controls | | Square Foot |

### HG-15 – Demand Controlled Ventilation

Incentives are available to retrofit existing buildings with ventilation controls that use carbon dioxide levels to measure occupancy and modify the percentage of outside air based on occupancy levels. Only buildings with space heating and cooling requirements are eligible. Conditioned spaces must be kept between 65°F and 75°F during occupied operating hours. Carbon dioxide sensors must be installed in conjunction with fully functioning motor operated outside air dampers. Dual temperature air-side economizers with zone-level $CO_2$ sensors for rooftop units are eligible. Return system $CO_2$ sensors also qualify. Cannot be combined with the HVAC Occupancy Sensor Incentive. Incentive is per 1,000 square feet of controlled floor area. Fractional values are allowed for areas that are not multiples of 1,000 square feet. Floor plan must be submitted verifying square footage.

### HG-16 to 17 – HVAC Occupancy Sensor for Large Office Buildings

Incentives are available for installing HVAC occupancy sensor controls used to reset space temperatures and reduce ventilation air supplied to individual zones when they are unoccupied. To be eligible, the building must be office space 100,000 square feet or larger and must utilize a chilled water system for comfort cooling. This incentive is not available for spaces controlled by outside air demand control ventilation systems. Cannot be combined with the Demand Control Ventilation Incentive. The incentive is paid per 1,000 square feet of conditioned space. Fractional values are allowed for areas that are not multiples of 1,000 square feet. Floor plan must be submitted verifying square footage.

### HG-18 – Guestroom Energy Management Control (Gas Heat)

Incentives are available for new sensors that control HVAC units for individual hotel rooms. Sensors must be controlled by automatic occupancy detectors. Sensors controlled by a front desk system are not eligible. Replacement or upgrades of existing occupancy-based controls are not eligible as a prescriptive incentive. The incentive is per guest room controlled. For multi-room suites, the incentive is available per room controlled when a sensor is installed in each room.

### HG-19 – Web-Based Building Automation System (Reservation Required)

Incentives are available for installing a web-based building automation system in existing buildings that currently have no digital automated HVAC controls or have outdated pneumatic control systems with inoperable time control functions. Existing HVAC control systems must not have time-of-day scheduling. Upgrading obsolete EMS HVAC system with inoperable time clock functions will be reviewed on a case-by-case basis for incentive eligibility. Must include the controls strategy and a scaled floor-plan with controlled areas highlighted. Incentive is per 1,000 square feet of conditioned floor space. This incentive cannot be combined with incentives for programmable thermostats or setback-setup controls.

HVAC BAS systems must be new and include:

- Central time clock control
- Web-based interface with PC-based controls and graphic
- Building performance Tracking
- Open-protocol architecture controls system shall consist of either LonTalk (ANSI/CEA 709.1) or BACNet (ASHRAE/ANSI 135) protocol being used between all controlled and controlling devices and every node on the network
- Minimum setback period must exceed 2,200 hours per year
- A minimum setback space temperature of at least 10°F when heating and 5°F when cooling.
- Ability to adjust schedules and settings remotely over the internet
- Report generation describing energy and operating trends


# Hot Water & Laundry Specifications

## Hot Water

| Equipment Type | | | Unit |
|---|---|---|---|
| High Efficiency Indirect Domestic Hot Water Heating System 90% Efficient | | | Input MBH |
| Mid Efficiency Indirect Domestic Hot Water Heating System 84% Efficient | | | Input MBH |
| Gas Tankless Water Heater | | | Heater |
| High Efficiency Pool Heater (gas heat) | | | Input MBH |
| Low-Flow Sink Aerator | | | Aerator |
| Low-Flow Showerhead | | | Showerhead |
| Laminar Flow Restrictions | | | Restrictor |
| Condenser Heat Recovery DWH | HVAC Cooling | Water-Cooled | Ton |
| | | Air-Cooled | Ton |
| | Process Cooling | Water-Cooled | Ton |
| | | Air-Cooled | Ton |

### WG-1 to 2 – Domestic Hot Water System

Incentives are available for domestic hot water systems containing a new boiler and a separate storage tank. The boiler must have a thermal efficiency (AFUE) of 84% or better for a mid-efficiency system and 90% or better for a high-efficiency system. Boiler must be 75 MBH or larger to qualify. Boilers used for space heating do not qualify for this incentive. Incentive is based per input MBH.

### WG-3 – Gas Tankless Water Heater

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

### WG-4 – High Efficiency Pool Heater

Incentives are available for replacement indoor pool heaters. Replacement heaters must have a thermal efficiency ≥ 84% and must be rated between 500 MBH and 2,000 MBH. The pool heater may not be used as a back-up for solar water-heating. Incentive is per input MBH.

### WG-5 – Low-Flow Sink Aerator

Incentives are available for low-flow sink aerators which must not exceed a 1.0 gallons per minute (gpm) flow rate and are installed on a system with a gas water heater. Incentive is per aerator.

### WG-6 – Low-Flow Showerhead

Incentives are available for low-flow showerheads that must not exceed a 2 gpm flow rate and are installed on a system with a gas water heater. Incentive is per showerhead.

### WG-14 Laminar Flow Restrictors

Incentives are available for laminar flow restrictors with a flow rate of less than or equal to 2 gallons per minute (GPM). Existing faucet must not have an aerator. The existing GPM must be greater than the laminar flow restrictor. Incentive if per restrictor.

### WG-15 to 18 Condenser Heat Recovery

Incentives are available for the installation of heat recovery technology on air-cooled or water-cooled condensers on process or HVAC equipment that supplement heat for domestic hot water. New construction applications with chiller plants that operate under 400 tons qualify. This incentive may be combined with high efficient air conditioning measures. Incentives are per ton of refrigeration.

## Gas Storage Water Heater (≤55 Gallons)

| Equipment Type | Unit |
|---|---|
| ≤ 75,000 Btu/hr, Mid-Efficiency (≥0.67 EF) | Heater |
| ≤ 75,000 Btu/hr, High-Efficiency (≥0.80 EF) | Heater |

### WG-7 to 8 – Gas Storage Water Heater

Incentives are available for natural gas mid- and high-efficiency storage tank water heaters that replace existing natural gas storage water heaters. Water heaters must be less than or equal to 55 gallons in size and less than or equal to 75,000 Btu/hr in capacity. Mid-efficiency heaters must have an energy factor (EF) ≥0.67 and high-efficiency heaters must have an EF ≥0.80. Incentive is per heater.

## Gas Storage Water Heater (>55 Gallons)

| Equipment Type | Unit |
|---|---|
| ≤ 75,000 Btu/hr, High-Efficiency (≥0.80 EF) | Heater |
| > 75,000 Btu/hr, High-Efficiency (≥0.94 Thermal Efficiency) | Heater |

### WG-9 to 10 – Gas Storage Water Heater

Incentives are available for natural gas high-efficiency storage water heaters that replace existing natural gas storage water heaters. Water heaters must be greater than 55 gallons in size. For capacities ≤75,000 Btu/hr, the heater must have an EF ≥0.80. For capacities >75,000 Btu/hr, the heater must have a thermal efficiency ≥0.94. Incentive is per heater.

## Laundry

| Equipment Type | Unit |
|---|---|
| High Efficiency Clothes Washer (Gas Water Heat, Electric Dryer) | Washer |
| High Efficiency Clothes Washer (Gas Water Heat, Gas Dryer) | Washer |
| Ozone Laundry | lb. Wash Capacity |

### WG-11 to 12 – High Efficiency Clothes Washer (Gas Water Heater)

Incentives are available for high efficiency clothes washers that use a gas water heater with electric or gas dryers. Qualified clothes washers must meet ENERGY STAR requirements and have a Modified Energy Factor (MEF) ≥ 2.2. Incentive is per washer.

### WG-13 – Ozone Laundry System

Incentives are available for ozone injection systems added to existing or new commercial washers using hot water from a natural gas boiler or water heater. System must be installed on-site. This incentive is available only to fitness and recreational sports centers and to hotels or motels with fewer than 250 guest rooms. Not available for commercial laundry. Incentive is per pound wash capacity.

# Insulation Specifications

## Pipe Wrap

| Equipment Type | Unit |
|---|---|
| Pipe Wrap – Steam Boiler | Linear Foot |
| Pipe Wrap - Steam Boiler Condensate Return (Reservation Required) | Linear Foot |
| Pipe Wrap – Hot Water Boiler | Linear Foot |
| Domestic Hot Water Pipe Wrap (> 120°F) | Linear Foot |

### IG-1 – Pipe Wrap – Steam Boiler

Incentives are available for insulation applied to existing bare steam boiler piping used for space heating. Insulation must have an applied thickness of 1 inch and a minimum 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.

### IG-2 – Pipe Wrap - Steam Boiler Condensate Return (Reservation Required)

Incentives are available for adding insulation to existing steam heating piping systems that are not insulated. Only condensate return piping used as heating piping qualifies; condensate piping extending to a drain does not qualify. A minimum of R-4 (approximately 1 inch thickness) of pre-formed pipe insulation must be added. New or recently repaired piping does not qualify for this incentive. The bare pipe size must be between ½ inch to 2½ inch nominal pipe diameter. Piping with 3-inch nominal pipe diameter and larger may qualify as a Custom Measure. A minimum of 10 linear feet of pipe must be insulated. Incentives for HVAC and domestic boiler systems are limited to 500 linear feet per boiler. Documentation must include the manufacturer's name, insulation material type and the material K-value or R-value rating. Incentive is per linear foot.

### IG-3 – Pipe Wrap – Hot Water Boiler

Incentives are available for insulation applied to existing bare hot water boiler piping used for space heating. Insulation must have an applied thickness of 1 inch and a minimum 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.

### IG-4 – Domestic Hot Water Pipe Wrap

Incentives are available for insulation applied to existing bare pipe for domestic hot water systems. Insulation must have an applied thickness of 1 inch for a minimum thermal resistance of R-4. Pipe must be between ½ inch and 2½ inches nominal diameter. Piping associated with new boiler systems is not eligible. Repair or replacement of existing insulation does not qualify. Hot water must be a minimum of 120°F. Incentive is limited to a maximum of 500 linear feet per boiler.

## Greenhouse

| Equipment Type | Unit |
|---|---|
| Greenhouse Heat Curtain | Square Foot |
| Greenhouse Infrared Film | Square Foot |

### IG-5 – Greenhouse Heat Curtain

Incentives are available for heat curtains that are required to be installed for heat retention in an existing gas-heated commercial growing greenhouse for agricultural use only. Must be designed for and installed as a heat curtain. Curtain should meet or exceed a natural gas savings rating of 40% or better. The incentive applies to either a new curtain where a curtain was not previously in place or to replace an existing curtain that is no longer functional and is at least 5 years old. Incentive is per square foot of roof area. Curtains roof area plan must be submitted verifying square footage.

### IG-6 – Greenhouse Infrared Film

Incentives are available for greenhouse film which must be infrared (IR), anti-condensate, polyethylene plastic with a minimum thickness of 6 mils. Incentive is for use in an existing gas heated greenhouse. The IR poly must be put in place of regular poly or as a replacement for IR poly that has been in place at least 5 years. Coating applied onsite to existing film does not qualify. Incentive is per square foot of roof area. Documentation must be submitted verifying square footage.

# Insulation Specifications (continued)

## Loading Dock Seals

| Equipment Type | Unit |
|---|---|
| Truck Loading Dock Seals (New Installation, Reservation Application Required) | Door |
| Truck Loading Dock Seals (Replacement) | Door |
| Truck Loading Dock Leveler Ramp Air Pit Seals (New Installation) | Ramp |

### IG-7 to 8 – Truck Loading Dock Seals (Reservation Required)

Incentives are available for seals added to loading dock doors without seals or with existing degraded seals. Seals must effectively close all gaps between the building and semi-trailer. Dock door seals must cover the "hinge gap" that occurs with outwardly swinging trailer doors. Building interior space must be heated with natural gas. Incentive is per dock door.

### IG-9 – Truck Loading Dock Leveler Ramp Air Pit Seals

Incentives are available for leveler ramp air pit seals added to existing loading dock systems without seals. Seals may be attached to either the building or the ramp. Ramp seals must maintain an effective seal both when ramp is in use or out of use. Brush or whisker-type seals not used in conjunction with air seals do not qualify for incentives. Incentive is per ramp.

## Miscellaneous

| Equipment Type | Unit |
|---|---|
| Flat Roof Insulation | 1,000 Sq. Ft. |
| Attic Roof Insulation | 1,000 Sq. Ft. |
| Wall Insulation | 1,000 Sq. Ft. |
| Pool Covers | Sq. Ft. |

### IG-10 to 11 – Roof Insulation (Flat Roofs and Attic Roofs)

Incentives are available for adding insulation to existing buildings heated with natural gas. Insulation must be installed between conditioned and unconditioned spaces. Insulation installed above dropped commercial ceilings is not eligible. Pre-retrofit insulation levels must be less than R-11 for all eligible roofs. Final assembly insulation levels on flat roofs must exceed R-24. Final assembly insulation levels on attic roofs must exceed R-42. Application will require a scaled plan of the total roof area being insulated, a roof construction statement with R-value of the pre-retrofit roof and specifications of the proposed roof insulation. Incentive is per 1,000 square feet of roof area.

### IG-12 – Wall Insulation (Reservation Required)

Incentives are available for adding insulation to existing walls in a space that is heated with natural gas. The pre-retrofit walls must not be insulated. The final insulation levels should exceed R-13. Incentive is per 1,000 square feet of wall space.

### IG-13 – 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.

# Process Gas Specifications

## Process Gas

| Equipment Type | | Unit |
|---|---|---|
| Furnace Tube Inserts | | Insert |
| High Efficiency Process Boiler (Water) | | Input MBH |
| High Efficiency Process Boiler (Steam) | | Input MBH |
| Tank Insulation 1" | Low Temp (120°F-170°F) | Square Foot |
| | High Temp (>170°F) | Square Foot |
| Tank Insulation 2" | Low Temp (120°F-170°F) | Square Foot |
| | High Temp (>170°F) | Square Foot |
| Air Compressor Exhaust Heat Recovery (Reservation Application Required) | | HP |
| Process Boiler Stack Economizer | | Input MBH |
| Modulated Boiler Control for Process | | Input MBH |
| Regenerative/ Recuperative Thermal Oxidizer | | CFM |

### PG-14 – Furnace Tube Inserts

Incentives are available for spiral ceramic inserts installed in the exhaust leg of heat treating furnace burner tubes. The inserts must be new and replace existing burner tubes. Incentive is per tube insert.

### PG-15 to 16 – High Efficiency Process Boiler (Water or Steam)

Incentives are available for replacement boilers used in manufacturing processes. Boiler must have an operating thermal efficiency of at least 82% as installed. A flue gas analysis under full load conditions must be performed and the report must be submitted with the Final Application. Incentive is per input MBH.

### PG-17 to 20 – Tank Insulation

Incentives are available for adding insulation to existing hot-fluid storage or process tanks that are not insulated. Replacement insulation is not eligible. Tank must be uninsulated, bare or painted steel, and in use 8,760 hours/year. Insulation must have a thermal resistance of at least R-3.2 per inch. Incentive is per square foot of insulation.

### PG-21 – Air Compressor Exhaust Heat Recovery

Incentives are available for the recovery of waste heat generated by an air compressor system. Waste heat can be utilized for space heating, domestic water heating or other process heating. The horsepower of back-up or redundant equipment cannot be included in this measure. The waste heat recovery system must be controlled by a thermostat, building energy management system or a manual damper to duct the waste heat into a conditioned space (or process) when required. Incentives are per compressed air HP.

### PG-22 to 24 – Process Boiler Stack Economizer

Incentives are available for adding stack economizers that recover flue gas waste heat from existing boilers. Boilers must be used for industrial, manufacturing, agricultural, university or hospital purposes. Economizer must reduce net stack temperature (flue gas exit temperature minus the inlet combustion air temperature) at least 80°F and must use the recovered heat to preheat either combustion air or boiler feed water. Both water and steam boilers are eligible. This incentive can be combined with incentives for new process boilers. Economizers on redundant or back-up boilers are not eligible. Incentive is based on minimum net stack temperature reduction and is per boiler input capacity (MBH).

### PG-25 – Modulated Boiler Control for Process

Incentives are available for retrofitting existing non-modulating boilers with modulating burner controls. The control must have a minimum turn-down ratio of 5:1. University and hospital boilers that operate year-round also qualify. The manufacturer name and equipment model number of the boiler must be provided. Incentive is per MBH.

### PG-26 to 29 – Regenerative/ Recuperative Thermal Oxidizer

Incentives are available for upgrading existing thermal oxidizers/ incinerators to include recuperative or regenerative heat recovery by either retrofit or replacement. Incentives are also available for installing a new regenerative thermal oxidizer where no oxidizer previously existed. Exhaust gas outlet temperature with heat recovery (post-upgrade) must be at least 1,200°F lower than exhaust outlet temperature without heat recovery (pre-upgrade). Incentive is based on annual operating hours and is per CFM of the VOC-laden waste gas stream.

## Process Gas Specifications (continued)

### Process Gas

| Equipment Type | | Unit |
|---|---|---|
| Optimized Snow and Ice Melt Controls - with idle mode | | Square Feet |
| Steam Trap Monitoring System Industrial Pressure | | Trap |
| Condenser Heat Recovery DWH | Water-Cooled - Process Cooling | Ton |
| | Air-Cooled - Process Cooling | Ton |

#### PG-30 – Optimized Snow and Ice Melt Controls with idle mode

Incentives are available for installing optimized snow/ice melt controls on existing or new boiler systems used for melting snow. The new controls must be programmed to setback the slab temperature to at most 35°F during idle time and allow the slab temperature to reset to at least 40°F once moisture sensors in the slab sense precipitation. Incentive is per square foot controlled.

#### PG-31 to 37 – Steam Trap Monitoring System – Process Heat

Incentives are available for the installation of steam trap monitoring systems. Pre-existing automatic steam trap monitoring systems are not eligible. Provide supporting documentation and must provide characteristics for the steam system, including number of steam traps, boiler efficiency, steam trap orifice size(s), operating pressure. Monitoring systems must provide real time data to identify leaking and failed steam traps. Incentive is per trap.

# Boiler/Furnace Tune-up Specifications

## Boiler/Furnace Tune-Up

| Equipment Service | Size | Unit |
|---|---|---|
| Space Heating Boiler Tune-Up | 110 – 500 Input MBH | Boiler |
| | 501 – 1,200 Input MBH | Boiler |
| | >1,200 Input MBH | Boiler |
| Process Boiler Tune-Up | < 3,000 Input MBH | Boiler |
| | >3,000 – <6,000 Input MBH | Boiler |
| | ≥6,000 – <10,000 Input MBH | Boiler |
| | ≥10,000 Input MBH | Boiler |
| Domestic Hot Water Boiler Tune-Up | ≥ 199 Input MBH | Boiler |
| Furnace/RTU Tune-Up | 40 – 300 InputBH | Furnace/RTU |
| | 301 – 500 Input MBH | Furnace/RTU |
| | >500 Input MBH | Furnace/RTU |
| Process Furnace/Burner Tune-Ups | ≤ 3,000 MBH | MBH |
| | ≥ 3,000 – < 6,000 MBH | MBH |
| | ≥ 6,000 – < 10,000 MBH | MBH |
| | >10,000 MBH | MBH |

### HG-21 to 23 – Boiler Tune-up (Space Heating Boilers Only)

Incentives are available for tune-ups to natural gas-fired, space heating boilers. The incentive is available once every two years. Boiler size must be 110 MBH or greater input. The service provider must perform a combustion analysis after the tune-up is complete and attach the printout to the Final Application. Incentive is per boiler. The tune-up checklist must be filled out per boiler. Other forms that include all the required information are acceptable.

### HG-24 to 27 – Boiler Tune-up (Process Boilers Only)

Incentives are available for tune-ups to natural gas-fired, process boilers. Boilers used primarily for domestic hot water, space heating or pool/spa use are not eligible. The incentive is available once every two years. The service provider must perform a combustion analysis after the tune-up is complete and attach the printout to the Final Application. Incentive is per boiler. The tune-up checklist must be filled out per boiler. Other forms that include all the required information are acceptable.

### HG-28 – Domestic Hot Water Boiler Tune-Up

Incentives are available for tune-ups to natural gas-fired boilers for domestic hot water. Boilers used primarily for pool/spa use, space heating or process load are not eligible. Burners must be adjusted to improve combustion efficiency as needed. The incentive is available once every two years. Boiler size must be 199 MBH or greater input. The service provider must perform a combustion analysis after the tune-up is complete and attach the printout to the Final Application. Incentive is per boiler. The tune-up checklist must be filled out per boiler. Other forms that include all the required information are acceptable.

### HG-29 to 31 – Forced Air Gas Furnace or Rooftop Unit (RTU) Tune-up (Space Heating Units Only)

Incentives are available for a combustion burner tune-up for indirect fired units with an input of 40 MBH or greater. This includes furnaces, rooftop units, unit heaters and air handling units that are indirect fired. Contractor must complete a tune-up checklist for each unit serviced. A single unit with multiple burners or modules is considered one unit. A rooftop unit is considered one unit. The incentive is available once every two years. Other forms that include all the required information are acceptable.

### HG-42 to 45 Process Furnace/Burner Tune-Ups

Incentives are available for tune-ups to natural gas process burners. A burner tune-up includes reducing excess air and stack temperature, cleaning burners, burner nozzles, combustion chamber and sealing the combustion chamber. Manufacturer name and equipment model number must be provided. The incentive is available once every two years. The service provider must perform a post combustion analysis and record the results on the boiler tune-up incentive application checklist. Redundant or backup burners do not qualify. Incentive is per burner.

# Food Service Gas Specifications

**All Final Applications MUST include manufacturers' equipment specification sheets**

## Steam Cookers

| Equipment Type | Unit |
|---|---|
| ENERGY STAR® Steam Cookers (5 Pan) | Cooker |
| ENERGY STAR® Steam Cookers (6 Pan) | Cooker |

### FG-1 to 2 – ENERGY STAR® Steam Cookers (Gas)

Incentives are available for replacement gas steamers that are ENERGY STAR® listed. Five and six pan units must have working efficiency of 38%. Used or rebuilt equipment is not eligible. Incentive is per cooker.

## Ovens

| Equipment Type | Unit |
|---|---|
| ENERGY STAR® Convection Ovens | Oven |
| Combination Ovens | Oven |
| Rack Oven Single | Oven |
| Rack Oven Double | Oven |
| Infrared Charbroiler | Input MBH |
| Infrared Rotisserie Oven | Input MBH |
| Infrared Salamander Broiler | Input MBH |
| Infrared Upright Broiler | Input MBH |

### FG-3 – ENERGY STAR® Convection Ovens

Incentives are available for replacement gas units that are ENERGY STAR® listed. Ovens must have a heavy load Cooking Energy Efficiency of at least 44%. Used or rebuilt equipment is not eligible. Incentive is per oven.

### FG-4 – 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.

### FG-5 to 6 – 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.

### FG-19 Infrared Charbroiler

Incentive are available for new energy efficient charbroilers with infrared burners. Charbroilers must operate at least 3 hours per day. Used or rebuilt equipment is not eligible. Incentive is per Input MBH.

### FG-20 Infrared Rotisserie Oven

Incentives are available for new energy efficient infrared rotisserie ovens with ceramic infrared burners. Infrared rotisserie ovens installed must operate at least 3 hours per day. Used or rebuilt equipment is not eligible. Incentive is per input MBH.

### FG-21 Infrared Salamander Broiler

Incentives are available to replace an existing natural gas salamander broiler without infrared burners with a natural gas salamander broiler using ceramic infrared burners. Infrared salamander broilers should operate more than 3 hours per day. Installations with lower operating time are ineligible. Used or rebuilt equipment is not eligible. Incentive is per input MBH.

### FG-22 Infrared Upright Broiler

Incentives are available to replace an existing natural gas upright broiler without infrared burners with a natural gas upright broiler using ceramic infrared burners. Infrared upright broilers should operate more than 3 hours per day. Installations with lower operating times are ineligible. Used or rebuilt equipment is not eligible. Incentive is per input MBH.

## Fryers/Griddles

| Equipment Type | Unit |
|---|---|
| ENERGY STAR® Fryers | Fryer |
| Large Vat Fryer | Fryer |
| ENERGY STAR® Griddles | Griddle |

### FG-7 – ENERGY STAR® Fryers

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

### FG-8 – 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.

### FG-9 – ENERGY STAR® Griddles

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

## Food Service Gas Specifications (continued)

### Miscellaneous

| Equipment Type | | Unit |
|---|---|---|
| Pre-Rinse Sprayers (Gas Water Heat) | | Sprayer |
| Night Covers (Vertical) | | Linear Ft. x Hrs/Day |
| Refrigeration Condenser Waste Hear Recovery | Domestic Water Heater | Nominal Cooling Ton |
| | Space Heating | Nominal Cooling Ton |
| Reach-in Refrigerated Display Case Door Retrofit | | Linear Foot |
| ENERGY STAR® Dishwasher | Commercial | Washer |
| | Under Counter | Washer |
| Pasta Cooker | | Input MBH |

#### FG-10 – Pre-Rinse Sprayers (Gas Water Heater)

Incentives are available for low-flow, high-efficiency pre-rinse sprayers using less than or equal to 1.6 gallons per minute (gpm). Water heating must be with a natural gas appliance. Incentive is per sprayer.

#### FG-11 – Vertical Night Covers

Incentives are available for night covers installed on open refrigerated display cases. Incentive is per linear foot of refrigerated case per hours per day that the store is closed. Incentive does not include horizontal covers.

#### FG-12 – Refrigeration Condenser Waste Heat Recovery (Domestic Water Heater)

Incentives are available for installing new heat recovery equipment to harvest heat from the refrigeration system. At least 30% of the refrigeration system waste heat must be utilized for domestic water heating. Incentive is per nominal cooling ton of the refrigeration system.

#### FG-13 – Refrigeration Condenser Waste Heat Recovery (Space Heating)

Incentives are available for installing new heat recovery equipment to harvest heat from the refrigeration system. Heat that is rejected by condenser is reclaimed by ducting rejected heat from the condenser into the HVAC system. The condenser used to reject refrigeration system heat must be located where the heat rejected is not used for building heat or other purposes (>95% wasted). At least 30% of the refrigeration system waste heat must be utilized for space heating. Incentive is per nominal cooling ton of the refrigeration system.

#### FG-14 to 15 – Reach-in Refrigerated Display Case Door Retrofit

Incentives are available for installing new vertical glass doors on existing open, vertical (or multi-deck), low temperature (LT) or medium temperature (MT) display cases, or for replacing existing, open, vertical (or multi-deck) display cases with new reach-in glass door display cases. The air temperature inside the cases must range from 0°-32°F (LT), or 33°- 50°F (MT). The case length must be equal to, or shorter than, the original case. The incentive is per horizontal linear foot.

#### FG-17 – ENERGY STAR® Dishwasher – Commercial

Incentives are available for high efficiency dishwashers that replace non-high efficiency dishwashers that use a gas water heater. Dishwasher types include: stationary single tank door, single tank conveyor and multiple tank conveyor. Dishwashers can have either electric, gas or no booster. Qualified dishwashers must meet ENERGY STAR requirements. Incentive is per washer.

#### FG-18 – ENERGY STAR® Dishwasher – Under Counter

Incentives are available for high efficiency dishwashers that replace non-high efficiency dishwashers that use a gas water heater. Dishwashers must be an under counter style. Dishwashers can have either electric, gas or no booster. Qualified dishwashers must meet ENERGY STAR requirements. Incentive is per washer.

#### FG-23 Pasta Cooker

Incentives are available for new energy-efficient pasta cookers with gas fueled burners. Pasta cookers must operate at least 3 hours per day. Used or rebuilt equipment is not eligible. Incentive is per input MBH.

### Controls

| Equipment Type | Unit |
|---|---|
| Commercial Kitchen Ventilation Hood with Demand Control | CFM |

#### FG-16 – Commercial Kitchen Ventilation (CKV) Hood with Demand Control

Incentives are available to install commercial kitchen ventilation (CKV) hood control systems for fast food and full service restaurants. The control system must have both thermal and smoke (opacity) sensors. The ventilation controller must reduce the hood flow rate when the cooking equipment is being lightly used. Incentive is per hood full flow CFM.

# Custom Electric & Gas Specifications

## Custom Specifications

**If you have a lighting project:** Before you complete the Custom portion of your Application, use our "Prescriptive or Custom?" worksheet to determine whether your project qualifies for a custom Application or should be submitted as a Prescriptive measure. Also, contact us if you have questions about how to calculate your "Before" and "After" retrofit operating hours or savings (gas must be entered manually; the electronic version of the Application only calculates savings).

Only DLC-listed lighting is eligible for custom incentives. Non-listed lighting **may** be eligible under certain circumstances. See the **Non-DLC Product Approval Form** for details. Fluorescent and CFL lighting is **not** eligible.

### Reservation Applications must be submitted for all custom projects while the existing equipment is still in operation so that existing conditions (baseline) can be verified.

Custom projects must involve a facility improvement that results in a permanent reduction in electrical (kWh) and/or natural gas (Mcf) energy usage 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.

| Service | Unit |
|---|---|
| Electric | kWh |
| Natural Gas | Mcf |

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 measures. Prescriptive measures, or portions thereof, are only eligible for prescriptive incentives. 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). 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 incented 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 either:

1. For end-of-life equipment replacement measures: the cost differential between equipment meeting Program efficiency criteria and equipment meeting the minimum efficiency allowable by code or industry standard. External labor costs may also be included.
2. For retrofit, early replacement or new technology measures: the cost of new equipment or components added to existing equipment for the purpose of improving energy efficiency. External labor costs may also be included.

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 intensity discharge (HID) light fixtures to DLC LED fixtures, the MC is the purchase price of the VFD or light fixtures including any external contracted labor for the installation.

### All Final Applications MUST include manufacturers' equipment specification sheets

Custom electric projects must have a simple payback period equal to or greater than one (1) year and less than or equal to eight (8) years to be eligible for an incentive. Custom natural gas projects must have a simple payback period equal to or greater than one (1) year to be eligible for an incentive. Project payback is equal to the ratio of the project MC divided by the annual energy savings.

#### Projects that are NOT eligible for an energy efficiency 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 load-shifting/demand-limiting (and not kWh savings)
- Renewables
- Power quality improvements

#### Requirements for Custom Project Electricity and/or Natural Gas Savings Calculation:

With the exception of lighting and compressed air projects, each custom project must have a Custom Incentive Calculation Plan (CICP) that is agreed to by DTE Energy, the customer and, if applicable, the customer's contractor or other representative. In lieu of a CICP, custom lighting projects require detailed descriptions of pre- and post-upgrade luminaires and quantities on the Custom Worksheet pages of the application and custom compressed air projects require a completed Compressed Air Data Summary.

The annual electricity and/or gas savings for custom projects must be calculated using industry accepted engineering algorithms or simulation models. Acceptable methods of determining custom project energy savings include detailed calculations, equipment or subsystem metering and/or calibrated building energy modeling. The applicant must detail all assumptions used in the calculations and justify or cite a precedent for the assumptions. The applicant must estimate the annual electricity and/or gas usage of both the existing (baseline) and proposed equipment. If the existing equipment is at the end of its useful life, the applicant must substitute the baseline with new equipment that would meet all applicable federal and local energy codes when calculating the annual energy savings.

DTE Energy will review the Application and is solely responsible for the final Determination of the annual energy savings methodology to be used in calculating the incentive amount. DTE Energy may need to conduct inspections both before and after the retrofit project to verify equipment and operating conditions. DTE Energy also reserves the right to require specific measurement and verification activities, including monitoring, both before and after the retrofit, and to base the incentive payment on the results of these activities.

# Agriculture Specifications

# Agriculture Specifications

## HVAC – Electric

### Fans

| Description | Unit |
|---|---|
| Circulation, Exhaust, Ventilation Fans | Fan |
| High-Volume, Low-Speed Fans | Fan |
| Fan Thermostat Control | HP |

#### AG-13 to 15 – Circulation, Exhaust or Ventilation Fans

Incentives are available for the replacement of existing circulation, exhaust and/or ventilation fans. The replacement fans must be new and must meet the specifications listed in Table 5 below. Incentive is per fan.

**Table 5: Minimum Efficiency for Circulation, Exhaust, Ventilation Fans**

| Diameter | Minimum Efficiency | Minimum Efficiency |
|---|---|---|
| 24"-35" | 14.0 CFM @ 0.10" WG SP | 12.5 lb/kW |
| 36"-47" | 17.1 CFM @ 0.10" WG SP | 18.25 lb/kW |
| 48"-71" | 20.3 CFM @ 0.10" WG SP | 23 lb/kW |

#### AG-16 to 20 – High-Volume Low-Speed Fans

Incentives are available for the installation of high-volume low-speed fans that replace high-speed box fans that traditionally are used in the ventilation of livestock facilities. To qualify, the minimum fan diameter must be at least 16 feet. Incentive is per fan.

#### AG-21 – Fan Thermostat Controller (Reservation required)

Incentives are available for the installation of a new fan thermostat controller for existing circulation, ventilation or exhaust fans that operate continuously from May through October. The replacement of existing thermostat fan controller does not qualify. The new controller must have thermostat functions that disable the fans when the outside air temperature drops below a predetermined set-point temperature, typically 70°F. Incentive is per HP of controlled fans.

## Miscellaneous Electric

### Irrigation Equipment

| Description | Unit |
|---|---|
| Low-Energy Livestock Waterer | Unit |

#### AG-11 – Low Energy Livestock Waterer

Incentives are available for the replacement of an existing open waterer with sinking or floating water heater with new low-energy equipment. The new waterer must have a minimum of 2-inches of insulation and must be electrically heated and thermally insulated. The new waterer must serve same herd size as waterer being replaced. A thermostat is required on units with heating elements that are >250 watts. Incentive is per unit.

# Agriculture Specifications (continued)

## Process Electric

### Irrigation Equipment

| Description | Unit |
|---|---|
| VFD on Irrigation Systems Operating ≥ 500 hrs/year. | HP |
| Sprinkler to Drip Irrigation | Acre |
| Low-Pressure Sprinkler Nozzle | Nozzle |

#### AG-1 – Variable Frequency Drives on Irrigation Systems (Reservation required)

Incentives are available for the installation of variable frequency drives on existing agricultural irrigation systems. Redundant or back-up pumps do not qualify. The new pumps must operate a minimum of 500 hours per year to qualify. Qualifying existing irrigations systems must either include: a) several center pivots served by one well, or b) have a corner arm center pivot where the water flow rate increases when the corner arms swing out towards the corners of the fields. Other proposed VFD irrigation systems applications will be reviewed on a case-by-case basis. This incentive cannot be combined with the Sprinkler Drip Irrigation incentive or Low Pressure Sprinkler nozzles incentive. Incentive is per HP.

#### AG-2 – Sprinkler to Drip Irrigation Systems (Reservation required)

Incentives are available for the conversion of an existing high-pressure, impact-type sprinkler irrigation system (50-psi or greater at the sprinkler head) to a low-pressure sprinkler micro-system (35-psi or less at the sprinkler head). The existing sprinklers must be removed. Drip tape systems are not applicable. The incentive application must include an assessor's parcel map or other documentation to verify acreage. Incentive is per acre served by the system.

#### AG-3 – Low Pressure Sprinkler Nozzles (Reservation required)

Incentives are available for the conversion of an existing one-to-one high-pressure (50 psi or greater at the sprinkler head) sprinkler system nozzle to a low-pressure sprinkler nozzle (35-psi or less at the sprinkler head). Both permanent (solid set) and portable (hand-move) sprinkler system nozzles are eligible for incentives. Incentive is per nozzle.

### Dairy Equipment

| Description | | Unit |
|---|---|---|
| Scroll Compressor for Dairy Refrigeration | | lb milk/day |
| Variable Frequency Controller for Vacuum Pump | | HP |
| Variable Frequency Drive on Milk Pump | w/existing pre-cooler | lb milk/day |
| | w/new pre-cooler | lb milk/day |
| Milk Pre-cooler (heat exchanger, chiller savings) | | lb milk/day |

#### AG-4 – Scroll Compressor for Dairy Refrigeration

Incentives are available for the replacement of reciprocating compressors only with scroll compressors. The offer is based on one milk pump system per farm; if multiple milk systems exist, the incentive will be based on a ratio of milk processed through each system. Redundant air compressor systems do not qualify. Incentive is per lb milk/day.

#### AG-5 – Variable Frequency Controller for Vacuum Pump (Reservation required)

Incentives are available for the installation of variable frequency controllers for vacuum pumps that result in a reduction in horsepower. Existing pump must be blower-type pump. Incentive is per HP reduced.

#### AG-6 to 7 – VFD on Milk Pump w/new or existing pre-cooler (Reservation required)

Incentives are available for the installation of variable frequency drives on milk pumps either with a new or existing pre-cooler. The installation of a VFD must accompany a plate-type pre-cooler; the pre-cooler may be installed at the same time as the VFD milk pump. To qualify, the minimum daily milk production must be ≥5,000 lbs/day. The incentive cannot be combined with any other VFD incentive. The offer is based on one milk pump system per farm; if multiple milk systems exist, the incentive will be based on a ratio of milk processed through each system. Redundant pumps or systems do not qualify. Incentive is per lb milk/day.

#### AG-8 – Milk Pre-cooler (heat exchanger, chiller savings)

Incentives are available for adding a pre-cooler heat exchanger ahead of the milk storage tank. This measure applies only to new heat exchangers. Replacement of existing heat exchangers do not qualify. This incentive can be combined with incentives for VFD on Milk Pump with new pre-cooler. Incentive is per lb milk/day.

## Process Electric (continued)

### Grain Dryers

| Description | Unit |
|---|---|
| Grain Storage Temp/Moisture Management Controller | HP |

#### AG-9 – Grain Storage Temp/Moisture Controller (Reservation required)

Installation of grain storage temperature / moisture management controller is eligible for this incentive. The existing non-controlled fan aeration system must operate a minimum of 1,000 hours per year. The proposed system must consist of hanging multiple temperature and/or moisture sensors within the grain storage bin. Outdoor air temperature and relative humidity must also be monitored. Data sensors must be digital; analog sensors do not qualify. The grain data must be sent to a controller to evaluate the internal bin conditions, as well as, outside air temperature and outside air relative humidity, to control the aeration fans. Replacement of existing grain storage management controllers do not qualify. Bi-weekly bin inspection is still recommended. Aeration fan equipped with VFD's do not qualify for this incentive. Incentive is per HP of the controlled system.

### VFDs for Fans and Pumps

| Description | | Unit |
|---|---|---|
| VFD on fans | operating 750-2,000 hours/year | HP |
| | operating more than 2,000 hours/year | HP |
| VFD on pumps | operating 750-2,000 hours/year | HP |
| | operating more than 2,000 hours/year | HP |

#### AG-22 to 25 – VFDs for Fans and Pumps (Reservation required)

Variable frequency drives (VFD's) installed on existing or new applications of agricultural fans and pumps are eligible for this incentive. Applicant is to provide a summary statement explaining:

a) what the motor is used for;
b) motor's annual run time;
c) how the motor is currently controlled; and
d) proposed motor VFD control method.

The installation of a VFD must accompany the permanent removal or disabling of any throttling devices such as inlet vanes, bypass dampers, bypass valves, or throttling valves. The VFD speed must be automatically controlled by humidity, temperature, differential pressure, flow, or other variable signal. VFD's installed on irrigations or HVAC systems do not qualify for this incentive, but may qualify for either a different Prescriptive measure or a Custom measure in the Existing Retrofit application. Motors greater than 50 HP do not qualify for this incentive, but may qualify for a Custom measure in the Existing Retrofit application. Redundant or back up units do not qualify. The replacement of existing VFD's does not qualify for this incentive. The motor must operate more than 750 hours/year. Incentive is per HP.

### Dairy Refrigeration Tune-Up

| Description | Unit |
|---|---|
| Dairy Refrigeration Tune-up | lb milk/day |

#### AG-10 – Dairy Refrigeration Tune-Up

Incentives are available for the tune-up of existing commercial-grade, on-farm dairy refrigeration equipment. A Dairy Refrigeration Tune-Up Checklist/Worksheet must be completed by the service provider for each unit (see Page 36 of the application for more information). This incentive is available only once per 24-month period with the intention of reducing electricity consumption. Incentive is per lb milk/day.

## Agriculture Specifications (continued)

# HVAC - Gas

## Grain Dryers

| Description | Unit |
|---|---|
| Grain Dryers | Bushel/year |

### AG-26 – High Efficiency Grain Dryers (Reservation required)

Existing grain dryer must be at least 20 years old and not utilize heat recovery. New dryer must be natural gas heated, permanently installed, and have a minimum grain dryer efficiency of 1,590 Btu/lb-water. Applications must include the manufacturer's name, model number, and a specification sheet for the proposed grain dryer's operating efficiency. Applications must include documentation identifying the proposed annual volume (bushels/year) of grain to be processed. Incentive is per number of bushels dried per year.

## Greenhouses

| Description | | Unit |
|---|---|---|
| Greenhouse Environmental Controls | | Square Foot |
| Greenhouse Under-Floor/ Under-Bench Hydronic Heating | without Thermal Curtain | Square Foot |
| | with Thermal Curtain | Square Foot |

### AG-27 – Greenhouse Environmental Controls (Reservation required)

Incentives are available for the installation of automated environmental controls system to an existing greenhouse space which does not have any automatic, scheduled temperature setback controls. The environmental control system must, at the very least, control greenhouse space temperature set points with an hourly control configuration. This measure does not apply to greenhouses that are manually set back. A minimum setback space temperature of at least 5 °F is required. Incentive is per square foot. A floor plan must be submitted verifying square footage.

### AG-28 to 29 – Greenhouse Under-Floor/Under-Bench Hydronic Heating

Incentives are available for installing under-floor (within concrete or direct contact) or under-bench hydronic heating loop for agricultural greenhouse applications. If the plant's root temperature is maintained at 67°F, the air temperature surrounding the plant may be allowed to decrease 10°F to 12°F down to approximately 55°F. The existing heating system must be a forced air heating system (i.e., unit heaters). The forced air heating system may be retained for secondary, supplemental heating or for backup; however, it may not be utilized as the primary heating means. Proposed boiler system must be high efficient with a minimum efficiency of 90%.The temperature sensor(s) serving the underfloor or under bench hydronic heating system must be located within the growing media.The incentive is based on the area served by the underfloor hydronic heating system. The under-bench's incentive is based on the area of the benches served by the hydronic heating system. Incentive is per square foot.

## Agriculture Specifications (continued)

## Insulation

### Greenhouses

| Description | Unit |
|---|---|
| Greenhouse Heat Curtains | Square Foot |
| Greenhouse Infrared Film | Square Foot |

#### IG-5 – Greenhouse Heat Curtains (Reservation required)

Incentives are available for heat curtains that are required to be installed for heat retention in an existing gas-heated commercial growing greenhouse for agricultural use. Must be designed for and installed as a heat curtain. Curtain should meet or exceed a natural gas savings rating of 40% or better. The incentive applies to either a new curtain where a curtain was not previously in place or to replace an existing curtain that is no longer functional and is at least 5 years old. Incentive is per 1,000 square feet of roof area. Fractional values are allowed for areas that are not multiples of 1,000 square feet. Floor plan must be submitted verifying square footage.

#### IG-6 – Greenhouse Infrared Film – new or replacement (Reservation required)

Incentives are available for greenhouse film which must be infrared, anti-condensate, polyethylene plastic with a minimum thickness of 6 mils. Incentive is for use in an existing gas heated greenhouse. The IR poly must be put in place of regular poly or as a replacement for IR poly that has been in place at least 5 years. Coating applied onsite to existing film does not qualify. Incentive is per 1,000 square feet of roof area. Fractional values are allowed for areas that are fractions of 1,000 square feet. Floor plan must be submitted verifying square footage.

## Farm Energy Audit

| Description | Unit |
|---|---|
| Farm Energy Audit. | Farm |

#### AG-12 – Farm Energy Audit (Reservation required)

Incentives are available for an audit of a facility that operates primarily as an agricultural business. Audit must be a tier II energy audit as defined by the US Department of Agriculture. Incentive is per farm.

# New Construction Specifications

# Appendix

## Systems Approach Measures

An alternative to the LEED Whole Building Approach (Page 51) is the Systems Approach, which is simpler, does not require LEED certification and encourages designers to optimize the energy efficiency of the individual systems within a building. This approach is most appropriate for less complex projects; those whose systems are designed at different times, and for projects in which consideration for energy efficiency occurs later in the design phase.

For common building types and system features, the Energy Efficiency Program for Business provides this straightforward approach to identify potential energy efficiency options and impacts. Available incentives through the Systems Approach are listed within the prescriptive measures section of the Catalog and Application and are identified by this icon: 🛠

### Lighting Power Density Energy Efficient Lighting Installation

Install energy efficient lighting with Lighting Power Density in watts per square foot less than values listed in ASHRAE 90.1-2007 corresponding to the building type (see table on lighting worksheet).

- To qualify, LPD must show a reduction by at least 10% below the baseline and will be capped at 50%.
- COMcheck lighting compliance document required. (Free online software available for download at: www.energycodes.gov/comcheck). Not required for buildings less than, or equal to, 5,000 square feet.
- All projects claiming light savings require:
  - Scaled lighting plans and/or site lighting plans.
  - Lighting fixture schedules
  - Specification sheets for all lamps, ballasts and fixtures.
  - Explanation for any discrepancies between the plans, schedules and specifications, as well as updates not reflected on the above document requirements.
- Incentive is per kilowatt reduced or saved.
- Area is gross lighted area of each space type.
- Installed lighting power includes all power used by the luminaries, including lamps, ballasts, current regulators and control devices.
- The following lighting equipment and applications are excluded from the calculation of **interior** lighting power:
  - Display or accent lighting that is an essential element for the function performed in galleries, museums and monuments.
  - Lighting that is integral to equipment or instrumentation and is installed by its manufacturer.
  - Lighting specifically designed for use only during medical or dental procedures and lighting integral to medical equipment.
  - Lighting integral to both open and glass-enclosed refrigerator and freezer cases.
  - Lighting integral to food warming and food preparation equipment.
  - Lighting for plant growth or maintenance.
  - Lighting in spaces specifically designed for use by occupants with special lighting needs including visual impairment and other medical and age-related issues.
  - Lighting in retail display windows, provided the display area is enclosed by ceiling-height partitions.
  - Lighting in interior spaces that have been specifically designated as a registered interior historic landmark.
  - Lighting that is an integral part of advertising or directional signage.
  - Exit signs.
  - Lighting that is for sale or lighting educational demonstration systems.
  - Lighting for theatrical purposes, including performance, stage and film and video production.
  - Lighting for television broadcasting in sporting activity areas.
  - Casino gaming areas.
  - Furniture-mounted supplemental task lighting that is controlled by automatic shutoff.
- The following lighting equipment and applications are excluded from the calculation of **exterior** lighting power:
  - Specialized signal, directional and marker lighting associated with transportation.
  - Advertising signage or directional signage.
  - Lighting integral to equipment or instrumentation and installed by its manufacturer.
  - Lighting for theatrical purposes, including performance, stage, film production and video production.
  - Lighting for athletic playing areas.
  - Temporary lighting.
  - Lighting for industrial production, material handling, transportation sites and associated storage areas.
  - Theme elements in theme/amusement parks.
  - Lighting used to highlight features of public monuments and registered historic landmark structures or buildings.



## LEED(Leadership in Energy and Environmental Design) Design Review Assistance

To encourage LEED design/certification of energy-efficient buildings, a $1,500 incentive for LEED Design Review Assistance is available, regardless of the customer's use of DTE Energy-provided fuel source(s) in the project.

A reservation application is required prior to receiving LEED Final Design Review Decisions in order to apply for this Design Review Assistance Incentive. The reservation application should be submitted after your project is registered with the Green Building Certification Institute (GBCI).

LEED Design Review Assistance incentives will be reserved for 90 days or until Nov. 30, 2017, whichever comes first.

Payment of the design review incentive will be made in one payment, upon the submission and approval of a final application, which must be accompanied by required documents. The final application should be submitted within 60 days of receiving the LEED Final Design Review Decisions or by Nov. 30, 2017, whichever comes first.

This Design Review Assistance corresponds directly to the LEED NC v2009 and LEED BD+C v4 rating systems.

The Whole Building Energy Simulation is tied directly to the Energy and Atmosphere Prerequisite 2 – Minimum Energy Performance Prerequisite (Option 1).

The DTE Energy Efficiency Program for Business strongly recommends sharing the LEED Online project in order to keep the entire program team updated on progress of the project. Please enter the program email address – saveenergy@dteenergy.com – in order to share with the program team.

## New Construction Specifications

### LEED(Leadership in Energy and Environmental Design) Whole Building Approach

The intent of this approach is to validate the savings associated with LEED certified buildings. Incentives are available for New Construction projects that receive LEED certification. The incentives will be paid upon receiving LEED Certification at the saving values validated by LEED. The LEED Whole Building Approach incentives directly correspond to the LEED NC v2009 and LEED BD+C v4 ratings systems.

The following incentives are paid to DTE Energy customers based on the energy savings reported in the energy model and verified by the Green Building Certification Institute (GBCI) (first year only). These LEED Certification Levels will be used to determine each incentive rate:

**Certified/Silver = $0.06/kWh and $3.00/Mcf**

**Gold = $0.08/kWh and $4.00/Mcf**

**Platinum = $0.10/kWh and $5.00/Mcf**

For all specifications and guidance on this incentive, please reference LEED – EA Prerequisites Minimum Energy Performance (usgbc.org).

### Energy Savings Analysis

Applicants must utilize one of the GBCI approved software tools to provide a Whole Building Simulation energy model. The proposed model must reflect the designed system, and be verified to match the mechanical, architectural, and electrical drawings and schedules. Ultimately, incentives will be paid upon receiving LEED Certification at the savings value that is validated by GBCI during the certification process.

**Electrical Energy Savings =**
**1 kWh per GBCI validation = 1 kWh savings**

**Natural Gas Fuel Savings =**
**1 Mcf per GBCI validation = 1 Mcf savings**

Projects are not allowed to take credit for savings above baseline for systems utilizing renewable energy.

### Supporting Documentation

In addition to required documentation as described in the Policies and Procedures Manual, please attach supporting documentation including, but not limited to, the following

- LEED Certification Project Review Report and LEED Reviewers Comments
- LEED – EA Prerequisites Minimum Energy Performance
- All supporting documentation submitted with the LEED template for this Energy and Atmosphere Prerequisite.

| Trane TRACE | Carrier HAP | DOE2, eQuest or Visual DOE | Energy Plus |
|---|---|---|---|
| LEED Summary Report | Building Simulation Report: LEED Summary Report | Building Energy Performance (BEPS) | Annual Building Utility Performance Summary (ABOPS) |
| Energy Cost Budget/ PRM Summary | Unmet Load Reports (for all plants and systems) | System Design Parameters (SV-A) | System Summary (showing the unmet load) |
| Energy Consumption Summary Reports | Systems Energy Budget by Energy Source | Details for Exterior Surfaces (LV-D) | |
| Performance Rating Method Details | Systems Input Data Reports | | |
| Equipment Energy Consumption | Wall Constructions | | |
| Entered Values Report (for all rooms and systems) | | | |

**For all projects, provide the above reports corresponding to the modeling software used on your project.**

# Appendix: ASHRAE 90.1.2007

## Electronically Operated Unitary Air Conditioners and Condensing Units – Minimum Efficiency Requirements

| Equipment Type | Size Category | Heating Section Type | Subcategory or Rating Condition | Minimum Efficiency* | Test Procedure** |
|---|---|---|---|---|---|
| Air conditioners, air cooled | <65,000 Btu/h† | All | Split system | 10.0 SEER (before 1/23/2006)<br>13.0 SEER (as of 1/23/2006) | ARI 210/240 |
| | | | Single package | 9.7 SEER (before 1/23/2006)<br>13.0 SEER (as of 1/23/2006) | |
| Through-the-wall, air cooled | ≤30,000 Btu/h† | All | Split system | 10.0 SEER (before 1/23/2006)<br>10.9 SEER(as of 1/23/2006)<br>12 SEER(as of 1/23/2010) | |
| | | | Single package | 9.7 SEER (before 1/23/2006)<br>10.6 SEER(as of 1/23/2006)<br>12.0 SEER(as of 1/23/2010) | |
| Air conditioners, air cooled | ≥65,000 Btu/h and <135,000 Btu/h | Electric resistance (or none) | Split system and single package | 10.3 EER (before 1/1/2010)<br>11.2 EER (as of 1/1/2010) | ARI 340/360 |
| | | All other | Split system and single package | 10.1 EER (before 1/1/2010)<br>11.0 EER (as of 1/1/2010) | |
| | ≥135,000 Btu/h and <240,000 Btu/h | Electric resistance (or none) | Split system and single package | 9.7 EER (before 1/1/2010)<br>11.0 EER (as of 1/1/2010) | |
| | | All other | Split system and single package | 9.5 EER (before 1/1/2010)<br>10.8 EER (as of 1/1/2010) | |
| | ≥240,000 Btu/h and <760,000 Btu/h | Electric resistance (or none) | Split system and single package | 9.5 EER (before 1/1/2010)<br>10.0 EER (as of 1/1/2010)<br>9.7 IPLV | |
| | | All other | Split system and single package | 9.3 EER (before 1/1/2010)<br>9.8 EER (as of 1/1/2010)<br>9.5 IPLV | |
| | ≥760,000 Btu/h | Electric resistance (or none) | Split system and single package | 9.2 EER (before 1/1/2010)<br>9.7 EER (as of 1/1/2010)<br>9.4 IPLV | |
| | | All other | Split system and single package | 9.0 EER (as of 1/1/2010)<br>9.5 EER (as of 1/1/2010)<br>9.2 IPLV | |
| Air conditioners, water and evaporatively cooled | <65,000 Btu/h | All | Split system and single package | 12.1 EER | ARI 210/240 |
| | ≥65,000 Btu/h and <135,000 Btu/h | Electric resistance (or none) | Split system and single package | 11.5 EER | ARI 340/360 |
| | | All other | Split system and single package | 11.3 EER | |
| | ≥135,000 Btu/h and <240,000 Btu/h | Electric resistance (or none) | Split system and single package | 11.0 EER | |
| | | All other | Split system and single package | 10.8 EER | |
| | ≥240,000 Btu/h | Electric resistance (or none) | Split system and single package | 11.0 EER<br>10.3 IPLV | |
| | | All other | Split system and single package | 10.8 EER<br>10.1 IPLV | |
| Condensing units, air cooled | ≥135,000 Btu/h | – | – | 10.1 EER<br>11.2 IPLV | ARI 365 |
| Condensing units, water or evaporatively cooled | ≥135,000 Btu/h | – | – | 13.1 EER<br>13.1 IPLV | |

* IPLVs and part-load rating conditions are only applicable to equipment with capacity modulation.

** Section 12 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

† Single-phase, air-cooled air conditioners <65,000 Btu/h are regulated by NAECA. SEER values are those set by NAECA.

# Sample Spec Sheet

| General Specifications | |
|---|---|
| Name | 4 Feet led tube light |
| Model Number | HC-T10A-4FT-ID |
| LED : | 96pcs LEDs SMD2835 |
| Power (W) | 18 Watts |
| Product Size | 1198mm*30mm LPW>50 |
| Luminous (LM) | 1800LM±10% |
| Color Temp.(k) | 3000K,4100K,5000K |
| Main Material | AL+PC Cover (Clear/Milky Cover) |
| Beam Angle | 120° |
| Warranty | 5 Years |

| Electrical Specifications | |
|---|---|
| Driver Type | Built-in |
| Input Voltage (V) | AC100v-277v |
| Frequency (Hz) | 50/60Hz |
| Power Factor | >0.95 |

| Application | |
|---|---|
| Application | Indoor |
| Environment (℃/RH) | -20℃~45℃ / 10%~90% |

| Certification | |
|---|---|
| Certification | UL,cUL,CE,RoHS,FCC,UL No.E363676,LM79,LM80,Lighting Facts |

| Packing | |
|---|---|
| Package (pcs) | 25pcs/ one carton |
| Package Size (mm) | 1220mm*22mm*23mm |
| Gross weight (kg) | 17KG |

## Features

Original led lighting manufacturer

UL 1598C classified,double insulated driver

Retro-fit kits available for direct replacement of T8/T10/T12 fluorescent fixture

Rotatable end cap and standard end cap available

PC cover:clear,semi-transparent,frosted

Suitable for damp locations

Suitable to usd in UL&cUL approved enclosed fistures

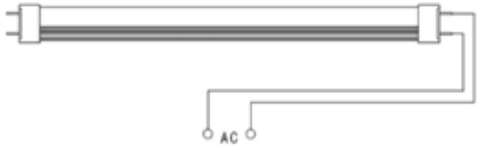
Used only with fluorescent luminaries

## Pictures

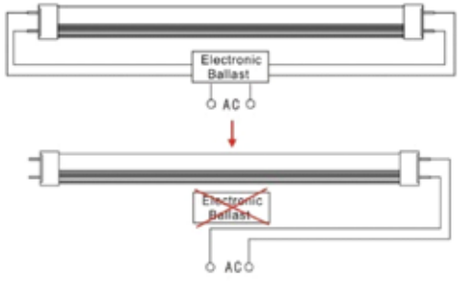
**Ref#LL-11**

## Installing Instructions:

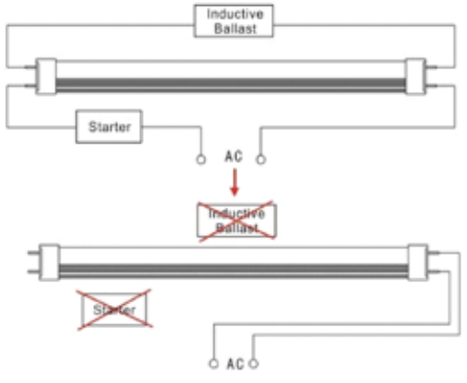
1.LED tube light AC power connecting methods



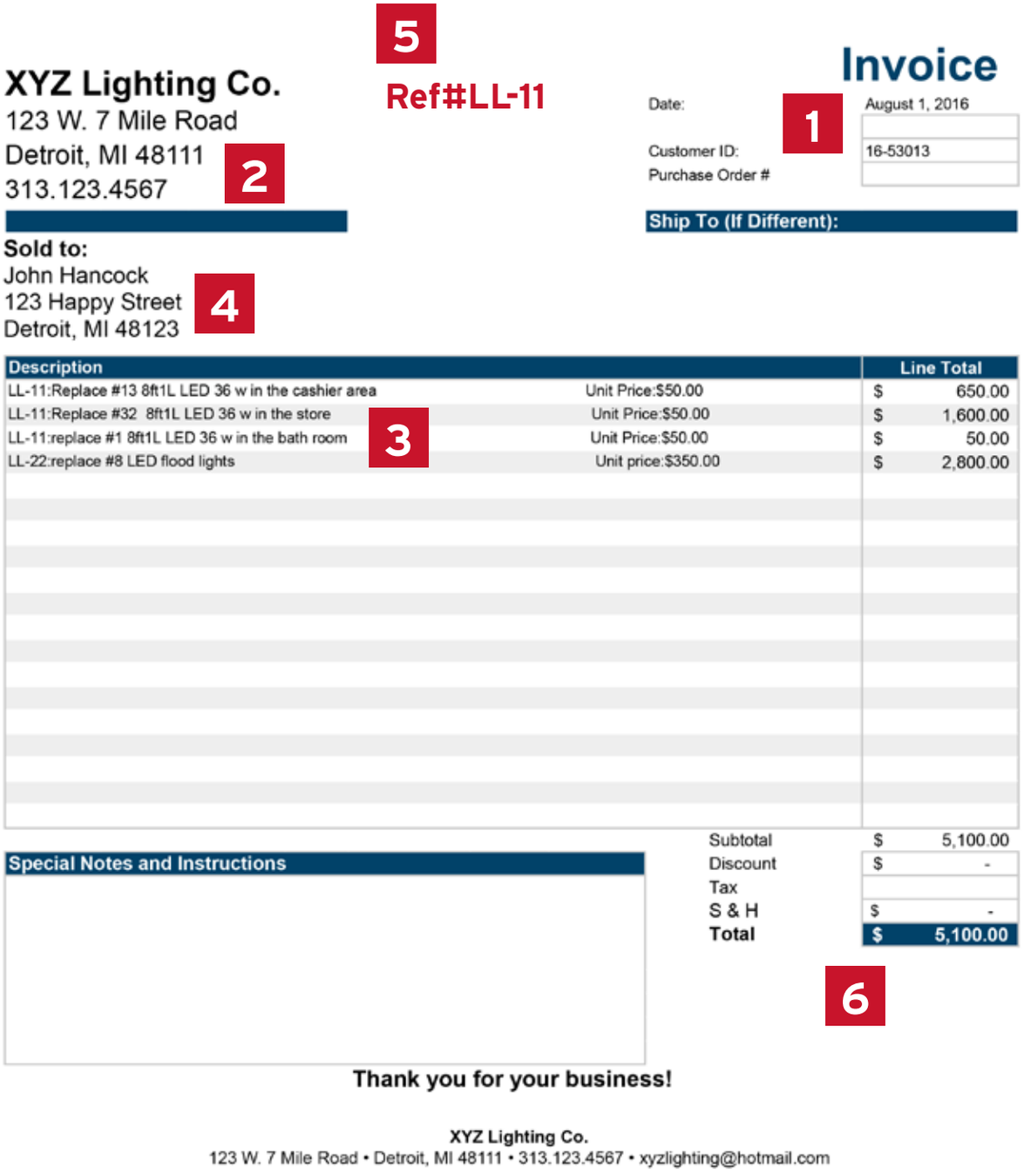

2.Ordinary fluorescent with electronic ballast conversion methods




3.Ordinary fluorescent with inductive ballast conversion methods



## Sample Lighting Invoice



**XYZ Lighting Co.**
123 W. 7 Mile Road
Detroit, MI 48111
313.123.4567

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Ref#LL-11

# Invoice

Date: August 1, 2016

1

Customer ID: 16-53013

Purchase Order #

**Ship To (If Different):**

**Sold to:**
John Hancock
123 Happy Street
Detroit, MI 48123

2

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| Description | | Line Total |
|---|---|---|
| LL-11:Replace #13 8ft1L LED 36 w in the cashier area | Unit Price:$50.00 | $ 650.00 |
| LL-11:Replace #32 8ft1L LED 36 w in the store | Unit Price:$50.00 | $ 1,600.00 |
| LL-11:replace #1 8ft1L LED 36 w in the bath room | Unit Price:$50.00 | $ 50.00 |
| LL-22:replace #8 LED flood lights | Unit price:$350.00 | $ 2,800.00 |

3

| | |
|---|---|
| Subtotal | $ 5,100.00 |
| Discount | $ - |
| Tax | |
| S & H | $ - |
| **Total** | **$ 5,100.00** |

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**Special Notes and Instructions**

**Thank you for your business!**

**XYZ Lighting Co.**
123 W. 7 Mile Road • Detroit, MI 48111 • 313.123.4567 • xyzlighting@hotmail.com

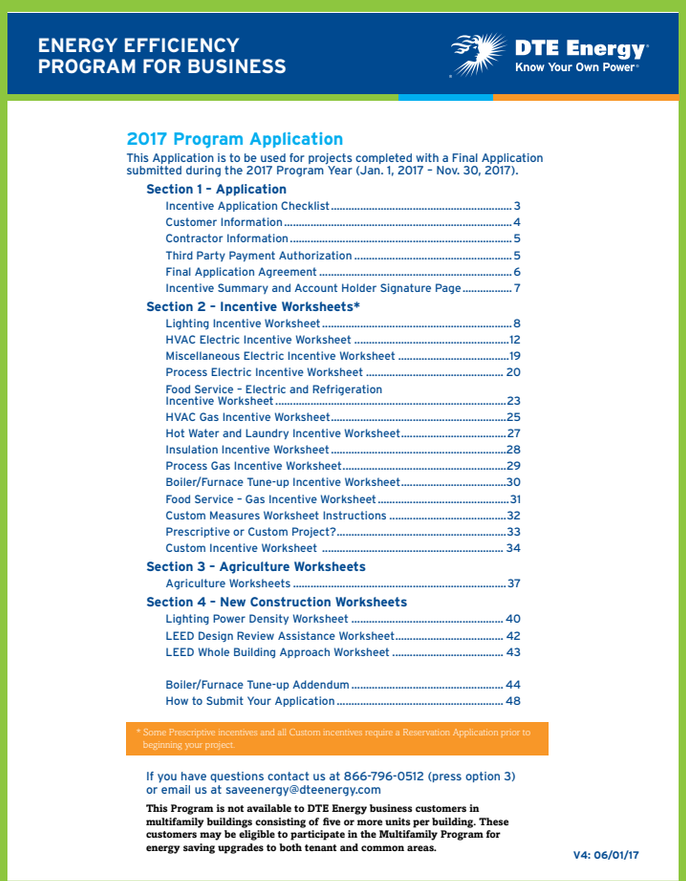
### DTE APPLICATION: REQUIRED INFORMATION

1. Invoice number and date
2. Vendor name and address
3. Itemized list of equipment: model number, manufacturer, unit price, labor per unit (external only), quantity
4. Customer name and address
5. Indicate the Application Reference Code that corresponds to the invoice item
6. Total amount due

The information is needed to all projects; any missing information will delay the processing of your Application.

**To download the latest version of our Program Application, visit:**

**dteenergy.com/savenow**



ENERGY EFFICIENCY
PROGRAM FOR BUSINESS

DTE Energy
Know Your Own Power®

## 2017 Program Application

This Application is to be used for projects completed with a Final Application submitted during the 2017 Program Year (Jan. 1, 2017 – Nov. 30, 2017).



* Some Prescriptive incentives and all Custom incentives require a Reservation Application prior to beginning your project.

If you have questions contact us at 866-796-0512 (press option 3) or email us at saveenergy@dteenergy.com

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

V4: 06/01/17

For assistance, call

**866.796.0512** (Press Option 3)

or visit our website:

dteenergy.com/savenow

DTE Energy®
Know Your Own Power®