Equipment Terms and Conditions
March 21, 2012

PUGET SOUND ENERGY

EnergySmart

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These terms and conditions are subject to change without notice. All measures require a pre-install inspection by a program representative. Please check with your Field Energy Analyst to confirm that your proposed installation meets terms and conditions or call 1.800.230.9420 to speak with a program representative. If you have a custom measure that yields equal or greater energy savings, you may request an engineering review to determine whether it qualifies for a rebate

Cases

Refrigeration Retrofits
"Low temperature" covers evaporator temperatures below 0°F.
"Medium temperature" covers evaporator temperatures between 1°F and 35°F.

1. Low or Medium Temperature Open Case to New Reach-in

Must replace an existing low or medium temperature open vertical display case with a new high efficiency reach-in case.

Existing Equipment Requirements	Replacement Equipment Requirements
T-8/10/12 lamps	T-8 lamps with electronic ballasts or LED lamps
No doors	Glass doors with Anti Sweat Heat Controls (ASH)
Shaded pole fan motors	EC fan motors

Exclusions:
Refurbished cases are not eligible for rebate; replacement case must be new and have zero in-service hours.
Additional separate rebates cannot be claimed for EC Motors, T-8 lamps or anti-sweat heat controls.
New case length must be equal to or shorter than original case.

Recommendations:
Customer should consider using compressor capacity modulation mechanisms (such as VFDs, cylinder un-loaders, evaporator pressure regulating valves and re-setting to higher suction pressures/temperatures).
LEDs in New Reach-in Refrigerated Cases are recommended in conjunction with this measure (see measure #7).

Units: Linear feet of case

2. Low Temperature Reach-in or Coffin to New High Efficiency Reach-in

Must replace an existing low temperature reach-in or coffin case with a new high efficiency reach-in case.

Existing Equipment Requirements	Replacement Equipment Requirements
T-8/10/12 lamps, (reach-in only)	T-8 lamps with electronic ballasts or LED lamps
Glass doors (reach-in only)	Low/no anti-sweat heat glass doors (see measure #4)
Shaded pole fan motors	EC fan motors

Exclusions:
No additional rebate available for Anti-Sweat Heater Control.
Reach-in cases replacing reach-in case must be equal to or shorter than original case.
Reach-in cases replacing coffin cases must be equal to or shorter than1/3 the original case length.
Refurbished cases are not eligible for rebate; replacement case must be new and have zero in-service hours.

Exceptions:
In lieu of low/no anti-sweat heat glass doors, triple pane doors with anti-sweat heater controls may be used.

Recommendation:
LEDs in New Reach-in Refrigerated Cases are recommended in conjunction with this measure (see measure #7).

Units: Linear feet of case

3. Medium Temperature Open Case to New High Efficiency Open Case

Must replace an existing Medium temperature open case with a new high efficiency open case.

Existing Equipment Requirements	Replacement Equipment Requirements
T-8/10/12 lamps, magnetic ballasts	T-8 lamps with electronic ballasts or LED lamps
	Evaporators must meet Saturated Evaporative Temperatures (SET) as follows: Produce, ≥ 2°F; Dairy / Deli, ≥ 6°F; Meat, ≥ 22°F
Shaded pole fan motors	EC fan motors

Exclusions:

Refurbished cases are not eligible for rebate; replacement case must be new and have zero in-service hours.

New case length must be equal to or shorter than original case.

Additional separate rebates cannot be claimed for EC Motors or T-8 lamps.

Recommendation:

LED Case Lighting in New Vertical and Semi-Vertical Open Refrigerated Cases are recommended in conjunction with this measure (see measure #10).

Units: Linear feet of case

4. Standard Doors to Low/No Anti-Sweat Heat Doors for Low Temperature Reach-in

Must replace an existing standard glass door of a low temperature reach-in display case with a low/no anti-sweat heat glass door.

Existing Equipment Requirements	Replacement Equipment Requirements
Glass door	Triple pane glass door
Anti-sweat heat >0.39 amps/linear feet of case at 120 volts	Anti-sweat heat in door rail, glass, and frame must be ≤0.39 amps/Linear feet of case at 120 volts.
	Doors must prevent condensation from occurring in the frame assemb

Exclusions:

An additional separate rebate cannot be claimed for Anti-sweat Heater Controls.

Units: Door

5. Add Doors to Medium Temp Walk-in Reach-in

Must add doors to open section of medium temp walk-in reach-in.

Existing Equipment Requirements	Replacement Equipment Requirements
Walk-in reach-in no doors	Doors installed on walk-in reach-in with no anti-sweat heaters (ASH)
T-8 lamps	T-8 lamps with electronic ballast or LED lamps
Shaded pole fan motors	Case evaporator coil and fans removed

Recommendation:

LEDs in Existing Reach-in Refrigerated Cases are recommended in conjunction with this measure to minimize post retrofit total lighting power.

Units: Linear feet of case

6. Add Doors to Open Medium Temp Cases

Must add glass doors to an existing open vertical medium temp display case.

Existing Equipment Requirements	Replacement Equipment Requirements
Open vertical medium temp display case	Doors installed on walk-in reach-in with no anti-sweat heaters (ASH)
T-8 lamps	T-8 lamps with electronic ballast or LED lamps
	Total lighting power in the case after the retrofit may not exceed total lighting power in the existing case

Exclusions: Cases with previously installed and/or rebated night covers qualify for the "Add doors to open Medium Temp Cases with nig covers" version of this measure detailed on the rebate worksheet.

Recommendation:

LEDs in Existing Reach-in Refrigerated Cases are recommended in conjunction with this measure to minimize post retrofit total lighting power.

Units: Linear feet of case

Case Lighting Retrofits

7. LEDs in Existing Reach-in Refrigerated Cases

Must install a LED lighting system in lieu of a fluorescent lighting system in an existing reach-in refrigerated display case. LED lighting system must be permanently installed luminaries.

Existing Equipment Requirements	Replacement Equipment Requirements
T8, T10 and T12 Fluorescent lamps operating with electronic or magnetic ballasts.	Installed LED lighting system must appear on either the Lighting Design Lab (LDL) LED Fixtures and Tubes List approved product list or the Design Lights Consortium Commercial Fixture list. Both lists are available at: http://www.lightingdesignlab.com/LEDlists.p Fluorescent magnetic ballasts cannot be used to power the LED system. LED lamps that install into fluorescent lamp sockets are n eligible for incentives. T10 lamps will be treated as T12 lamps for the purpose of calculating rebate values. Incentives and energy savings vary based on replaced lamp type (T12/T10 or T8) and LED fixture power (low or high). A low power fixture is defined as one that uses less than 4 W/ft; a high power high LED is defined as one using 4 to 7.5 W/ft. When determining low and high wattage qualifications, LDL and DLC wattage criteria are applied. The total number of feet of LEDs rebated shall not exceed the tot number of feet of fluorescent lamps replaced.

Recommendations:

These measures may be combined with motion sensor measures for additional energy savings and rebate. See measure #9.

Due to the rapid pace of LED technology, revisions of criteria will be implemented as LED performance and efficiency improves.

Units: Linear feet of LED

8. LEDs in New Reach-in Refrigerated Cases

Must install a LED lighting system in lieu of a fluorescent lighting system in a new reach-in refrigerated display case or doors.

Existing Equipment Requirements	Replacement Equipment Requirements
	Installed LED lighting system must appear on either the Lighting Design Lab (LDL) LED Fixtures and Tubes List approved product list or the Design Lights Consortium Commercial Fixture list. Both lists are available at: http://www.lightingdesignlab.com/LEDlists.php Fluorescent magnetic ballasts cannot be used to power the LED system. LED lamps that install into fluorescent lamp sockets are not eligible for incentives. Incentives and energy savings vary based on LED fixture power (low or high). A low power fixture is defined as one that uses less than 4 W/ft; a high power high LED is defined as one using 4 to 7.5 W/ft. When determining low and high wattage qualifications, LDL and DLC wattage criteria are applied.

Recommendations:
These measures may be combined with motion sensor measures for additional energy savings and incentives. See Measure #9.
Due to the rapid pace of LED technology, revisions of criteria will be implemented as LED performance and efficiency improves.

Units: Linear feet of LED

9. LED Motion Sensors for Reach-in Refrigerated Cases

Must install motion sensor that controls permanently installed LED lighting in refrigerated reach-in display cases.

Existing Equipment Requirements	Replacement Equipment Requirements
	Motion sensor must activate lighting control system that reduces lighti load to 20% or less of full load when unoccupied.
	Load reduction ability must be indicated on system specification sheet or confirmed by manufacturer.
	Load reduction programming must be indicated on manufacturer/installers invoicing.

Notes: Measure is applicable to LED lighting retrofits or existing LED case lighting without existing motion sensor installed.

Units: Linear feet of LED

10. LED Case Lighting in Existing Vertical and Semi-Vertical Open Refrigerated Cases

Must install a LED lighting system in lieu of a fluorescent lighting system in an existing vertical or semi-vertical open refrigerated display case.

Existing Equipment Requirements	Replacement Equipment Requirements
T8, T10 and T12 Fluorescent lamps operating with electronic or magnetic ballast.	Must install a LED lighting system in lieu of a fluorescent lighting system in an existing vertical or semi-vertical open refrigerated display case. Replaced fluorescent lamps and ballasts must be disposed of or recycled in accordance with current environmental laws after removal. LED lighting system must be a permanently installed luminaire. A luminaire that is modified and can no longer accept the original lamps must have a visible label affixed to the altered luminaire (provided by the retrofit manufacturer) indicating that the luminaire has been modified and can no longer operate originally intended lamp(s). Fluorescent ballasts cannot be used to power the LED system. Manufacturer's warranty must be a minimum of 3 years and must include fixtures, mounting hardware, power supply and light source (i.e. LED). LEDs must be rated to maintain ≥70% of initial lumen output at 50,000 hours of operation. All installed LED products must have a minimum IP54 rating or UL listed for wet or damp locations. LED products must have LM-79 testing from a DOE (Department of Energy) approved testing lab demonstrating a Color Rendering Index (CRI) of 75 or greater and a minimum average luminous efficacy of 50 lumens/watt. A low power (<4.5 W/ft) LED fixture must replace a single lamp fluorescent fixture. A high power (4.5 to 8.5 W/ft) LED fixture must replace a double lamp fluorescent fixture. T10 lamps will be treated as T12 lamps for the purpose of calculating rebate values.
T8, T10 and T12 Fluorescent lamps operating with an electronic or magnetic ballast.	**Delamp Open Case Lighting: LED Case Lighting from Fluorescent** Must install a LED lighting system in lieu of a fluorescent lighting system in an existing vertical or semi-vertical open refrigerated display case. The delamp measure accounts for fluorescent lamps that are removed *in addition to* those retrofitted with LED's.. Replaced fluorescent fixtures must be rendered inoperable after removal.

Units: Linear feet of LED

11. LED Case Lighting in New Vertical and Semi-Vertical Open Refrigerated Cases

Must install a LED lighting system in lieu of a fluorescent lighting system in a new vertical or semi-vertical open refrigerated display case.

Existing Equipment Requirements	Replacement Equipment Requirements
	Must install a LED lighting system in lieu of a fluorescent lighting system in a new vertical or semi-vertical open refrigerated display case. Manufacturer's warranty must be a minimum of three years and must include fixtures, mounting hardware, power supply and light source (i.e. LED). LEDs must be rated to maintain ≥70% of initial lumen output at 50,000 hours of operation. All installed LED products must have a minimum IP54 rating or UL listed for wet or damp locations. LED products must have LM-79 testing from an approved testing lab demonstrating a Color Rendering Index (CRI) of 75 or greater and a minimum average luminous efficacy of 50 lumens/watt. Incentives paid are based on length of LED fixture (ft). Incentive and energy savings values vary based on LED fixture power (low or high): a low power fixture is defined as one that uses less than 4.5 W/ ft of fixture; a high power fixture is defined as one using 4.5 to 8.5 W/ ft of fixture.

Exclusion:

For new cases with LEDs, rebates will be capped at 27 W/ft with an additional 9 W/ft allowed for each lit shelf.

Units: Linear feet of LED

12. LED Overhead Lighting in Walk-in Coolers and Freezers

Must install a LED overhead lighting system in lieu of a fluorescent lighting system in a walk-in cooler or freezer.

Existing Equipment Requirements	Replacement Equipment Requirements
The existing luminaire be a linear fluorescent or HID and must have a rated wattage greater than or equal to that used in the measure name.	The LED luminaire that is installed must demonstrate wattage draw no greater than the level used in the measure name. LED lighting system must be a permanently installed luminaire. LED luminaires must work with existing controls or controls with equivalent or better functionality must be installed. Replaced fixtures must be rendered inoperable after removal. Manufacturer's warranty must be a minimum of three years and must include fixtures, mounting hardware, power supply and light source (i.e. LED). LEDs must be rated to maintain no less than 70% of initial lumen output (L70) at 50,000 hours of operation. Lumen efficacy of LED luminaire must be greater than or equal to 40 lumens/watt. Color Rendering Index (CRI) of LED luminaire must be greater than or equal to 70. Total Harmonic Distortion of LED luminaire must be less than or equal to 20%. Power Factor of LED luminaire must be greater than or equal to 0.80. LED luminaire must comply with UL 8750 – 2009 Light Emitting Diode (LED) Equipment for Use in Lighting Products. The total number of luminaires rebated shall not exceed the total number of luminaires replaced in the walk-in.

Exclusions: Fluorescent magnetic ballasts cannot be used to power the LED system.

Units: Lamp

13. Case Lighting T10/12 to T8

Must replace existing T10/12 lamps with T8 lamps in refrigerated display cases.

Existing Equipment Requirements	Replacement Equipment Requirements
T10/12 lamp with magnetic ballasts	T8 lamp with electronic ballast
	Lamp must have a minimum rated life of 24,000 hours with rapid-start ballasts or 18,000 hours with instant start ballasts (at 3-hour starting rating)

Units: Lamp

Controls

14. Anti-Sweat Heater (ASH) Controls

Must install a device that controls the ASH load of reach-in doors. This measure is relevant for both MT and LT reach-in glass door case

Existing Equipment Requirements	Replacement Equipment Requirements
Medium Temperature Case Uncontrolled ASH present > 0.20 amps/ft of case (door rail, glass and/or frame heating element combined)	Must automatically modulate door ASH output based on environmental conditions (temperature or relative humidity) as measured by a sensor that is part of the control system
Low Temperature Case Uncontrolled ASH present > 0.37 amps/ ft of case (door rail, glass and/or frame heating element combined)	

Exclusions:

An additional separate rebate cannot be claimed for Standard Doors to Low/No Anti-Sweat Heat Doors for Low Temperature Reach-ins"

Additional Information:

The ASH controller is expected to reduce the runtime on LT cases by 50% and on MT cases by 80%

If there is no amp tag for the case door, please call program staff to help qualify the case or door frame.

Units: Linear feet of case

15. Walk-in Evaporator Fan Control - ECM

Must install controls that reduce energy consumption of evaporator fan motors in walk-ins by reducing fan speed when there is no refrigerant being delivered to the evaporator.

Existing Equipment Requirements	Replacement Equipment Requirements
Electronically Commutated Motor (ECM)	Same
Evap fan motor size (nameplate rated output power): 1/20th HP to 1/10th HP	Evap fan motor size (nameplate rated output power): 1/20th HP to 1/1(HP
Evap fan full speed runtime: full speed 24hrs/day except if off for defrost periods	Evap fan full speed runtime: full speed only during call for cooling (compressor on or liquid-line solenoid open)
Evap fan full speed: 1,550 RPM	Evap fan full speed: 1,550 RPM
Evap fan low speed: N/A	Evap fan low speed: 500<=RPM>=600
	Alternative to low speed: On/Off Cycling. During periods when there is no refrigerant being delivered to the evaporator, eligible controllers may cycle the fans off only if they turn the fans on periodically during that tim to circulate air in the walk-in (not more than 1 minute every 8 minutes o 13% of time).

Exclusions:

Not applicable if Evaporator Fan Control is already installed.

On walk-in refrigeration circuits served by multiplex systems, liquid-line solenoid is required for adequate control; multiplex systems without liquid-line solenoid on the walk-in circuit are not eligible at this time.

Units: Motor

16. Beverage Merchandiser Controller – Visi Cooler

Must install an energy control device on a standalone refrigerated glass door beverage merchandiser.

Existing Equipment Requirements	Replacement Equipment Requirements
Beverage merchandisers must contain non-perishable food items limited to bottled and canned beverages.	Controller must include a passive infrared occupancy sensor to turn off compressor when surrounding area is unoccupied for 15 minutes or longer.
	During unoccupied periods, the control must periodically power up machine to maintain product temperature and provide compressor protection.

Unit: Controller

Strip Curtains, Gaskets and Auto-Closers

17. Strip Curtains

Must install new strip curtains or plastic swinging doors on qualifying walk-in doorways.

Existing Equipment Requirements	Replacement Equipment Requirements
No strip curtains installed	Strip curtains ≥0.06 inches thick
	Low temp strip curtains must be used on low temp applicatons.

Exclusions:

Rebate is only eligible for applications in supermarket walk-in freezers & coolers and convenience store freezers only.

A supermarket is defined as a ≥10,000 sq ft self-service commercial retail food service facility.

Rebate is not available for replacement of existing strip curtains, or application of strip curtains on display cases.

Notes: Rebates are only available to certified strip curtain trade allies. If you are interested in certification information, please contact t Program at 800-230-9420.

Units: Square feet of doorway (measured inside door frame)

18. Door Gaskets for Solid or Reach-In Glass Doors

Applicable to main insulated solid door(s) of walk-in cooler or freezer that open to ambient temperatures and/or standard size reach-in glass or solid door(s) of a low or medium temperature display case.

Existing Equipment Requirements	Replacement Equipment Requirements
Worn or damaged gasket (and/or door sweep) with degradation sufficient to create an air gap (leak) equal to or greater than 14 inches in length.	Replacement gaskets and/or door sweep must meet the manufacturer's specifications regarding dimensions, materials, attachment method, style, compression, and magnetism.

Exclusions: Under counter half coolers, freezers, or beverage merchandisers do not qualify for rebates.

Units: Door

19. Auto-Closers for Walk-in Cooler or Freezer Doors

Auto-closer must be installed on the main insulated solid door of a walk-in cooler or freezer.

Existing Equipment Requirements	Replacement Equipment Requirements
	Auto-closer must firmly close door when door is within 1 inch of door latch.
	Walk-in door perimeter ≥16 ft

Exclusions: Rebate unavailable for adjustments made to existing auto-closers.

Notes: Rebate available for both new auto-closer installations and replacement of parts on non-functioning auto-closers.

Units: Closer

20. Auto-Closers for Glass Doors on Reach-in Coolers or Freezers

Auto-closer must be installed on the glass door of a reach-in case.

Existing Equipment Requirements	Replacement Equipment Requirements
	Auto-closer must firmly close door when door is within 1 inch of full closure.
	Walk-in door perimeter ≥16 ft

Exclusions: Rebate unavailable for adjustments made to existing auto-closers.

Notes: Rebate available for both new auto-closer installations and replacement of parts on non-functioning auto-closers.

Units: Closer

Motors

21. ECMs - Replace Shaded Pole Fan Motors in Refrigerated Display Cases

Applicable to existing shaded pole evaporator fan motors in refrigerated display cases.

Existing Equipment Requirements	Replacement Equipment Requirements
Shaded pole motor in display case	Electronically Commutated Motor (ECM) in display case

Units: Motor

22. ECMs - Replace Shaded Pole Fan Motors in Walk-in Coolers or Freezers

Applicable to existing shaded pole evaporator fan motors in refrigeration system evaporators in walk-in coolers or freezers.

Existing Equipment Requirements	Replacement Equipment Requirements
Shaded pole motor in walk-in evaporator	Electronically Commutated Motor (ECM) in walk-in evaporator

Exclusions:Not applicable for motors with fans less than 10" in diameter.
Not applicable if Evaporator Fan Control is already installed.

Recommendations:
This measure may be combined with "Walk-in Evaporator Fan Control – ECM" measure for additional energy savings and rebate**.** See measure #14.

Units: Motor

23. Motors — Shaded Pole to PSC in display cases

Applicable to existing shaded pole evaporator fan motors for refrigerated display cases.

Existing Equipment Requirements	Replacement Equipment Requirements
Shaded pole motor in display case	Permanent Split Capacitor (PSC) motor in display case

Units: Motor

24. Motors — Shaded Pole to PSC in Walk-in Evaporator

Applicable to existing shaded pole evaporator fan motors for refrigeration system evaporators in walk-ins.

Existing Equipment Requirements	Replacement Equipment Requirements
Shaded pole motor in walk-in evaporator	Permanent Split Capacitor (PSC) motor in walk-in evaporator

Exclusions:
Not applicable for motors with fans less than 10” in diameter.
Rebate not available if Evaporator Fan Control is already installed.

Units: Motor

25. VFD on Condenser Fan Motor

Must install variable frequency drive (VFD) on condenser fan motor(s) serving a multiplex system.

Existing Equipment Requirements	Replacement Equipment Requirements
No VFD present	Condenser fan motors controlled via VFD

Exclusions: Cannot be combined with measures that require a VFD or assume their installation in the energy savings calculations.

Units: Motor nameplate horsepower

26. ECMs for Compressor Head Fans

Must replace existing shaded pole compressor head-cooling fan motors with ECM fan motor.

Existing Equipment Requirements	Replacement Equipment Requirements
Shaded pole motor, 35-55 Watts	ECM motor, ≤20 Watts

Exclusions: Applicable to only low temperature reciprocating compressor systems that are an integral part of a refrigeration system wit a remote air cooled or evaporative condenser.

Units: Motor

Compressors and Condensers

27. High Efficiency Multiplex Compressor System

Must replace stand-alone compressor system with a high efficiency multiplex compressor system.

Existing Equipment Requirements	Replacement Equipment Requirements
Stand-alone compressor system	High efficiency multiplex compressor system
Air Cooled Condenser - Fixed pressure head	Floating head pressure controls, air-cooled condensers: Must use staged fans or variable speed drive. Must maintain an ambient following condensing setpoint of 10°F temperature differential (TD) or less between the outside air drybulb temperature and the setpoint for low temperature systems, and a 15°F TD or less for medium temperature systems. When a single circuit condenser is used, it must operate a 10°F TD or less. Minimum saturated condensing temperature must be equal to or less than 70°F.
Evaporative Cooled Condenser - Fixed pressure head	Floating head pressure controls, evaporative-cooled condensers: Must use variable speed drive. Must maintain a wetbulb following setpoint of 25°F TD or less between the outsic air wetbulb temperature and the setpoint. Minimum saturated condensing temperature must be equal to or less than 70°F.

Exclusions:

An additional rebate cannot be claimed for Floating Head Pressure Control or Variable Frequency Drive (VFD) for Condensers.

Notes:

See measure #29 if this measure is implemented in tandem with an efficient oversized condenser.

Pre-approval must be granted prior to installation. Pre-approval is contingent upon an engineering review to verify conformity with Term and Conditions before any installation. Send a copy of the proposed refrigeration schedule to your Field Energy Analyst or program headquarters to pre-qualify this measure for the rebate.

Units: Ton

28. Efficient/Oversized Air or Evaporative Condenser for Multiplex

Must replace an existing condenser with a new efficient/oversized serving multiplex systems.

Existing Equipment Requirements	Replacement Equipment Requirements
Existing condenser	Efficient/oversized condenser
Air Cooled Condenser - Fixed pressure head	Floating head pressure controls, air-cooled condensers: Must use stage fans or variable speed drive. Must maintain an ambient following condensing setpoint of 8°F temperature differential (TD) or less between the outside air drybulb temperature and the setpoint for low temperature systems, and a 13°F TD or less for medium temperature systems. When a single circuit condenser is used, it must operate at an 8°F TD or less. Minimum saturated condensing temperature must be equal to or less than 70°F. Condenser energy efficiency ratio (EER) must be 105 MBH/kW or greater.
Evaporative Cooled Condenser - Fixed pressure head	Floating head pressure controls, evaporative-cooled condensers: Must use variable speed drive. Must maintain a wetbulb following setpoint of 18°F TD or less between the outside air wetbulb temperature and the setpoint. Minimum saturated condensing temperature must be equal to or less than 70°F. Condenser energy efficiency ratio (EER) must be 240 MBH/kW or better.

Exclusions:

An additional rebate cannot be claimed for Floating Head Pressure Control or Variable Frequency Drive (VFD) for Condensers.

Notes:

EER will be calculated by the EnergySmart Program

See measure #29 if combined with a multiplex compressor implementation.

Rebate is limited to 150% of the required condenser capacity necessary to meet TD requirements.

Pre-approval must be granted prior to installation. Pre-approval is contingent upon an engineering review to verify conformity with Terms and Conditions before any installation. Send a copy of the proposed refrigeration schedule to your Field Energy Analyst or program headquarters to pre-qualify this measure for the rebate.

Units: Ton

29. Multiplex Compressor System with Efficient Condenser

Must replace a stand-alone compressor system with a multiplex compressor system, and replace an existing condenser with a new efficient/oversized condenser.

Existing Equipment Requirements	Replacement Equipment Requirements
	Requirements for both Multiplex Compressor Systems (Measure #26) and Efficient/Oversized Condensers (Measure #27) apply. Please refe to Terms & Conditions for these measures.

Notes: An installation of either a multiplex or an efficient condenser will be treated as a combined installation if the other item (a multiple or efficient condenser) was installed in the current Program time frame.

Pre-approval must be granted prior to installation. Pre-approval is contingent upon an engineering review to verify conformity with Term and Conditions before any installation. Send a copy of the proposed refrigeration schedule to your Field Energy Analyst or program headquarters to pre-qualify this measure for the rebate.

Units: Ton

30. Floating Head Pressure Controller for Multiplex Compressor System

Must convert the head pressure controls of an existing multiplex system from fixed control to floating control.

Existing Equipment Requirements	Replacement Equipment Requirements
Fixed head pressure	Floating head pressure
	Air-cooled condensers: Must maintain an ambient following condensing setpoint of 12°F temperature differential (TD) or less between the outside air drybulb temperature and the setpoint. Either use a variable speed drive or assume no change in fan operation. If a variable frequency drive is used it must control all condenser fans in parallel, unless the controls sequence receives pre-approval by The Program.
	Evaporative-cooled condensers: Must maintain a wetbulb following setpoint of 17°F TD or less between the outsic air wetbulb temperature and the setpoint. Must be controlled with a variable speed drive or 2 speed fan control.
	Minimum saturated condensing temperature must be equal to or less than 70°F.

Exclusions: Measure cannot be used in conjunction with measures that require floating head pressure controls.

Units: Compressor nameplate horsepower

31. Floating Suction Pressure Controller

Must convert the suction pressure controls of an existing multiplex system from fixed control to floating control.

Existing Equipment Requirements	Replacement Equipment Requirements
Fixed suction pressure set point	Floating suction pressure
	Suction pressure must be adjusted to the highest point that can still maintair setpoint temperatures at monitored cases on the suction circuit.

Units: Compressor nameplate horsepower

32. Air-Cooled to Evaporative-Cooled Condenser

Must replace an existing air-cooled condenser with an evaporative condenser.

Pre-Retrofit Requirements	Post-Retrofit Requirements
Air-cooled condenser	Evaporative-cooled condenser
	Condenser must be sized to maintain a wetbulb following setp 25°F temperature differential (TD) or less between the outside wetbulb temperature and the setpoint.
Multiplex or single compressor system	Same

Exclusions: Rebate eligible only in hot/dry inland climate zones; not eligible in coastal or humid climate zones. Please contact your Fie Analyst or Program headquarters to determine if the store's climate zone qualifies for this rebate.

Notes: Pre-approval must be granted prior to installation. Pre-approval is contingent upon an engineering review to verify conformity with Terms and Conditions before any installation. Send a copy of the proposed refrigeration schedule to your l Energy Analyst or program headquarters to pre-qualify this measure for the rebate.

Units: Tons	**Pre-Inspection Required**: Yes

33. Efficient Compressors — Low Temperature

Must replace a reed valve compressor with a disc valve or discus compressor on low temp systems.

Existing Equipment Requirements	Replacement Equipment Requirements
Reed valve compressor on low temp system	Disc valve or discus compressor on low temp system

Recommendations: Only compressors serving evaporators with Saturated Evaporative Temperatures (SET) of -10°F or less can bene from this measure.

Notes: Rebate will be allowed for up to 110% of the existing compressor capacity. Invoice must show both the pre-existing and new compressor model numbers.

Units: Tons

Lighting Measures

34. General Lighting Retrofits

For general lighting retrofits, must retrofit facility with lamps or lamp controls that increase overall efficiency of lighting load.

Existing Equipment Requirements	Replacement Equipment Requirements
Contact program for details.	Contact program for details.

Unit: To be determined by pre-qualifying review

HVAC Measures

35. Variable Speed Drive (VSD) on HVAC Supply Fan in Grocery

Applicable to HVAC supply fan serving the 'sales area' of self-service commercial retail food service facilities of any size.

Existing Equipment Requirements	Replacement Equipment Requirements
Supply air fan must run continuously during occupied hours at fixed speed. Supply air fan motor must have a nameplate size of one (1) horsepower or larger.	Must install VSD (Variable Speed Drive) that slows the supply fan motor speed (RPM) and reduces the motor power draw on supply air fan: o When the thermostat calls for heating, cooling, or CO_2 sensor calls for ventilation, the VSD must run no higher than 98% (58.8 Hz) of tl original fan motor speed. o When the thermostat is not calling for heating or cooling and CO_2 sensor is not calling for ventilation during occupied hours, then the VSD can lower the fan motor speed to no less than 40% (24 Hz) of the original fan motor speed. o When the thermostat or EMS HVAC control is in setback or unoccupied mode, the VSD must allow the motor to go fully off (0% speed) when the thermostat is not calling for heating or cooling anc the CO_2 sensor is not calling for ventilation. o If the VSD is a Variable Frequency Drive (VFD), it must meet ANSI/IEEE 510 and ENAM ICS7 standards. Must remove or set at fully open position all air flow throttling devices, such as in vanes, bypass dampers, etc. in the HVAC system. Must install a self-calibrating CO_2 sensor in the return air duct, or if required by code in the space served by the HVAC system. o CO_2 sensor must be commissioned to assure proper control of the VSD thereby raising the fan speed up to 98%(58.8 Hz) of original speed whenever the sensor determines that the CO_2 concentration exceeds limits established by ASHRAE 62.1 or local code.

Additional Information: This measure is applicable to any motor over one (1) horsepower. The rebate for this measure cannot exceed ten (10) horsepower.
Rebate amount varies by motor horse power and store operating hours.

Recommendations: Due diligence must be exercised to determine that the HVAC fan motor will not be damaged by the VSD.

Exclusions: If a review of the thermostat or EMS supply fan control setting prior to installing this measure shows that the fan is allowed turn off (intermittent or AUTO setting) during occupied hours when there is no call for heating or cooling, then this measure should not be installed without written consent from the owner stating that:

- 1) they want to improve their indoor air quality by changing the fan operation to continuous during occupied hours and
- 2) they understand that electrical energy use may increase due to increased fan operation.

Units: Nominal or Nameplate Fan Motor Horsepower

Disclaimer: The selection, purchase, and ownership of the equipment are the sole responsibility of the customer. The EnergySmart Grocer Program makes no representation as to the safety, reliability, and/or efficiency of the equipment selected or components thereof. The EnergySmart Grocer Program makes no warranty, expressed or implied, for any particular purpose, use or application of the equipment.