



Maryland Statewide Farm Energy Audit Program Measure Specifications: Agricultural Products

The following list is not meant to be all inclusive. If you would like to install an energy efficient technology that is not on this list, please contact Corey Conant, the Program Manager, at (800)732-1399 to see if it might qualify for a rebate.

GREENHOUSE HEAT CURTAIN

Only installations of interior curtains for heat retention in existing gas-heated greenhouses qualify. The rebate applies to new and retrofit curtain system installations in existing greenhouses for specific agricultural end-use. Product must be designed by the manufacturer to be a heat curtain, and the installation must have the ability to automatically or manually move the curtain into place. Curtain must be located such that the gas heat source provides hot air to conditioned space bounded by the curtain. Curtain material must have an Energy Savings rating of > 40%, and must have a warranty/product life of 5 years. Include a manufacturer's specification sheet documenting type of curtain. Rebate amount is for square foot of curtain material.

INFRARED FILM FOR GREENHOUSES

Installations of infrared anti-condensate polyethylene plastic with a minimum 6 mil. thickness for heat retention on existing heated greenhouses will qualify. A manufacturer's specification sheet must be included.

LOW PRESSURE SPRINKLER NOZZLES (30 psi operating pressure or less)

Must convert from a high-pressure, sprinkler system nozzle (50 psi operating pressure or more at the sprinkler head). Must be accompanied by a pumping plant analysis to ensure reasonable pumping efficiency (45% Overall Pumping Efficiency or above) after the conversion. Portable hand move or solid set systems may apply.

SPRINKLER TO DRIP IRRIGATION

Must convert from a high-pressure, impact-type, sprinkler irrigation system (50 psi operating pressure or more at the sprinkler head) to a micro-irrigation system. Not applicable to new plantings of vineyards or orchards unless a vineyard or orchard was the previous crop on the field. Drip tape systems are not eligible. Include an Assessor's Parcel Map or other documentation to verify acreage.

WINE TANK INSULATION

Product must have an insulation value equal or greater than R-12 and be added to a refrigerated wine tank. Indoor tanks are those located in an enclosed indoor space not exposed to sun and wind. Product R-value and manufacturer name must be supplied for rebate processing.

WELL PUMP VARIABLE SPEED DRIVE

Must be added to a working well pump, whether for irrigation or other application, including centrifugal booster pumps. A 3% impedance choke is recommended.



Maryland Statewide Farm Energy Audit Program Measure Specifications: Appliances and General Improvements

The following list is not meant to be all inclusive. If you would like to install an energy efficient technology that is not on this list, please contact Corey Conant, the Program Manager, at (800)732-1399 to see if it might qualify for a rebate.

ATTIC OR WALL INSULATION

All materials must be new. Follow manufacturer's installation requirements. Materials must meet or exceed all applicable local, state and federal standards. Attic and roof/ceiling insulation is eligible for a rebate only if the pre-retrofit insulation level is R-11 or less, and if installed between conditioned area and unconditioned space. The final insulation level must be at least R-30 unless a higher level is specified by local jurisdiction. Dropped commercial ceilings are not eligible for rebate, insulation is feasible only when attic crawl space is adequate. Wall insulation is eligible for a rebate as long as existing walls are uninsulated. Installed insulation must achieve a minimum of R-13. If purchasing insulation, remember that your rebate is based on the amount of insulation actually installed.

ELECTRIC STORAGE WATER HEATER

Instantaneous and tankless water heaters do not qualify for this rebate. High efficiency electric storage water heaters must have an Energy Factor (EF) of 0.93 or greater. The water heater must be 40 gallons or greater. Look for the EF rating on the water heater specification sheet or on the packaging box; it does not always appear on the water heater label itself. For a list of water heaters go to: gamapower.org.

HIGH EFFICIENCY CLOTHES WASHERS

*Modified Energy Factor (MEF) measures energy consumption of the total laundry cycle (washing and drying). It indicates how many cubic feet of laundry can be washed and dried with one kWh of electricity; the higher the number, the greater the efficiency.

**Water Factor (WF) represents the number of gallons of water needed for each cubic foot of laundry. The lower number indicates lower consumption and more efficient use of water.

For a list of qualifying residential products, go to: www.cee1.org/resid/seha/rwsh/rwsh-prod.pdf

For a list of qualifying commercial products, go to www.cee1.org/com/cwsh/cwshspec.pdf

REFLECTIVE WINDOW FILM

Film must have a minimum five-year manufacturer's warranty. Film must be applied to clear, single-pane glass and have either: (1) a Solar Heat Gain Coefficient (SHGC) value of 0.39 or less; or (2) a SHGC value of 0.47 or less and a Visible Transmittance/Solar Heat Gain Coefficient ratio greater than 1.3 (VT divided by SHGC). Space must be cooled by vapor-compression air conditioner (evaporative-cooled space not eligible).

Specification must be documented on the invoice, as well as square footage installed. To convert Shading Coefficient (SC) to Solar Heat Gain Coefficient (SHGC), multiply SC x 0.87. If SC is given in percent form, convert it to decimal form before multiplying. Windows with northern exposure (+ 45 degrees of due North) and/or dual-pane glass do not qualify for this rebate.

ENERGY STAR® ROOM AIR CONDITIONER

Must be ENERGY STAR qualified. For a list of qualifying products go to energystar.gov.

MANURE PUMP VARIABLE SPEED DRIVE

Must be added to a working manure pump. A 3% impedance choke is recommended.



Maryland Statewide Farm Energy Audit Program Measure Specifications: Boilers and Water Heating

The following list is not meant to be all inclusive. If you would like to install an energy efficient technology that is not on this list, please contact Corey Conant, the Program Manager, at (800)732-1399 to see if it might qualify for a rebate.

DEFINITIONS

Btu: British Thermal Unit, the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit

MBtu: 1000 British thermal units

MBtuh: 1000 British thermal Units per hour

COMMERCIAL BOILER (NON SPACE CONDITIONING/NON-PROCESS RELATED)

Only boilers > 75,000 Btuh qualify. Must meet a minimum thermal efficiency of 84%. Include a manufacturer's specification sheet documenting these characteristics. Boiler must not be used for space conditioning. Boiler must not be used for industrial (process) end-use.

INSTANTANEOUS WATER HEATER (NON-PROCESS RELATED)

Water heaters must meet efficiency requirements based on size, as shown. Only instantaneous water heaters used for non-process hot water applications qualify. The manufacturer name and equipment model number must be provided. Customers must provide proof of the tankless nature of the water heater (e.g., manufacturer equipment specification sheets).

Input Rating	Required Efficiency
≤ 200 MBtuh	Energy Factor ≥ 0.63%
> 200 MBtuh	Thermal Efficiency ≥ 82%

PIPE INSULATION

1" or 2" of fiberglass, foam, or calcium silicate insulation must be added to existing nonresidential bare pipe systems which transfer fluid directly from gas-fired equipment. Minimum qualifying pipe diameter is 1". Insulation thickness, liquid or steam temperature will determine the rebate amount. Additional required information will be the manufacturer's name, insulation material type, and the material k-value rating.

PROCESS BOILER

Available to industrial end-use customers who manufacture a sellable product only. Manufacturing involves the mechanical or chemical transformation of materials or substances into a new product which is neither a structure nor any other fixed improvement. Boilers must meet a minimum combustion efficiency of 82% as installed. Only process boilers (i.e., units not primarily used for domestic hot water, space conditioning, pool or spa use) qualify. The manufacturer name and equipment model number must be provided. A flue gas analysis measured under full load conditions is required to document combustion efficiency after installation is complete.

SPACE HEATING BOILER

Boilers must meet efficiency requirements based on size and type, as shown below. Include a manufacturer's specification sheet documenting these characteristics. Boiler must be used for space heating for human comfort.

Type	Input Rating	Required Efficiency
Steam	< 300 MBtuh	AFUE \geq 77%
Small water	< 300 MBtuh	AFUE \geq 82%
Large	\geq 300 Mbtuh – < 2,500 MBtuh	Thermal Efficiency ³ 84%

STEAM TRAPS - REPLACEMENT

Steam traps are automatic valves used in every steam system to remove condensate, air, and other non-condensable gasses while preventing or minimizing passage of steam. There are three major types of steam traps: 1) mechanical, 2) thermostatic, and 3) thermodynamic. All replaced steam traps in an existing steam system are eligible.

New construction is not eligible. Steam trap type designation for the replacement steam trap must be provided, along with a specification sheet for the replacement steam trap(s).

STORAGE WATER HEATER

Water heaters must meet efficiency requirements based on size, as shown below. If the size and efficiency are not shown on the invoice, you must include a manufacturer's specification sheet documenting these characteristics.

Input Rating	Required Efficiency
\leq 75,000 Btuh	Energy Factor \geq 0.62
$>$ 75,000 Btuh	Thermal Efficiency \geq 82%

TANK INSULATION

Tank Insulation Rebates: 1" or 2" of fiber glass or foam insulation must be added to existing bare liquid or solution storage or transfer tanks that are coupled to gas-fired commercial or industrial equipment that transfers heat to the liquid or solution. The insulation thickness and tank solution temperature will determine the rebate amount. Additional required information will be the manufacturer's name, insulation material type, and the material k-value rating.



Maryland Statewide Farm Energy Audit Program Measure Specifications: Controls

The following list is not meant to be all inclusive. If you would like to install an energy efficient technology that is not on this list, please contact Corey Conant, the Program Manager, at (800)732-1399 to see if it might qualify for a rebate.

OCCUPANCY SENSORS

This rebate applies to hardwired passive infrared and/or ultrasonic detectors that control interior lighting fixtures only. Self-contained wall-box lighting sensors are defined as units without an exterior switch pack or relay that are designed to replace a standard wall switch. Fixture-integrated sensors are defined as units that are factory-installed in a lighting fixture and used in interior installations and must control all lamps in the fixture. New fixtures equipped with fixture-integrated sensors used in stairwells, halls, or garages may qualify under the Bi-level Stairwell/Hall/Garage Fixtures category. Wattage controlled requirements are listed in the table below where applicable. For fluorescent lamps, programmed rapid start ballasts are generally recommended for use with occupancy sensors. Customers shall ensure that the appropriate ballast is in use for the installation.

PHOTOCELLS

Rebate applies to built-in or stand-alone photoelectric cells that switch outdoor lighting loads on at dusk and off at dawn.

TIME CLOCKS

Time clocks must control lighting equipment. All units must feature a minimum 3-hour battery back-up to avoid time loss during power outages. For outdoor lighting without a photocell, astronomical time clocks (where on-off time follows sunset and sunrise) are required.

PLUG LOAD OCCUPANCY SENSORS

This rebate applies to passive infrared and/or ultrasonic detectors only. Plug-load sensors must control electricity using equipment in offices or cubicles, including shared copiers and /or printers.



Maryland Statewide Farm Energy Audit Program Measure Specifications: Dairy Farm Equipment

The following list is not meant to be all inclusive. If you would like to install an energy efficient technology that is not on this list, please contact Corey Conant, the Program Manager, at (800)732-1399 to see if it might qualify for a rebate.

MILK PRECOOLER

Must be set up to have a minimum 1:1 water to milk flow ratio and have an open, in – once out water flow system. Plate cooler may not be closed, chilled water systems only; and may consist of first an in – out water system plus a closed, chilled water system.

MILK TRANSFER PUMP VARIABLE SPEED DRIVE

Variable speed drive must allow for milk to be pumped at the slowest and most constant rate possible through the pre cooler. Note: most milk collection tanks at the end of the parlor are too small to allow a constant transfer flow, even with a variable speed drive.

Work with your dairy equipment service provider to install a large enough receiver tank with a suitable pump equipped with a variable speed drive, so that the increase in milk volume in the receiver will allow for the constant flow of milk through the pre cooler. The pump must have a motor that meets the NEMA Premium[®] standard. A 3% impedance choke is recommended to further reduce harmonics on the power line.

MILKING VACUUM PUMP VARIABLE SPEED DRIVE

Must be installed on single-phase power with a three-phase adapter or on a three-phase power supply. Units must have manual and automatic emergency shutoffs. A 3% impedance choke is recommended to further reduce harmonics on the power line.

COMPRESSOR HEAT RECOVERY UNIT

Units must be sized to meet the minimum cooling needs of the compressor refrigeration system as determined by the equipment supply dealer.

SCROLL COMPRESSOR

Must meet or exceed the minimum specifications necessary to meet the cooling requirements of the refrigeration system as determined by the equipment service provider.



Maryland Statewide Farm Energy Audit Program

Measure Specifications: Heating, Ventilation, and Air Conditioning (HVAC)

The following list is not meant to be all inclusive. If you would like to install an energy efficient technology that is not on this list, please contact Corey Conant, the Program Manager, at (800)732-1399 to see if it might qualify for a rebate.

ADVANCED EVAPORATIVE COOLER

Must replace an existing, vapor-compression air conditioning system, or the existing compressor must be made inoperative. Must not have “constant bleed” option. Tonnage on rebate form is based on the capacity of the package unit that is being replaced. For evaporative coolers, one equivalent ton of cooling is defined as 1300 cfm of 0.1” Static Pressure. The invoice should contain information describing what is being replaced. An advanced evaporative cooler (AEC) must have a rigid, manufactured evaporative media with a rated saturation effectiveness of 0.85 or better (a natural fiber pad is not allowed – the rigid media is generally 12” thick), and be equipped with water quality management system that provides positive removal of sump water on a regular interval (a bleed system is not allowed).

92 OR 94 AFUE CENTRAL NATURAL GAS FURNACE

The central natural gas furnace must have a rating of 92% or 94% Annual Fuel Utilization Efficiency (AFUE) or greater. For a list of qualifying products go to gamapower.org.

PACKAGE TERMINAL AIR CONDITIONERS AND PACKAGE TERMINAL HEAT PUMPS

Package terminal air conditioners (PTAC) and Package terminal heat pumps (PTHP) are through-the-wall, self-contained units and are 2 tons (24,000 Btu/hr) or less. Eligible units must meet the applicable minimum energy efficiency ratio (EER) as stated below.

Unit Capacity	Minimum EER
≤7,000 Btu/hr	11.29
> 7,000 & ≤ 24,000 Btu/hr	10.27

VARIABLE FREQUENCY DRIVES (VFDS) FOR HVAC FANS

VFD incentives are for fan applications on HVAC distribution systems. The maximum fan size is 100 hp. The installation of a VFD on a HVAC fan is eligible for a rebate only if throttling devices, such as inlet vanes, bypass dampers and throttling valves, are removed or permanently disabled. A 3% impedance choke is recommended.

VARIABLE SPEED MOTOR (VSM) AIR HANDLER SYSTEM

Must have this VSM installed in conjunction with a NEW air conditioner or heat pump. Purchase and install a VSM or other advanced technology motor specification for efficient air handlers installed with any air conditioning or heat pump, split or package air handler system. When installed in conjunction with a new furnace, the furnace must meet the federal minimum standard of 78 Annual Fuel Utilization Efficiency (AFUE).

CIRCULATION AND EXHAUST FANS

Fan Size Low Volume High Speed (LVHS)	Circulation Fans Minimum Efficiency (CFM/Watt) at 0.00" static pressure (inches water)		Exhaust Minimum Efficiency (CFM/Watt) at 0.1" static pressure (inches water)	
	Recommended CFM	Recommended CFM/W	Recommended CFM	Recommended CFM/W
12" - 14"	1,300	11.6	1,150	9.6
16" - 18"	4,620	12.4	4,240	10.8
20" - 22"	4,610	13.1	4,830	10.7
24" - 26"	6,400	17.8	5,630	14.5
36"	12,640	24.7	9,170	18.1
48"	21,500	26.8	19,200	20.7
50" - 52"	23,400	30.0	24,900	21.0
54" - 60"	21,000	30.8	25,800	22.5

8' – 24' High Volume Low Speed (HVLS) Circulation Fans 50.0 – Minimum CFM/Watt

Low volume, high speed (LVHS) fans must be tested and have published efficiencies by either BESS (Bioenvironmental and Structural Systems) Laboratory, <http://www.bess.uiuc.edu/>, or Air Movement and Control Association International, Inc. (AMCA), <http://www.amca.org/>.

VENTILATION HUMIDISTAT CONTROL

Must be for application on ventilation fan systems.

VENTILATION THERMOSTAT CONTROL

Must be for application on ventilation fan systems.

HEAT LAMPS

Rated wattage must be ≤ 125 watts and replace an existing heat lamp with wattage ≥ 150 watts.

HEAT PAD

Rated wattage must be ≤ 130 watts.



Maryland Statewide Farm Energy Audit Program Measure Specifications: Lighting

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Attach the manufacturer's specification sheet documenting the characteristics of lamps, ballasts and fixtures

* In all cases, the Wattage of the replacement fixture must be less than the Wattage of the existing lamp. The maximum replacement Wattage listed in the table for each category is typically associated with the highest Wattage in the basecase range.

DEFINITIONS

Basecase: Refers to the existing lighting equipment, prior to retrofitting, based on lamp (bulb) wattage

Replacement Fixture: Refers to new equipment being installed based on system (lamp and ballast) wattage

Electroluminescent Exit Sign: Exit sign using materials containing phosphors that light up when voltage is applied

Photoluminescent Exit Sign: Non-electrified exit sign containing materials that absorb and reradiate light

FIXTURES

INTERIOR LINEAR FLUORESCENT FIXTURES

Only complete new T8 or T5 or High Output (HO) T5 fixtures qualify. New fixtures must not exceed the maximum Wattage listed in the rebate table below for each range of lamp Wattage being replaced and must have a lower Wattage than the fixture being replaced. Fixtures must be equipped with linear fluorescent lamps and ballasts that meet the specifications defined in the T8 or T5 Linear Fluorescent Lamps with Electronic Ballasts category. New fixtures must replace, one-for-one, existing Incandescent, Mercury Vapor, T12/High Output Fluorescent, T12/Very High Output Fluorescent, Standard Metal Halide, or High Pressure Sodium Fixtures in interior installations.

Existing Pulse Start Metal Halide installations do not qualify. Exterior installations do not qualify. All fixtures must be hardwired. Fixtures are not eligible for additional rebates under the Compact Fluorescent Fixtures and T8 or T5 Linear Fluorescent Lamps with Electronic Ballasts categories, but may qualify for an occupancy sensor rebate under the Occupancy Sensor category, provided all requirements are met. To qualify for the 400 Watt and > 400 Watt categories, fixtures must be installed at a height over 12' above the finished floor.

COMPACT FLUORESCENT FIXTURES

Only complete new Compact Fluorescent fixtures qualify. New fixtures must not exceed the maximum Wattage listed in the rebate table below for each range of lamp Wattage being replaced and must have a lower Wattage than the fixture being replaced.* Fixtures must be equipped with Compact Fluorescent Lamps and electronic ballasts. CFL ballasts must be Programmed-start or Programmed Rapid-start with a Power Factor (PF) of ³ 0.90 and Total Harmonic Distortion (THD) of < 20%. New fixtures must replace, one for one, existing Incandescent, Mercury Vapor, T12/High Output Fluorescent, T12/Very High Output Fluorescent, Standard Metal Halide, or High Pressure Sodium Fixtures in interior installations. Exterior installations qualify for existing lamps ≤ 100 Watts only.

Existing Pulse Start Metal Halide installations do not qualify. All fixtures must be hardwired. Fixtures are not eligible for additional rebates under the Interior Linear Fluorescent Fixtures and T8 or T5 Linear Fluorescent Lamps with Electronic Ballasts categories, but may qualify for an occupancy sensor rebate under the Occupancy Sensor category, provided all requirements are met. To qualify for the ≥ 400 Watt category, fixtures must be installed at a height over 12' above the finished floor.

INTERIOR PULSE START METAL HALIDE FIXTURES

Complete new Pulse Start Metal Halide Fixtures or Retrofit Kits qualify as replacements. Retrofit kits may be used on existing Mercury Vapor, Standard Metal Halide or High Pressure Sodium Fixtures only. New fixtures or retrofit kits must not exceed the maximum Wattage listed in the rebate table below for each range of lamp Wattage being replaced and must have a lower Wattage than the fixture or lamp being replaced. *

Replacements must be equipped with Pulse Start Metal Halide lamps and either magnetic or electronic ballasts. Lamp Wattages below 175 Watts do not qualify under this category. New fixtures must replace, one for one, existing Incandescent, Mercury Vapor, T12/High Output Fluorescent, T12/Very High Output Fluorescent, Standard Metal Halide, or High Pressure Sodium Fixtures in interior installations. Exterior installations do not qualify. All replacements must be hardwired. Fixtures may qualify for an occupancy sensor rebate under the Occupancy Sensor category, provided all requirements are met. To qualify for the 400 Watt and > 400 Watt categories, fixtures must be installed at a height over 12' above the finished floor.

EXTERIOR PULSE-START METAL HALIDE FIXTURES

Complete new Pulse Start Metal Halide Fixtures or Retrofit Kits qualify as replacements. All installations for this measure are for exterior applications only. Interior installations do not qualify. New fixtures must replace, one-for-one, existing Incandescent, Mercury Vapor, T12/High Output Fluorescent, T12/Very High Output Fluorescent, Standard Metal Halide, or High Pressure Sodium Fixtures. Retrofit kits may be used on existing Mercury Vapor, Standard Metal Halide, or High Pressure Sodium Fixtures only. New fixtures or retrofit kits must not exceed the maximum Wattage listed in the rebate table below for each range of lamp Wattage being replaced and must have a lower Wattage than the fixture or lamp being replaced. *

Replacements must be equipped with Pulse Start Metal Halide lamps and either magnetic or electronic ballasts. Lamp Wattages below 175 Watts do not qualify under this category. All

replacements must be hardwired. To qualify for the 400 Watt and > 400 Watt categories, fixtures must be installed at a height of over 12' above the finished floor.

INTERIOR INDUCTION FIXTURES

Only complete new Induction fixtures qualify. New fixtures must not exceed the maximum Wattage listed in the rebate table below for each range of lamp Wattage being replaced and must have a lower Wattage than the fixture being replaced. * Fixtures must be equipped with Induction lamps and drivers. New fixtures must replace, one-for-one, existing Incandescent, Mercury Vapor, T12/High Output Fluorescent, T12/Very High Output Fluorescent, Standard Metal Halide, or High Pressure Sodium fixtures in interior installations. Existing Pulse Start Metal Halide installations do not qualify. Exterior installations do not qualify. All fixtures must be hardwired. Fixtures may qualify for an occupancy sensor rebate under the Occupancy Sensor category, provided all requirements are met. To qualify for the 400 Watt category, fixtures must be installed at a height over 12' above the finished floor.

BI-LEVEL STAIRWELL/HALL/GARAGE FIXTURES

Eligible units shall be hardwired fluorescent fixtures with electronic ballasts and manufacturer integrated occupancy sensors. All lamps shall be pin-based. Each unit shall contain a passive infrared and/or ultrasonic occupancy sensor that controls the individual fixture. Fixtures controlled by "manual on" overrides are not eligible. During occupied periods the fixture shall operate at full output, and during unoccupied periods the fixture shall operate at reduced light output and Wattage. This measure is not eligible for additional rebates under the Occupancy Sensor category.

LAMPS

T8 OR T5 LINEAR FLUORESCENT LAMPS WITH ELECTRONIC BALLASTS

Rebate applies to existing T12 lamps and magnetic ballasts that are replaced by T8 or T5 lamps with the electronic, high frequency ($\geq 20\text{kHz}$), Underwriters Laboratory (UL) listed ballasts that are warranted against mechanical or electrical defects for five years, and have a Power Factor (PF) of ≥ 0.90 . At full light output, ballasts for 4-foot and 8-foot lamps must have Total Harmonic Distortion (THD) of $\leq 20\%$, while ballasts for 2-foot and 3-foot lamps must have THD of $\leq 32\%$. Programmed Start/Programmed Rapid-start ballasts must be used for T5 lamp installations. Customers installing T5 lamps for direct lighting in low ceilings should consult a lighting professional to address the possibility of excessive glare. T8 and T5 replacement lamps must meet the Color Rendering Index (CRI) and Rated Lamp Life standards listed, and the manufacturer's specification sheet must document these characteristics for each ballast type. When T8 lamps are being installed and occupancy sensors are not in use, Instant Start ballasts must be used. When occupancy sensors are installed to control circuits in lamp/ballast retrofits, Programmed Start or Programmed Rapid-start ballasts are recommended in order to maximize lamp life. Occupancy sensor rebates are allowed with linear fluorescent lighting retrofits, but must meet the requirements of the Occupancy Sensor category. Replacement lamps and ballasts rebated in this category are not eligible for rebates under the Interior Linear Fluorescent Fixtures category.

Lamp and Ballast Requirements

Lamp Type & Size	Ballast Type	CRI	Minimum Rated Lamp Life (3 hrs/start)
T8 – 2-ft, 3-ft, 4-ft	Programmed Start or Programmed Rapid-start	≥ 80	24,000 hours
T8 – All size	Instant Start	≥ 80	18,000 hours
T5 – All sizes	Programmed Start or Programmed Rapid-start	≥ 82	20,000 hours

A de-lamping rebate may also apply. De-lamping is the permanent removal of existing T12 lamps/ballasts and unused lampholders (tombstones) from existing fixtures without replacing the lamps. To receive credit for de-lamping, customers must not remove more than half of the existing lamps and ballasts (along with lamp holders) from each fixture. The total number of lamps claimed for de-lamping may not be more than the number of replacement T8 or T5 lamps installed. Customers are responsible for deciding whether de-lamping will maintain adequate light levels.

COLD CATHODE LAMPS

Must replace incandescent lamps. Cold cathode lamps must range from 2 Watts to 18 Watts and may be medium (Edison) or candelabra base. Product must be rated for at least 18,000 average life hours.

ACCENT/DIRECTIONAL LIGHTING

Must replace existing reflector-type incandescent, PAR halogen, or PAR halogen IR lamps or fixtures. Accent lighting, flood lighting, or down lighting in interior installations qualify.

INTEGRATED BALLAST CERAMIC METAL HALIDE PAR LAMPS

Only 25 Watt integrated ballast ceramic metal halide PAR lamps with a rated lamp life of 10,500 hours or greater are eligible. Customers are responsible for determining if the lamp will fit in their existing equipment and for verifying compatibility with existing lighting controls.

CERAMIC METAL HALIDE DIRECTIONAL LIGHTING FIXTURES

Only Ceramic Metal Halide directional light fixtures with a nominal lamp Wattage of 39 Watts or lower qualify. Customers are responsible for verifying compatibility with existing lighting controls.

SCREW-IN COMPACT FLUORESCENT 14 - 28 WATTS, REFLECTOR LAMPS

Screw-in compact fluorescent reflector lamps with integrated ballasts must be listed as ENERGY STAR® qualified. Screw-in induction reflector lamps also qualify if it can be demonstrated that lamp performance is equivalent to ENERGY STAR®.

SIGNAGE

HIGH EFFICIENCY EXIT SIGNS

Only new Light Emitting Diode (LED), Electroluminescent, or Photo luminescent exit signs that replace incandescent or compact fluorescent lamps (CFL) qualify. All new exit signs must meet UL-924 requirements. Exit signs must have a usage level ≤ 5 Watts and a minimum product life of 10 years or be listed as ENERGY STAR® qualified. Manufacturer's information stating the

model number and ENERGY STAR® qualification or other qualifying specification sheet must be submitted with each rebate form. New exit signs must meet local fire codes. Retrofit kits are not eligible.

CHANNEL SIGNS (LED)

Must replace incandescent-lighted or neon-lighted channel letter signs. LED retrofit kits or complete LED replacement signs are eligible. Replacement signs cannot use more than 20% of the actual input power of the sign that is replaced. Measure the length of the sign as follows: 1. Measure the length of each individual letter at the centerline. Do not measure the distance between letters. 2. Add up the measurements of each individual letter to get the length of the entire sign being replaced.



Maryland Statewide Farm Energy Audit Program Measure Specifications: Motors

Itemized motor requirements are based on NEMA premium efficiency standards for nominal full load efficiencies, published by the Consortium for Energy Efficiency (CEE), for three phase induction motors of open drip proof (ODP), and totally enclosed fan cooled (TEFC) classifications. These motors are known as “open” and “closed” motors respectively. Motors must be NEMA Design A and B qualifying motors (TEFC & ODP) ranging from 1 hp to 200 hp. Customers who are replacing motors that meet the above conditions should make sure that the Nominal Full Load Efficiency of the new motors will meet or exceed the qualifying efficiency level for that class enclosure type of motor. NEMA Design C and D are polyphase induction motors that are considered to be special-purpose motors are not eligible. Motors not listed in the lasted version of Motor Master tables are not eligible. Please submit a copy of the manufacturer’s specification sheet with your application.

CONSORTIUM FOR ENERGY EFFICIENCY (CEE) MINIMUM NOMINAL EFFICIENCY STANDARDS						
Motor Size hp	Open Drip Proof			Totally Enclosed Fan Cooled		
	3600 rpm	1800 rpm	1200 rpm	3600 rpm	1800 rpm	1200 rpm
1	0.77	0.855	0.825	0.77	0.855	0.825
1.5	0.84	0.865	0.865	0.84	0.865	0.875
2	0.855	0.865	0.875	0.855	0.865	0.885
3	0.855	0.895	0.885	0.865	0.895	0.895
5	0.865	0.895	0.895	0.885	0.895	0.895
7.5	0.885	0.91	0.902	0.895	0.917	0.91
10	0.895	0.917	0.917	0.902	0.917	0.91
15	0.902	0.93	0.917	0.91	0.924	0.917
20	0.91	0.93	0.924	0.91	0.93	0.917
25	0.917	0.936	0.93	0.917	0.936	0.93
30	0.917	0.941	0.936	0.917	0.936	0.93
40	0.924	0.941	0.941	0.924	0.941	0.941
50	0.93	0.945	0.941	0.93	0.945	0.941
60	0.936	0.95	0.945	0.936	0.95	0.945
75	0.936	0.95	0.945	0.936	0.954	0.945
100	0.936	0.954	0.95	0.941	0.954	0.95
125	0.941	0.954	0.95	0.95	0.954	0.95
150	0.941	0.958	0.954	0.95	0.958	0.958
200	0.95	0.958	0.954	0.954	0.962	0.958



Maryland Statewide Farm Energy Audit Program Measure Specifications: Refrigeration

The following list is not meant to be all inclusive. If you would like to install an energy efficient technology that is not on this list, please contact Corey Conant, the Program Manager, at (800)732-1399 to see if it might qualify for a rebate.

- Medium temperature refers to refrigerated space temperatures between 1° F and 35° F
- Low temperature refers to refrigerated space temperatures below 0° F

ANTI-SWEAT HEATER (ASH) CONTROLS

Must install a device that senses 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. Equivalent technologies that can reduce or turn off anti-sweat heater based on the amount of condensation formed on the inner glass pane may also qualify. This measure cannot be used in conjunction with the New Refrigeration Display Case with Doors measures. Rebate is based on the total linear footage of the case.

AUTO-CLOSERS FOR MAIN COOLER OR MAIN FREEZER DOORS

The auto-closer should be applied to the main insulated opaque door(s) of a walk-in cooler or freezer. The auto-closer must be able to firmly close that door when it is within one inch of full closure.

AUTO-CLOSERS FOR REACH-IN COOLER OR FREEZER DOORS

The auto-closer device should be applied to the glass reach-in door of a walk-in cooler or freezer. The reach-in door must have a minimum perimeter of 16 feet. The auto-closer must be able to firmly close the door.

DOOR GASKETS ON GLASS DOORS

Must replace a worn gasket on a reach-in glass door(s) of a cooler or freezer. Replacement gaskets must meet the manufacturer's installation specifications, specifically regarding dimensions, materials, attachment method, style, compression, and magnetism. Rebate is based on total door perimeter in linear feet.

DOOR GASKETS ON SOLID DOORS

Must replace a worn gasket on the insulated opaque door of a walk-in or reach-in cooler or freezer. Replacement gaskets must meet the manufacturer's installation specifications, specifically regarding dimensions, materials, attachment method, style, compression, and magnetism. Rebate is based on total door perimeter in linear feet.

EFFICIENT EVAPORATOR FAN MOTOR

Applicable to existing standard efficiency shaded-pole evaporator fan motor of refrigerated display cases or fan coil systems in walk-ins. Shaded-pole motors to be replaced by either Electronically Commutated Motors (ECM) or Permanent-Split-Capacitor (PSC) Motors. This measure cannot be used in conjunction with the Evaporator Fan Controller measure.

EVAPORATOR FAN CONTROLLER FOR WALK-IN COOLERS

Must reduce airflow of evaporator fans in medium-temperature walk-in coolers when compressor(s) cycle off and there is no refrigerant flow through the evaporator. Must control a minimum fan load of 1/20 horsepower where the fan(s) operate continuously at full speed. Must reduce fan motor power by at least 75% during the compressor-off-cycle.

Do not use if any of the following conditions apply: 1) the compressor runs all the time with high duty cycle; 2) the evaporator fan does not run at full speed all the time; 3) the evaporator fan motor runs on poly-phase power; 4) the evaporator fan motor is not shaded-pole; or 5) evaporator does not use off-cycle or time-off defrost.

INSULATION FOR BARE SUCTION LINES

Must insulate bare refrigeration suction lines of 1 5/8 inches or less on existing equipment only. Medium temperature lines require 3/4-inch of flexible closed-cell nitrite rubber, or equivalent insulation, and low temperature lines require 1-inch of the same insulation. Insulation exposed to outside weather must be jacketed (such as with a medium-gauge aluminum jacket) or protected from the weather in some way. Rebate is based on the length, in linear feet, of the insulation installed.

NEW HIGH EFFICIENCY REFRIGERATION DISPLAY CASES WITH SPECIAL DOORS (LOW TEMP)

A new high efficiency reach-in display case must replace an existing low temperature self-contained or remote reach-in as shown below. This measure cannot be used in conjunction with the Anti-Sweat Heater measure.

Existing	Replacement
T-12 lamps, magnetic ballast	T-8 lamps, electronic ballast
Shaded-pole fan motor	ECM fan motor
Standard glass doors	Low/no anti-sweat glass double pane doors meeting the requirements of Special Doors With Low/No Anti-Sweat Heat on Low Temperature Display Cases Measure.

NEW REFRIGERATION DISPLAY CASE WITH DOORS

Must replace an existing open multi-deck display case with a new high efficiency reach-in unit with standard glass doors with Electronically Commutated Motor (ECM) fan, T-8 lamps and electronic ballast. This measure can be applied to self-contained or remote cases. New display cases are rebated based on their length. New case length must be equal to or shorter than original case.

NIGHT COVERS FOR OPEN VERTICAL AND HORIZONTAL DISPLAY CASES

Must install a cover on an otherwise open display case to decrease cooling load of the refrigerated case during off hours. The rebate is based on linear footage of the installed night cover. It is recommended that these film type covers have small, perforated holes to decrease moisture buildup. The cover must be applied for a period of at least six hours.

Customer should consider using proper compressor capacity modulation mechanisms (such as Variable Speed Drive [VSD] or cylinder un-loader); Evaporator Pressure Regulator (EPR) and possibly resetting to higher suction temperatures when shields are applied. Case manufacturer must not have objections to the use of this measure.

SPECIAL DOORS WITH LOW/NO ANTI-SWEAT HEAT ON LOW TEMPERATURE DISPLAY CASES

Must replace an existing standard glass door of a low temperature reach-in display case with a special glass door that requires minimum to no anti-sweat heat (ASH). Doors must prevent condensation from occurring within the frame assembly. Total door rail, glass, and frame heater amperage (at 120 volts) cannot exceed 0.39 amps per foot of display case. Rebate is based on number of doors replaced. This measure cannot be used in conjunction with the Anti-Sweat Heater Controls measure.

STRIP CURTAINS FOR WALK-IN BOXES

Must install new strip curtains or plastic swinging doors on doorways of walk-in boxes and refrigerated warehouses. This rebate is not available for replacement of existing strip curtains that have useful life left. Rebate is based on the square footage of the doorway.