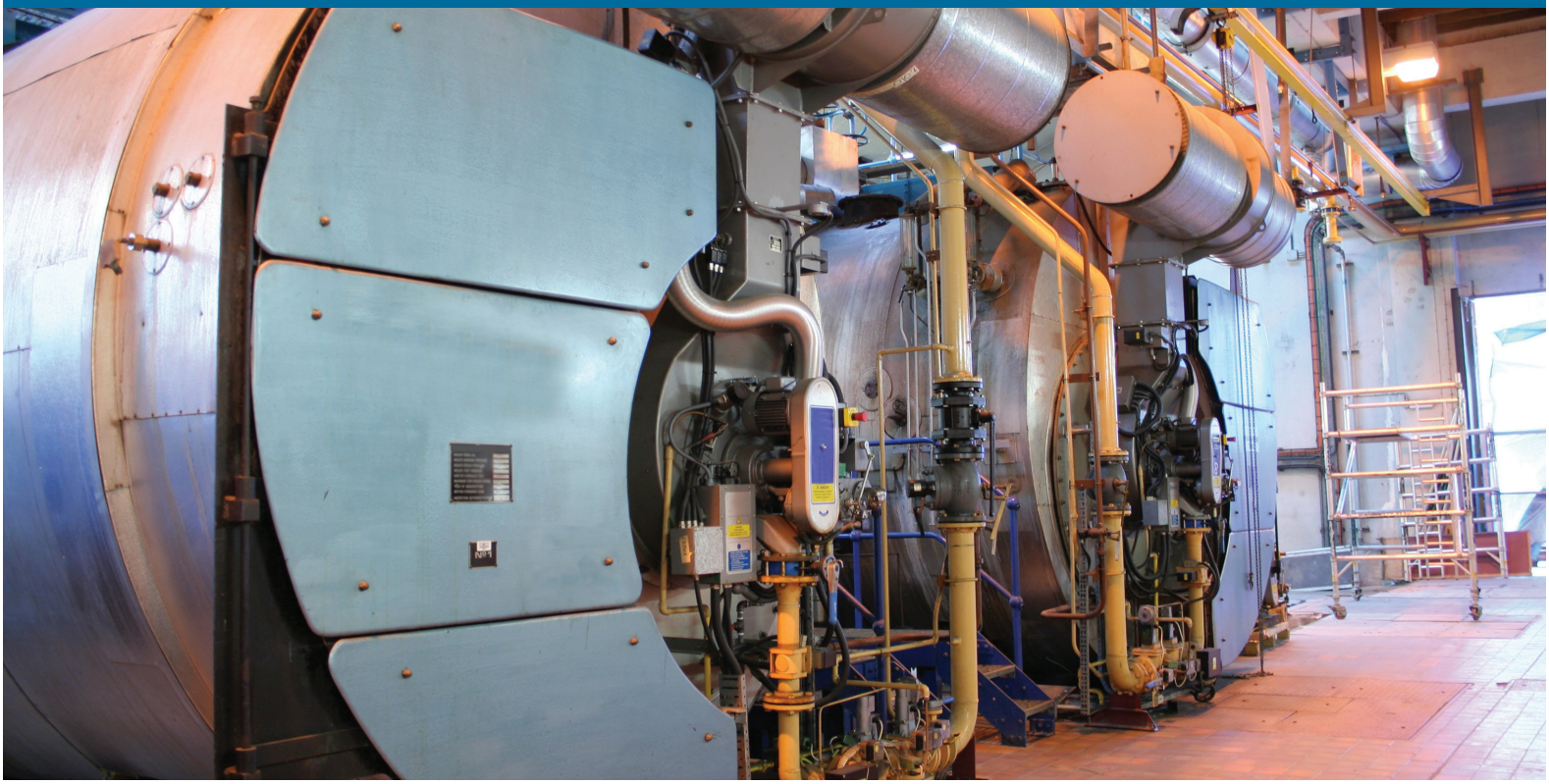
Efficiency United

Savings brought to you by your utility provider and our Michigan energy partners.

Commercial and Industrial Energy Efficiency Program



Michigan Gas Utilities

2024 Natural Gas Rebate Catalog

MICHIGAN GAS UTILITIES®

Terms and Conditions

ELIGIBILITY: Efficiency United energy efficiency incentives are offered to qualifying commercial natural gas customers only while funding is available. Projects must be implemented (completed) by November 30, 2024. All application documentation must be submitted within 60 days of project completion or November 30, 2024. Projects must reduce natural usage through system efficiency improvements, control upgrades may also qualify. The following measures will not qualify: peak shaving, demand reductions, fuel switching, power generation, renewable energy, or operating schedule changes. Equipment must meet the minimum number of annual operating hours. Customer must participate in an exit interview with Efficiency United staff to identify incentive opportunities and document a Joint Energy Efficiency Plan (JEEP).

COMPLIANCE: All projects must comply with applicable federal, state, and local laws and building codes. All equipment must be new or retrofitted with new components per program specification. Used or rebuilt equipment is not eligible for incentives. Existing equipment must be removed or permanently disconnected. New equipment must meet specification requirements and existing equipment must be operational when the application is submitted. Only one incentive will be granted for each project. Customers can submit multiple projects in a calendar year; however, the incentive totals cannot exceed the incentive limit cap per year. If the project is in a leased building, the lease term must be at least three (3) years and a copy of the lease may be requested. Up to 24 months of utility usage information may be requested.

INCENTIVE CAPS: Incentive caps may not exceed 75% of the total project cost, including materials, external labor, permits, equipment rental or disposal. Custom incentives will not be provided for projects with less than a 1-year simple payback or greater than an 8-year simple payback. Incentives are limited to a customer cap of $35,000 annually, while Program funding is available.

INSPECTION: Program staff reserves the right to conduct pre-inspections and post inspections of proposed and installed projects.

PUBLICITY: Efficiency United reserves the right to publicize your participation in this program, unless you specifically request otherwise.

LOGO USE: Customers or allies may not use the Efficiency United name or logo nor that of any participating utilities in any marketing, advertising, or promotional material without written permission.

PROGRAM DISCRETION: Incentives are available on a first-come, first-served basis. Incentive amounts and offerings are subject to change or termination without notice at the discretion of Efficiency United.

PAYMENT: Once completed paperwork is submitted, incentive payments are usually made within 6 to 8 weeks. Incomplete applications will delay payments or result in denial of application approval. Efficiency United reserves the right to refuse payment and participation if the customer or contractor violates program terms and conditions. The qualified participating utility must receive 100% of the energy savings for the rated life of the product(s) or for a period of three (3) years from the receipt of incentive, whichever is less. If you do not provide the energy savings, the facility in which the installed projects are located closes or ceases operation within three (3) years from receipt of incentive, or you cease to be a customer of a participating Efficiency United during the three (3) years, you shall refund a prorated amount of the incentive.

RELEASE/IDEMNIFICATION: Payment of rebates under the Program and/or evaluation of applications for rebates shall not deem Efficiency United or any of its affiliates, employees, contractors or agents (“Efficiency United Parties”) to be responsible for any work completed in connection herewith. Applicant fully releases Efficiency United Parties from any and all claims it may have against Efficiency United Parties in connection with this application, the rebates or the work performed in connection with them. In addition, applicant agrees to defend, indemnify and hold Efficiency United Parties harmless from and against any and all claims, losses, demands, or lawsuits by any third parties arising in connection with this application, the payment or non-payment of rebates, or any work performed in connection with them. The customer hereby releases Efficiency United and participating utilities from any and all liability arising from or connected with releasing the information to Efficiency United set forth herein.

Efficiency United is a program administered and implemented by CLEAResult and the Michigan Community Action Agency Association pursuant to a contract with the State of Michigan, Department of Energy, Labor & Economic Growth, and in compliance with PA 342 of 2016.

Program Measures Requirements Table of Contents

2024 Natural Gas Measure Specifications

1.0 Heating & Ventilation

1.1 HIGH EFFICIENCY HVAC BOILER

Measure Description		Unit
High Efficiency HVAC Boiler ≥88% efficiency	small <300	MBH
	med 300—2,500	MBH
	large >2,500	MBH
High Efficiency HVAC Boiler ≥90% efficiency	small <300	MBH
	med 300—2,500	MBH
	large >2,500	MBH

- This incentive is available for equipment used for space heating
- Equipment purchased for backup or redundancy does not qualify
- Incentive is based on new boiler input capacity
- Boilers must modulate their firing rate and have a sealed combustion unit
- Applicant must submit boiler specifications with steady state boiler input and output ratings. The ratings will be defined per ANSI Standard Z21.13 and use supply and return water temperatures. High efficiency condensing boilers will provide the rated efficiency only if return water is cold enough to condense the flue gases
- A pre-approval is required for all applications with cumulative boiler capacities >3,000 MBH
- Current boiler quantity, model number, type and MBH must be submitted with the application

1.2 HIGH EFFICIENCY HVAC STEAM OR PROCESS BOILER

Measure Description		Unit
Process Steam Boiler		MBH
Process Hydronic Boiler		MBH
HVAC Steam Boiler	<300 kBTU/hr 82 AFUE	MBH
	>300 kBTU/hr 82 Et	
	Nat Draft >300 kBTU/hr	

- Steam boilers must meet a minimum combustion efficiency of 82%
- Hydronic boilers must meet a minimum combustion efficiency of 84%
- Incentive is based on new boiler input capacity
- A flue gas analysis measured under full-load conditions is required to document combustion efficiency after installation is complete
- Redundant or backup boilers do not qualify
- Current boiler quantity, model number, type and MBH must be submitted with the application
- Manufacturer name and equipment model number must be provided

1.3 HIGH EFFICIENCY FURNACE / ROOFTOP UNIT (RTU)

Measure Description	Unit
High Efficiency Furnace at ≥92% efficiency	MBH
High Efficiency Furnace at ≥95% efficiency	MBH
Condensing RTU	MBH

- Condensing furnace / RTU must be ≥92% AFUE and have a sealed combustion unit
- Air Handlers do not qualify
- Chimney liners must be installed where a high efficiency natural gas furnace replaces atmospherically drafted equipment that was vented through the same flue as a gas water heater. Flue closure protocol must be used when a high efficiency furnace is installed, and the chimney is no longer in use
- Incentive is available only for equipment used in space heating conditions
- Equipment purchased for backup or redundancy does not qualify
- Incentive is based on new furnace / RTU input capacity
- All applications for new furnaces / RTUs must include current furnace / RTU model number, type and MBH
- New RTU cannot replace an existing Condensing RTU
- Must comply with all building codes and local ordinances

1.4 INFRARED HEATERS

Measure Description	Unit
Infrared Heaters	MBH

- Only building space heating applications are eligible
- This measure is applicable to new construction projects
- High intensity and low intensity heaters are eligible
- Infrared heater must be installed per manufacturers recommendations
- End of life replacement of an existing infrared heater does not qualify
- Space setpoint temperature of the proposed infrared heating system must be reduced by at least 10° F below the exiting or designed unit heater setpoint temperatures
- Applications must include written confirmation of existing and proposed setpoint temperatures showing at least a 10 degree reduction
- Heaters must have electronic ignition
- Incentive is based new heater input capacity

1.5 POOL HEATERS – HIGH EFFICIENCY

Measure Description	Unit
Pool Heaters HE	MBH

- Heater must meet a minimum combustion efficiency of 84%
- Heater must be rated between 500 MBH and 2,000 MBH
- Must have an on/off switch and have no pilot light
- Heater cannot be used as a back-up for solar water heating
- Redundant or backup boilers do not qualify

2.0 Boiler Controls & Efficiency Improvement

2.1 MODULATING BURNER CONTROL

Measure Description		Unit
Modulating Burner Control	Process	MBH
	HVAC	MBH

- The burners must be able to be controlled to a minimum turn down ratio of 5 to 1
- Redundant boilers do not qualify
- Boiler must operate a minimum of 4,000 annual hours
- Existing burners must be on/off with no modulation
- Equipment must be used in space heating conditions
- Incentive is based on boiler input capacity

2.2 BOILER WATER RESET CONTROL

Measure Description	Unit
Boiler Water Reset Control	MBH
RCx Boiler Reset Control	MBH

- The system must be set so the minimum temperature is ≤10°F above manufacturers recommended minimum return temperature
- For controls on multiple boilers to qualify control strategy must start the lag boiler only after the first boiler stage fails to maintain the boiler water temperature called for with the reset control
- Facilities with existing outdoor air reset or cutout controls on existing boiler loops (i.e., primary) or existing building heating loops (i.e., secondary) do not qualify
- Redundant boilers do not qualify
- One outdoor air reset control per boiler system
- Incentive is based on boiler input capacity
- Retro-commissioning only:
  - Verification of pre- and post-installation conditions necessary for retro-commissioning measure

2.3 OXYGEN TRIM CONTROL

Measure Description		Unit
Oxygen Trim Control	Process	MBH
	HVAC	MBH

- Boiler must be enabled a minimum of 4,000 annual hours
- Redundant boilers do not qualify
- Incentive is based on boiler input capacity

2.4 LINKAGELESS BOILER CONTROLS

Measure Description		Unit
Linkageless Boiler Controls	Process	MBH
	HVAC	MBH

- This incentive is available for replacing boiler linkage controls with linkageless controls
- Retrofit projects only; new controls on new boilers do not qualify
- System must be enabled a minimum of 4,000 annual hours; these are operating hours, not full load hours
- Redundant boilers do not qualify
- Incentive is based on boiler input capacity

2.5 OPTIMIZED BOILER PLANT SEQUENCING

Measure Description		Unit
Optimized Boiler Plant Sequencing	Process	MBH
	HVAC	MBH

- This incentive is available for installing sequence controls on existing boilers as well as new boilers with built-in controls
- The nominal unit rating (MBH) for the lead boiler and all additional lag/redundant boilers in the boiler plant must be submitted with the application
- Only available for hydronic heating systems with at least two boilers currently isolated from each other, operating in parallel piping systems with each other
- All boilers shall be monitored and controlled, at a minimum, as follows:
  - Sequenced and staged, both enabled and disabled
  - In a manner to optimize their operation as recommended by the boiler manufacturer
  - Within 15 minutes of disabling a boiler, the boiler's hydronic flow must be stopped, either by automatically disabling the boiler's corresponding circulating pump, or through automatically shutting of an isolation valve
- Incentive is based on boiler input capacity

2.6 BOILER STACK ECONOMIZERS

Measure Description	Stack Temp Decrease	Unit
Boiler Stack Economizer – HVAC Boilers	80°F	MBH
	120°F	MBH
	200°F	MBH
Boiler Stack Economizer-Process Boilers	80°F	MBH
	120°F	MBH
	200°F	MBH

- This incentive is available for adding a stack economizer to the exhaust flue stack of existing or new boilers to recover waste heat, which will be used to preheat the boiler's feed water system
- Traditional and condensing stack economizers qualify
- Must operate a minimum of 2,000 annual hours
- Redundant boilers do not qualify
- After the stack economizer has been installed the boiler stack temperature must be recorded and submitted
- Pre- and post-construction copies of the boiler combustion analysis must be submitted to confirm the achieved exhaust flue temperature decrease
- Incentive is based on boiler input capacity

2.7 AUTOMATIC STEAM BOILER BLOWDOWN

Measure Description	Unit
Automatic Steam Boiler Blowdown	Gallons Reduced

- Must result in low blowdown without raising the impurity levels in the natural gas steam boiler to levels that will cause scaling
- Applies to steam boiler with top or bottom manual blowdown controls
- Simple changes in flow rate without capital expenditure (i.e., system modifications, changes in chemical treatment and blowdown reductions resulting from improved condensate recovery) do not qualify
- Make up water must be metered and one months' worth of water use data must be submitted with the application
- One years' average of water tests measuring parameters used to obtain the cycles of conductivity prior to the upgrade must be submitted with the application
- Water test data after the upgrade must be submitted to verify performance
- Cycles of concentration is the ratio of blowdown conductivity to make up water conductivity and must be provided by the site water treatment service to show performance before and after upgrade

2.8 VARIABLE FREQUENCY DRIVES (VFD) ON HVAC PUMPS

Measure Description	Unit
VFD on HVAC	HP

- This incentive is available for installed new VFDs on existing HVAC pumps; replacement of existing VFDs do not qualify
- Redundant or backup units do not qualify
- 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
- Incentive is per horsepower controlled
- Existing two-speed cooling tower motors retrofitted with a VFD do not qualify
- Motor must operate a minimum of 2,000 annual hours
- VFD speed must be automatically controlled by differential pressure, flow, temperature or other variable signal
- New HVAC hydronic pumps having a pump head exceeding 100 ft. WC and motor exceeding 50HP do not qualify as required by ASHRAE 90.1 – 2007

2.9 PROCESS HEATING VENTILATION REDUCTION

Measure Description	Unit
Process Heating Ventilation Reduction	CFM

- The reduced volume flow rate must exceed 5,000 cubic feet per minute and serve conditioned (heated) spaces
- Significant changes of operations use (i.e., factory to warehouse) do not qualify
- Systems designed to allow the carbon dioxide (CO_2) levels in occupied spaces to exceed a maximum level of 1,200 ppm do not qualify
- The reduced volume flow rate levels must comply with the local and/or state authority having jurisdiction
- Decreases in ventilation rates of HVAC systems must be authored by a professional engineer licensed in the state of Michigan, or a certified industrial hygienist
- Operational performance verification (complete pre- and post-construction volume flow rate testing) by certified Testing, Adjusting and Balance (TAB) Agents is required. TAB Agents shall be independent professional services provider certified by either the Associated Air Balance Council or the National Environmental Balancing Bureau
- Heating cubic feet per minute is based on the average heating season's outside air volume flow rate that is directly conditioned

3.0 Energy & Heat Recovery

3.1 TOTAL ENERGY RECOVERY VENTILATION (ERV) (ENTHALPY WHEELS)

Measure Description	Unit
Total ERV – Add-on	CFM
Total ERV – Built-in	CFM

- This incentive is available for integrating an enthalpy-based energy recovery to recover the waste energy out of exhaust air streams and to temper incoming outside makeup air streams before these air streams are mechanically conditioned
- The area served must be a conditioned space
- Enthalpy heat recovery as required by local or state code does not qualify
- The enthalpy heat recovery systems shall be a minimum of 70% sensible and latent recovery effectiveness
- The system should be equipped with an air stream bypass to operate in economizer mode when applicable
- Minimum volume flow rate of 500 CFM; maximum volume flow rate of 50,000 CFM. The rated volume flow rate is the supply volume flow rate being introduced into the space, as defined in AHRI Standard 1060-2005

3.2 SENSIBLE ERV (FLAT PLATE HEAT EXCHANGERS)

Measure Description	Unit
Sensible ERV – Add-on	CFM
Sensible ERV – Built-in	CFM

- This incentive is available for integrating an air-to-air, fixed-plate, energy recovery system (sensible heat only) to recover the waste energy out of exhaust air streams and to temper incoming outside makeup air streams before these air streams are mechanically conditioned
- The area served must be a conditioned space
- The fixed-plate recovery system shall be a minimum of 55% sensible effectiveness (temperature transfer efficiency)
- The system should be equipped with an air stream bypass to operate in economizer mode when applicable
- Minimum volume flow rate of 500 CFM; maximum volume flow rate of 50,000 CFM. The rated volume flow rate is the supply volume flow rate being introduced into the space, as defined in AHRI Standard 1060-2005

3.3 AIR COMPRESSOR HEAT RECOVERY

Measure Description	Unit
Air Compressor Exhaust Heat Recovery	HP

- This incentive is available for the recovery of air compressor system waste heat in order to decrease natural gas consumption
- Waste heat recovery system must be controlled by a thermostat, building automation or management system or manually adjusted dampers
- Waste heat from the compressed air system must currently be rejected to an area where it is not used, typically outside
- Air compressor system must operate a minimum of 6,240 annual hours
- Incentive is per air compressor horsepower
- Horsepower of backup or redundant equipment does not qualify

4.0 Air Distribution Systems

4.1 CONSTANT AIR VOLUME (CAV) TO VARIABLE AIR VOLUME (VAV) AIR HANDLING UNIT

Measure Description	Unit
CAV to VAV	Square Feet

- This incentive is available for converting existing CAV into VAV air handling systems
- The area served by the air system must be a conditioned space (both heated and air conditioned)
- VFDs must be installed on all fans in the system and VAV boxes with reheat must be added to a minimum of four zones
- Controls must be added or modified for new VAV operating conditions and all zone sensors must be upgraded to digital
- Cannot be combined with the VFD on HVAC incentive
- Adding a VFD and controls to a constant volume air handling unit does not qualify
- Existing single zone air handling equipment does not qualify (i.e., classroom unit ventilators or fan coil units)

4.2 DESTRATIFICATION FAN

Measure Description	Unit
Destratification Fan	Square Feet

- This incentive is available for the optimization of a building heating system by adding an air circulation system to reduce temperature gradient from thermostat to roof
- The area served must be a conditioned space (heated) > 5,000 square feet with a floor-to-ceiling height of at least 20 ft.
- The minimum temperature differential between the thermostat (5 ft. above finished floor) and the bottom of the ceiling must be at least 15°F (i.e., 60°F at thermostat height, 83°F at ceiling height)
- The roof and wall insulation must have been installed to code
- The temperature gradient in the area affected must decrease by at least 10°F, or minimum air velocity of 100 fpm perpendicular to the floor at an elevation of 5 ft. and must be validated
  - The effectiveness will be validated by taking the air temperature readings before construction and after construction under the same ventilation rate
- Affected area shall be calculated by 5 times the fan diameter, example: 20 foot fan diameter
  - R = (20 ft. x 5)/2 = 50 ft.
  - Area = (πr^2)
  - 3.14 x 502 = 7,850 sq. ft.

5.0 Steam Trap Repair

5.1 STEAM TRAP REPAIR OR REPLACEMENT

Measure Description	Unit
Steam Trap Repair or Replacement	Trap

- This incentive is available for the repair or replacement of traps that have malfunctioned and are leaking steam
- Traps that have failed closed or are plugged do not qualify
- Steam trap repair work must be recorded and submitted with the application
- A spreadsheet with repair/replacement results must be submitted and include the following:
  - Number of steam traps surveyed
  - Location of each trap
  - Number of steam traps repaired
  - Repair date
  - ID tag number for each
  - Repair technician

6.0 Domestic Water

6.1 WATER HEATER

Measure Description		Unit
Indirect Water Heater	≥84% Efficiency	MBH Input
	≥90% Efficiency	MBH Input
ENERGY STAR Certified Water Heater Instantaneous		Per water heater
ENERGY STAR Certified Water Heater Medium Draw	≤ 55 gallons	Per water heater
ENERGY STAR Certified Water Heater High Draw	≤ 55 gallon	Per water heater

- This incentive is available for the replacement of an existing domestic water heating system
- New boiler must have a minimum combustion efficiency of 84% and be ≥75,000 BTU/hr in size
- Redundant or space heating boilers do not qualify
- Water heaters must be ENERGY STAR Certified qualified

6.2 WATER FLOW

Measure Description		Unit
Low Flow Faucet Aerator - Public Restroom	1.0 gpm	Unit
	0.5 gpm	Unit
Low Flow Faucet Aerator - Private Restroom	1.0 gpm	Unit
	0.5 gpm	Unit
Laminar Flow Restrictors		Unit

- Must use a gas water heater
- Existing faucet must have a flow rate of 2.2gpm or higher

7.0 HVAC Controls

7.1 DEMAND CONTROL VENTILATION (DCV)

Measure Description	Unit
Demand Control Ventilation	Square Feet

- This incentive is available for installing CO_2 sensor controls to modify the percentage of outside air based on variable occupancy levels
- Conditioned space must be kept between 65˚F and 75˚F during operating hours
- System must have current fresh air requirements ≥10% of supply air requirements
- CO_2 sensors must be installed in conjunction with fully functioning air side economizers
- Dual-temperature air-side economizers with zone-level CO_2 sensors for rooftop units qualify
- Return system CO_2 sensors are required for built up systems
- Controlled space must meet the minimum requirements of the current ASHRAE 62 standard, as well as all local building codes, and manufacturers recommendations
- CO_2 must control the outside air dampers
- The incentive is calculated per square foot of area controlled
- Floor plans and controls schedules must be submitted with the application

7.2 DCV AND HVAC OCCUPANCY SENSORS

Measure Description	Unit
DCV & HVAC Occupancy Sensor	Square Feet

- This incentive is available for installing both demand control ventilation and occupancy sensors for HVAC
- The requirements are below:
  - Must meet the individual requirement of each individual measure (DCV and HVAC Occupancy Sensors) to qualify

7.3 ENHANCED VENTILATION CONTROL

Measure Description	Unit
Enhanced Ventilation Control	Ton

- Must include the following:
  - An advanced digital economizer control (ADEC) system, consisting of replacing their existing analog or no-functional economizer control system with an ADEC system
  - The ADEC system must identify and report problems with sensors, dampers, and other components to ensure consistent and reliable economizer mode operation
  - DCV to reduce the amount of ventilation during periods of low occupancy, typically achieved through a carbon dioxide (CO_2) sensor. The DCV must be tied into the controller
  - Variable Speed Drives (VSD) to modulate the supply fan (evaporator) motor. The VSD must be automatically controlled by differential pressure, flow, temperature or other variable signal. The VSD must be tied to the controller
- Incentive will be based on the nominal input rating in tons of the HVAC equipment
- The existing system cannot have a supply fan VFD or CO_2 sensors installed
- Cannot be combined with the DCV, VFD, or economizer incentive measures
- Factory provided controls on a new RTU would not qualify
- Available for both new and existing HVAC equipment; however, the existing RTU must be in good working order

7.4 HOTEL GUEST ROOM OCCUPANCY SENSOR

Measure Description	Unit
Hotel Guest Room Occupancy Sensor	Unit

- This incentive is available for control sensors on natural gas heating units in individual hotel rooms
- Sensors controlled by a front desk system do not qualify
- Sensors must be controlled by automatic occupancy detectors
- The incentive is per guest room controlled, not per sensor installed
- Replacement or upgrades to existing occupancy based controls do not qualify

7.5 ENERGY MGMT SYSTEM - WEB ENABLED

Measure Description	Unit
Energy Management System (EMS) – Web Enabled	Square Feet
RCx EMS – Web Enabled	Square Feet

- This incentive is available in an existing building with inoperable time control functions on the HVAC systems (including 7-day programmable thermostats)
- Upgrades on existing digital EMS systems do not qualify
- HVAC EMS must be new and include:
  - Central time clock control
  - 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, unless granted a pre-approved exception
  - Setback period must exceed 2,200 annual hours
  - Minimum setback space temperature of 5°F in both heating and air condition mode
  - Web-based interface with PC-based controls and graphic
- Real-time outside air damper positioning
- At least three enhanced control strategies (i.e. supply air temperature reset, duct static pressure control, economizer control, AHU fan control, building pressure control)
- If incorporated with DCV, real-time CO2 monitoring at the operator interface
- EMS vendor must train facility staff on how to use the EMS and supply a document with programming guidelines for system changes
- Minimum of 10,000 square feet controlled
- The following information must be submitted with the application:
  - Proposed EMS sequence of operations
  - Scaled floor-plan of building with controlled area highlighted
  - Specifications of proposed EMS
- Retro-commissioning only:
  - Must submit documentation (e.g. EMS screenshots) showing
    - Existing schedule, actual temperature setpoints (heating and cooling) for all time periods, and fan is operating during unoccupied periods.
    - Proposed schedule, actual temperature setpoints (heating and cooling) for all time periods, and fan is not operating during unoccupied periods.
  - Proposed EMS must show:
    - Real-time outside air damper position or command if controlled HVAC equipment includes an economizer
    - Real-time sensor reading if controlled HVAC equipment includes DCV
  - Proposed EMS must include capability for:
    - At least three enhanced control strategies (i.e. optimum start, supply air temperature reset, duct static pressure control, economizer control, AHU fan control, building pressure control)

7.6 SETBACK / SETUP CONTROLS

Measure Description	Unit
Setback/Setup Controls	Square Feet
School – Setback	Square Feet
Commercial Smart Thermostat	Square Feet

- This incentive is available for spaces with no existing setback/ setup controls (including programmable thermostats)
- Must achieve full setback through time scheduling and/or occupancy
- Thermostat must have a continuous connection to the Internet and be accessible and programmable through a standard web browser and/or smart phone application for remote monitoring and scheduling

7.7 HVAC OCCUPANCY SENSORS

Measure Description	Unit
HVAC Occupancy Sensors	Square Feet

- This incentive is available for adding occupancy sensors to existing EMS to automatically switch HVAC systems in zone specific spaces (i.e., classrooms, offices, health care, etc.) from occupied to unoccupied mode when these areas are not in use
- The area served by the proposed sensors must be a conditioned space
- Spaces already controlled by outside air DCV systems do not qualify
- The HVAC terminal equipment (i.e., unit ventilators or constant volume AHUs) controlled by the occupancy sensors must be capable of reducing to zero flow during periods of no occupancy
- The following information must be submitted with the application
  - Scaled floor plan of building with controlled area highlighted
  - Sequence of operations confirming the optimal setpoint specification

7.6 OPTIMAL START/STOP ON AHU

Measure Description	Unit	Incentive/Unit
Optimal Start/Stop on AHU	Square Feet	

- This incentive is available for HVAC sequence of operation to be set to utilize the existing building automation system (BAS) to determine the length of time required to bring each zone from current unoccupied temperature to within 2˚F of the occupied setpoint temperature in the shortest period of time right before occupied mode
  - This is accomplished by using the difference between the actual zone temperature and occupied setpoint and outdoor air temperature/humidity
  - These differences are then compared with historical performance of how quickly the zone has been able to warm up or cool down to determine when the system needs to startup in the morning
- During optimal start morning warm-up, the supply fan shall run continuously and the heating or cooling shall be energized but the outdoor air damper shall remain closed unless in economizer mode
- Optimal stop shall use historical difference between zone temperature and outdoor air temperature/humidity to determine when the cooling/ heating can be shutdown prior to unoccupied time without the zone temperature drifting farther than 5˚F from setpoint
- During optimal stop, the supply fan shall continue to run and the outdoor air damper shall remain open
- The following information must be submitted with the application:
  - Floor plans with controlled area highlighted
  - Sequence of operation

8.0 Building Envelope & Insulation

8.1 TRUCK LOADING DOCK DOOR INFILTRATION SEAL

Measure Description		Unit
Truck Loading Dock Door Infiltration Seal	No existing seals	Door
	Severely degraded existing seals	Door

- Building interior space must be heated during winter
- Seals may be attached to the exterior of the building and must effectively close all gaps between the building and the semi-trailer
- Dock door seals must fill the gap between the dock door and the trailer, including the "hinging gap" that occurs with outwardly swinging trailer doors

8.2 TRUCK LOADING DOCK LEVELER RAMP PIT AIR SEAL

Measure Description		Unit
Truck Loading Dock Leveler Ramp Pit Air Seal	Existing Ramp without Brush Barrier	Ramp
	Existing Ramp with Brush Barrier	Ramp

- Building interior space must be heated during winter
- Seals must effectively close all gaps between the building and semi-trailer
- Air seals may be attached to the exterior of the building or around the edge of the ramp, and must maintain an effective seal both when ramp is in use (raised or lowered) or out of use
- Brush type or whisker type perimeter/edge seals may be used in conjunction with air seals but do not qualify for the incentive
- Replacement of existing air seals do not qualify

8.3 AUTOMATIC HIGH SPEED DOORS

Measure Description	Unit
Automatic High Speed Doors	Square Feet of Door

- This incentive is available for commercial and industrial facilities with currently conditioned spaces
- Replacement of existing high speed doors does not qualify

8.4 FLAT ROOF INSULATION

Measure Description		Unit
Flat Roof Insulation	R-10 to R-18	Square Feet
	R-12 to R-18	Square Feet
	R-14 to R-18	Square Feet
	R-16 to R-18	Square Feet
	R-18 to R-20	Square Feet
	R-20 to R-22	Square Feet
	R-22 to R-24	Square Feet

- This incentive is available for new insulation on existing buildings
- New construction applications are also applicable for insulation incentives that exceed that which is defined by ASHRAE 90.1 2013 for its application
- Total roof area should be less than 150,000 sq. ft.
- Roof insulation must be installed in a space that requires natural gas-fired space heating
- All materials must be new and meet applicable state and local codes, and must be installed in accordance with the manufacturer's requirements
- The following documents must be submitted with the application:
  - Scaled floor plan of total roof area (sq. ft.) being insulated
  - Roof construction detail (sketch) showing a section cut of the existing and proposed roof
  - Specification of the proposed roof insulation
- "Insulation Entirely Above Deck" and "Metal Building" as defined by ASHRAE 90.1 2013 roof insulation when they are installed between the conditioned and unconditioned areas qualify
- Proposed R-value levels must meet or exceed R-18
- Initial incentive available for insulation up to R-18; additional incentives available for each R-value installed above the minimum up to R-24

8.5 WALL & CEILING INSULATION

Measure Description	Unit
Wall Insulation	Square Feet
Ceiling Insulation	Square Feet

- This incentive is available for new insulation on existing, uninsulated walls
- Proposed R-value must meet or exceed R-14
- "Attic and Other" (as defined by ASHRAE 90.1 2013) roof insulation when they are installed between the conditioned and unconditioned areas qualify
- Insulation installed above dropped commercial ceilings does not qualify
- The starting attic insulation levels must be ≤R-11. The final must exceed R-42

8.6 GENERAL REQUIREMENTS PIPE INSULATION

These incentives are available for retrofit projects using 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 project does not qualify. The following requirements apply to all pipe insulation measures:

- A minimum of R-4 (approximately 1 inch) of pre-formed pipe insulation must be added to existing bare metal pipe system
- New or recently repaired piping does not qualify
- The bare pipe size must be ½ inch to 2½ inch nominal pipe diameter. Piping 3 inch nominal pipe diameter and larger may qualify as a custom measure
- Minimum of 10 linear feet; maximum of 500 linear feet
- Insulation used for pipes should be high-density fiberglass insulation, or closed-cell elastomeric foam insulation, shaped for pipes
- The following documents must be submitted with the application:
  - Manufacturer's name
  - Insulation material type
  - Material K-value or R-value rating
- Non-conditioned spaces are not temperature-controlled
- Conditioned spaces must be heated

8.7 HYDRONIC SPACE HEATING OR STEAM SPACE HEATING PIPE INSULATION

Measure Description		Unit
HVAC Space Heating Pipe Insulation	Hydronic	Linear Feet
	Steam	Linear Feet

- All projects must meet the general requirements in section 8.6
- This incentive is available for existing hydronic heating piping systems operating at a minimum design supply water temperature of 180˚F or steam heating piping systems with no existing insulation
- Implementation of this measure must result in a decrease of natural gas consumption

8.8 NATURAL GAS DOMESTIC HOT WATER PIPE INSULATION

Measure Description		Unit
Natural Gas Domestic Hot Water Pipe Insulation	Unconditioned Space (140˚F)	Linear Feet
	Conditioned Space (140˚F)	Linear Feet
	Unconditioned Space (120˚F)	Linear Feet
	Conditioned Space (120˚F)	Linear Feet

- All projects must meet the general requirements in section 8.6
- This incentive is available for existing domestic hot water supply systems operating at a minimum of 120°F hot water supply temperature with no existing insulation
- Implementation of this measure must result in a decrease of natural gas consumption

8.9 PROCESS STEAM PIPE CONDENSATE RETURN INSULATION

Measure Description	Unit
Process Steam Pipe Condensate Return Insulation	Linear Feet

- All projects must meet the general requirements in section 8.6
- This incentive is available for existing saturated steam piping systems operating at a minimum of 5 psi system pressure with no existing insulation
- Condensate piping extending to a drain does not qualify

8.10 PROCESS HYDRONIC OR STEAM VALVE, STRAINER OR STEAM TRAP INSULATION

Measure Description	Unit
Hydronic Valve	Valve
Steam Valve	Valve
Hydronic Strainer	Valve
Strainer/Steam Trap	Valve

- All projects must meet the general requirements in section 8.6
- Must be removable, high-density fiberglass engineered covers or modular insulation kits

8.11 DUCT SEALING

Measure Description	Unit
Duct Sealing 15% Leakage Base	Ton
Duct Sealing 20% Leakage Base	Ton
Duct Sealing 25% Leakage Base	Ton
Duct Sealing 30% Leakage Base	Ton

- Pre and post duct leakage testing is required
- Supply and return ducts to be considered in the total leakage reduction

8.12 HVAC DUCTWORK

Measure Description	Unit
Insulating HVAC Supply Ductwork in Unconditioned Space	Square Feet
Insulating HVAC Supply Ductwork in Exterior Space	Square Feet
Insulating HVAC Return Ductwork in Unconditioned Space	Square Feet
Insulating HVAC Return Ductwork in Exterior Space	Square Feet

- Minimum of R-6 applied to uninsulated ductwork

8.13 WINDOWS

Configuration		SHGC	U-Value
Original Double Hung Window	Window with Original Storm Window	≥0.58	≥0.76
	With Low U Storm	≥0.27	≥0.21

9.0 Commercial Kitchen & Refrigeration Equipment

9.1 ENERGY STAR CERTIFIED FRYER

Measure Description	Unit
ENERGY STAR Certified Fryer	Unit

- This incentive is available for the purchase of a new or replacement ENERGY STAR certified fryer
- Used or rebuilt equipment does not qualify
- Fuel switching applications do not qualify
- Must have a cooking energy efficiency ≥50%

9.2 LARGE VAT FRYER

Measure Description	Unit
Large Vat Fryer	Unit

- This incentive is available for the purchase of a new or replacement energy efficient fryer
- Used or rebuilt equipment does not qualify
- Fuel switching applications do not qualify
- Must meet the ASTM Standards Test Method for the Performance of Large Vat Fryers F2144-05

9.3 ENERGY STAR CERTIFIED STEAM COOKER

Measure Description		Unit
ENERGY STAR Certified Steam Cooker	5 pan	Unit
	6 pan	Unit

- This incentive is available for the purchase of a new or replacement ENERGY STAR certified steam cooker
- Used or rebuilt equipment does not qualify
- Fuel switching applications do not qualify
- Must have a cooking energy efficiency ≥38%

9.4 COMBINATION OVEN

Measure Description	Unit
Combination Oven	Unit

- This incentive is available for the purchase of a new or replacement energy-efficient combination oven
- Used or rebuilt equipment does not qualify
- Fuel switching applications do not qualify
- Must have a cooking energy efficiency ≥40%

9.5 ENERGY STAR CERTIFIED CONVECTION OVEN

Measure Description	Unit
ENERGY STAR Certified Convection Oven	Unit

- This incentive is available for the purchase of a new or replacement ENERGY STAR certified convection oven
- Used or rebuilt equipment does not qualify
- Fuel switching applications do not qualify
- Must have a cooking energy efficiency ≥44%

9.6 RACK OVEN

Measure Description		Unit
Rack Oven	Single	Unit
	Double	Unit

- This incentive is available for the purchase of a new or replacement energy-efficient rack oven
- Used or rebuilt equipment does not qualify
- Fuel switching applications do not qualify
- Must have a cooking energy efficiency ≥50%

9.7 ENERGY STAR CERTIFIED GRIDDLE

Measure Description	Unit
ENERGY STAR Certified Griddle	Unit

- This incentive is available for the purchase of a new or replacement ENERGY STAR certified griddle
- Used or rebuilt equipment does not qualify
- Fuel switching applications do not qualify
- Must have a cooking energy efficiency ≥38%

9.8 PRE-RINSE SPRAYERS

Measure Description	Unit
Pre-rinse Sprayers	Unit

- This incentive is available for low-flow, high efficiency pre-rinse sprayer using ≤ 1.6 gallons per minute and must replace a sprayer ≥2.2 gallons per minute

9.9 REFRIGERATION HEAT RECOVERY

Measure Description		Unit
Waste Heat Recovery	HVAC	Ton
	Domestic Water Heater	Ton

- This incentive is available for the installation of new waste heat recovery equipment on commercial refrigeration equipment
- Need for waste heat must be sufficient enough to result in decrease in natural gas consumption
- Minimum of 30% refrigeration system waste heat must be utilized for HVAC or domestic water heating
- Condenser used to reject refrigeration system heat must be located in an area where the heat is not used, typically outside (i.e., > 95% wasted)
- Must include new heat exchanger installed in HVAC duct or cold water supply to domestic hot water system to reclaim heat from refrigeration system condenser
- Recovery heat exchanger must be designed for a minimum of 70% recoverable refrigeration load

9.10 BROILER

Measure Description	Unit
Flexible Batch Broiler with Catalyst	Unit
Flexible Batch Broiler	Unit

- Existing conveyor broiler must be replaced by flexible batch broiler
- Rather than running continuously, the appliance uses a thermostatic control to reduce energy use during non-cooking periods
- A catalyst that breaks down grease that is present in the exhaust is required

9.11 PASTA COOKER

Measure Description	Unit
Pasta Cooker	Unit

- New units must include a natural gas fueled burner
- This incentive applies towards the purchase of new or replacement energy-efficient pasta cookers. Used or rebuilt equipment is not eligible.
- Pasta cookers should operate between 3 and 16 hours per day
- Installations with lower operating times are ineligible and those with higher operating times should be custom projects

9.12 ENERGY STAR CERTIFIED DISHWASHER

Measure Description		Unit
ENERGY STAR Certified Dishwasher with Gas Booster	Door Type	Unit
	Multi-Tank Conveyor	Unit
	Single Tank Conveyer	Unit
	Under Counter	Unit

- This incentive is available for the purchase of a new or replacement ENERGY STAR certified dishwasher
- Must have a gas temperature booster
- Existing domestic water heater must be natural gas fueled
- Fuel switching applications do not qualify

9.13 ENERGY STAR CERTIFIED CLOTHES WASHER

Measure Description	Unit
ENERGY STAR Certified Clothes Washer, Gas Water Heater, Gas Dryer	Unit
ENERGY STAR Certified Clothes Washer, Gas Water Heater, Electric Dryer	Unit
ENERGY STAR Certified Clothes Washer, Electric Water Heater, Gas Dryer	Unit

- This incentive is available for qualified clothes washer of ≥2.20 MEF (Modified Energy Factor)
- Washer capacity of ≥3.5 cubic feet

10.0 Agriculture

10.1 GRAIN DRYERS

Measure Description	Unit
Grain Dryer	Bushels/Year

- Existing grain dryer must have a minimum drying efficiency of 2,280 BTU/pound-water
- New dryer must be natural gas heated, permanently installed, and have a minimum grain dryer efficiency of 1,590 BTU/pound-water
- The following information must be submitted with the application:
  - Manufacturer name
  - Model number
  - Specification sheet including the proposed grain dryers' operating efficiency
  - Documentation identifying the proposed annual of volume (bushels/year) of grain to be processed
- This measure is available for retrofitting heat recovery equipment onto existing grain dryers used for drying corn. The retrofitted unit must recirculate at least 30% of the drying air
- The existing grain dryer must be in good working order with at least 10 years of useful life left

10.2 ENERGY STAR CERTIFIED DAIRY WATER HEATERS

Measure Description	Unit
ENERGY STAR Certified Dairy Water Heaters	Unit

- This incentive is available for the replacement of a storage type gas water heater with an ENERGY STAR certified dairy water heater
- Minimum thermal efficiency of 0.94
- Must have a thermostat adjustable up to 180˚F
- Water heater capacity must be > 75,000 Btu/hour

10.3 GREENHOUSE HEAT CURTAIN

Measure Description	Unit
Greenhouse Heat Curtain	Unit

- This incentive is available for new or replacement heat curtains
- Must be designed by the manufacturer to be a heat curtain
- Must have a natural gas savings rate ≥40%
- Effective life warranty of at least 5 years
- Square footage cannot exceed the square footage of the greenhouse floor
  - Overhang or overlap material can be installed but does not qualify for incentive

10.4 GREENHOUSE INFRARED FILM

Measure Description	Unit
Greenhouse Infrared Film – Single Layer Baseline	Square Feet
Greenhouse Infrared Film – Double Layer Baseline	Square Feet

- Film must be infrared, anti-condensate, polyethylene plastic with a minimum thickness of 6 mils
- Infrared coating must be applied to film at the factory; coating applied on site to existing film does not qualify

10.5 GREENHOUSE HYDRONIC HEATING

Measure Description		Unit
Greenhouse Under-Floor/ Under-Bench Hydronic Heating	w/o Thermal Curtain	Square Feet
	with Thermal Curtain	Square Feet

- This incentive is available for installing under-floor (within concrete or direct contact) or under-bench hydronic heating loop for agricultural greenhouses
- Existing heating system must be forced air (i.e., unit heaters)
- Incentive for under-floor heating is based on the square feet of area served
- Incentive for under-bench heating is based on the square feet of benches served
- System temperature sensors must be located within the growing media
- Must maintain constant setpoint temperature of 67°F
- New construction applications are also eligible

10.6 GREENHOUSE ENVIRONMENTAL CONTROLS

Measure Description	Unit
Greenhouse Environmental Controls	Square Feet

- This incentive is available for the installation of an automated environmental controls system to a greenhouse space with no existing scheduled (manual or automatic) temperature setback controls
- Proposed system must control temperature set points with at least hourly control configuration
- Minimum setpoint temperature of 67°F with a space temperature setback of at least 6°F

11.0 Tune-Ups

Please go to **efficiencyunited.com** for our Boiler Tune-up application.

Measure Description	Unit
O&M Furnace Tune Up	MBH Input

12.0 Snow and Ice Melt Controls

12.1 SNOW AND ICE MELT CONTROLS

Measure Description	Unit
Optimized Snow and Ice Melt Controls - without idle mode	Square Feet
Optimized Snow and Ice Melt Controls - with idle mode	Square Feet

- Shall include automatic controls capable of shutting off the systems when the pavement temperature is above 50°F and no precipitation is falling and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40°F
- The controller must be programmed to setback the slab temperature to 35°F during idle mode and allow the slab temperature to reset to 40ºF prior to predicted moisture events

2024 Custom Project Specification

Measure Description	Unit
Custom – Natural Gas	Therm Saved

- All custom projects must be facility improvements that result in a permanent reduction in natural gas energy usage due to an increase in a systems efficiency. Projects that result in reduction of energy consumption without an improvement in system efficiency are not eligible for a custom incentive. However, projects involving automated control technology may be eligible for incentives. All equipment purchased for custom projects must be new. Projects that entail measures covered by the prescriptive incentive program are not eligible for custom incentives.
- The annual gas savings must be calculated for all custom projects using industry accepted engineering algorithms and/or simulation models. Calculations must be completed for both the existing and proposed equipment/systems based on the current operation of the facility. If the equipment has reached the end of its useful life, the existing system must be substituted with equipment that would meet the applicable federal and local energy codes when calculating the annual energy savings.
- All calculations, metered data, equations, and assumptions must be submitted with the application along with their sources if applicable. Efficiency United is solely responsible for the final determination of the annual energy savings to be used in calculating the incentive amount. Preliminary and post inspections are required to verify equipment and operation conditions. Efficiency United reserves the right to require specific measurements and verification measures, including monitoring both before and after the completion of the project. The incentive payment will be based on the result of the above-mentioned activities.
- Project payback is equal to the ratio of the project cost divided by the annual energy bill savings. To qualify for a custom project, the project payback must be at least one year and no more than eight years. A pre-application is required for all custom projects while the existing equipment is still in operation in order to allow Efficiency United the opportunity to verify the existing equipment.
- The following types of projects do not qualify for energy efficiency incentives:
  - On-site electricity generation
  - Renewable energy
  - Fuel switching (i.e., natural gas to electric, electric to natural gas)
  - Changes in operational and or/maintenance practices, or simple control modification that do not involve capital cost