



SEMCO ENERGY Gas Company

# 2021 Natural Gas Rebate Catalog

**Commercial and Industrial  
Energy Efficiency Program**

**SEMCO**  
Energy Waste Reduction  
 *Save Energy. Save Money.*

# Terms and Conditions

These Standard Terms and Conditions for Participating Customers and the Customer Participation Agreement (collectively, the "Agreement") are made and entered into by and between CLEAResult Consulting Inc., a Texas corporation and/or an affiliate thereof ("CLEAResult"), and Customer for the purpose of evaluating and installing energy efficient measures ("EEM") under the Program funded by SEMCO Energy Gas Company ("Sponsor"). CLEAResult and Customer may be referred to in this Agreement individually as a "Party" and collectively as the "Parties." The Parties acknowledge and agree that the state regulatory governing body (the "MPSC"), Sponsor and Contractor are third party beneficiaries of this Agreement. In consideration of the mutual covenants and agreements set forth below, the adequacy and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

**1. ACCESS AND PARTICIPATION.** Customer agrees to support CLEAResult and Contractor and assign a representative to facilitate services provided under this Agreement. Customer acknowledges its intent to install EEM using Program rebates. Customer agrees to allow CLEAResult and Contractor to access its facilities, energy use and cost information, including information and data from Sponsor, for the purposes of implementing this Agreement. If Customer is a tenant, Customer represents that by signing this document they have obtained the property owner's permission to install EEM under this Agreement. Customer agrees not to use the name or identifying characteristics of Sponsor or its contractors for any advertising, sales promotion, or other publicity of any kind. Customer also confirms that it has not and will not receive rebates or services for any EEMs installed under this Program from another program funded by Sponsor. The Program may be modified or terminated without prior notice and this Agreement is subject to modifications by Sponsor in its sole discretion.

**2. ELIGIBILITY.** Sponsor determines eligibility of Customers at its sole discretion. CLEAResult may request verification of eligibility requirements at any time during the Program period.

**3. REBATE PAYMENT.** Customer acknowledges that rebates will be paid by Sponsor only if: (a) Customer(s) and installed EEM(s) or services meet the Program eligibility requirements and the requirements outlined by the Program; (b) EEMs are installed in eligible project sites; and (c) EEMs are installed at a project site that has not received rebates from any other of Sponsor's energy efficiency programs for the same EEM(s). Customer understands that Sponsor, in its sole discretion, may withhold rebate payments committed to Customer if a project site is proven ineligible or a project otherwise does not comply with the requirements set forth by the Program. Rebate amounts may not exceed 75% of the EEM, including materials, external labor, permits, equipment rental or disposal. Custom rebates will not be provided for projects with less than a 1-year simple payback or greater than an 8-year simple payback. Rebates are based on energy savings and may be limited by the annual customer cap. Rebates are subject to available program funding and only one rebate will be granted for each project. Customer remains solely responsible for any tax liability related to the EEM and the rebate payment. The Program 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 rebate, whichever is less. If the energy savings is not provided, the facility in which the installed projects are located closes or ceases operation within three (3) years from receipt of rebate, or Sponsor ceases to be the energy provider for the facility during the three (3) years, a prorated amount of the rebate will be refunded.

**4. AUDITING, MONITORING AND VERIFICATION.** Customer also agrees to allow CLEAResult, Contractor, Sponsor and the MPSC to access its facilities for the purpose of confirming Customer's participation in the Program, inspecting installed EEM, and verifying the energy savings achieved through the Program. Customer agrees to cooperate with CLEAResult, Contractor, Sponsor and the MPSC, as necessary.

Customer also agrees to remedy any issue arising from auditing and monitoring, at its expense, within the timeframe provided by the Program. Customer understands that any rebates may be withheld if Customer refuses to participate in any required verification within a reasonable period. Customer verifies that all EEM is installed in accordance with all applicable federal, state and local laws and manufacturer's specifications.

**5. CONFIDENTIALITY.** CLEAResult shall keep Customer information confidential. Unless otherwise required by law or this Agreement. Only the Contractor, Sponsor and the MPSC shall be granted access to Customer data as needed or required. CLEAResult will not use the name or identifying characteristics of Customer in advertising sales promotion or other publicity without Customer's written approval. Customer agrees Sponsor may utilize Customer's information in preparing reports and documentation concerning the Program and that such information, aggregated with other data, may be provided to third parties, including the MPSC, as permitted by law.

**6. NO WARRANTY.** CLEAResult, Sponsor and the MPSC make no representations, endorsements or warranties, and assume no liability with respect to quality, safety, performance, design, energy savings, or other aspect of any EEM installed pursuant to this agreement and expressly disclaim any such representation, warranty or liability, including but not limited to the implied warranties of merchantability, fitness for a particular purpose, and noninfringement. Nothing in this agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to any third party. Neither the MPSC, Sponsor, nor CLEAResult shall be responsible for costs or corrections of conditions already existing in the facilities inspected which fail to comply with applicable laws and regulations.

**7. INDEMNIFICATION; LIMIT ON LIABILITY.** Customer agrees to indemnify, defend and hold harmless the MPSC, Sponsor and CLEAResult against all loss, damages, costs, including attorney fees and liability arising from any claims related to any products installed or services performed during the installation or maintenance of EEM. Neither the MPSC, Sponsor, CLEAResult, nor customer shall be liable to each other for any incidental, special, indirect or consequential damages related to this agreement. Customer releases Sponsor from any and all claims it may have related to the EEM, the Program and/or this Agreement.

**8. MISCELLANEOUS.** This Agreement shall be governed by and construed under the laws of the State of Michigan, without regard to conflict of law rules. The parties agree that all actions, disputes, claims and controversies arising out of or relating to this Agreement or the work performed hereunder will be subject to binding arbitration administered in the county where the Customer is located by the American Arbitration Association under its Commercial Arbitration Rules and judgment on the award may be entered in any court having jurisdiction. Customer shall not assign, delegate or subcontract this Agreement or its duties thereunder, in whole or in part, voluntarily or involuntarily (including a transfer to a receiver or bankruptcy estate) without the prior written permission of CLEAResult. CLEAResult may assign its rights and delegate its duties under this Agreement to any third party at any time without Customer's consent. If any provision of this Agreement is invalid or unenforceable in any jurisdiction, the other provisions in this Agreement shall remain in full force and effect in such jurisdiction and shall be liberally construed in order to effectuate the purpose and intent of this Agreement. The invalidity or unenforceability of any provision of this Agreement in any jurisdiction shall not affect the validity or enforceability of any such provision in any other jurisdiction. The failure of either Party to enforce strict performance by the other of any provision of this Agreement, or to exercise any right available to the Party under this Agreement, shall not be construed as a waiver of such Party's right to enforce strict performance in the same or any other instance. Sections 1 and 4 through 7 shall survive the term of this Agreement.

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# 2021 Natural Gas Measure Specifications

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# 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	MBH

- 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 / RTU

Measure Description	Unit
High-Efficiency Furnace ≥92% efficiency	MBH
High-Efficiency Furnace ≥95% efficiency	MBH
HVAC Condensing Roof Top Unit (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°F 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  $\leq 10^{\circ}\text{F}$  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
- Requirements for retro-commissioning is the same as standard measure
- 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 fifteen 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 off 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 (CO2) 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 (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 ENERGY RECOVERY VENTILATION (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) AHU TO VARIABLE AIR VOLUME (VAV) AHU

Measure Description	Unit
CAV to VAV	Square Feet

- This incentive is available for converting existing constant volume air handling systems into variable air volume 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 AHU 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 feet
- The minimum temperature differential between the thermostat (5 feet 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 feet 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
  - $R = (20\text{ft} \times 5)/2 = 50\text{ feet}$
  - $\text{Area} = (\pi r^2)$
  - $3.14 \times 50^2 = 7,850\text{ square feet}$

## 5.0 Steam Trap Repair

### 5.1 STEAM TRAP REPAIR OR REPLACEMENT

Measure Description	Unit
Steam Trap Repair	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 INDIRECT WATER HEATER

Measure Description	Unit
Indirect Water Heater	≥84% Efficiency MBH Input
	≥90% Efficiency MBH Input

- This incentive is available for the replacement of an existing domestic water heating boiler 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
- Incentive is based on boiler input capacity

### 6.2 LOW-FLOW FAUCET AERATOR

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 ≥2.2 gpm

## 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<sub>2</sub> 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<sub>2</sub> sensors must be installed in conjunction with fully functioning air side economizers
- Dual-temperature air-side economizers with zone-level CO<sub>2</sub> sensors for rooftop units qualify
- Return system CO<sub>2</sub> 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<sub>2</sub> 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 DEMAND CONTROL VENTILATION AND HVAC OCCUPANCY SENSORS

Measure Description	Unit
DCV and HVAC OCC	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
  - Demand Control Ventilation (DCV) to reduce the amount of ventilation during periods of low occupancy, typically achieved through a carbon dioxide (CO<sub>2</sub>) 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<sub>2</sub> sensors installed
- Cannot be combined with the demand control ventilation (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 for existing buildings with no digital automated HVAC controls or outdated pneumatic control systems with inoperable time control functions
- Upgrades on existing digital EMS systems do not qualify
- Existing HVAC control systems cannot have time of day scheduling (including seven-day programmable thermostats) Upgrading an obsolete HVAC EMS with inoperable time clock functions will be reviewed on a case-by-case basis
- 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
- It is recommended the HVAC EMS include
  - Real-time outside air damper positioning
  - Whole building real-time power and energy monitoring capability
  - At least three “enhanced” control strategies (i.e., critical zone hydronic heating supply temperature reset, AHU fan control, exhaust fan control, etc.)
  - If incorporated with DCV, real-time CO<sub>2</sub> monitoring at the operator interface
  - As part of the new control system the owner should receive all hardware and software programming tools required for system changes and/or additions
- 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
  - Estimated cost of proposed EMS This incentive is available for existing buildings with no digital automated HVAC controls or outdated pneumatic control systems with inoperable time control functions
- Requirements for retro-commissioning is the same as standard measure
- Verification of pre- and post-installation conditions necessary for retro-commissioning measure

## 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

## 7.8 OPTIMAL START/STOP ON AHU

Measure Description	Unit	Incentive/Unit
Optimal Start/Stop on AHU	Square Feet	\$0.02

- 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	R10 to R18	Square Feet
	R12 to R18	Square Feet
	R14 to R18	Square Feet
	R16 to R18	Square Feet
	R18 to R20	Square Feet
	R20 to R22	Square Feet
	R22 to R24	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 square feet
- 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 (square feet) 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



## 8.0 Building Envelope & Insulation

### 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°)	Linear Feet
	Conditioned Space (140°)	Linear Feet
	Unconditioned Space (120°)	Linear Feet
	Conditioned Space (120°)	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

## 8.0 Building Envelope & Insulation

### 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

Measure Description		SHGC	U-Value
Original Double Hung Window	Window with Original Storm Window	$\geq 0.58$	$\geq 0.76$
	With Low U Storm	$\geq 0.27$	$\geq 0.21$

## 9.0 Commercial Kitchen & Refrigeration Equipment

### 9.1 ENERGY STAR® FRYER

Measure Description	Unit
ENERGY STAR Fryer	Unit

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

### 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
- Must be ENERGY STAR certified

### 9.3 ENERGY STAR STEAM COOKER

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

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

### 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  $\geq 40\%$

### 9.5 ENERGY STAR CONVECTION OVEN

Measure Description	Unit
ENERGY STAR Convection Oven	Unit

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

### 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  $\geq 50\%$

### 9.7 ENERGY STAR GRIDDLE

Measure Description	Unit
ENERGY STAR Griddle	Unit

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

### 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  $\leq 1.6$  gallons per minute and must replace a sprayer  $\geq 2.2$  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 DISHWASHER

Measure Description		Unit
ENERGY STAR Dishwasher w/ Gas Booster	Door Type	Unit
	Multi-Tank Conveyor	Unit
	Single Tank Conveyor	Unit
	Under Counter	Unit

- This incentive is available for the purchase of a new or replacement ENERGY STAR rated 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 CLOTHES WASHER

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

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

## 10.0 Agriculture

### 10.1 GRAIN DRYERS

Measure Description	Unit
Grain Dryer	Bushels/year
Grain Dryer Heat Recovery	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 DAIRY WATER HEATERS

Measure Description	Unit
ENERGY STAR Dairy Water Heaters	Unit

- This incentive is available for the replacement of a storage type gas water heater with an ENERGY STAR rated 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	Square Feet

- 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

### 11.1 TUNE-UPS

See Furnace and Boiler Tune-Up application at [semcoenergygas.com/commercial-industrial-savings](http://semcoenergygas.com/commercial-industrial-savings).

## 12.0 Snow & Ice Melt Controls

### 12.1 SNOW MELT

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 40°F prior to predicted moisture event

# 2021 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.

SEMCO Energy Waste Reduction Program 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. SEMCO Energy Waste Reduction Program 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 SEMCO Energy Waste Reduction Program 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
  - Changes in operational and or/maintenance practices, or simple control modification that do not involve capital cost