Sector	Measure Long Name	Parent Measure Long Name	Primary Fuel	Secondary Fuel	Primary End Use(s)	Secondary Fuel End Use(s)	Description
Res	ENERGY STAR Clothes Washer with Electric Water Heating and Electric Drying	ENERGY STAR Clothes Washer with Electric Water Heating and Electric Drying	E	E	Appliances	Water Heating	This measure includes replacement of failed or working clothes washer in existing homes with ENERGY STAR clothes washers, or installation of an ENERGY STAR clothes washer in a new home.
Res	ENERGY STAR Clothes Washer with Gas Water Heating and Electric Drying	ENERGY STAR Clothes Washer with Gas Water Heating and Electric Drying	E	G	Appliances	Water Heating	This measure includes replacement of failed or working clothes washer in existing homes with ENERGY STAR clothes washers, or installation of an ENERGY STAR clothes washer in a new home
Res	ENERGY STAR Clothes Washer with Gas Water Heating and Gas Drying	ENERGY STAR Clothes Washer with Gas Water Heating and Gas Drying	E	G	Appliances	Appliances/Water Heating	This measure includes replacement of failed or working clothes washer in existing homes with ENERGY STAR clothes washers, or installation of an ENERGY STAR clothes washer in a new home
Res	ENERGY STAR Dehumidifier	ENERGY STAR Dehumidifier	E		Appliances		This measure includes installation of a new ENERGY STAR Dehumidifier or replacement of an old dehumidifier with an ENERGY STAR unit.
Res	ENERGY STAR Dishwashers with Electric Water Heating	ENERGY STAR Dishwashers with Electric Water Heating	E	E	Appliances	Water Heating	This measure includes replacement of failed or working dishwashers in existing homes with ENERGY STAR dishwashers, or installation of ENERGY STAR dishwashers in new homes.
Res	ENERGY STAR Dishwashers with Gas Water Heating	ENERGY STAR Dishwashers with Gas Water Heating	E	G	Appliances	Water Heating	This measure includes replacement of failed or working dishwashers in existing homes with ENERGY STAR dishwashers, or installation of ENERGY STAR dishwashers in new homes.
Res	Multifamily Common Area Clothes Washer with Electric Water Heating and Electric Drying	Multifamily Common Area Clothes Washer with Electric Water Heating and Electric Drying	E	E	Appliances	Water Heating	High efficiency commercial clothes washer replacing standard efficiency unit in a multifamily application
Res	Multifamily Common Area Clothes Washer with Gas Water Heating and Electric Drying	Multifamily Common Area Clothes Washer with Gas Water Heating and Electric Drying	E	G	Appliances	Water Heating	High efficiency commercial clothes washer replacing standard efficiency unit in a multifamily application
Res	Multifamily Common Area Clothes Washer with Gas Water Heating and Gas Drying	Multifamily Common Area Clothes Washer with Gas Water Heating and Gas Drying	E	G	Appliances	Appliances/Water Heating	High efficiency commercial clothes washer replacing standard efficiency unit in a multifamily application
Res	ENERGY STAR Clothes Washer with Electric Water Heating and Gas Drying	ENERGY STAR Clothes Washer with Electric Water Heating and Gas Drying	E	G	Appliances/Water Heating	Appliances	This measure includes replacement of failed or working clothes washer in existing homes with ENERGY STAR clothes washers, or installation of an ENERGY STAR clothes washer in a new home
Res	Multifamily Common Area Clothes Washer with Electric Water Heating and Gas Drying	Multifamily Common Area Clothes Washer with Electric Water Heating and Gas Drying	E	G	Appliances/Water Heating	Appliances	High efficiency commercial clothes washer replacing standard efficiency unit in a multifamily application
Res	Air Source Heat Pump	Air Source Heat Pump	E	E	Cooling	Space Heating	This measure includes replacement of failed ASHP in existing homes with high efficiency units, as well as installation of ASHP systems in new homes.
Res	Air Source Heat Pump Replacing Electric Heat and Central Air Conditioner	Air Source Heat Pump Replacing Electric Heat and Central Air Conditioner	E	E	Cooling	Space Heating	This measure includes replacement of failed Central Air Conditioners in existing homes with electric resistance heat with high efficiency air source heat pump units, as well as installation of ASHP systems in new homes.
Res	Air Source Heat Pump Replacing Electric Heat and Central Air Conditioner with Quality Install	Air Source Heat Pump Replacing Electric Heat and Central Air Conditioner with Quality Install	E	E	Cooling	Space Heating	This measure includes replacement of failed Central Air Conditioners in existing homes with electric resistance heat with quality install high efficiency air source heat pump units, as well as installation of ASHP systems in new homes.
Res	Air Source Heat Pump Tune-Up - Cool	Air Source Heat Pump Tune-Up	E		Cooling	Space Heating	Residential air-source heat pump tune-up involves inspection of mechanical/electrical components operation and coils cleaning.
Res	Air Source Heat Pump with Quality Install	Air Source Heat Pump with Quality Install	E	E	Cooling	Space Heating	This measure includes replacement of failed ASHP systems in existing homes with high efficiency units, as well as installation of high efficiency ASHP systems in new homes. Savings for replacement of working units are in reference to existing unit. This measure includes additional savings from installation of high efficiency AC systems or ASHP in existing or new homes through a "Quality Installation" program.
Res	Central Air Conditioner	Central Air Conditioner	E		Cooling		This measure includes replacement of failed central AC system in existing homes with high efficiency units, as well as installation of high efficiency AC systems in new homes.
Res	Central Air Conditioner Recommissioning	Central Air Conditioner Recommissioning	E		Cooling		Residential split-system air conditioning tune-up involves inspection of mechanical/electrical components operation, refrigerant charge, airflow, and coils cleaning.
Res	Central Air Conditioner Tune-Up	Central Air Conditioner Tune-Up	E		Cooling		Residential split-system air conditioning tune-up involves inspection of mechanical/electrical components operation and coils cleaning.
Res	Central Air Conditioner with Quality Install	Central Air Conditioner with Quality Install	E		Cooling		This measure includes replacement of failed central AC system in existing homes with high efficiency units, as well as installation of high efficiency AC systems in new homes. Savings for replacement of working units are in reference to existing unit. This measure includes additional savings from installation of high efficiency AC systems or ASHP in existing or new homes through a "Quality Installation" program.
Res	Duct Sealing, Electric Heat	Duct Sealing, Electric Heat	E	E	Cooling	Space Heating	Duct Sealing reduces the exfiltration of supply air and infiltration of return air. Sealing of duct work can be accomplished through application of mastic sealant or metal tape to or injection of fog sealant into the distribution system of homes with either central air conditioning or a ducted heating system. For application of mastic or tape the following minimum requirements should be completed - (1) Plenum, main ducts, takeoffs and boots must be sealed, (2) Post-project carbon monoxide tests must be taken and adjustments made to heating system, until test results are within standard industry acceptable limits, (3) In areas where mastic is the main source of sealing, thickness of mastic must be a minimum of 1/16th inch and a good faith effort must be made to remove existing duct tape and cover with mastic.

Res	Duct Sealing, Gas Heat	Duct Sealing, Gas Heat	E	G	Cooling	Space Heating	Duct Sealing reduces the exfiltration of supply air and infiltration of return air. Sealing of duct work can be accomplished through application of mastic sealant or metal tape to or injection of fog sealant into the distribution system of homes with either central air conditioning or a ducted heating system. For application of mastic or tape the following minimum requirements should be completed - (1) Plenum, main ducts, takeoffs and boots must be sealed, (2) Post-project carbon monoxide tests must be taken and adjustments made to heating system, until test results are within standard industry acceptable limits, (3) In areas where mastic is the main source of sealing, thickness of mastic must be a minimum of 1/16th inch and a good faith effort must be made to remove existing duct tape and cover with mastic.
Res	Ductless Mini Split Air Conditioner	Ductless Mini Split Air Conditioner	E		Cooling		Replacement of Split or Through-the-Wall A/C with Ductless Mini Split A/C
Res	Ductless Mini Split Heat Pump Replacing Electric Resistance Heat and Split Air Conditioner	Ductless Mini Split Heat Pump Replacing Electric Resistance Heat and Split Air Conditioner	E	E	Cooling	Space Heating	Replacement of Electric Resistance Heating System and Split Central A/C with Ductless Mini Split Heat Pump
Res	ENERGY STAR Room Air Conditioner	ENERGY STAR Room Air Conditioner	E		Cooling		This measure includes the replacement of failed or working room air conditioners in residential homes, as well as installation of high efficiency room air conditioners in new homes.
Res	Ground Source Heat Pump Replacing Electric Heat and Split Air Conditioner	Ground Source Heat Pump Replacing Electric Heat and Split Air Conditioner	E	E	Cooling	Space Heating	Replacement of Electric Heating System and Split Central A/C with Ground Source Heat Pump
Res	Smart Thermostats with Electric Heating	Smart Thermostats with Electric Heating	E	E	Cooling	Space Heating	This measure includes installation of an analytics capable (smart) thermostat in existing homes with electric heating. A smart thermostat has additional energy savings features, including coaching, HVAC diagnostics, geofencing, comparative information, etc., demand response capabilities, and customer engagement features including customer-specific data and recommendations.
Res	ENERGY STAR LED A-Line Lamp, Exterior	ENERGY STAR LED A-Line Lamp, Exterior	E		Exterior Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. LED A-line lamps are used as efficient replacements of general service incandescent lamps and more efficient halogen lamps.
Res	ENERGY STAR LED Globe Lamp, Exterior	ENERGY STAR LED Globe Lamp, Exterior	E		Exterior Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. LED Globes are commonly used in restroom vanity fixtures and offer an efficient alternative to incandescent lamps.
Res	ENERGY STAR LED Outdoor Fixture	ENERGY STAR LED Outdoor Fixture	E		Exterior Lighting		ENERGY STAR LED outdoor fixtures replace less efficient incandescent fixtures in retrofits or new construction. Fixtures are hardwired and use either pin based or screw in lamps.
Res	ENERGY STAR LED PAR/Flood Lamp Lamp, Exterior	ENERGY STAR LED PAR/Flood Lamp Lamp, Exterior	E		Exterior Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. LED PAR/Flood lamps are commonly used in downlights and track lighting to replace less efficient incandescent and halogen lamps.
Res	Exterior LED Holiday Lights	Exterior LED Holiday Lights	E		Exterior Lighting		This measure includes replacement of failed or working incandescent holiday light strings with new LED holiday light strings. Applicable to exterior lighting end use.
Res	Exterior Lighting Controls	Exterior Lighting Controls	E		Exterior Lighting		Occupancy sensors represent an energy-efficient way to control lighting use in low occupancy areas such as halls, storage rooms, and restrooms. Instead of relying on people to remember to switch lights off when they leave a space, occupancy sensors perform this task. They measure the movement of people within a space. When movement is detected, the lights turn on automatically; they then shut off when they no longer sense movement. Each unit's shut-off time can be preset, given the needs of the space being controlled.
Res	ENERGY STAR LED A-Line Lamp, Interior	ENERGY STAR LED A-Line Lamp, Interior	E		Indoor Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. LED A-line lamps are used as efficient replacements of general service incandescent lamps and more efficient halogen lamps.
Res	ENERGY STAR LED A-Line Lamp, Multifamily Common Area	ENERGY STAR LED A-Line Lamp, Multifamily Common Area	E		Indoor Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. LED A-line lamps are used as efficient replacements of general service incandescent lamps and more efficient halogen lamps.
Res	ENERGY STAR LED Fixture, Interior	ENERGY STAR LED Fixture, Interior	E		Indoor Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. Recessed downlight fixtures are common in living rooms, bedrooms, and rec rooms and are typically incandescent lamps. LED recessed downlight fixtures offer an efficient alternative to the incandescent fixtures.
Res	ENERGY STAR LED Fixture, Multifamily Common Area	ENERGY STAR LED Fixture, Multifamily Common Area	E		Indoor Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. Recessed downlight fixtures are common in living rooms, bedrooms, and rec rooms and are typically incandescent lamps. LED recessed downlight fixtures offer an efficient alternative to the incandescent fixtures.
Res	ENERGY STAR LED Globe Lamp, Interior	ENERGY STAR LED Globe Lamp, Interior	E		Indoor Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. LED Globes are commonly used in restroom vanity fixtures and offer an efficient alternative to incandescent lamps.
Res	ENERGY STAR LED Globe Lamp, Multifamily Common Area	ENERGY STAR LED Globe Lamp, Multifamily Common Area	E		Indoor Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. LED Globes are commonly used in restroom vanity fixtures and offer an efficient alternative to incandescent lamps.

Res	ENERGY STAR LED PAR/Flood Lamp Lamp, Interior	ENERGY STAR LED PAR/Flood Lamp Lamp, Interior	E		Indoor Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. LED PAR/Flood lamps are commonly used in downlights and track lighting to replace less efficient incandescent and halogen lamps.
Res	ENERGY STAR LED PAR/Flood Lamp Lamp, Multifamily Common Area	ENERGY STAR LED PAR/Flood Lamp Lamp, Multifamily Common Area	E		Indoor Lighting		ENERGY STAR LED lamps and fixtures provide an energy efficiency alternative to traditional incandescent and halogen lamps. The ENERGY STAR program began labeling qualified LED products in the latter half of 2010. LED PAR/Flood lamps are commonly used in downlights and track lighting to replace less efficient incandescent and halogen lamps.
Res	Interior LED Holiday Lights	Interior LED Holiday Lights	E	G	Indoor Lighting	Space Heating	This measure includes replacement of failed or working incandescent holiday light strings with new LED holiday light strings. Applicable to interior lighting end use.
Res	LED Tube Replacement Lamps	LED Tube Replacement Lamps	E	G	Indoor Lighting	Space Heating	LED Tube replacement lamps offer an energy efficient alternative to traditional linear fluorescent lamps. These are available in three types: Underwriters Laboratory (UL) Type A (direct replacement), UL Type B (hard wired), or UL Type C (remote driver). The three variations allow for a retrofit in nearly every linear fluorescent application. Type A tubes contain an internal driver that allows the tube to operate directly from an existing fluorescent ballast. Type B tubes contain an integrated driver that is designed to be powered directly from line voltage supplied to the existing fluorescent fixture. Type C tubes are designed to be powered from a remote driver.
Res	ECM Circulators - Cooling Water	ECM Circulators - Cooling Water	E		Other		Electronically commutated (EC) circulators (pumps) are high-efficiency brushless DC motors. They are typically fractional horsepower motors that enjoy several benefits over the more common permanent split capacitor (PSC) fractional horsepower motor.
Res	ECM Circulators - Domestic Hot Water	ECM Circulators - Domestic Hot Water	E		Other		Electronically commutated (EC) circulators (pumps) are high-efficiency brushless DC motors. They are typically fractional horsepower motors that enjoy several benefits over the more common permanent split capacitor (PSC) fractional horsepower motor.
Res	ECM Circulators - Heating Water	ECM Circulators - Heating Water	E		Other		Electronically commutated (EC) circulators (pumps) are high-efficiency brushless DC motors. They are typically fractional horsepower motors that enjoy several benefits over the more common permanent split capacitor (PSC) fractional horsepower motor.
Res	ENERGY STAR Ceiling Fan	ENERGY STAR Ceiling Fan	E		Other		ENERGY STAR qualified ceiling fan with no light units are over 50% more efficient than conventional fans. They also use improved motors and blade designs. Includes fan-only options
Res	ENERGY STAR Ceiling Fan & Lights	ENERGY STAR Ceiling Fan & Lights	E		Other		ENERGY STAR qualified ceiling fan/light combination units are over 50% more efficient than conventional fan/light units. They also use improved motors and blade designs. Includes fan + light options
Res	Advanced Tier 2 Power Strips	Advanced Tier 2 Power Strips	E		Plug Loads		Advanced power strips are power strips that contain a number of controlled sockets and at least one uncontrolled socket. When the appliance that is plugged into the uncontrolled socket is turned off, the power strips shuts off the appliances that are plugged into the controlled sockets. These have recently been renamed Tier 1 power strips. Tier 2 power strips expand on this functionality by using algorithms to monitor the power of all controlled devices, whereas Tier 1 power strips only monitor the master device and turns off peripheral devices accordingly. Tier 2 power strips use infrared (IR) sensing and Root Mean Squared (RMS) power sensing to detect energy consumption from connected devices; tier 1 power strips only use current sensing. After 1 hour of inactivity, energy savings are delivered by turning off power to inactive devices.
Res	Variable Speed Pool Pump	Variable Speed Pool Pump	E		Pools/Hot Tubs		This measure involves installation of variable speed pool pumps to replace failed single speed units.
Res	ENERGY STAR Refrigerators and Freezers	ENERGY STAR Refrigerators and Freezers	E		Refrigeration		This measure includes the replacement of failed refrigerators or freezers in residential homes, as well as installation of high efficiency refrigerators and freezers in new homes.
Res	Secondary Fridge and Freezer Removal	Secondary Fridge and Freezer Removal	E		Refrigeration		This measure includes the removal and recycling of unneeded secondary residential refrigerators and freezers. Existing units must be working, secondary, refrigerators or freezers. Units must be recycled or otherwise rendered inoperable.
Res	Air Sealing, Electric Heating	Air Sealing, Electric Heating	E	E	Space Heating	Cooling	This measure characterizes increased air sealing for reduction of thermal losses through the building envelope.
Res	Attic Insulation, Electric Heating	Attic Insulation, Electric Heating	E	E	Space Heating	Cooling	This measure characterizes increased attic insulation for reduction of thermal losses through the building envelope.
Res	Wall Insulation, Electric Heating	Wall Insulation Exterior Application, Electric Heating	E	E	Space Heating	Cooling	This measure characterizes increased wall insulation for reduction of thermal losses through the building envelope applied from the exterior. This applies to homes with wood or vinyl siding.
Res	Home Energy Reports, Electric	Home Energy Reports Usage Quintile 2, Electric	E		Total Electric		Delivery of asynchronous feedback energy reports on a monthly basis to residential homes
Res	Smartphone feedback app for electric	Smartphone feedback app for electric	E		Total Electric		Smartphone app that provides near-real-time feedback on usage
Res	ECM Blower Motor	ECM Blower Motor	E	G	Ventilation	Space Heating	A retrofit of a less efficient (PCS) motor to a 2 stage BPM or ECM motor in an existing furnace. For retrofits, the target age range for existing furnaces is 10-12 years. This measure characterizes only the electric savings associated with the fan and could be coupled with gas savings associated with a more efficient furnace. Savings improve when the blower is used for cooling as well and when it is used for continuous ventilation, but only if the non-ECM motor would have been used for continuous ventilation too.
Res	Electric Water Heater Drainpipe Heat Exchange	Electric Water Heater Drainpipe Heat Exchange	E		Water Heating		This measure includes installing a drainpipe heat exchanger to a residential or multi-family building to recover heat from heated water going down the building's drain. The savings for this measure is “per living unit affected.”
Res	Electric Water Heater Jacket Insulation	Electric Water Heater Jacket Insulation	E		Water Heating		This measure includes installing a water heater blanket on an electric water storage water heater.

Res	Electric Water Heater Setback	Electric Water Heater Setback	E		Water Heating		This measure involves turning the water heater set point temperature to 120°F on residential storage-type water heaters, both gas and electric. The action must be performed by a utility representative on site during a home energy audit or other home visit. The existing temperature set point is assumed to be 130°F.
Res	Faucet Aerator (1.5 gpm) with Electric Water Heater	Faucet Aerator (1.5 gpm) with Electric Water Heater	E		Water Heating		This measure includes replacing an existing faucet aerator with low-flow aerator.
Res	Heat Pump Water Heater > 55 gal, Electric Space Heating	Heat Pump Water Heater > 55 gal, Electric Space Heating	E		Water Heating		This measure includes replacement of failed storage-type electric resistance water heaters in residential and multifamily buildings with electric space heating with more efficient storage-type electric heat pump water heaters.
Res	Heat Pump Water Heater > 55 gal, Gas Space Heating	Heat Pump Water Heater > 55 gal, Gas Space Heating	E	G	Water Heating	Space Heating	This measure includes replacement of failed storage-type electric resistance water heaters in residential and multifamily buildings with gas space heating with more efficient storage-type electric heat pump water heaters.
Res	Heat Pump Water Heater ≤ 55 gal, Electric Space Heating	Heat Pump Water Heater ≤ 55 gal, Electric Space Heating	E		Water Heating		This measure includes replacement of failed storage-type electric resistance water heaters in residential and multifamily buildings with electric space heating with more efficient storage-type electric heat pump water heaters.
Res	Heat Pump Water Heater ≤ 55 gal, Gas Space Heating	Heat Pump Water Heater ≤ 55 gal, Gas Space Heating	E	G	Water Heating	Space Heating	This measure includes replacement of failed storage-type electric resistance water heaters in residential and multifamily buildings with gas space heating with more efficient storage-type electric heat pump water heaters.
Res	Low Flow Showerhead (1.5 gpm) with Electric Water Heater	Low Flow Showerhead (1.5 gpm) with Electric Water Heater	E		Water Heating		This measure involves replacing a standard showerhead with a low flow showerhead.
Res	Pipe Insulation with Electric Water Heater	Pipe Insulation with Electric Water Heater	E		Water Heating		This measure includes installing pipe insulation on un-insulated piping of an electric water heating system.
Res	Pipe Insulation with Electric Water Heater	Pipe Insulation with Electric Water Heater	E		Water Heating		This measure includes installing pipe insulation on un-insulated piping of an electric water heating system.
Res	Thermostatic Restriction Valve with Electric Water Heater	Thermostatic Restriction Valve with Electric Water Heater	E		Water Heating		This measure involves installing a thermostatically restricting shower valve that reduces the amount of excess hot shower water during warm-up periods.
Res	Air Sealing, Gas Heating	Air Sealing, Gas Heating	G	E	Space Heating	Cooling	This measure characterizes increased air sealing for reduction of thermal losses through the building envelope.
Res	Boiler Tune Up	Boiler Tune Up	G		Space Heating		A boiler tune-up includes inspection/adjustment of the following components as performed by a qualified service technician: Burner(s) – clean per manufacturer's recommendations; Pilot and Pilot Tube – clean per manufacturer's recommendations; Flame Baffle – clean and adjust per manufacturer's recommendations; Gas Pressure – adjust per manufacturer's recommendations; Burner Air – adjust and set per manufacturer's recommendations; Heat Exchanger – clean and verify condition is per manufacturer's recommendations; Gas piping and valves – verify configuration and condition are per manufacturer's recommendations; Ignition System - verify operation per manufacturer's recommendations; Combustion Chamber – verify condition is per manufacturer's recommendations; Temperature Rise - verify operation per manufacturer's recommendations; Blower system - verify condition and operation are per manufacturer's recommendations (if applicable); Wiring – replace/repair loose connections and verify conditions are per manufacturer's recommendations; Pumping system – verify correct operation; Flue & Venting - verify configurations and conditions are per manufacturer's recommendations; Thermostat - verify operation per manufacturer's recommendations; Safety Locks - verify operation per manufacturer's recommendations; Final Operation - verify operation per manufacturer's recommendations
Res	Electronic Ignition Hearth	Electronic Ignition Hearth	G		Space Heating		This measure includes replacement of existing hearth/artificial fireplace using a standing pilot with a unit using electronic ignition.
Res	Furnace Tune Up	Furnace Tune Up	G		Space Heating		A furnace tune-up includes inspection/adjustment of the following components as performed by a qualified service technician: Burner(s) – clean per manufacturer's recommendations; Pilot and Pilot Tube – clean per manufacturer's recommendations; Flame Baffle – clean and adjust per manufacturer's recommendations; Gas Pressure – adjust per manufacturer's recommendations; Burner Air – adjust and set per manufacturer's recommendations; Fan Control – verify operation per manufacturer's recommendations (furnace only); Heat Exchanger – clean and verify condition is per manufacturer's recommendations; Gas piping and valves – verify configuration and condition are per manufacturer's recommendations; Ignition System - verify operation per manufacturer's recommendations; Combustion Chamber – verify condition is per manufacturer's recommendations; Temperature Rise - verify operation per manufacturer's recommendations; Blower system - verify condition and operation are per manufacturer's recommendations; Wiring – replace/repair loose connections and verify conditions are per manufacturer's recommendations; Air filtration system – clean per manufacturer's recommendations; Flue & Venting - verify configurations and conditions are per manufacturer's recommendations; Thermostat - verify operation per manufacturer's recommendations; Safety Locks - verify operation per manufacturer's recommendations; Final Operation - verify operation per manufacturer's recommendations
Res	High Efficiency Boiler	High Efficiency Boiler	G		Space Heating		This measure includes replacement of failed boilers in existing homes with high efficiency units, as well as installation of high efficiency boilers in new residences.
Res	High Efficiency Furnace	High Efficiency Furnace	G		Space Heating		This measure includes the replacement of furnaces in existing homes with high efficiency units.
Res	Pipe Insulation, Space Heat	Pipe Insulation, Space Heat	G		Space Heating		Installation of pipe insulation in multifamily buildings with hydronic space heat and recirculation
Res	Smart Thermostats with Gas Heating	Smart Thermostats with Gas Heating	G	E	Space Heating	Cooling	This measure includes installation of an analytics capable (smart) thermostat in existing homes with gas heating. A smart thermostat has additional energy savings features, including coaching, HVAC diagnostics, geofencing, comparative information, etc., demand response capabilities, and customer engagement features including customer-specific data and recommendations.

Res	Wall Insulation, Gas Heating	Wall Insulation Exterior Application, Gas Heating	G	E	Space Heating	Cooling	This measure characterizes increased wall insulation for reduction of thermal losses through the building envelope applied from the exterior. This applies to homes with wood or vinyl siding.
Res	Home Energy Reports, Gas	Home Energy Reports Usage Quintile 2, Gas	G		Total Gas		Delivery of asynchronous feedback energy reports on a monthly basis to residential homes
Res	Smartphone feedback app for gas	Smartphone feedback app for gas	G		Total Gas		Smartphone app that provides near-real-time feedback on usage
Res	Demand Control Recirculation Pump	Demand Control Recirculation Pump	G	E	Water Heating	Water Heating	Demand control recirculation pumps seek to reduce inefficiency by combining control via temperature and demand inputs, whereby the controller will not activate the recirculation pump unless both (a) the recirculation loop return water has dropped below a prescribed temperature (e.g. 100°F) and (b) a CDHW demand is sensed as water flow through the CDHW system.
Res	Faucet Aerator (1.5 gpm) with Gas Water Heater	Faucet Aerator (1.5 gpm) with Gas Water Heater	G		Water Heating		This measure includes replacing an existing faucet aerator with low-flow aerator.
Res	Gas Water Heater Drainpipe Heat Exchange	Gas Water Heater Drainpipe Heat Exchange	G		Water Heating		This measure includes installing a drainpipe heat exchanger to a residential or multi-family building to recover heat from heated water going down the building's drain. The savings for this measure is “per living unit affected.”
Res	Gas Water Heater Setback	Gas Water Heater Setback	G		Water Heating		This measure involves turning the water heater set point temperature to 120°F on residential storage-type water heaters, both gas and electric. The action must be performed by a utility representative on site during a home energy audit or other home visit. The existing temperature set point is assumed to be 130°F.
Res	Instantaneous Gas Water Heater	Instantaneous Gas Water Heater	G		Water Heating		This measure includes replacement of failed instantaneous water heaters in residential and multifamily buildings, as well as installation of instantaneous water heaters in new construction.
Res	Low Flow Showerhead (1.5 gpm) with Gas Water Heater	Low Flow Showerhead (1.5 gpm) with Gas Water Heater	G		Water Heating		This measure involves replacing a standard showerhead with a low flow showerhead.
Res	Pipe Insulation with Gas Water Heater	Pipe Insulation with Gas Water Heater	G		Water Heating		This measure includes installing pipe insulation on un-insulated piping of a gas water heating system.
Res	Pipe Insulation with Gas Water Heater	Pipe Insulation with Gas Water Heater	G		Water Heating		This measure includes installing pipe insulation on un-insulated piping of a gas water heating system.
Res	Pipe Insulation, DHW	Pipe Insulation, DHW	G		Water Heating		Installation of DHW pipe insulation in multifamily buildings with recirculation
Res	Storage Gas Water Heater	Storage Gas Water Heater	G		Water Heating		This measure includes replacement of failed storage-type, domestic gas-fired storage and instantaneous water heaters in residential and multifamily buildings, as well as installation of gas-fired storage water heaters in new construction.
Res	Thermostatic Restriction Valve with Gas Water Heater	Thermostatic Restriction Valve with Gas Water Heater	G		Water Heating		This measure involves installing a thermostatically restricting shower valve that reduces the amount of excess hot shower water during warm-up periods.
Res	Solar DHW	Solar DHW	G/E		Water Heating		Installation of solar thermal domestic hot water system
Com	Commercial Clothes Washer with Gas Water Heating and Electric Drying	Commercial Clothes Washer with Gas Water Heating and Electric Drying	E	G	Appliances	Water Heating	High efficiency commercial clothes washer replacing standard efficiency unit in a laundromat or institutional application
Com	ENERGY STAR Dehumidifier	ENERGY STAR Dehumidifier	E		Appliances		This measure includes installation of a new ENERGY STAR Dehumidifier or replacement of an old dehumidifier with an ENERGY STAR unit.
Com	Commercial Clothes Washer with Electric Water Heating and Electric Drying	Commercial Clothes Washer with Electric Water Heating and Electric Drying	E		Appliances/Water Heating		High efficiency commercial clothes washer replacing standard efficiency unit in a laundromat or institutional application
Com	Commercial Clothes Washer with Electric Water Heating and Gas Drying	Commercial Clothes Washer with Electric Water Heating and Gas Drying	E	G	Appliances/Water Heating	Appliances	High efficiency commercial clothes washer replacing standard efficiency unit in a laundromat or institutional application
Com	Commercial Clothes Washer with Gas Water Heating and Gas Drying	Multifamily Common Area Clothes Washer with Gas Water Heating and Gas Drying	E	G	Appliances/Water Heating	Appliances	High efficiency commercial clothes washer replacing standard efficiency unit in a laundromat or institutional application
Com	Commercial ENERGY STAR Dishwasher with Electric Water Heating	Commercial ENERGY STAR Dishwasher with Electric Water Heating	E		Appliances/Water Heating		Installation of an ENERGY STAR commercial dishwasher.
Com	Electric Oven and Range	Electric Oven and Range	E		Cooking		Replacement of failed or working electric ovens and ranges with new high efficiency ovens and ranges.
Com	ENERGY STAR Electric Combination Oven	ENERGY STAR Electric Combination Oven	E		Cooking		Replacement of an electric combination oven with an ENERGY STAR electric combination oven, or installation of an ENERGY STAR combination oven in new construction. ENERGY STAR combination ovens incorporate timesaving features via sophisticated control packages.
Com	ENERGY STAR Electric Convection Oven	ENERGY STAR Electric Convection Oven	E		Cooking		Installation of high efficiency ENERGY STAR electric convection ovens instead of standard efficiency units. Energy efficient commercial electric ovens reduce energy consumption primarily through sophisticated control packages.
Com	ENERGY STAR Electric Fryer	ENERGY STAR Electric Fryer	E		Cooking		Installation of high efficiency Standard and Large Vat ENERGY STAR electric fryers instead of standard efficiency units. Energy efficient commercial electric fryers reduce energy consumption primarily through the application of advanced controls and insulation.
Com	ENERGY STAR Electric Griddle	ENERGY STAR Electric Griddle	E		Cooking		Installation of high efficiency ENERGY STAR electric griddles instead of standard efficiency units. Energy efficient commercial electric griddles reduce energy consumption primarily through application of advanced controls and improved temperature uniformity.
Com	ENERGY STAR Electric Hot Food Holding Cabinet	ENERGY STAR Electric Hot Food Holding Cabinet	E		Cooking		Installation of high efficiency ENERGY STAR electric hot food holding cabinets (HFHCs) instead of standard efficiency units. Energy efficient commercial HFHCs reduce energy consumption primarily through better insulation, magnetic door electric gaskets, auto-door closures, or Dutch doors.
Com	ENERGY STAR Electric Steamer	ENERGY STAR Electric Steamer	E		Cooking		Replacement of commercial electric steamers with new 5 or 6-pan ENERGY STAR electric steamers.

Com	Chiller Systems	Chiller Systems	E		Cooling		This measure analyzes the space cooling savings potential of the installation of high efficiency chillers including; all air cooled chillers, water cooled screw, scroll, and centrifugal chillers. This measure is applicable to chillers with efficiencies provided at AHRI conditions. The incremental cost is associated with base equipment cost and does not include any installation costs.
Com	Chiller Tune-Up	Chiller Tune-Up	E		Cooling		Commercial air cooled or water chiller tune-up completed in accordance with the following recommended tune-up requirements: - Clean condenser coil/tubes - Check cooling tower for scale or buildup - Check contactors condition - Check evaporator condition - Check low-pressure controls - Check high-pressure controls - Check filter, replace as needed - Check belt, replace as needed - Check crankcase heater operation - Check economizer operation
Com	Computer Room Air Conditioner	Computer Room Air Conditioner	E		Cooling		This measure analyzes the space cooling savings potential for the replacement or new commissioning of a computer room air conditioner (CRAC). CRACs are installed to meet cooling requirements for computers, servers, and other electronic components.
Com	Cool roof		E	G	Cooling	Space Heating	White roofing material or coating, to reflect the sun and reduce air-conditioning loads
Com	ENERGY STAR Room Air Conditioner	ENERGY STAR Room Air Conditioner	E		Cooling		This measure includes the replacement of failed or working room air conditioners in commercial buildings, as well as installation of high efficiency room air conditioners in new buildings.
Com	Fast Acting Doors	Fast Acting Doors	E		Cooling		High speed doors save energy by lowering infiltration by reducing the time that rooms at different air temperatures are exposed to each other. They also provide better insulation between divided spaces. This measure characterizes the energy savings achieved by replacing open doorways, standard speed doors, or strip curtains with high speed doors through infiltration reduction.
Com	Guest Room EM, Fan Coil	Guest Room Energy Management Controls, Chiller/Boiler Fan Coil	E	G	Cooling	Space Heating	Installation of controls to minimize energy costs for guest room HVAC systems. Room temperatures are controlled to reduce energy consumption when a room is unoccupied.
Com	Mini Split Ductless AC	Mini Split Ductless AC	E		Cooling		Replace non-working or working room AC with mini split ductless AC system
Com	Optimized chiller distribution/control system	Optimized chiller distribution/control system	E		Cooling		High efficiency distribution system for chiller systems, based on mix of measures to optimize the total system efficiency. Potentially including controls, economizers, VFDs, better design, etc.
Com	Optimized unitary HVAC distribution/control system	Optimized unitary HVAC distribution/control system	E	G	Cooling	Space Heating	High efficiency distribution system for unitary systems, based on mix of measures to optimize the total system efficiency. Potentially including controls, economizers, VFDs, VAV, better design, etc. This is mainly a design measure, applicable to NC and large renovation.
Com	PTAC	PTAC	E		Cooling		Installation of electric PTAC systems in replacement and new construction applications. This measure analyzes the cooling savings potential of the installation of higher efficiency air-conditioning equipment.
Com	Unitary Equipment Economizer	Unitary Equipment Economizer	E		Cooling		Retrofit of existing equipment or the optional addition of an air-side economizer on new equipment where not required by code. This measure analyzes the cooling savings potential of the installation of an air side economizer on unitary equipment. This measure is applicable to dx and water cooled air systems.
Com	Unitary packaged (RTU) advanced controls	Unitary packaged (RTU) advanced controls	E		Cooling		Unitary packaged (RTU) advanced controls
Com	Unitary packaged (RTU) tune-up	Unitary packaged (RTU) tune-up	E		Cooling		Tuneup of RTU systems
Com	Unitary Split/Packaged AC Systems	Unitary Split/Packaged AC Systems	E		Cooling		Installation of electric DX split/packaged systems in replacement and new construction applications. This measure analyzes the cooling savings potential of the installation of higher efficiency air-conditioning equipment.
Com	Air Source Heat Pump Tune-Up	Air Source Heat Pump Tune-Up	E		Cooling/Space Heating		Commercial air-source heat pump tune-up involves inspection of mechanical/electrical components operation and coils cleaning.
Com	Ground Source Heat Pump Replacing Electric Heat and Split Air Conditioner	Ground Source Heat Pump Replacing Electric Heat and Split Air Conditioner	E		Cooling/Space Heating		Replacement of Electric Heating System and Split Central A/C with Ground Source Heat Pump
Com	Guest Room EM, PTAC, Elec Res	Guest Room Energy Management Controls, PTAC, Elec Res Heat	E		Cooling/Space Heating		Installation of controls to minimize energy costs for guest room HVAC systems. Room temperatures are controlled to reduce energy consumption when a room is unoccupied.
Com	Guest Room EM, PTHP	Guest Room Energy Management Controls, PTHP	E		Cooling/Space Heating		Installation of controls to minimize energy costs for guest room HVAC systems. Room temperatures are controlled to reduce energy consumption when a room is unoccupied.
Com	Mini Split Ductless HP	Mini Split Ductless HP	E		Cooling/Space Heating		Replace non-working and working thru-the-wall AC and baseboard electric resistance heat with mini split ductless HP system
Com	PTHP	PTHP	E		Cooling/Space Heating		Replacement of non-working and working packaged terminal heat pump (PTHP) equipment. This measure analyzes the heating and cooling savings potential of the installation of higher efficiency packaged and split system heat pump equipment.
Com	Unitary Packaged HP System	Unitary Packaged HP System	E		Cooling/Space Heating		Replacement of non-working and working unitary air source heat pump (ASHP). This measure analyzes the heating and cooling savings potential of the installation of higher efficiency packaged and split system heat pump equipment.
Com	Variable Refrigerant Flow Heat Pump	VRF Heat Pump	E		Cooling/Space Heating		Installation of a Variable Refrigerant Flow Heat Pump in New Construction Applications
Com	Demand Control Ventilation	Demand Control Ventilation	E	E/G	Cooling/Ventilation	Space Heating	Retrofit of existing equipment or the optional addition of demand control ventilation. This measure analyzes the cooling savings potential of the installation of demand control ventilation on unitary equipment. This measure is applicable to DX and water cooled air systems.

Com	Energy Management System	Energy Management System	E	E/G	Cooling/Ventilation	Space Heating	Energy management systems and/or other controls to optimize control of HVAC system. This could include scheduling, optimal start-stop, chiller reset control, dual enthalpy economizers, CO2 sensors, etc.
Com	Exterior Area Lighting	Exterior area lighting retrofit with LEDs	E		Exterior Lighting		Exterior high pressure sodium, metal halide, mercury vapor, and pulse start metal halide fixtures can all be replaced with energy efficient LED exterior light fixtures in area lighting applications. Utilizing LED lighting, a large energy savings can be accomplished without a great lumen reduction in the area.
Com	Exterior Lighting Controls	Exterior Lighting Controls	E		Exterior Lighting		Install photocells, timers, occupancy sensors, or other controls to reduce exterior lighting use.
Com	Improved Exterior Lighting Design	Improved Exterior Lighting Design	E		Exterior Lighting		Reduced light levels and better outdoor lighting design. Includes reduced wattage lamps, better spacing, and use of cut-offs and reflectors to better control light and minimize glare.
Com	Street Lighting	LED Street Lighting	E		Exterior Lighting		Existing conventional street light technologies replaced with LED
Com	Exit Sign Retrofit	Exit Sign Retrofit with LED	E	E/G	Indoor Lighting	Space Heating	Retrofit of incandescent exit signs with energy efficient LED exit signs.
Com	Improved Interior Lighting Design	Improved Interior Lighting Design	E	E/G	Indoor Lighting	Space Heating	Emerging technologies (e.g., LEDs, Organic LEDs, daylighting) combined with emphasis on increased overall system efficiency.
Com	Interior Delamping	Interior Delamping	E	E/G	Indoor Lighting	Space Heating	Interior delamping - remove lights in overlit areas
Com	Interior Lighting Controls	Interior Lighting Controls	E	E/G	Indoor Lighting	Space Heating	Installation of occupancy/vacancy sensors, daylight sensor, networked fixtures, and/or luminaire level lighting controls.
Com	LED High-bay/Low-bay Systems	Fluorescent to LED High Bay Systems	E	E/G	Indoor Lighting	Space Heating	LED high bay fixtures offer increased efficiency with nearly equivalent light output as compared to linear fluorescent and metal halide high bay systems. Integrated LED high bays also offer advanced controllability leading to an even greater increase in efficiency. This measure also include parking garage lighting applications.
Com	LED linear fixtures	LED linear fixtures	E	E/G	Indoor Lighting	Space Heating	LED fixtures offer an energy efficient alternative to T8 linear fluorescent fixtures. The LED integrated fixtures offer similar light output with a reduction of energy consumption. Integrated LED fixtures also offer controllability beyond capabilities of linear fluorescent technology and integration with many complex control systems. Includes troffers, strip, surface and suspended, etc.
Com	LED Tube Replacement Lamps	LED Tube Replacement Lamps	E	E/G	Indoor Lighting	Space Heating	LED Tube replacement lamps offer an energy efficient alternative to traditional linear fluorescent lamps.
Com	Refrigerator/Freezer Case LEDs	Refrigerator/Freezer Case LEDs	E	E	Indoor Lighting	Refrigeration	This measure involves replacement of existing vertical and horizontal fluorescent refrigerated case lighting with more efficient LED lighting.
Com	Refrigerator/Freezer Case Occupancy Controls	Refrigerator/Freezer Case Occupancy Controls	E	E	Indoor Lighting	Refrigeration	This measure involves installing occupancy controls for refrigerated cases with internal LED lighting. Without occupancy sensors, case lighting typically runs at 100% power on a continuous basis. Installing sensors allows lights to turn fully on only when motion is detected in the store aisle. When no motion is detected for a preset period of time, the lights automatically dim to a lower power state, generating substantial energy savings.
Com	Replace pin-based CFL with LED	Pin-Based LED Replacing CFL	E	E/G	Indoor Lighting	Space Heating	Replace CFL pin-base lamps, commonly referred to as Dulux, Biax, or PL lamps, with LED pin-base lamps. These lamps plug into the existing fixture and can be used with the existing ballast and socket.
Com	Replace screw-in lamps with LED	Replace screw-in lamps with LED	E	E/G	Indoor Lighting	Space Heating	This measure replaces incandescent/halogen lamps with LEDs
Com	Stairwell Fixtures with Integral Occupancy Sensors	Stairwell Fixtures with Integral Occupancy Sensors	E	E/G	Indoor Lighting	Space Heating	Replace existing fluorescent stairwell fixtures with fluorescent or LED stairwell fixtures with integral occupancy sensors and step-dimming ballasts, allowing for automatic adjustment of light output based on stairwell occupancy.
Com	Com ECM Circulators, CW	Com ECM Circulators, CW	E		Other		Electronically commutated (EC) circulators (pumps) are high-efficiency brushless DC motors. They are typically fractional horsepower motors that enjoy several benefits over the more common permanent split capacitor (PSC) fractional horsepower motor. Assumed DHW circulator, heating water circulators, and cooling water circulator applications.
Com	Com ECM Circulators, DHW	Com ECM Circulators, DHW	E		Other		Electronically commutated (EC) circulators (pumps) are high-efficiency brushless DC motors. They are typically fractional horsepower motors that enjoy several benefits over the more common permanent split capacitor (PSC) fractional horsepower motor. Assumed DHW circulator, heating water circulators, and cooling water circulator applications.
Com	Com ECM Circulators, HHW	Com ECM Circulators, HHW	E		Other		Electronically commutated (EC) circulators (pumps) are high-efficiency brushless DC motors. They are typically fractional horsepower motors that enjoy several benefits over the more common permanent split capacitor (PSC) fractional horsepower motor. Assumed DHW circulator, heating water circulators, and cooling water circulator applications.
Com	Commercial Compressed Air Improvements	Commercial Compressed Air Improvements	E		Other		Improvements to commercial compressed air systems including efficient compressors, additional storage, no loss drains, low pressure drop filters, cycling refrigerated air dryers, and engineered nozzles.
Com	ENERGY STAR Pool Pump	ENERGY STAR Pool Pump	E		Other		This measure involves the replacement of a single-speed pool pump with an ENERGY STAR certified variable speed or multi-speed pool pump.
Com	Industrial process		E	G	Other		Custom energy efficiency improvements to misc. industrial process applications in commercial buildings
Com	Motors, Pumps	Motors, Pumps	E		Other		This measure includes one-for-one replacement of working or failed/near-failure 1-200 hp motors with motors that meet or exceed NEMA Premium Efficiency levels in industrial and non-industrial applications, as well as installation of motors in new construction. For replacement of working motors, the new motor efficiency must be at least NEMA Premium Efficiency. For replacement of failed/near-failure motors or new construction, the new motor efficiency must exceed NEMA Premium Efficiency.
Com	Variable Speed Drive, Chilled Water Pump	Variable Speed Drive, Chilled Water Pump	E		Other		Installation of a variable speed drives on HVAC fans and pumps to vary the speed of the motor in a HVAC application with a diversified load.

Com	Variable Speed Drive, Condenser Water Pump	Variable Speed Drive, Condenser Water Pump	E		Other		Installation of a variable speed drives on HVAC fans and pumps to vary the speed of the motor in a HVAC application with a diversified load.
Com	Variable Speed Drive, Heating Hot Water Pump	Variable Speed Drive, Heating Hot Water Pump	E		Other		Installation of a variable speed drives on HVAC fans and pumps to vary the speed of the motor in a HVAC application with a diversified load.
Com	Variable Speed Drive/Custom, Other	Variable Speed Drive/Custom, Other	E		Other		Installation of a variable speed drives and other custom opportunities applying to the "Other" end-use
Com	Beverage Machine Controls	Beverage Machine Controls	E		Plug Loads		Installation of automatic shutoff control on refrigerated vending machines. Controls must include a passive infrared sensor to shut off lighting and compressor. Controls must be capable of periodically powering up the machine to maintain product temperature and provide compressor protection.
Com	Computer Power Management	Computer Power Management	E	E/G	Plug Loads	Space Heating	This measure characterizes average savings from adjustment of computer power management settings by a direct install technician. Computer power management settings, when properly enabled, automatically put the computer and monitor in a low power state when no activity is detected for a certain period of time.
Com	Snack Machine Controls	Snack Machine Controls	E		Plug Loads		Installation of automatic shutoff control on non-refrigerated snack vending machines. Controls must include a passive infrared sensor to shut off lighting when the area surrounding the vending machine is unoccupied for fifteen (15) minutes. Controls must be capable of powering up the machine on IR activation to highlight the product offerings.
Com	Tier 1 Advanced Power Strip	Tier 1 Advanced Power Strip	E		Plug Loads		Tier 1 Advanced Power Strips are multi-plug power strips with the ability to automatically disconnect specific connected loads depending upon the power draw of a control load, also plugged into the strip. Power is disconnected from the switched (controlled) outlets when the control load power draw is reduced below a certain adjustable threshold, thus turning off the appliances plugged into the switched outlets. By disconnecting, the standby load of the controlled devices, the overall load of a centralized group of equipment (e.g. a desk workstation) can be reduced.
Com	Tier 2 Advanced Power Strip	Tier 2 Advanced Power Strip	E		Plug Loads		Tier 2 Advanced Power Strips (APS) use an external sensor paired with a configurable countdown timer to manage both active and standby power loads for controlled devices in a complete system. Tier 2 APS may operate either with or without a master control socket. Those without a master control socket sense power of all devices connected to the controlled sockets; those with a master control socket sense power for the device connected to the control socket. The external sensor of a Tier 2 APS may utilize an infrared-only sensor, or it may utilize a “multi-sensor” which detects both infrared (IR) remote control signals and motion to determine device inactivity and deliver additional savings as compared to a Tier 1 APS device. Both versions of external sensor use IR filtering to prevent inappropriate switching events which may have otherwise resulted from natural interference such as sunlight or CFL light bulbs.
Com	Anti-Sweat Heat Control	Anti-Sweat Heat Control	E		Refrigeration		Glass doors on refrigerator and freezer cases can have anti-sweat or anti-condensate heaters in the frames and mullions of the case. These heaters operate continuously in order to prevent condensation/frosting on the glass and frame that occurs when the surface temperature is below the dew point of the surrounding air. Anti-sweat heater controls control the operation of these heaters so that they do not run continuously when not needed (lower dew point in the air as typically occurs in winter).
Com	Case Night Covers	Case Night Covers	E		Refrigeration		Refrigeration thermal blinds, or night covers, are utilized to create a protective thermal barrier between ambient air and the cooled, conditioned air in open refrigerated cases. Deployed when grocery centers close, night covers insulate cold refrigeration cases while maintaining the desired displayed food temperature. Night covers are typically constructed of a flexible, woven fabric.
Com	ECM Compressor/Condenser Fan Motors	ECM Compressor/Condenser Fan Motors	E		Refrigeration		Replacing an existing shaded pole and permanent split capacitor motors with higher efficiency electronically commutated motors (ECM) in a commercial refrigeration system compressor or condensing unit.
Com	ENERGY STAR Ice Machine	ENERGY STAR Ice Machine	E		Refrigeration		Commercial ice machines are used in restaurants, hospitals, hotels, schools, offices and grocery stores. ENERGY STAR rates air-cooled ice machines. ENERGY STAR ice machines are designed with higher efficiency compressors and use less water than standard ice machines.
Com	Energy Star Refrigerated Beverage Vending Machine	Energy Star Refrigerated Beverage Vending Machine	E		Refrigeration		ENERGY STAR qualified new and rebuilt vending machines incorporate more efficient compressors, fan motors, and lighting systems as well as low power mode option that allows the machine to be placed in low-energy lighting and/or low-energy refrigeration states during times of inactivity.
Com	ENERGY STAR Refrigerator and Freezer	ENERGY STAR Refrigerator and Freezer	E		Refrigeration		This measure relates to the installation of a new reach-in commercial refrigerator or freezer meeting ENERGY STAR efficiency standards. In order for this characterization to apply, the efficient equipment is assumed to be a new vertical glass door refrigerator or freezer or vertical chest freezer meeting the minimum ENERGY STAR efficiency level standards.
Com	ENERGY STAR Refrigerators and Freezers	ENERGY STAR Refrigerators and Freezers	E		Refrigeration		This measure includes the replacement of failed refrigerators or freezers in commercial buildings, as well as installation of high efficiency refrigerators and freezers in new buildings.
Com	Evaporator Fan Motor Retrofit	Evaporator Fan Motor Retrofit	E		Refrigeration		Replacement of an existing, working standard-efficiency shaded-pole evaporator fan motor in refrigerated/freezer display cases or walk-in coolers with a high efficiency electronically commutated motor (ECM).
Com	Evaporator Fan Speed Controls	Evaporator Fan Speed Controls	E		Refrigeration		This measure adds controls to vary the speed of evaporator fan motors in walk-in coolers and freezers. The evaporator fans are used to both provide cooling when the compressor is running and to provide air circulation when the compressor is off. The controls provide a lower fan speed during periods when the compressor is off.
Com	High-eff built-up refrigeration	High-eff built-up refrigeration	E	E/G	Refrigeration	Space Heating	High-efficiency built-up refrigeration systems for grocery and refrigerated warehouses. This potentially includes HE compressors, better design and controls, HE motors and VFDs.
Com	High-efficiency small walk-in	High-efficiency small walk-in	E		Refrigeration		Installation of a high-efficiency walk-in cooler

Com	Loading Dock Pit Seals	Loading Dock Pit Seals	E		Refrigeration		Many loading dock pits include a leveler ramp that has an area underneath that is exposed to the outside, and gaps that allow infiltration of outside air, causing sensible and latent heat loads that must be removed by the refrigeration system in a cold storage facility. This measure characterizes the savings from installing pit seals and/or thermal blankets to reduce these heat gains.
Com	Low-Heat and No-Heat Doors	Low-Heat and No-Heat Doors	E		Refrigeration		Replaces standard refrigerated case doors which incorporate electric resistance heaters in the door to prevent condensation from forming on the glass and frost from forming on the door frames with more efficient doors that have a smaller electric resistance heater (low heat) or no heater at all (no heat). Low heat and no heat doors are more efficient due to having three panes of glass, a low conductivity filler gas (such as argon), and/or a low-E coating on the glass.
Com	Refrigeration Tune-Up	Refrigeration Tune-Up	E		Refrigeration		Tune-up of grocery refrigeration systems
Com	Replace Cooler and Freezer Door Gaskets	Replace Cooler and Freezer Door Gaskets	E	E/G	Refrigeration	Space Heating	Replace missing or damaged walk-in and reach-in cooler and freezer door gaskets
Com	Walk-In Cooler Retrofit	Walk-In Cooler Retrofit	E		Refrigeration		Retrofit of a walk-in cooler to improve system energy efficiency
Com	Programmable Thermostats with Electric Heating	Programmable Thermostats with Electric Heating	E		Space Heating		Replacement of failed or working manual thermostats in existing commercial businesses with programmable thermostats. New units must have the capability to adjust temperature setpoints according to a schedule without manual intervention. An estimate is provided for reduced heating energy consumption through temperature set-back during unoccupied or reduced demand times. Savings are provided for heating only as a literature review has not shown conclusive cooling savings.
Com	Smart Thermostat with Electric Heating	Smart Thermostat with Electric Heating	E		Space Heating		Replacement of failed or working manual thermostats in existing commercial businesses with smart thermostats. This measure includes installation of an analytics capable thermostat. An analytics capable thermostat has additional energy savings features, including coaching, HVAC diagnostics, geofencing, comparative information, demand response capabilities, and customer engagement features.
Com	Efficient windows		E	E/G	Space Heating/Cooling		Replace existing windows with high efficiency windows
Com	Window film		E	E/G	Space Heating/Cooling		Installation of window film on existing single pane windows
Com	Commissioning	Commissioning	E		Total Electric		Whole building commissioning of new buildings to ensure optimized design, installation and operation of systems.
Com	Data Center Retrofit		E		Total Electric		Comprehensive data center design or retrofit for energy efficiency
Com	Integrated building design/deep energy retrofit	Integrated building design/deep energy retrofit	E		Total Electric		Reflects comprehensive, optimized design of new buildings addressing all end-uses and interactions between them on a systems basis. Measures include, but are not limited to, improved air barrier performance, minimum IAQ performance, lighting controls, improved lighting power density, improved mechanical equipment efficiency, and demand controlled ventilation.
Com	Replace Pneumatic controls with DDC - Elec Heat		E		Total Electric		Solid-state sensors and controllers used in DDC systems have considerable energy-efficiency advantages over conventional pneumatic systems. Substantial advantages are realized in calibration and maintenance, but the critical value lies in the accuracy and reliability of the DDC systems. These features can yield operational energy savings of 15% and greater when compared to the conventional pneumatic system. The inherently precise positioning of valves and dampers with EMCS control loops and blocks are responsible for these energy savings. For instance, to realize the energy-savings opportunity offered by VAV fume hoods, an 8:1 turndown ratio of the exhaust airflow is required. Pneumatic airflow systems typically lose accuracy at 25% of their span, resulting in the capability of only a 4:1 turndown ratio. Solid-state DDC systems provide the degree of precise airflow measurement and control that enables the operation of these VAV systems
Com	Replace Pneumatic controls with DDC - Gas Heat		E		Total Electric		Solid-state sensors and controllers used in DDC systems have considerable energy-efficiency advantages over conventional pneumatic systems. Substantial advantages are realized in calibration and maintenance, but the critical value lies in the accuracy and reliability of the DDC systems. These features can yield operational energy savings of 15% and greater when compared to the conventional pneumatic system. The inherently precise positioning of valves and dampers with EMCS control loops and blocks are responsible for these energy savings. For instance, to realize the energy-savings opportunity offered by VAV fume hoods, an 8:1 turndown ratio of the exhaust airflow is required. Pneumatic airflow systems typically lose accuracy at 25% of their span, resulting in the capability of only a 4:1 turndown ratio. Solid-state DDC systems provide the degree of precise airflow measurement and control that enables the operation of these VAV systems
Com	Retrocommissioning/Operational saving	Retrocommissioning/Operational saving	E		Total Electric		Retrocommissioning and energy management activities, focusing on operational savings
Com	ECM Blower Motors	ECM Blower Motors	E		Ventilation		Retrofit of a less efficient (PCS) motor to a 2 stage BPM or ECM motor in an existing furnace.
Com	ECM Fan Motors	ECM Fan Motors	E		Ventilation		This measure includes efficiency gains for an electronically commutated motor (ECM) being applied within fan-powered terminal boxes, fan coils, and HVAC supply fans on small unitary equipment.
Com	Garage Exhaust Control	Parking Garage Exhaust Fan CO2 Control and Heating	E	E/G	Ventilation	Space Heating	Implement demand-controlled ventilation in enclosed parking garages by monitoring CO levels. By modulating airflow based on need rather than running at constant volume, the system will save energy, increase fan belt life, and increase motor life. If the parking garage is also heated, this reduction in airflow will lead to energy savings from a lower heating load.
Com	Kitchen Demand Control Ventilation	Kitchen Demand Control Ventilation	E	E/G	Ventilation	Space Heating	Installation of controls for commercial kitchen hoods to vary the ventilation rate based upon cooling load, which varies throughout the day. By reducing the kitchen exhaust rate, fan energy savings are possible, and less make-up air is needed which results in heating savings.

Com	Motors, Fans	Motors, Fans	E		Ventilation		This measure includes one-for-one replacement of working or failed/near-failure 1-200 hp motors with motors that meet or exceed NEMA Premium Efficiency levels in industrial and non-industrial applications, as well as installation of motors in new construction. For replacement of working motors, the new motor efficiency must be at least NEMA Premium Efficiency. For replacement of failed/near-failure motors or new construction, the new motor efficiency must exceed NEMA Premium Efficiency.
Com	Variable Speed Drive, Cooling Tower Fan	Variable Speed Drive, Cooling Tower Fan	E		Ventilation		Installation of a variable speed drives on HVAC fans and pumps to vary the speed of the motor in a HVAC application with a diversified load.
Com	Variable Speed Drive, HVAC Fan	Variable Speed Drive, HVAC Fan	E		Ventilation		Installation of a variable speed drives on HVAC fans and pumps to vary the speed of the motor in a HVAC application with a diversified load.
Com	Faucet Aerator (1.5 gpm) with Electric Water Heater	Faucet Aerator (1.5 gpm) with Electric Water Heater	E		Water Heating		This measure includes replacing an existing faucet aerator with low-flow aerator.
Com	Heat Pump Water Heater	Heat Pump Water Heater	E	E/G	Water Heating	Space Heating	Replacement of failed or working storage-type electric resistance water heaters (≤ 120 gallons) in commercial facilities with more efficient storage-type heat pump water heaters.
Com	Pre-Rinse Sprayers (1.6 gpm) with Electric Water Heater	Pre-Rinse Sprayers (1.6 gpm) with Electric Water Heater	E		Water Heating		Retrofit of working standard pre-rinse sprayers with low-flow, 1.6 gpm pre-rinse sprayers in commercial kitchen applications.
Com	Clothes dryer		E/G		Appliances		High efficiency commercial clothes dryers with moisture sensors
Com	Air sealing		E/G	E	Space Heating/Ventilation	Cooling	Reduce air leakage in new and existing buildings to reduce HVAC requirements
Com	Duct sealing	Duct sealing	E/G	E	Space Heating/Ventilation	Cooling	Seal low and medium pressure ductwork upstream of VAV boxes and reheat coils using Aeroseal process
Com	Envelope insulation		E/G	E	Space Heating/Ventilation	Cooling	Improved envelope insulation.
Com	Ozone laundry	Ozone laundry	E/G/O/P		Water Heating		Ozone Laundry systems for large laundromats and facilities with on-site laundry
Com	ENERGY STAR Gas Combination Oven	ENERGY STAR Gas Combination Oven	G		Cooking		Replacement of a Gas combination oven with an ENERGY STAR Gas combination oven, or installation of an ENERGY STAR combination oven in new construction. ENERGY STAR combination ovens incorporate timesaving features via sophisticated control packages.
Com	ENERGY STAR Gas Convection Oven	ENERGY STAR Gas Convection Oven	G		Cooking		Installation of high efficiency ENERGY STAR Gas convection ovens instead of standard efficiency units. Energy efficient commercial Gas ovens reduce energy consumption primarily through sophisticated control package.
Com	ENERGY STAR Gas Fryer	ENERGY STAR Gas Fryer	G		Cooking		Installation of high efficiency Standard and Large Vat ENERGY STAR Gas fryers instead of standard efficiency units. Energy efficient commercial Gas fryers reduce energy consumption primarily through advanced burner and heat exchanger design and the application of advanced controls and insulation.
Com	ENERGY STAR Gas Griddle	ENERGY STAR Gas Griddle	G		Cooking		Installation of high efficiency ENERGY STAR Gas griddles instead of standard efficiency units. Energy efficient commercial Gas griddles reduce energy consumption primarily through advanced burner design and controls.
Com	ENERGY STAR Gas Steamer	ENERGY STAR Gas Steamer	G		Cooking		Replacement of commercial Gas steamers with new 5 or 6-pan ENERGY STAR Gas steamers.
Com	Gas Conveyor Oven	Gas Conveyor Oven	G		Cooking		Replacement of a standard efficiency Gas conveyor oven with a high efficiency model. High-efficiency conveyor ovens can achieve higher efficiencies through use of independently controlled temperature zones and air curtains at the ends of the oven.
Com	Gas Oven, Broiler, Pasta Cooker	Gas Oven, Broiler, Pasta Cooker	G	E	Cooking	Cooling	Replacement of failed or working Gas food service equipment with new high efficiency food service equipment.
Com	Gas Rack Oven	Gas Rack Oven	G		Cooking		Replacement of commercial Gas rack ovens with new high efficiency rack ovens. High efficiency rack ovens achieve higher efficiencies by incorporating timesaving features via sophisticated control packages.
Com	Advanced RTU Control		G		Space Heating		Unitary packaged (RTU) advanced controls
Com	Boiler Blowdown Controls	Boiler Blowdown Controls	G		Space Heating		Excessive steam boiler blowdown can be reduced by automatic blowdown control systems. These systems measure the characteristics of the water (conductivity, total dissolved solids (TDS), alkalinity and silica and chloride concentrations) and allow the boiler to blowdown only when needed.
Com	Boiler Modifications, Space Heating Only	Boiler Modifications, Space Heating Only	G		Space Heating		Various retrofit opportunities to increase boiler efficiency. This includes cut-out controls, modulating burners, reset controls, oxygen controls, stack dampers, boiler tune-ups, and turbulators. Applies only to gas boilers in space heating applications.
Com	Boilers	Boilers	G		Space Heating		Replacement of failed or working HVAC boilers in existing commercial buildings with high efficiency steam or hot water boilers, as well as installation of high efficiency steam or hot water boilers in new commercial buildings.
Com	Condensing Furnaces	Condensing Furnaces	G		Space Heating		Installation of gas-fired high efficiency, condensing residential-type forced air furnaces in commercial/industrial buildings.
Com	Condensing Unit Heaters	Condensing Unit Heaters	G		Space Heating		Replace standard, non-condensing gas-fired unit heater with condensing gas fired unit heater.
Com	Destratification Fan	Destratification Fan	G		Space Heating		This measure analyzes the heating savings potential of destratification fans in new and existing buildings. This measure includes High Volume Low Speed and High Volume High Speed fans.
Com	Energy Recovery Ventilator	Energy Recovery Ventilator	G		Space Heating		Replacement of existing unitary equipment or the optional addition of energy recovery on existing unitary equipment. This measure analyzes the heating savings potential of an energy recovery ventilator on unitary equipment. This measure is applicable to all gas-fired heated air systems.
Com	Forced-Air Heating Maintenance	Forced-Air Heating Maintenance	G		Space Heating		Maintenance of forced-air space heating systems in commercial spaces. This includes furnaces, RTUs, unit heaters, and makeup air units. This does not include boiler or infrared heater maintenance.

Com	Infrared Heater	Infrared Heater	G		Space Heating		Replace failed or working furnaces and unit heaters in existing buildings with natural gas-fired infrared heaters, as well as installation of infrared heaters in new buildings
Com	Programmable Thermostats with Gas Heating	Programmable Thermostats with Gas Heating	G		Space Heating		Replacement of failed or working manual thermostats in existing commercial businesses with programmable thermostats. New units must have the capability to adjust temperature setpoints according to a schedule without manual intervention. An estimate is provided for reduced heating energy consumption through temperature set-back during unoccupied or reduced demand times. Savings are provided for heating only as a literature review has not shown conclusive cooling savings.
Com	Smart Thermostat with Gas Heating	Smart Thermostat with Gas Heating	G		Space Heating		Replacement of failed or working manual thermostats in existing commercial businesses with smart thermostats. This measure includes installation of an analytics capable thermostat. An analytics capable thermostat has additional energy savings features, including coaching, HVAC diagnostics, geofencing, comparative information, demand response capabilities, and customer engagement features.
Com	Steam Trap Maintenance	Steam Trap Maintenance	G		Space Heating		Steam trap maintenance and replacement in commercial applications
Com	Commissioning	Commissioning	G		Total Gas		Whole building commissioning of new buildings to ensure optimized design, installation and operation of systems.
Com	Integrated building design/deep energy retrofit	Integrated building design/deep energy retrofit	G		Total Gas		Reflects comprehensive, optimized design of new buildings addressing all end-uses and interactions between them on a systems basis. Measures include, but are not limited to, improved air barrier performance, minimum IAQ performance, lighting controls, improved lighting power density, improved mechanical equipment efficiency, and demand controlled ventilation.
Com	Retrocommissioning/Operational saving	Retrocommissioning/Operational saving	G		Total Gas		Retrocommissioning and energy management activities, focusing on operational savings
Com	Commercial ENERGY STAR Dishwasher with Gas Water Heating	Commercial ENERGY STAR Dishwasher with Gas Water Heating	G	E	Water Heating	Other	Installation of an ENERGY STAR commercial dishwasher.
Com	Faucet Aerator (1.5 gpm) with Gas Water Heater	Faucet Aerator (1.5 gpm) with Gas Water Heater	G		Water Heating		This measure includes replacing an existing faucet aerator with low-flow aerator.
Com	Gas Water Heater, Instantaneous	Gas Water Heater, Instantaneous	G		Water Heating		Replacement of failed or working tankless-type (instantaneous) gas water heaters in commercial facilities with more efficient tankless water heaters.
Com	Gas Water Heater, Storage	Gas Water Heater, Storage	G		Water Heating		Replacement of failed or working storage-type gas water heaters in commercial facilities with more efficient storage-type gas water heaters.
Com	Pre-Rinse Sprayers (1.6 gpm) with Gas Water Heater	Pre-Rinse Sprayers (1.6 gpm) with Gas Water Heater	G		Water Heating		Retrofit of working standard pre-rinse sprayers with low-flow, 1.6 gpm pre-rinse sprayers in commercial kitchen applications.
Com	CHP >20 MW	CHP >20 MW	G/E		CHP/Space Heating		Combined Heat and Power, >20 MW
Com	CHP 0.5-1 MW	CHP 0.5-1 MW	G/E		CHP/Space Heating		Combined Heat and Power, 0.5-1 MW
Com	CHP 1-5 MW	CHP 1-5 MW	G/E		CHP/Space Heating		Combined Heat and Power, 1-5 MW
Com	CHP 50-500 kW	CHP 50-500 kW	G/E		CHP/Space Heating		Combined Heat and Power, 50-500 MW
Com	CHP 5-20 MW	CHP 5-20 MW	G/E		CHP/Space Heating		Combined Heat and Power, 5-20 MW
Ind	Compressed Air Improvements	Compressed Air Improvements	E		Compressed Air		Improvements to electric process compressed air systems
Ind	Cooling Improvements	Cooling Improvements	E		Cooling		Improvements to electric non-process cooling systems
Ind	Lighting Improvements	Lighting Improvements	E		Lighting		Improvements to electric non-process lighting systems
Ind	Machine Drive Improvements	Machine Drive Improvements	E		Machine Drive		Improvements to electric process machine drive systems
Ind	Motors and VSDs Improvements	Motors and VSDs Improvements	E		Motors and VSDs		Improvements to electric process motors and VSDs systems
Ind	Other Non-Process Improvements	Other Non-Process Improvements	E		Other Non-Process		Improvements to miscellaneous electric non-process systems
Ind	Other Process Improvements	Other Process Improvements	E		Other Process		Improvements to miscellaneous electric process systems
Ind	Process Cooling Improvements	Process Cooling Improvements	E		Process Cooling and Refrigeration		Improvements to electric process cooling systems
Ind	Process Heating Improvements	Process Heating Improvements	E		Process Heating		Improvements to electric process heating systems
Ind	Space Heating Improvements	Space Heating Improvements	E		Space Heating		Improvements to electric non-process space heating systems
Ind	Other Non-Process Improvements	Other Non-Process Improvements	G		Other Non-Process		Improvements to miscellaneous gas non-process systems
Ind	Other Process Improvements	Other Process Improvements	G		Other Process		Improvements to miscellaneous gas process systems
Ind	Process Cooling Improvements	Process Cooling Improvements	G		Process Cooling and Refrigeration		Improvements to gas process cooling systems
Ind	Process Heating Improvements	Process Heating Improvements	G		Process Heating		Improvements to gas process heating systems
Ind	Space Heating Improvements	Space Heating Improvements	G		Space Heating		Improvements to gas non-process space heating systems
Ind	CHP >20 MW	CHP >20 MW	G/E		CHP/Space Heating		Combined Heat and Power, >20 MW
Ind	CHP 0.5-1 MW	CHP 0.5-1 MW	G/E		CHP/Space Heating		Combined Heat and Power, 0.5-1 MW
Ind	CHP 1-5 MW	CHP 1-5 MW	G/E		CHP/Space Heating		Combined Heat and Power, 1-5 MW
Ind	CHP 50-500 kW	CHP 50-500 kW	G/E		CHP/Space Heating		Combined Heat and Power, 50-500 MW
Ind	CHP 5-20 MW	CHP 5-20 MW	G/E		CHP/Space Heating		Combined Heat and Power, 5-20 MW