WHOLE BUILDING TUNE-UP (WBTU) ELIGIBLE MEASURES

Whole Building Tune-up incentives are available for facilities implementing at least three of the measures below. Measure details and supporting documentation must be submitted via the WBTU online portal. Supporting documentation includes, but is not limited to: photos, screen shots, manufacturer specifications, and mechanical drawings. For more information, visit focusonenergy.com/WBTU.

Heating

H1. Hot Water Supply Reset – Occupied Mode

Add a hot water supply reset strategy to the control system. The reset temperatures should be appropriate for the efficiency level of the boiler. For standard hot water reset controls, the reset strategy should incorporate maximum and minimum water temperatures to correspond with the minimum and maximum outdoor air temperature range.

NOTE: Ineligible for an incentive if H2. Hot Water Supply Reset – Unoccupied Mode is implemented.

Required Inputs

- Boiler Input Capacity (Btu/hr).
- Boiler Efficiency.

Optional Inputs

- Hot Water Design ΔT (°F).
- Hot Water Supply and Reset Temperatures (°F).

Supporting Documentation

- Boiler Capacity and Efficiency.
- Supply and Reset Temperatures.

H2. Hot Water Supply Reset – Unoccupied Mode

Reset the hot water supply temperature to a fixed lower value while the building is in unoccupied mode and return to normal supply temperature for morning warm-up and occupied mode.

NOTE: Ineligible for an incentive if H1. Hot Water Supply Reset – Occupied Mode is implemented.

Required Inputs

- Boiler Input Capacity (Btu/hr).
- Boiler Efficiency.
- Hours/Week Unoccupied.

Optional Inputs

- Hot Water Design Temperature (°F).

Supporting Documentation

- Boiler Capacity and Efficiency.

H3. Hot Water System Cutout Optimization

Adjust the boiler plant cutout temperature during shoulder season.

NOTE: There must be a Variable Frequency Drive (VFD) on the hot water circulation pumps of the space heating system to be eligible for an incentive.

Required Inputs

- Boiler Input Capacity (Btu/hr).
- Boiler Efficiency Level.
- Quantity and Size of Hot Water Pumps (HP).
- Space Setpoint Temperature (°F).
- Existing and Modified Circulation Pump Lockout Temperatures (°F).

Optional Inputs

- Hot Water Design ΔT (°F).

Supporting Documentation

- Boiler Capacity and Efficiency.
- Pump HP and Quantity.
- Existing and Modified Temperature Setpoints.

Cooling

C1. Chilled Water (CHW) Reset Controls

Reset the CHW supply temperature based on the outside air temperature.

NOTE: Existing reset ΔT must be 3 °F or less to qualify.

Required Inputs

- Chiller Cooling Capacity (Tons).
- Hours/Week Unoccupied.
- Existing and Modified CHW Temperature Reset Schedule.

Optional Inputs

- Chiller Efficiency (kW/ton or EER).
- CHW Supply Temperature (°F).
- Building Balance Point Temperature (°F).

Supporting Documentation

- Chiller Capacity and Efficiency.
- CHW Setpoints at High and Low OA Temperatures of Existing and Modified System.

C2. Chiller Schedule Optimization

Set the chiller and associated pumps to go into unoccupied/off mode during unoccupied times.

NOTE: Ineligible for an incentive if C1. Chilled Water Reset Controls is implemented. VFD must be installed on chilled water distribution pump.

Required Inputs

- Chiller Cooling Capacity (Tons).
- Chiller Efficiency (kW/ton).

CHW Pump Quantity and Size (HP)

- Existing and Modified Chiller Plant Schedule.

Supporting Documentation

- Chiller Capacity and Efficiency.
- CHW Pump Nameplate and Quantity.

Ventilation

V1. Outside Air (OA) Intake Optimization

Reduce outside air supply on an air handling unit to a minimum or restore the dampers back to original condition (if applicable).

NOTE: The building must currently exceed the minimum outside air intake levels for standard occupancy as defined by local or state requirements.

Required Inputs

- Type of Cooling System.
- Existing and Modified OA Supply Airflow for each AHU/ RTU (CFM).

Optional Inputs

- Heating System Efficiency (%).

Supporting Documentation

- Cooling System Type.
- Heating System Input and Output Capacities.
- Existing and Modified OA Supply Airflow Settings.

V2. Schedule Optimization – Temperature Setback

Reset the scheduled weekly building heating and/or cooling nighttime (or unoccupied) supply air setpoint temperatures. An eligible building must have a consistent weekly operation schedule throughout the year.

NOTE: Ineligible for an incentive if V6. Zone-Based Scheduling is implemented.

Required Inputs

- Type of Cooling System.
- Facility Space Type.
- Square Footage of Conditioned Space (ft^2).
- Temperature Setback Degrees (°F).

Optional Inputs

- Heating System Efficiency (%).

Supporting Documentation

- Cooling System.
- Heating System Input and Output Capacities.
- Square Footage.
- Existing and Modified Schedule Indicating When System Turns Off Throughout the Week.

V3. Morning Warm-Up Optimization

Program air handling units (AHUs, including rooftop units and unit ventilators) delivering outside air (OA) into the building during the heating season to keep the OA dampers closed during the warm-up period, before the building is considered occupied. Exhaust fans should also be programmed to remain off while the OA dampers are closed to maintain neutral building pressure.

NOTE: This strategy is a requirement for the V4. Adaptive Optimal Start incentive.

Required Inputs

- Type of Cooling System.
- Facility Space Type.
- Existing and Modified OA Schedules (Hours/Week, Weeks/Year).
- Heating Balance Point Temperature (°F).

Optional Inputs

- Heating System Efficiency (%).

Supporting Documentation

- Heating System Input and Output Capacities.
- Square Footage.
- Existing and Modified Warm-Up Schedules Showing a Reduction in Hours/Week.

V4. Adaptive Optimal Start

Program air handling unit (AHU) to start in the morning with just enough time to reach the occupied setpoint of the spaces served, just before the building becomes occupied. Adaptive means the building automation system learns from previous data collected to minimize the amount of run time needed to warm up the space before the space is considered occupied.

NOTE: V3. Morning Warm-Up Optimization must also be implemented to be eligible for this incentive.

Required Inputs

- OA Supplied by the AHU (CFM).
- Total Supply and Return Fan Motor Sizes (HP).
- Existing and Modified Runtime Schedules During Heating Season (Hours/Week, Weeks/Year).
- Heating Balance Point Temperature (°F).

Optional Inputs

- Heating System Efficiency (%).

Supporting Documentation

- Heating System Input and Output Capacities.
- OA Supply CFM.
- Supply and Return Fan Sizes.
- Weekly Building Occupied Schedule.
- Heating Balance Point.

V5. HVAC Fan Static Pressure Reset

Reduce static pressure setpoint in an air-handler or rooftop unit during times of lower demand.

Required Inputs

- Annual Operating Hours.
- Supply Fan Motor Sizes (HP).
- Average Supply Fan Speed (%).
- Existing and Modified Minimum Supply Fan Static Pressure Setpoints.

Optional Inputs

- AHU Return Fan Motor Size (HP).

Supporting Documentation

- Existing Equipment Schedule.
- Supply and Return Fan Motor Sizes.
- Average Supply Fan Speed with VFD.
- Existing and Modified Minimum Static Pressure Setpoints.

V6. Zone-Based Scheduling

Schedule a portion of the area served by the AHU/RTU where all that is needed is programming time. Zone-based VAV scheduling allows for some areas to be on while other areas remain off.

NOTE: Ineligible for an incentive if V2. Schedule Optimization – Temperature Setback is implemented. VFD must be installed on supply fan and exhaust fan, if applicable.

Required Inputs

- Type of Cooling System.
- Cooling Equipment Efficiency (kW/ton or EER).
- Existing AHU Schedules (Hours/Week, Weeks/Year).
- Average Supply CFM Before and After Scheduling Changes (CFM).
- Supply Fan Motor Size (HP).
- Average Supply Fan Speed with VFD (%).
- Reheat Status and Source.

Optional Inputs

- Heating System Efficiency (%).
- AHU Return Fan Motor Size (HP).
- Average Return Fan Speed (%).
- Supply, Return, and Reheat Air Temperatures (°F).
- Economizer Enable Temperature (°F).

Supporting Documentation

- Heating System Input and Output Capacities.
- Existing AHU Schedules.
- Average Supply Airflow Before and After Scheduling.
- Supply and Return Fan Motor Sizes.
- Average Supply and Return Fan Speeds with VFD.
- Temperature Setpoints.

Valve and Damper Repair

R1. Chilled Water Valve Repair

Repair a chilled water valve serving a cooling coil in a central air handling unit.

NOTE: Valve must have failed at least 70% open.

Required Inputs

- Type of Cooling System.
- Output Capacity (Tons).
- Valve Position on Failure (% Open).

Supporting Documentation

- Cooling System Type.
- Cooling Coil Capacity.

R2. Hot Water Valve Repair

Repair a hot water valve serving a heating coil in a central air handling unit.

NOTE: Valve must have failed at least 70% open.

Required Inputs

- Efficiency of Heating Systems (%).
- Output Capacity (MBh).
- Valve Position on Failure (% Open).

Supporting Documentation

- Heating System Input and Output Capacities.
- Heating Coil Capacity.

R3. Economizer Repair/Upgrade

Correct improper operation or repair outside air economizer units or upgrade an existing dry-bulb economizer to an enthalpy economizer.

Required Inputs

- Type of Cooling System.
- Cooling Capacity (Tons).
- Existing and Modified Economizer Type, Enable Temperatures and Settings.
- Return Air Temperature and Humidity (°F, %RH).

Optional Inputs

- Cooling System Efficiency (kW/Ton or EER).
- Cooling Load Profile.
- Existing Airflow (CFM).

Supporting Documentation

- Cooling System Type.
- Cooling System Capacity Efficiency.
- Cooling Load Profile.
- Existing Economizer Setpoints.

R4. Triple Duty Valve Optimization

Open the valve on chilled and hot water pumping systems and allow the VFD to slow down the flow as needed.

Required Inputs

- Pump Sizes (HP).
- Boiler Switch/Chiller Shutdown Temperature (°F).
- Minimum Part Load (%).
- Existing and Modified System Pressure (ft H_2O).

Supporting Documentation

- Existing and Modified Setpoints.