

Custom Energy Management Systems Project Guide



Dominion Energy South Carolina and its EnergyWise for Your Business Program offers financial incentives for energy-efficient equipment and retrofits, including energy management system (EMS) installations and EMS upgrades. An EMS is designed specifically for the automated control and monitoring of a building's processes, typically HVAC, that result in optimization of the building's operation and reduced demand and energy use. This guide is intended to provide additional clarity to customers and their trade allies regarding the type of EMS projects that are eligible for incentives and the information that must be provided with a custom application.

Each EMS project is unique, which is why they are considered through the Custom program offering. However, this guide will provide assistance through the process and answer many of the frequent questions presented to the EnergyWise team. With all Custom projects, we encourage customers and their trade allies to contact the EnergyWise team early in the process to determine the eligibility of the proposed project and to discuss the project details prior to submitting an application.

Helpful Hints:

To qualify for a potential incentive, the proposed EMS must be a new system or expansion of an existing system to control additional equipment. The EMS must be installed in an existing building on existing equipment. Current building code for new construction has stringent requirements regarding EMS; thus, there are typically minimal to no opportunities to implement EMS strategies above and beyond compliance with code. Therefore, it is highly unlikely that the installation of an EMS in a new building would be eligible for EnergyWise incentives.

The following would NOT be eligible for EnergyWise incentives:

- The replacement of an operating EMS
- Existing control points
- Software upgrades

Care must be taken to include all capabilities of any existing control system. If an existing control system is not functioning or is not being used for its intended application, an incentive cannot

be offered for another system that can perform the same function. For example, if there are existing programmable thermostats in the building that are not being programmed, a new EMS that provides the same capabilities as the programmable thermostats is not eligible.

It is important to note that incentives for EMS are based on savings due to control points and control strategies. When considering upgrades to an existing EMS, our analysis will be based on the "operating capabilities" of the system rather than how the system is being operated. A "gold-plated" system that boasts bells and whistles does not necessarily contribute to increased energy savings. All energy savings must be clearly presented and calculated in order for the EnergyWise team to complete a thorough technical review of the proposed project.

A complete Custom application for an EMS should include:

- A complete sequence of operation.
- Efficiency levels and performance for all controlled equipment.
- Energy savings analysis (use of simulation software is recommended such as DOE-2, eQuest, etc.) Custom spreadsheet calculations will be acceptable.
- Inventory list of equipment to be controlled.

EMS in HVAC Applications

Most EMS projects submitted involve HVAC systems. Improving the operating performance and sequencing of the overall HVAC system can result in substantial energy savings, improve comfort and extend the equipment life.

EMS capabilities being used in HVAC applications typically include:

- Economizer controls for "free cooling" using outside air.
- Temperature setback during unoccupied periods.
- Optimal start and stop controls.
- Static pressure and temperature control and reset.
- Capability to automate the staggering of HVAC equipment, or to start equipment in stages.
- A central operator's station that is capable of monitoring sensors and field devices in real time.

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When submitting a potential project for an EMS HVAC application, an inventory of the equipment being controlled should be included.

Example:

Equipment ID	Location	Area(s) Served	Model	Size (tons/hp/kW)	Efficiency (EER, SEER or kW/ton)
Ex: RTU-2	East Roof	2nd floor	xxx-10	10 ton, 15 kW	11.3 EER

A summary of the proposed control strategy should also be included.

Example:

CONTROL PARAMETERS	Operating Schedule	Hours/year	Occupied/Unoccupied Setpoint (F)	Control Strategy
Existing Controls	Runs "fan auto" 24/7	8650	72/72	Running 24/7
Proposed Controls	Fan on 7am-5pm, 5 days/week. Cooling as required. Night setback 5 degrees	6000	74/78	An EMS will run during work days 7am-5pm. Cooling will cycle on to maintain setpoint.

Enhancing Existing EMS

When there is an existing EMS in place, the baseline of a new EMS project must include the capabilities of the existing system and the proposed system must identify control strategies above and beyond those existing capabilities whether or not they are being employed. The costs associated with any additional points may only be accounted for when evaluating a project. For example:

- Existing EMS Control Points:
- 7-day scheduling
 - Optimal Start Stop
 - Temperature Setback
 - HVAC Staging

- Proposed EMS Control Points:
- 7-day scheduling
 - Optimal Start Stop
 - Temperature Setback
 - HVAC Staging
 - **Economizer Enthalpy Control**
 - **Demand Control Ventilation**
 - **Humidity Control**

In this example, only the costs and energy savings associated with the control points in **red** are eligible for an incentive.

Ready to Get Started? Contact us at SCEnergyExperts@DominionEnergySC.com or 1-877-784-7234.