



# South Carolina Energy Office pre-approved Energy Efficiency Products and Measures

South Carolina law (48-52-640) requires state agencies to submit a disclaimer statement to the State Energy Office with its annual report stating that it did not purchase an energy conservation product that had not been certified by the State Energy Office. We are simplifying the legislative requirement for you by providing the following list of preapproved products, retrofits and upgrades. If a product, project or service is not on this approved list, or for products without an established history of energy savings, contact the South Carolina Energy office at 803-737-8030 regarding acceptance as an approved energy measure.

Note that all designs, retrofits, and system upgrades for the purpose of increased efficiency are approved by The South Carolina Energy Office.

The following list of Energy Conservation Measures (ECMs) is not vendor specific but the ECMs are known to reduce energy consumption independently or as part of a system with efficiency optimized. All purchases of Appliances and Commercial Equipment must meet or exceed the minimum federal standards for energy efficiency, which can be found on the US Department of Energy website here: [http://energy.gov/node/773531/about\\_standards.html](http://energy.gov/node/773531/about_standards.html) and at [www.energystar.gov](http://www.energystar.gov).

Be sure that all products and projects meet or exceed the provisions of 2009 IECC.

## Building Envelope

- Additional Ceiling, Attic or Roof Insulation
- Additional Wall Insulation
- Additional Floor Insulation
- Addition of Storm Windows & Doors
- Addition of Vestibules
- Efficient Windows (Solar Heat Gain Coefficient (SHGC) < 0.30, Fenestration U-factor < 0.50 commercial .9)
- Solar Film
- Radiant Barriers
- Cool Roofs
- Green Roofs
- Light Shelves
- Passive Solar Heating

## Lighting

- Lighting Retrofits- Electronic Ballasts with T-8 or T-5 lamps or LED

- Occupancy Sensors
- Reflectors
- Hydrotex Power Kleen
- Lighting Timers
- Exit Lights- LEDs
- Compact Fluorescent Lamps
- Motion Detector Lighting Controls
- Outdoor Lighting Controls including Photo eyes
- Integration with Building Automation (BAS) or Energy Management System(EMS)
- Daylighting

## **Cooling**

- Higher Efficiency Chillers
- Higher Efficiency Cooling Towers
- Free Cooling (heat exchangers)
- Variable Frequency Drives(VFDs) or Variable Speed Drives(VSDs)
- Integration with BAS/EMS
- Other CHW Loop Optimization
- Solar Cooling
- Evaporative Pre-cooling (misting) of Condenser Coils
- High Efficiency DX Equipment

## **Heating**

- Improved Boiler Controls
- Modular Boilers
- Insulate Exposed Ductwork
- Fan Coil Unit /Radiator Control Valves
- High Efficiency Furnaces
- Heating Controls (timers, clock thermostats)
- Hot Water Reset
- Boiler Economizer
- Waste Heat Recovery
- Dual-Fuel Capability
- VFDs/VSDs
- Cogeneration: Combined Heat and Power or Cooling Heating and Power (CHP)
- Integration with BAS/EMS
- Active Solar Heating
- Biomass-to-Energy systems
- High Efficiency DX Equipment

## **Electrical**

- High Efficiency Motors (7.5 Hp & up)

## **Two-Speed Motors**

- BAS/EMS Load Control
- Other Controls (timers, motion detectors, photo eyes)
- Vending machine controllers
- VFDs/VSDs

## **HVAC general**

- Variable Air Volume (VAV) Retrofit
- EMS
- Outside Air Economizer
- VSD/VFD Retrofits
- Air-to-Air Heat Recovery
- New Air Handling Units (AHUs)
- Smart Thermostats
- Programmable Thermostats
- Geothermal Heat Pumps
- Evaporative Pre-cooling (misting) of Condenser Coils
- High Efficiency DX Equipment

## **Domestic Hot Water (DHW)**

- Domestic Hot Water System Time Clock
- Integration with EMS/BAS
- Tank Insulation
- New Higher Efficiency Water Heaters
- Instantaneous Water Heaters
- Solar Thermal Water Heaters

## **Plug Loads**

- Energy Star Appliances
- Server Virtualization

## **Common Energy Saving Operation & Maintenance Measures**

- Reduce DHW Temp
- Use low-wattage Fluorescents
- Change Dirty Air Filters
- Repair Leaks (steam or water)
- Insulate Bare Piping
- Weatherstrip & Caulk

- Shut Off Reheat (when feasible)
  - Insulate Water Heater
  - Clean AHU Coils
  - Low Flow Showerheads
  - Valve Insulation
  - Calibrate HVAC Controls
  - Replace Steam Traps
  - Repair All Compressed Air Leaks
  - Replace Incandescent Lights with CFLs
  - Tight Scheduling of all Controllable Devices
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## **Alternatives and Renewables That Reduce Energy Consumption**

Please contact SCEO for approval of renewable and alternative products or projects being used as energy conservation measures and be prepared to indicate on your Annual Report as to how these measures conserve or reduce energy and its cost to your organization. Some examples of approvable measures follow:

### **Renewable Energy – Electricity**

- Photovoltaic Solar System
- Wind Turbines
- Biomass-to-Energy systems

### **Alternative Transportation Fuel Vehicle Conversions and Infrastructure**

- Propane (LPG)
- Natural gas (CNG)
- Ethanol (E85)
- Biodiesel
- Hydrogen
- Idle Reduction Equipment

### **Vendor Specific Approved Products**

- Hydrotex Power Kleen
  - Product Evaluation
  - Certification Letter
  - GPA Emissions Fuel Efficiency Final Report
- Greffen Systems M2G Microprocessor Boiler Controller
  - Product Evaluation
  - [www.greffensys.com](http://www.greffensys.com)