



# South Carolina School Success Stories

## Energy Management Systems

An Energy Management System allows an organization to centrally monitor and control devices like HVAC units and lighting systems across multiple locations. Monitoring data from an energy management system allows facility and building managers to improve energy performance and efficiency. An Energy Management System may include Direct Digital Controls, which typically have analog and digital inputs that allow measurement of a variable (temperature, humidity, or pressure) and analog and digital outputs for control of a medium (hot/cold water and/or steam). Remember to check with your local utility to see if rebates are available for energy efficiency upgrades.

As part of the American Reinvestment and Recovery Act (ARRA), school districts across South Carolina installed Energy Management Systems and/or Direct Digital Controls to better monitor temperature, lighting, and energy usage. Thermostats with motion sensors were installed in many locations to prevent the HVAC units from running when classrooms are unoccupied. Thermostats with temperature controls that only allow for a ten degree temperature variance were also installed. Through the use of Energy Management Systems and Direct Digital Controls, districts can show real-time energy usage data for each school and generate comparison data between different schools, thereby enhancing existing energy saving efforts. Educational displays and animations included in many of the programs show numerous techniques for reducing energy use. See project examples on the back of this handout.



Sumter County Schools (top left) installed Direct Digital Controls on HVAC systems in their schools and linked them to an Energy Management System. By controlling energy usage and temperature in their schools, they are saving \$48,000 a year (\$976,000 over the life of the system). The school district received a rebate check from Progress Energy for \$96,076 as part of their *Energy Efficiency for Business* program.



Horry County Schools (bottom left) installed occupancy sensors in their schools to prevent lights and systems from running in areas where there were no students or staff members. After installing more than 1600 sensors, they are saving \$289,000 per year in energy costs (nearly \$3 million over the life of the system). The Horry County School District received a check from Santee Cooper for \$93,400 as part of their *Reduce the Use South Carolina* program.



Tremain Foundation



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For more information, please visit our website: [www.energy.sc.gov](http://www.energy.sc.gov)

**Abbeville County School District**  
400 Greenville Street, Abbeville, SC 29620  
Phone: (864) 366-5427

**Project Title:** Direct Digital Energy Management HVAC, Control System for Abbeville County School District  
**Funding Amount:** \$88,540  
**Project Cost:** \$287,826  
**Annual Savings:** \$39,381  
**Lifetime Savings:** \$787,612  
**Equipment Lifetime:** 20 years  
**Projected Payback Period:** 2.2 years

**Project Overview:** The District installed automated Direct Digital Controls, which control thirteen split system HVAC units at both Diamond Hill Elementary School and Cherokee Trail Elementary School.

**Dillon County School District 2**  
405 West Washington Street, Dillon, SC 29536  
Phone: (843) 774-1200

**Project Title:** Installation of Direct Digital Controls at Stewarts Elementary School  
**Funding Amount:** \$80,000  
**Project Cost:** \$80,000  
**Annual Savings:** \$13,667  
**Lifetime Savings:** \$273,345  
**Equipment Lifetime:** 20 years  
**Projected Payback Period:** 5.9 years

**Project Overview:** The District added Stewart Heights Elementary School to the district's Direct Digital Control system. The controls were installed on thirty-five wall-hung HVAC units and fifteen rooftop HVAC units.

**Georgetown County School District**  
2018 Church Street, Georgetown, SC 29440  
Phone: (843) 436-7000

**Project Title:** Georgetown Co. School District Energy Measures  
**Funding Amount:** \$348,752  
**Project Cost:** \$348,752  
**Annual Savings:** \$82,838  
**Lifetime Savings:** \$1,656,754  
**Equipment Lifetime:** 20 years  
**Projected Payback Period:** 4.2 years

**Project Overview:** The District installed an Energy Management System on sixty-eight HVAC units at Waccamaw Elementary School and Waccamaw High School. The District also replaced twenty-one HVAC units at Pleasant Hill Elementary School with fifteen new SEER HVAC units. The non-programmable thermostats at the school were replaced with seven-day programmable controls.

**York County School District 3**  
660 N. Anderson Road, Rock Hill, SC 29730  
Phone: (803) 981-1000

**Project Title:** Energy Conservation Measures for York School District 3, Rock Hill Schools  
**Funding Amount:** \$471,000  
**Project Cost:** \$471,000  
**Annual Savings:** \$163,497  
**Lifetime Savings:** \$3,248,474  
**Equipment Lifetime:** 20 years  
**Projected Payback Period:** 2.9 years

**Project Overview:** The District re-commissioned Direct Digital controls on three buildings and installed them in another building. In one school, the electric duct heaters were replaced with a hot water boiler. In another school, the variable frequency drives were replaced on the central hot water pump.

**Richland School District 1**  
201 Park Street, Columbia, SC 29201  
Phone: (803-231-7000

**Project Title:** Direct Digital Control Installation & Energy Management System updates  
**Funding Amount:** \$921,962  
**Project Cost:** \$921,962  
**Annual Savings:** \$227,579  
**Lifetime Savings:** \$4,551,580  
**Equipment Lifetime:** 20 years  
**Projected Payback Period:** 4.1 years

**Project Overview:** The District installed Direct Digital Controls on HVAC units at AC Flora High School. The district also implemented upgrades on HVAC unit controls at nine schools to link them into an updated Energy Management System.

**Sumter County School District 2**  
1345 Wilson Hall Road, Sumter, SC 29150  
Phone: (803) 469-3769

**Project Title:** Energy Management System for HVAC  
**Funding Amount:** \$241,757  
**Project Cost:** \$241,757  
**Annual Savings:** \$48,826  
**Lifetime Savings:** \$976,527  
**Equipment Lifetime:** 20 years  
**Projected Payback Period:** 5 years

**Project Overview:** The District installed Direct Digital Controls in Bates Middle School. The district-wide Ethernet system was re-networked to include ten additional schools and temperature control systems were re-commissioned in five schools.