

**ANNUAL REPORT ON THE IMPLEMENTATION OF THE
STATE GOVERNMENT ENERGY CONSERVATION ACT,
SECTION 48-52-620, CODE OF LAWS OF SOUTH CAROLINA**



**Prepared by the South Carolina Energy Office
Submitted to the South Carolina General Assembly
December 31, 2013**

This document may be downloaded from the South Carolina Energy Office website:

<http://energy.sc.gov/public>

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The South Carolina Energy Office (SCEO) submits this report in accordance with Section 48-52-620 (E), Code of Laws of South Carolina.

I. Background

a. Section 48-52-620, Code of Laws of South Carolina

Section 48-52-620, Code of Laws of South Carolina, requires all state agencies, school districts and public colleges and universities to develop energy conservation plans to reduce their energy consumption intensity by one percent annually during fiscal years 2009-2013 and by a total of 20 percent by 2020, as compared to 2000 levels.

The specific requirements of this legislation include the following:

- Energy Conservation Plans – Each public entity is required to develop an energy conservation plan that addresses how the legislatively mandated energy use goals are to be met. These plans are to be submitted to the SCEO.
- Annual Progress Reports – Each public entity is also required to submit an annual progress report to the SCEO that outlines actions taken to implement its energy conservation plan and chronicles progress made in achieving its energy use goals.
- Annual Report to Legislature – The SCEO is required to compile the annual progress reports submitted by the public entities and submit an overall annual report to the General Assembly.

b. South Carolina Energy Office

The 1992 South Carolina Energy Conservation and Efficiency Act established the SCEO within the State Budget and Control Board in order to address energy issues in a consistent and professional manner. The SCEO carries out the state policy and program mandates of the Act and also administers the State Energy Program funded by the United States Department of Energy. Additionally, we carry out substantial functions related to radioactive waste disposal mandated by legislation passed by the General Assembly in 2000. The mission of the SCEO is to increase energy efficiency, enhance environmental quality and save energy dollars for South Carolina.

II. South Carolina Energy Office – Initial Implementation Activities

a. SCEO Implementation Plan

In an effort to ensure the development of a fair and equitable methodology for implementing this legislative requirement, the SCEO established an advisory group in 2008 of knowledgeable representatives from a variety of state agencies, school districts, colleges and universities and technical schools – all of which were affected by the new legislative mandate. The composition of this group reflected the diversity of entities affected by this legislation, from size to type of institution.

b. Plan Development Workshops

Based on the advisory group's suggestions, SCEO offered a total of four Energy Plan Development Workshops around the state. A total of 147 people participated in these workshops, representing 17 public colleges and universities, 20 state agencies and 49 school districts.

Additional energy plan development training was made possible by the SCEO's participation in various other energy-related workshops and conferences, allowing SCEO staff to make presentations about the legislation and provide additional practical guidance on the development of energy conservation plans. In all, through the SCEO Energy Plan Development Workshops and other training and conferences, a total of 101 public entities were able to receive some form of energy plan development training. In addition, extensive one-on-one energy plan development assistance was provided by SCEO staff.

Following the workshops, SCEO staff developed a Sample Energy Conservation Plan Template which was provided to agencies and remains available on our website.

c. South Carolina Accredited Commercial Energy Manager Training (ACEM)

In 2009, the SCEO and the Association of South Carolina Energy Managers created a state-specific alternative to the national Certified Energy Manager training offered in years past. While the South Carolina Accredited Commercial Energy Manager Training has provided hands-on information to a broad range of participants, its primary purpose is to train facility and energy managers to reduce energy consumption in support of the new legislative requirements. The course focuses on teaching participants to identify projects to reduce their energy consumption and to calculate their projected energy savings.

Since the first of these trainings was offered in July of 2009, a total of 11 ACEM training classes have been held, two of which occurred during FY 2013. A total of 199 individuals have been able to receive this extensive energy management training. The pass rate for this course averages approximately 82%, with those passing the test receiving ACEM certification.

In response to requests from ACEM graduates, we instituted a one-day "graduate seminar" in 2011, which has been repeated in subsequent years. To date 6 graduate classes have been offered, with a total attendance of approximately 100 participants.

III. South Carolina Energy Office – 2013 Activities

a. On-going Results of ARRA Grants

Through the American Recovery and Reinvestment Act (ARRA) of 2009, the SCEO received over \$38 million in funding under the State Energy Program (SEP) Energy Efficiency Retrofit Grants and Loans Program. The SCEO designed the program to improve energy efficiency in school districts, public colleges and universities and state

agencies, thus supporting the legislative mandate. Overall results of the ARRA grants, which will continue to provide energy savings for the next decade or longer, are summarized below:

SC SEP ARRA Summary

Annual Energy Savings	1.1 TBTU
Lifetime Energy Savings	20.456 TBTU
Annual Cost Savings	\$9.8 million
Lifetime Cost Savings	\$158,026 million
Funds Leveraged	\$178 million
Direct Jobs Created	57/quarter
Additional Indirect Jobs	17/quarter
Vendors Engaged	357

ARRA funding also allowed us to implement the Energy Technical Assistance Program, which provided energy assessments to public, non-profit, and private sector entities, helping them identify ways to operate with greater energy efficiency. Nearly 19% of public entities subject to the Energy Conservation Act received assistance through ETAP. The success of this program has resulted in a new initiative, described below, that began in late 2013 to provide similar energy assessments by in-house staff.

b. Technical Assistance Program (TAP)

The SCEO has developed a Technical Assistance Program (TAP) that will be available state-wide to all government offices as well as non-profit entities and will assist occupants and owners to identify opportunities to save energy. TAP services will include utility bill analysis, energy assessments and building walkthroughs. The program will provide a report of recommended energy measures and estimated cost savings that can be used to establish an implementation plan. Special requests for other types of energy technical assistance will also be considered based on demand and staff availability. The program is initially now a partnership with General Services, but will be made available to additional participants beginning in FY15.

c. ConserFund

ConserFund is a low-interest loan program for energy efficiency improvements in state agencies, public colleges or universities, school districts, local governments and private non-profit organizations. The fixed annual interest rate is currently set at 2%. ConserFund is structured so that the cost savings resulting from the energy efficiency upgrades funded through this program are used to make the loan payments.

The interest in energy efficiency sparked by ARRA activities, along with an aggressive marketing effort, has resulted in a significant increase in successful ConserFund

revolving loan applications in FY12 (8) and FY13 (10) in contrast to approximately 3 loans issued in the preceding 5 years.

Since its inception, the ConserFund Loan Program has made the following loans:

ConserFund Loan Summary FY2000 – FY2013

School Districts	14
State Agencies	15
Public Colleges & Universities	10
Private Non-profits	15
Local Governments	10
Total # of Loans	64

d. Energy Performance Contracting

Energy Performance Contracts (EPCs) are another way for agencies and schools to fund energy efficiency improvements. Energy Performance Contracts are turn-key services provided by an energy services company (ESCO). The ESCO identifies a set of energy-saving opportunities and recommends a package of improvements to be paid for through savings. Savings are often guaranteed so that if savings do not materialize, the ESCO will pay the difference.

SCEO organized a workshop in FY13 (December, 2012) to familiarize government entities with performance contracting. Approximately 75 ESCOs and public agencies attended the meeting. Draft standard performance contracting documents were discussed and have subsequently been published for review by the Office of the State Engineer. A follow-up questionnaire for attendees indicated that the vast majority of participants would like to see an on-going organization devoted to energy performance contracting.

Accordingly, SCEO created a steering committee of public agencies and ESCOs. That group is planning a second meeting to be held in January, 2014.

e. Milestone Recognition Awards

A grant from the Emily Hall Tremaine Foundation has allowed SCEO to provide tangible recognition for those agencies, school districts and public colleges and universities that appear to have met their mandated 20% reduction in energy use intensity since the year 2000.



(At left, a representative from Aiken Technical College receives an award from SCEO Director Ashlie Lancaster and Tremaine Foundation's Nicole Chevalier.)

The agencies listed below have received Milestone Recognition Awards to acknowledge meeting the 20% energy use reduction goal. (Note that recognition does not ensure that an agency's energy use will not rise at some point in the future.)

Aiken Technical College
 Barnwell School District 45
 Beaufort School District
 The Citadel
 Frances Marion University
 Greenville School District
 Greenville Technical College
 Clover School District (York SD2)
 Darlington School District
 Georgetown School District
 Greenwood School District 50
 Lancaster School District
 Laurens School District 55
 The Military Department
 Newberry County School District
 Northeastern Technical College
 Patriots Point Development Authority

Piedmont Technical College
 Rock Hill School District 3
 SC Department of Corrections
 SC Department of Disabilities & Special Needs
 SC Department of Parks, Recreation & Tourism
 SC ETV
 Spartanburg Community College
 Sumter School District
 Tri-County Technical College
 USC Columbia
 USC – Upstate
 Williamsburg School District
 Williamsburg Technical College
 Winthrop University

The Foundation has also provided funding to document and publicize energy efficiency successes among the state's public schools receiving ARRA funding. Examples of success story summaries are included in Appendix A.

f. DOE Grant Assistance

One of the most significant lessons learned during administration of the ARRA funding was the degree to which under-funded and under-staffed organizations need help to even consider taking advantage of opportunities for additional assistance. Accordingly, SCEO sought DOE competitive funding to provide assistance to state agencies in beginning the process of seeking loans or establishing performance contracts. The SCEO was recently notified of its selection for an award and funding which will become available in the spring of 2014.

IV. Submission of Annual Progress Reports

During 2013, public entities subject to the Energy Conservation Act were required to complete the following five sections of the report:

Section 1: Energy Conservation Measures

This section required the listing of energy conservation measures implemented during the year, including any measured or projected energy savings.

Section 2: Energy Consumption Data

In this section, overall energy consumption data was reported, either through a web-based reporting tool or a spreadsheet provided by SCEO.

Section 3: Energy Team Development

This section requested an update on the organization's energy team, including any change in membership or any training, education or other energy team activities that occurred during the year.

Section 4: Purchase of Energy Conservation Products

This section requested a disclaimer that all purchased energy conservation products have been certified and/or approved by the SCEO, as per §48-52-640.

Section 5: Energy Retrofit Financing

This section solicited information about current and past performance contracts, as well as assessed interest in the ConserFund loan program.

Section 6: Additional Narrative

This section allowed for a brief summary of any changes that may have occurred since submission of the Energy Conservation Plan to the SCEO, as well as any successes deserving mention or any barriers encountered.

At the time this annual report was written, 86% of the state's public entities submitted reports that were complete, with valid information provided in all sections. An additional nine percent submitted partially complete reports. Five percent failed to submit any reports at all¹.

¹ Please note that these percentages may not total to 100% due to independent rounding.

Organization Type	Total Number of Entities	Complete	% Complete	Partially Complete	% Partially Complete	Non-Submitting	% Non-Submitting
State Agencies	33	31	94%	2	6%	0	0%
Residential Colleges and Universities	13	11	85%	2	15%	0	0%
Non-Residential Colleges and Universities	20	20	100%	0	0%	0	0%
School Districts	81	65	80%	9	11%	7	9%
Totals	147	127	86%	13	9%	7	5%

A list of partially complete and non-submitting entities is included in Appendix B. As in prior years, many entities were able to prepare and submit their reports with little or no help, while others required in-depth assistance. SCEO staff continues to offer ongoing assistance to those entities that did not provide complete reports.

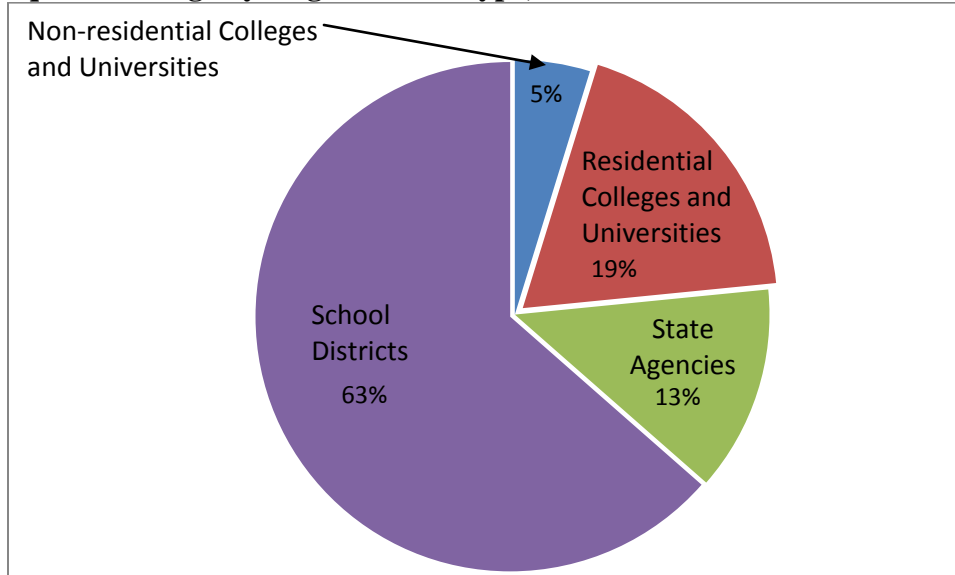
A selection of several fully completed Annual Progress Reports is attached in Appendix C. These reports are included to illustrate the types of energy conservation measures being undertaken by many of the state's agencies, school districts and public colleges and universities. It should be noted that this attachment is merely a sampling of complete reports and is not intended to imply SCEO endorsement of these reports over those not included here.

V. Progress toward Energy Conservation Goals

The SC Government Energy Conservation and Efficiency Act requires public entities to work toward meeting specific goals in reducing their energy intensity (defined as total site energy consumption per gross square foot). The SCEO has collected data on energy consumption, energy spending, and building square footage from public entities on an annual basis for the past 20 years. These data can be used as a basis for estimating the progress made by public entities toward meeting their energy goals. However, these data are accepted as received, and the SCEO can make no representation regarding their accuracy. In addition, some entities did not submit reports to the SCEO, introducing a potential source of bias. Consequently, the statistics reported in this section should be approached with caution. The SCEO continues to provide assistance to public entities that need help establishing systems for tracking energy usage.

School districts were responsible for the majority of reported building space, constituting 63% of the square footage reported by public entities. Residential colleges and universities are the next largest category, reporting 19% of the total square footage. State agencies (13%) and non-residential colleges and universities (5%) account for the smallest categories of reporting entities.

Square Footage by Organization Type, FY 2013



Data submitted for the most recent fiscal year (FY2013) indicate that public entities decreased their energy intensity by an average of 17% compared to the FY2000 baseline. School districts—the least energy-intensive category of public entities—reported improvements of 15%. Residential colleges—the most energy-intensive category—reported improvements of 21%.

Energy spending per square foot reportedly fell an average of 3% during this period.

Organization Type	Average Energy Use per Square Foot (site kBTU)			Average Energy Spending per Square Foot (\$)		
	FY2000	FY2013	% change	FY2000	FY2013	% change
State Agencies	113	103	-9%	\$1.80	\$1.74	-3%
Residential Colleges and Universities	143	113	-21%	\$1.76	\$1.89	+7%
Non-Residential Colleges and Universities	80	64	-20%	\$1.58	\$1.55	-2%
School Districts	45	38	-15%	\$1.14	\$1.08	-5%
Total	75	62	-17%	\$1.38	\$1.34	-3%

Note: These statistics are based on self-reported data submitted by public entities. SCEO makes no representation regarding the accuracy of these data.

In aggregate, the state’s public sector has reported significant improvements in energy intensity based on 2000 versus 2013 energy usage.

State Organization Energy Usage	
Year	kBtu per ft²
2013	62
2000	75
20% reduction goal will be met when kBtu/ft ² value is less than or equal to 60.	
These statistics are based on data submitted by public entities. SCEO makes no representation regarding the accuracy of these data.	

Public entities in South Carolina have almost met, as a whole, the 20% goal set by the Energy Conservation and Efficiency Act. Compared to 2012 (which met the State’s 20% reduction goal), 2013 saw an increased energy usage by State Agencies, School Districts, and Residential Colleges and Universities. These factors contributed to bringing the state’s usage above the previous year’s value. Although energy savings are being realized, 2014 will provide an opportunity to once again meet the goal of 20% reduction. As always, the Energy Office is only able to report on the data that is submitted by state entities. Partially complete or missing data also affects the savings metrics and could account for the difference between 2012 and 2013 energy use.

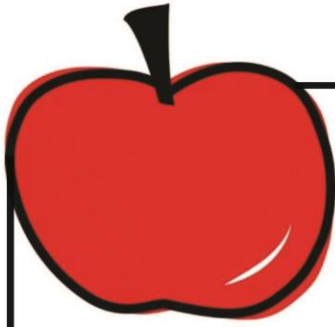
VI. Conclusion

The purpose of this report is to provide to the South Carolina General Assembly with an update on the implementation of the requirements of the 2008 Energy Conservation and Efficiency Act (Section 48-52-620, Code of Laws of South Carolina).

Through the development and implementation of Energy Conservation Plans, as required by this legislation, the state’s public entities have developed strategies for meeting energy conservation goals. Annual Progress Reports submitted by many of these organizations identify specific and measureable energy conservation efforts that they are undertaking. Finally, the SCEO, through several ongoing and new programs, is providing training, technical assistance and funding to these entities for the purpose of assisting them to make progress toward their energy conservation goals.

Appendix A:

Sample School Success Stories

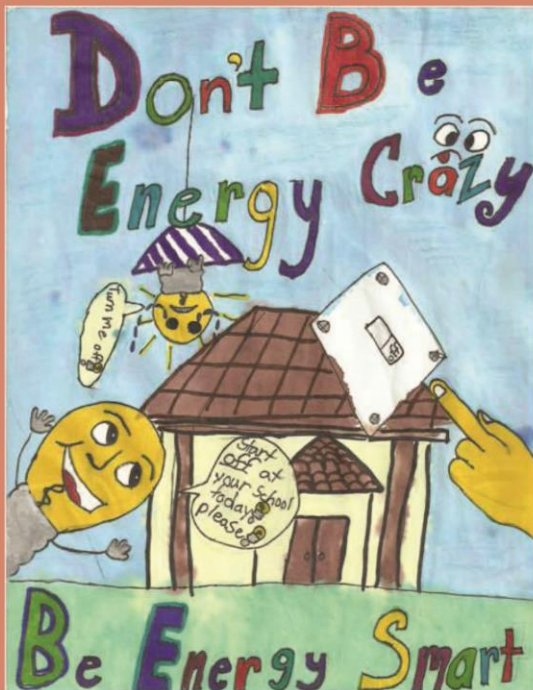


South Carolina School Success Stories

Behavioral Modification

Installing energy efficient equipment is a great way to save money on energy costs but even more money can be saved through energy conservation. Energy savings can be achieved through school faculty, staff, and students becoming more conscious about energy usage. Districts need to start by establishing and implementing a comprehensive energy policy with procedures. Using a utility accounting and energy management information system to measure, track, and analyze over 300 power, gas, and water bills each month can help spot wasted use and costs. In addition, working with utility providers to ensure the best rates, most consistent and most efficient service possible, and proper billing cycles can also bring costs down. Remember to check with your local utility to see if additional rebates are available.

Various schools are educating their employees and students on how to better use energy and providing feedback of how their actions are benefitting the school district. See project examples below and on the back of this handout.



Rock Hill Schools

The Rock Hill School District instituted a number of programs to encourage students and faculty to conserve energy:

- Held contests between faculty and staff to see who could conserve the most energy.
- Trained teachers, administrators, office staff, cafeteria, coaches, custodians and other staff on the latest conservation techniques. They also expanded the training to all those that use the facilities.
- Worked to continuously identify and resolve problems before they occur to make buildings more comfortable and efficient.
- Consistently communicated to administrators on ways to improve the learning environment and save wasted costs.
- Clearly showed progress and encouraged commitment through reports, developing new resources and incentives for savings.
- Held a student energy conservation art contest.



Success Stories are funded through a grant from the Emily Hall Tremain Foundation.
For more information, please visit our website: www.energy.sc.gov

Georgetown School District
2018 Church Street
Georgetown, SC 29440
(843) 436-7000

Georgetown School District implemented behavioral cues that helped to reduce energy consumption by over 1 million kBtus. The Energy Management Department upgraded the District's energy management system, replaced HVAC units, and implemented easy-to-follow "no cost" measures. Every Friday they sent a lighthearted "Weekly Reminder" through district e-mail to every faculty member as a reminder to turn off unnecessary equipment before leaving on Fridays and holidays. They also encouraged staff to report any areas where they felt energy could be saved and created an online form that could be filled out and submitted to the District Energy Management Department. The energy management system also allowed the District to track and compare energy savings at each school, creating friendly competition between local schools.



Does your electric bill shock you?

Imagine how it would be if you had to pay your school's electric bill? We here at the Energy Management Department understand how you feel and as a group we can do something about it. Follow these 3 simple rules and we can make a difference:

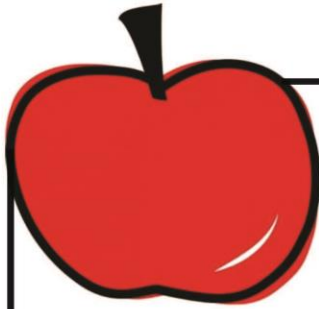
- 1) **Turn It Off:** When leaving a room for more than 10 minutes, cut off the lights. When leaving for the day turn off all computers, monitors, televisions, and anything else that uses electricity.
- 2) **Check It Out:** Check empty rooms, custodial closets, book rooms, and any other places where electricity is being used.
- 3) **Let Someone Know:** Already people are telling us places where we can save energy and we are listening and putting plans into action. Contact your administrator or fill out our on-line (and anonymous if you choose) form at:

[Energy Feedback Form](#)

Also check out the Energy webpage for more ways to save:

<http://www.qcsd.k12.sc.us/departments/operations/energy/EMD.html>

**REMEMBER TO CHECK THE CLASS BEFORE YOU
LEAVE AND CUT EVERYTHING OFF!**



South Carolina School Success Stories

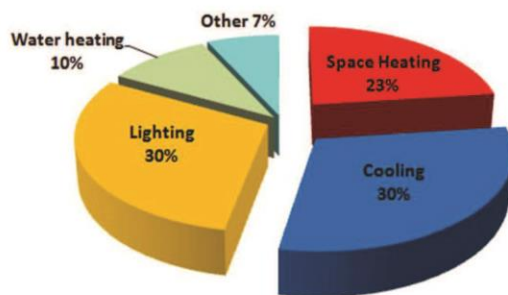
Lighting

Lighting can be a significant expense for school districts. The commercial energy sector, which includes institutional buildings, consumed about 275 billion kWh for lighting or 21 percent of commercial sector electricity consumption in 2011. Public schools spend more than \$6 billion dollars annually on energy. Nationwide, as much as 30 percent of that energy use is the result of inefficiency. By installing energy efficient lighting systems, districts can begin to cut their energy costs while improving light quality in classrooms and reducing heat gain. Remember to check with your local utility to see if additional rebates are available.

As part of the American Reinvestment and Recovery Act (ARRA), school districts across South Carolina replaced inefficient lightbulbs in classrooms and gymnasiums to improve energy usage. Funding allowed more than 70 schools to upgrade to energy efficient lighting; the bulk of upgrades involved the replacement of T-12 fluorescent bulbs with the more efficient T-8 bulbs. A T8 bulb can provide the same quality of light while drawing less power making the T8 a more energy-efficient bulb to use. In addition to lightbulb upgrades, districts also added motion sensors to lessen energy usage when classrooms and buildings were unoccupied. See project examples on the back of this handout.

Typical Energy Usage in Facilities

Courtesy U.S. Department of Energy



- The average school building in the United States is more than forty years old. Older buildings were not designed to meet the energy needs of today's students.
- K-12 schools use, on average, 10 kWh of electricity per square foot per year.
- A mid-sized school district with 800,000 square feet of building space spends more than \$1 million annually for energy.
- According to the National Center for Education Statistics, per student energy expenditure rose 19% from 2007-2008.
- Lighting, cooling, and plug loads are the top three energy uses for school buildings.



Success Stories are funded through a grant from the Emily Hall Tremaine Foundation.
For more information, please visit our website: www.energy.sc.gov

Fairfield County School District
1226 US Highway 321 By-Pass South
Winnsboro, SC 29180
(803) 635-4607

Project Title: Lighting Replacement and Upgrades

Project Cost: \$172,246

Lifetime Savings: \$719,877

Projected Payback Period: 4.9 years

Project Description: At Fairfield Central High School, the District replaced existing T12 lamps with T8 lamps, upgraded magnetic ballasts to electronic ballasts, and installed dual sensor dual switching occupancy sensors.

Horry County School District
335 Four Mile Rd (PO Box 26005)
Conway, SC 29528
(843) 488-6700

Project Title: Occupancy Sensor Installation

Project Cost: \$598,438

Lifetime Savings: \$2,895,882

Projected Payback Period: 1.9 years

Project Description: The District installed district-wide (in 49 schools) ceiling mount occupancy sensors.

Jasper County School District
10942 North Jacob Smart Blvd. (PO Box 848)
Ridgeland, SC 29936
(843) 717-1100

Project Title: Lighting Installation and Tree Planting

Project Cost: \$87,790.00

Lifetime Savings: \$1,704,828

Projected Payback Period: 1.4 years

Project Description: The District replaced metal halide lamps, installed magnetic contact switches, and installed light sensors. The District also planted deciduous shade trees to aid in building cooling.

Laurens County School District 55
1029 West Main St.
Laurens, SC 29360
(864) 984-3568

Project Title: Energy Performance Contract to Reduce Energy Consumption

Project Cost: \$136,377.00

Lifetime Savings: \$7,582,460

Projected Payback Period: 0.4 years

Project Description: The District established an Energy Performance Contract to reduce energy consumption by 15%, which included five energy measures for improvements in lighting, sensors, mechanical (buildings), control systems, windows, and doors.

Aiken County School District
1000 Brookhaven Dr.
Aiken, SC 29803
(803) 641-2428

Project Title: Extensive Lighting and Electrical Upgrades

Project Cost: \$584,513.00

Lifetime Savings: \$1,782,212

Projected Payback Period: 8.1 years

Project Description: The district conducted 24 energy measures for lighting and electrical upgrades district wide.

Dorchester County School District 4
500 Ridge St.
St. George, SC 29477
(843) 563-4535

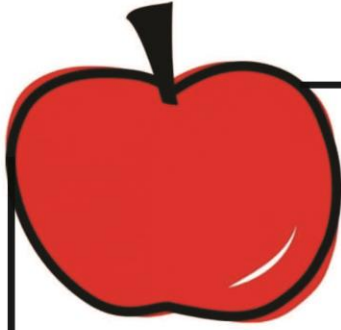
Project Title: Lighting Retrofit

Project Cost: \$97,784.00

Lifetime Savings: \$608,194

Projected Payback Period: 3.9 years

Project Description: The district conducted a lighting retrofit for St. George Middle School.



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.



Success Stories are funded through a grant from the Emily Hall Tremaine Foundation.

For more information, please visit our website: 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

Project Cost: \$120,882

Lifetime Savings: \$632,493

Payback Period: 3.1 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

Project Cost: \$80,000

Lifetime Savings: \$273,335

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: Energy Management System installation & HVAC upgrades

Project Cost: \$348,752

Lifetime Savings: \$1,656,754

Payback Period: 5.2 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

Project Cost: \$471,000

Lifetime Savings: \$3,248,474

Payback Period: 3.5 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

Project Cost: \$921,962

Lifetime Savings: \$4,551,580

Payback Period: 4.9 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
1345 Wilson Hall Road, Sumter, SC 29150
Phone: (803) 469-3769

Project Title: Energy Management System for HVAC

Project Cost: \$241,757

Lifetime Savings: \$976,527

Payback Period: 4.1 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.

Appendix B: List of Organizations Not Submitting Reports

At the time this annual report was written, the following entities had not submitted any reports:

Bamberg County School District 2
Clarendon County School District 3
Florence County School District 4
Florence County School District 5
McCormick County School District
Saluda County School District
Union County School District

At the time this annual report was written, the following entities had submitted partially complete reports:

South Carolina State University
Clemson University
Jasper County School District
Barnwell County School District 19
Clarendon County School District 1
Greenwood County School District 51
Orangeburg County School District 3
Spartanburg County School District 1
Dillon County School District 4
Hampton County School District 2
Marlboro County School District
South Carolina Public Railways
South Carolina School for the Deaf and Blind

Appendix C

Sample 2013 Annual Progress Reports

Charleston County School District
SC Department of Mental Health
The Citadel
Horry-Georgetown Technical College

Organization Name:

Charleston County School District

Person(s) Filing Report (name, phone number, email):

Sean Hughes (843) 566-8190 sean_hughes@charleston.k12.sc.us
Energy Manager

Please complete this report and return it to the South Carolina Energy Office no later than August 30th, 2013. Sections I, III, IV, V and VI may be completed using either this form or a different format of your choosing. Completion of Section II requires the submission of energy consumption data, as described below.

This report will allow the South Carolina Energy Office to verify your compliance with the State Government Energy Conservation Act (§48-52-610 through 680 and §48-52-910, Code of Laws of South Carolina). In addition, the energy consumption data you provide will be made available to assist in statewide energy planning efforts. Please ensure that your submission is as complete and accurate as possible.

Section I: Energy Conservation Measures

§48-52-820 requires entities to report activities undertaken to implement their Energy Conservation Plan. For this section, please list each energy conservation measure that you implemented in FY13. For each measure, please include the following:

1. A description of the energy conservation measure implemented including an estimate of square footage affected if known;
2. The estimated and/or observed annual energy savings (if available) and estimation method (if applicable.)

If you implemented no energy conservation measures in FY13, simply write "None."

Plug and Vending Misers – Approximately 7500 sq ft affected
Relampings, low wattage T8s – Approximately 100,000 sq ft affected
Relampings, low wattage LEDs – Approximately 60,000 sq ft affected
Heat Wheels, Outdoor Air Units – Approximately 350,000 sq ft affected
Reduced HVAC Hours – Approximately 3 million sq ft affected
Water Saving Appliances and Fixtures – Approximately 400,000 sq ft affected
Energy audit schedule implemented – Approximately 1.5 million sq ft affected

Annual Energy Savings not available at this time, method will be year over year consumption and cost compensating for rate increases.

Section II: Energy Consumption Data

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Section III: Energy Team Development

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LEED AP certifications for 2 members, CEM joined organization at end of FY13. HVAC vendor provided training courses were provided to our shop foremen.

Section IV: Purchase of Energy Conservation Products

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telephone at 803-737-8030. (Please note that any products purchased for your ARRA-funded energy projects have already been approved.)

Statement	Initials
I hereby certify that my organization did not purchase any energy conservation products that have not been certified and/or approved by the South Carolina Energy Office.	SCH

Section V: Energy Retrofit Financing

Did you enter into a Performance Contract in Fiscal Year 2013? **No**

If so, please indicate the ESCO or company used: **N/A**

Have you used a performance Contract in prior years? **No**

If so, please indicate the ESCO or company used: **N/A**

Are you interested in receiving information about the ConserFund loan program and/or performance contracting? **YES**

Section VI: Additional Narrative

Please provide a brief write-up addressing any changes that may have occurred since submission of your Energy Conservation Plan to the South Carolina Energy Office, as well as any successes deserving mention, or barriers to improvement that you have faced. (If not applicable, simply write "None".)

New organization wide energy policy developed, new sequence of operations for equipment developed. Large scale funding remains a barrier to larger projects during tight budget years.

Real time energy monitoring is being planned for our largest facilities to assist in demand shedding and demand reduction. Our utility accounting department has been tasked with front line utility anomaly detection which has yielded several instances of reduction and corrections.

Organization Name:

South Carolina Department of Mental Health

Person(s) Filing Report (name, phone number, email):

Janice H. Timms, P.E. (803) 935-5621 iht69@scdmh.org

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If you implemented no energy conservation measures in FY13, simply write "None."

SCDMH has an ongoing plan to improve energy conservation efforts. For example, Maintenance is changing out older T12 lighting fixtures to T8's as the fixtures fail. There are currently several projects in the planning stage for replacing outside lighting with LED's. Energy efficient fixtures are always used as replacements when an area is renovated. Of course, appliances are replaced with ones that are EnergyStar rated. Filter and Preventive Maintenance programs are in place to ensure that mechanical equipment is working as efficiently as possible.

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During the last fiscal year, SCDMH Maintenance has had several training and demonstration sessions on the use of LED lighting for both interior and exterior applications.
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Statement	Initials
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I hereby certify that my organization did not purchase any energy conservation products that have not been certified and/or approved by the South Carolina Energy Office.	jht
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Section V: Energy Retrofit Financing

*Did you enter into a performance contract in Fiscal Year 2013? Yes or **No** (Circle one)*

If so, please indicate the ESCO or company used:

*Have you used a performance contract in prior years? Yes or **No** (Circle one)*

If so, please indicate the ESCO or company used:

*Are you interested in receiving information about the ConserFund loan program and/or performance contracting? **Yes** No (Circle one)*

Section VI: Additional Narrative

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According to the State Energy Office records, SCDMH has met the mandated 20% goal, in both FY11 and FY12. The Agency will continue to implement Energy Conservation Measures as the funds are made available. Plans include the replacement of more exterior lighting (using more efficient fixtures) in the next fiscal year.
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Organization Name:

The Citadel

Person(s) Filing Report (name, phone number, email):

Paul Cantrell. 843-953-5899 paul.cantrell@citadel.edu

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If you implemented no energy conservation measures in FY13, simply write "None."

Building	Measure	Project Cost	Est.Savings
1. Vandiver Hall	Add VFD AHU	\$5,507	\$3,654
2. Capers Hall	Cooling Tower VFD	3,818	\$2,000
3. Jenkins Hall	3 rd Floor AHU VFD	\$5,874	\$3,338
4. Daniel Library	Replaced Chiller	\$120,000	\$15,000
5. Daniel Library	Cooling Tower VFD	\$4,040	\$2,000
6. Daniel Library	LED Lighting Installation	\$1,920	\$750

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Paul Cantrell – Continued Masters of science degree in Project Management at The Citadel Paul Cantrell and Juan Santiago – Attended Spring 2013 ASCEM meeting Paul Cantrell and Juan Santiago – Attended Fall 2012 Tri-association Facility Manager’s Conference Paul Cantrell – Attended IFMA May chapter meeting – Building Information Modeling Paul Cantrell – Renewed Certified Energy Manager (CEM) certification through Dec. 2015

Section IV: Purchase of Energy Conservation Products

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Section V: Energy Retrofit Financing

Did you enter into a performance contract in Fiscal Year 2013? Yes or **No** (Circle one)

If so, please indicate the ESCO or company used:

Have you used a performance contract in prior years? **Yes** or No (Circle one)

If so, please indicate the ESCO or company used: Ameresco

Are you interested in receiving information about the ConserFund loan program and/or performance contracting? **Yes** No (Circle one)

Section VI: Additional Narrative

Please provide a brief write-up addressing any changes that may have occurred since submission of your Energy Conservation Plan to the South Carolina Energy Office, as well as any successes deserving mention, or barriers to improvement that you have faced. (*If not applicable, simply write "None".*)

The Citadel is currently in the Measurement and Verification (M&V) stage of the energy performance contract with Ameresco.

We are always in search of energy savings measures to implement and have a list of projects at the ready. The challenge of the current economy is acquiring funding for energy projects.

The vice president of facilities and operations left The Citadel prior to the end of 2012. The position had not been filled as of June 30, 2013.

Organization Name:

Horry Georgetown Technical College

Person(s) Filing Report (name, phone number, email):

Kevin Brown – 843-349-5398

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Continuously upgrading lighting systems old T-12 lighting and replacing with efficient T-8 lighting.
Working closely with Santee Cooper to assess lighting patterns and implementing their recommendations.
Completed the construction of Bldg.300 meeting Lead Silver standards, using smart chillers, HVAC control systems, lighting controls, and plumbing controls.
Continuing with a comprehensive weatherization and energy upgrades to the building envelopes Bldg.100, 200, and 1000.

The specific energy conservation measures are as follows:

- Roof repairs – new built up insulation and roofing
- Replacing existing windows and wall/roof insulation materials. Batting-style insulation will be replaced with R-15 open cell spray foam at walls.
- Non-insulated wall sheathing will be replaced with new structural grade insulated wall sheathing with continuous vapor barrier/damp-proof membrane
- Rigid flashings will be replaced with flexible flashings at wall openings
- Existing brick veneer around windows will be replaced with new insulated aluminum wall panels
- Non-insulated 25-40 year old glazings will be replaced with hurricane/impact rated low-e insulated glazing set in thermo broken aluminum curtain wall framing

Proposed Improvements and Actions are:

- Install new foamed insulation within wall system with new exterior structural and waterproof sheathings
- Install new brick veneer and insulated metal panel systems
- Effective R-values for wall assemblies increased from a current R-value of less than 10 to a new R-value of greater than 20, thus the energy efficiency of the wall is doubled
- Installation of new flexible flashings at base of walls, at window and door heads and sills as well as at all wall/roof junctions
- Installation of new sealant systems
- Installation of new double insulated/impact rated low-e energy efficient glazings
- Sun screen/shading systems to reduce solar heat gain and impact on HVAC systems
- New built-up insulation and roofing

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None

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None
