ENERGY OFFICE

ANNUAL REPORT ON THE IMPLEMENTATION OF STATE GOVERNMENT ENERGY CONSERVATION

Prepared by the
Office of Regulatory Staff
Energy Office

Submitted to the
South Carolina General
Assembly
December 31, 2015

This document may be downloaded from the Energy Office website:

http://energy.sc.gov/public

This material is based upon work supported by the Department of Energy under Award Number(s) DE-EE0006996.

Disclaimer: The South Carolina Restructuring Act of 2014 dissolved the Budget and Control Board (Board) and created the State Energy Office within the Office of Regulatory Staff (ORS). This report reflects the format previously issued under the Board and may change in the future to reflect an ORS report format.

Disclaimer: This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

I. Background

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

The South Carolina Restructuring Act of 2014 dissolved the Budget and Control Board and created the SEO within Office of Regulatory Staff (ORS). This reorganization has not altered the legislatively mandated duties of the SEO.

Dennis Schroeder/NREL

Section 48-52-620 of the South Carolina Code of Laws requires affected state agencies, public school districts, and public colleges and universities (Public Entities) to develop energy conservation plans and work to reduce their energy consumption by 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 (plans were initially submitted to the SEO in 2009).

- Annual Progress Reports – Each Public Entity is required to submit an annual progress report to the SEO that outlines actions taken to implement its energy conservation plan and chronicles progress made in achieving its energy use goals (see Section III for more detail).

- Annual Report to Legislature – The SEO is required to compile the annual progress reports provided by Public Entities and submit an annual report to the General Assembly.

To ensure the development of a fair and equitable methodology for implementing this legislative requirement, the SEO established an advisory group in 2008. The group consisted of representatives from a variety of state agencies, school districts, and public colleges and universities – all of which were affected by the new legislative mandate. The composition of this group reflected the diversity of Public Entities affected by this legislation, both in size and type of institution.

Based on the advisory group's suggestions, the SEO offered four energy-plan development workshops around the state. A total of 147 people participated in these workshops, representing 20 state agencies, 49 school districts, and 17 public colleges and universities. Following the workshops, SEO staff developed a sample energy conservation plan template which was provided to all Public Entities and remains available on the SEO website.

Section 48-52-620(E) requires Public Entities to provide annual progress reports to the SEO. The SEO must compile these reports and provide its findings to the General Assembly by December 31 of each year.

II. Activities in Support of Implementation

A. Training

In 2009, the SEO and the Association of South Carolina Energy Managers created a state-specific alternative to the national Certified Energy Manager© training. While the South Carolina Accredited Commercial Energy Manager (ACEM) program has provided hands-on training to a broad range of participants, its primary purpose is to educate facility and energy managers as they work to reduce energy consumption in support of the legislative requirements. The course teaches participants to identify projects that can reduce their energy consumption and how to calculate their projected energy savings.

Since 2009, a total of 15 ACEM training classes have been held, two of which occurred during FY 2015. A total of 262 individuals have received this extensive energy management training. The pass rate for the course averages approximately 81 percent, with those passing the test receiving ACEM certification.

B. Assistance to Agencies

SEO staff works with Public Entities requesting assistance with reporting requirements and often devotes considerable effort to identifying and correcting reporting errors. The SEO invites Public Entities to report using the mechanism most convenient for them, which can range from elaborate facility and energy management software all the way down to a reporting spreadsheet developed by the SEO in an Excel format. To improve tracking and reporting, assistance is available to help Public Entities import their data into Portfolio Manager, a free online tool offered by the U.S. Environmental Protection Agency. The program not only helps with long-term benchmarking, but it also allows users to apply for ENERGY STAR® designations for individual buildings.

Additional technical assistance has been made available from professional energy consultants through a federally funded program that provides energy assessments and advice about funding mechanisms to various public sector organizations. SEO personnel are also available to perform energy assessments for Public Entities upon request.

C. ConserFund

Funding assistance for energy efficiency improvements is available through the ConserFund and ConserFund Plus low-interest loan programs. The loans are available to state agencies, public colleges or universities, school districts, local governments, and private non-profit organizations with a fixed annual interest rate currently set at 2 percent. ConserFund is structured so that the cost savings resulting from the energy efficiency upgrades can be used to repay the loan. ConserFund Plus, a recently initiated program, offers funding as 70 percent loan and 30 percent grant and is only available to Public Entities.

D. Energy Performance Contracting

Energy Performance Contracts (EPCs) are another way for agencies and schools to fund energy efficiency improvements. EPCs 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 energy savings. These savings are often guaranteed, requiring the ESCO to pay the difference if the savings do materialize.

The SEO has conducted two workshops, one in FY 2013 (December, 2012) and one in FY 2014 (February, 2013) to familiarize

government entities with performance contracting. Approximately 75 ESCOs and public agencies attended each of the initial meetings.

E. Milestone Recognition Awards

A grant from the Emily Hall Tremaine Foundation (Tremaine Foundation) has allowed the SEO to provide tangible recognition for those Public Entities that have met their mandated 20 percent reduction in energy use intensity since the year 2000.

(Representatives from the Department of Transportation, Lee County, Pickens County, and Fort Mill School Districts receive their Energy Reduction Milestone Achievement Awards from Dukes Scott, Executive Director of the ORS.)

The agencies listed below have received Energy Reduction Milestone Achievement Awards to acknowledge meeting the 20 percent 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 County School District 45
Beaufort County School District
Chesterfield County School District
The Citadel
Clarendon County School District 1
Clover School District
Coastal Carolina University
Colleton County School District
Darlington County School District
Fort Mill School District
Francis Marion University
Georgetown County School District
Greenville County School District
Greenville Technical College
Greenwood County School District 50
Greenwood County School District 51
Lancaster County School District
Laurens County School District 55
Lee County School District
The Military Department
Newberry County School District
Northeastern Technical College
Patriots Point Development Authority
Pickens County School District
Piedmont Technical College
Rock Hill School District 3
SC Department of Corrections
SC Department of Disabilities & Special Needs
SC Department of Employment and Workforce
SC Department of Health & Environmental Control
SC Department of Natural Resources
SC Department of Parks, Recreation & Tourism
SC Department of Public Safety
SC Department of Transportation
SC Division of General Services
SC ETV
SC Forestry Commission
SC Law Enforcement Division
SC Sea Grant Consortium
Spartanburg Community College
Spartanburg County School District 4
Sumter County School District
Tri-County Technical College
USC Aiken
USC Columbia
USC Upstate
Williamsburg County School District
Williamsburg Technical College
Winthrop University
York County School District 1

The Tremaine Foundation has also provided funding to document and publicize energy efficiency successes among the state's public schools receiving funds from the American Recovery and Reinvestment Act of 2009. A selection of successful case studies is included in Appendix A.

III. Submission of Annual Progress Reports

During 2015, Public Entities were required to complete the following five sections of the report:

Section 1: Energy Conservation Measures

This section requires an inventory 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 is reported, either through a web-based reporting tool or a spreadsheet provided by the SEO.

Section 3: Purchase of Energy Conservation Products

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

Section 4: Energy Retrofit Financing

This section solicits information about current and past performance contracts and assesses interest in the ConserFund loan program.

Section 5: Energy Plan Update and Success Stories

This section requests that organizations send a current copy of their energy conservation plans to the SEO if they made significant changes since 2009. If no major revisions occurred, agencies are asked to provide an update on progress toward achieving the goals outlined in their plans including both successes and barriers faced.

Ninety-five percent of the Public Entities submitted complete reports by the deadline. Five percent did not submit a report[1].

Public Entities by Type[2]	Total Number of Entities	Complete	% Complete	Non-Submitting	% Non-Submitting
State Agencies	33	33	100%	0	0%
Residential Colleges and Universities[3]	12	12	100%	0	0%
Non-Residential Colleges and Universities	21	21	100%	0	0%
School Districts	81	74	91%	7	9%
Totals	**147**	**140**	**95%**	**7**	**5%**

A list of non-submitting entities is included in Appendix B. SEO staff continues to offer ongoing assistance to Public Entities upon request.

A sample of completed Annual Progress Reports is attached in Appendix C. These reports are included to illustrate the range of energy conservation and efficiency activities used by many Public Entities. This attachment is a sampling of complete reports and is not intended to imply SEO endorsement of the reports included in the sampling over those not included.

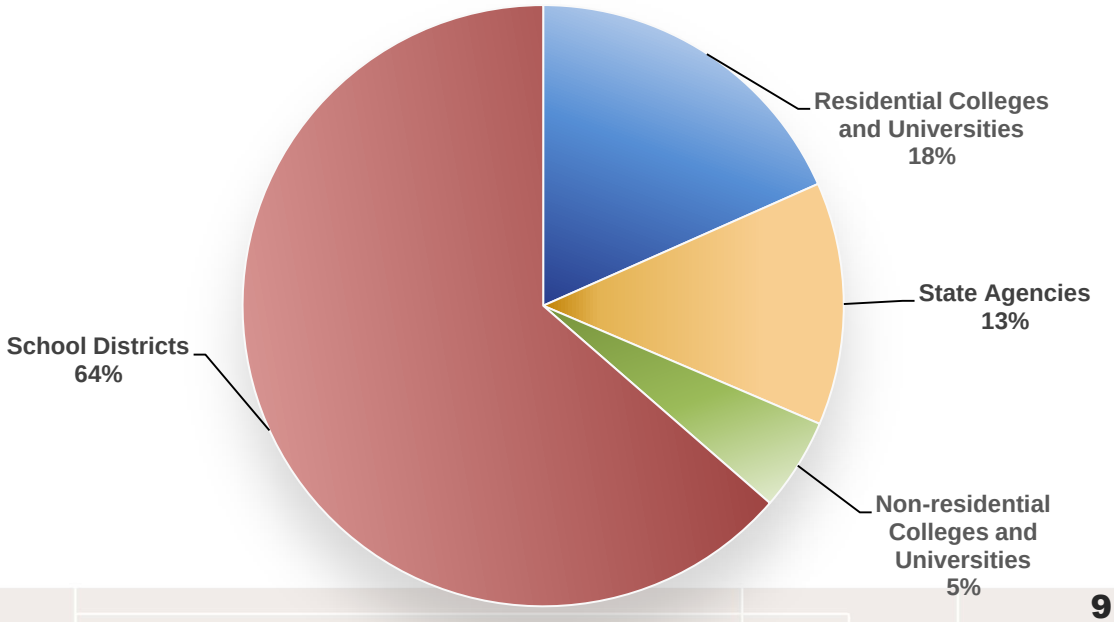
[1] Please note that these percentages may not total to 100% due to independent rounding.
[2] For reporting purposes, Public Entities were separated into peer groups that most closely mirrored their energy consumption and energy expenditure levels. These group types are as follows: state agencies, residential colleges and universities, non-residential colleges and universities, and school districts.
[3] The Medical University of South Carolina is included in the Residential Colleges and Universities organization type for this report as its energy consumption levels are most similar to this peer group.

IV. Progress toward Energy Conservation Goals

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

In FY 2015, school districts accounted for the largest share of square footage by type of Public Entity (64 percent). The next largest category (18 percent) was residential colleges and universities. State agencies (13 percent) and non-residential colleges and universities (5 percent) accounted for the smallest categories of reporting entities.

Square Footage by Public Entity Type, FY 2015



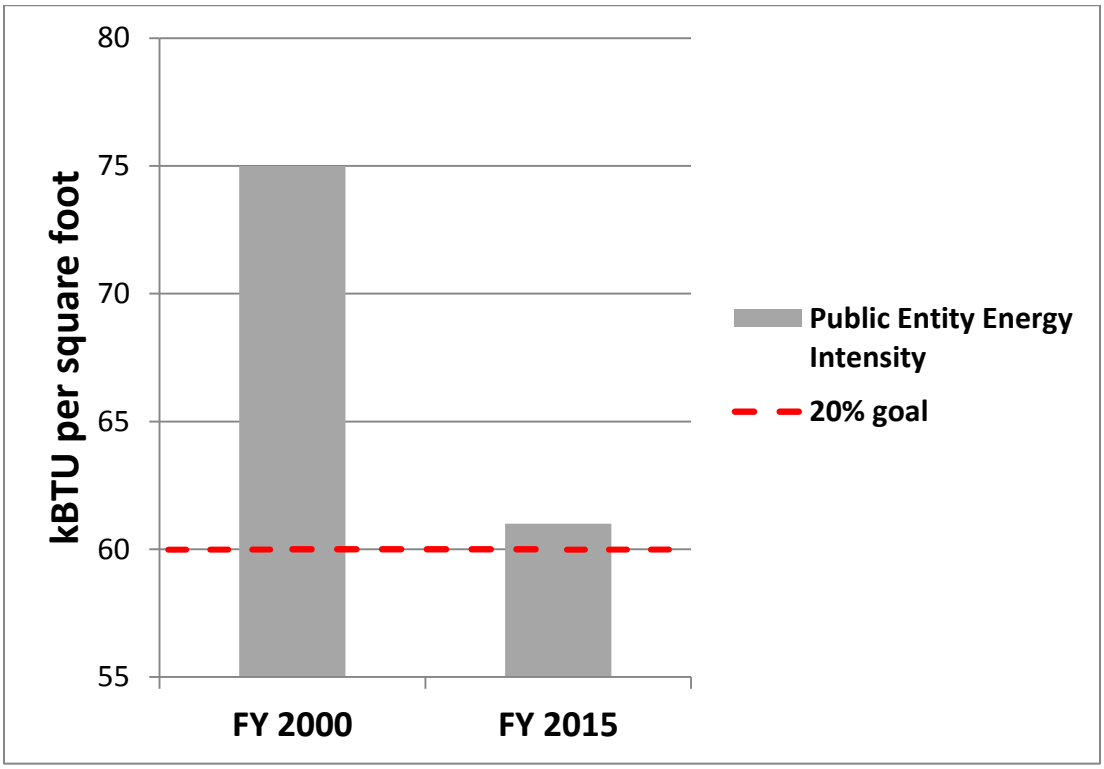
Data submitted for the most recent fiscal year (FY 2015) indicate that Public Entities reduced their energy intensity by 19 percent compared to the FY 2000 baseline. School districts – the least energy-intensive category of Public Entities – reported improvements of 13 percent. Residential colleges – the most energy-intensive category – reported improvements of 18 percent.

Although reporting entities were able to reduce their energy use per square foot, energy spending per square foot (as reported and adjusted for inflation) increased 6 percent overall during this period.

Public Entities by Type	Average Energy Use per Square Foot (site kBTU)			Average Energy Spending per Square Foot ($)		
	FY 2000	FY 2015	% change	FY 2000	FY 2015	% change
State Agencies	113	87	-23%	$1.86	$1.78	-4%
Residential Colleges and Universities	143	117	-18%	$1.81	$2.25	+24%
Non-Residential Colleges and Universities	80	63	-21%	$1.62	$1.60	-1%
School Districts	45	39	-13%	$1.17	$1.21	+3%
Total	**75**	**61**	**-19%**	**$1.42**	**$1.50**	**+6%**

Note: These statistics are based on self-reported data submitted by Public Entities. SEO makes no representation regarding the accuracy of these data. Dollars adjusted using the Consumer Price Index-Urban, BLS (data.bls.gov).

In aggregate, Public Entities have reported significant improvements in energy intensity compared to the FY 2000 baseline.



Public Entities Energy Usage

Year	kBTU per ft^2
2000	75
2015	61

20% reduction goal will be met when the kBTU/ft^2 value is less than or equal to 60.

These statistics are based on data submitted by Public Entities.
SEO makes no representation regarding the accuracy of these data.

Based on the information submitted to the SEO, Public Entities are close to achieving, as a whole, the 20 percent goal set by the General Assembly. Energy savings are being realized, and FY 2016 will provide an opportunity for Public Entities to continue to reduce their energy consumption. The SEO is only able to report on the data submitted by Public Entities. Partially complete or missing data also affect the savings metrics and can lead to difficulty in year-by-year comparisons of energy use.

V. Conclusion

Through the development and implementation of energy conservation plans, as required by legislation, South Carolina's Public Entities have developed strategies for meeting energy conservation goals. Annual progress reports submitted by many of these organizations identify specific and measurable energy conservation efforts that are being undertaken. The SEO continues to provide training, technical assistance, and funding to Public Entities in support of their efforts to achieve energy conservation goals.

APPENDIX A

Case Study
Lighting

ConserFund Loans

The ConserFund Loan program was established by the South Carolina Energy Office to assist government and non-profit entities in carrying out energy efficiency projects.

The Brown Building

Columbia, SC

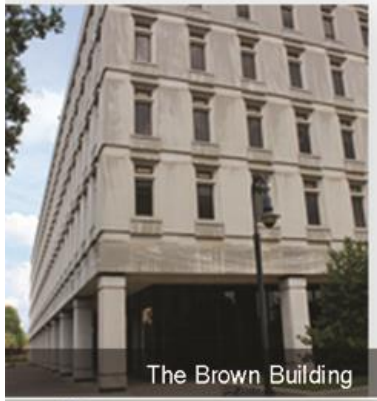
The Brown Building is one of several state office buildings on the South Carolina State House Complex. Built in the early 1970s, the Brown Building houses a variety of state offices.

RESULTS AT A GLANCE

- SAVINGS of $5,492.50 per year
- Loan return of 4.97 years
- Can now turn off lights independently of one another

Loan
$27,302.50

Return
4.97 years


The Brown Building

THE RESULTS

Localized switching of light fixtures

General Services was able to finance a $27,302.50 loan through the ConserFund Program. They were able to modify the building's lighting to separate the light switch that controlled the hallway and several offices, into individual office lighting controls, saving hours of energy usage and thousands of energy dollars.

SC Energy Office
1401 Main Street, Suite 800
(803) 737-8030

Case Study
Lighting Retrofits
Water Conservation
HVAC System Upgrades

Performance Contracting

Performance contracting allows government-owned facility operators to finance renovations and improvements based on guaranteed future utility and operational savings.

City of Greenville

Greenville, SC

Located in the Upstate of SC, Greenville is a thriving city, focused on innovation and culture. It boasts many attractions and entertainment that draw in thousands of visitors each year.

RESULTS AT A GLANCE

- SAVINGS of $375,500 per year
- Payback of 12 years

THE RESULTS

Energy Retrofits with Guaranteed Savings

The City of Greenville chose to enter into a performance contract to replace or modify their energy infrastructure and to improve the efficiency of systems at several facilities. This included lighting systems retrofits and replacements, water conservation, rooftop HVAC systems replacements and HVAC controls improvements, main chiller plant upgrades, installing variable frequency drives, and EMS system upgrades.

The City of Greenville

The initial investment for the project was $4,593,181. The guaranteed savings for the first year was $375,500. The project is expected to have a payback period of 12 years based on the measured and expected savings, but continues to exceed its savings guarantee.

SC Energy Office
1401 Main Street, Suite 800
(803) 737-8030

Case Study

Furnace Replacement
Insulation

ConserFund Loans

The ConserFund Loan program was established by the South Carolina Energy Office to assist government and non-profit entities in carrying out energy efficiency projects.

Donaldson Center

Greenville, SC

Originally established as an Air Force base during World War II, Donaldson Center is now an industrial park housing Lockheed Martin who refurbishes and upgrades military aircraft.

RESULTS AT A GLANCE

- SAVINGS of $143,626 per year
- Helped secure more than 1,200 jobs in the Upstate of South Carolina

Annual Savings

$143,626

SECURED more than 1,200 JOBS

THE RESULTS

Replacement of furnaces and insulation of hangers

Donaldson Center was able to finance a $1,929,000 loan through the ConserFund program. The loan allowed them to replace oil-fired furnaces with new high-efficiency gas furnaces in nine of the buildings on site and re-clad and insulate ten hangars. They estimate an annual savings of $143,626 per year and provided job security for over 1,200 employees.

SC Energy Office
1401 Main Street, Suite 800
(803) 737-8030

Case Study

HVAC

ConserFund Loans

The ConserFund Loan program was established by the South Carolina Energy Office to assist government and non-profit entities in carrying out energy efficiency projects.

The Rutledge Building

Columbia, SC

The Rutledge Building is a 14-floor office building in downtown Columbia, SC. It houses the South Carolina State Department of Education.

RESULTS AT A GLANCE

- SAVINGS of $20,805 per year
- Loan return of 16 years
- Can now efficiently cool its facility

New computer room unit EER 11.7

Old computer room unit EER 6

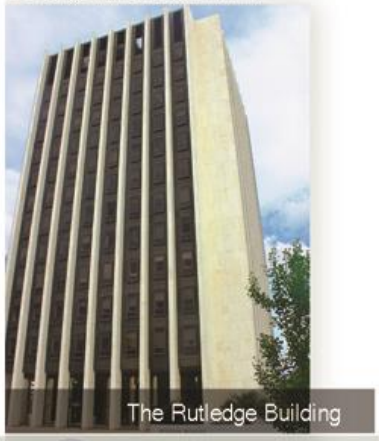
EER = Energy Efficiency Ratio ((Btu/hr)/watts)

Old unit power input

100 kw

New unit power input

51 kw



The Rutledge Building

THE RESULTS

Replacement of five air conditioning units

The Office of General Services was able to finance a $334,475 air conditioning upgrade project through the ConserFund Loan program. They replaced five 30-year old 10-ton DX air units at the Rutledge Building in downtown Columbia with five new high-efficiency units. The newer units require half of the energy of the older air conditioners, saving money and cooling the building more efficiently in the process.

SC Energy Office
1401 Main Street, Suite 800
(803) 737-8030

Case Study

Chiller Replacement

ConserFund Loans

The ConserFund Loan program was established by the South Carolina Energy Office to assist government and non-profit entities in carrying out energy efficiency projects.

General Services Energy Facility

Columbia, SC

The Facilities Management department of the Division of General Services owns, operates, and manages 88 buildings statewide. In Columbia, the Energy Facility generates power for 10 buildings throughout the downtown area including the State Capitol complex and the Supreme Court Building.

RESULTS AT A GLANCE

- SAVINGS of $103,950 per year
- Loan return of 3.36 years
- Can now efficiently transport chilled water to its facilities

SAVES 2,310,000 kWh per year

In energy consumption

THE RESULTS

Replacement of water chiller

Chiller #1 was inoperable at the Facilities Management Energy Facility, costing thousands of dollars. While the chiller could have been repaired at a cost comparable to replacing, it would have only been returned to a functioning status and still remained highly inefficient. General Services was able to finance a $350,000 loan with the ConserFund Loan Program to replace the 750 ton water-cooled centrifugal water chiller saving hours of energy usage and thousands of energy dollars.

SC Energy Office
1401 Main Street, Suite 800
(803) 737-8030

Case Study

Energy Awareness Program and Training
Energy Efficient Technologies

Greenville County Schools

Greenville, SC

Located in the Upstate of SC, Greenville County Schools received the 2014 Local Government Energy Leadership Award for their energy related iniatives.

RESULTS AT A GLANCE

- SAVINGS of $3,000,000
- Developed strategic energy plan to reduce costs

THE RESULTS

Plan Lowers Energy Costs While Schools Grow

In 2009, the District drafted a Strategic Plan meant to reduce utility expenditures which were approaching $17 million annually. By adopting a multi-disciplinary approach they were able to address each area of building operations, resulting in comprehensive energy savings. Now, five years into the Plan, operating expenses have leveled off at less than $14 million. During that same time period, Greenville County Schools added air conditioning to all of their gymnasiums, increased the use of technology in the classroom, added several new buildings, and built additions onto several area schools.

An energy ethic has developed across the District through an Energy Awareness Program. Energy Managers are constantly communicating the need for smart use of energy resources. Students and staff are continually informed about current costs and goals through web based training and reporting. District construction standards require the use and implementation of the latest energy efficient technologies including high efficiency lighting and equipment, occupancy sensors and timers, energy management systems, building tune-ups, walk through audits, plug load reduction, and energy awareness training for staff.

Greenville County Schools Energy Website

SC Energy Office
1401 Main Street, Suite 800
(803) 737-8030

Case Study

Fleet Conversion
CNG Fast-Fill Station

Greer CPW

Greer, SC

Greer CPW was created in a 1913 citywide election. In 1914, Greer CPW began providing electric, water and waste water services and in 1957 launched natural gas service. By 2008, Greer CPW had grown to providing service to nearly 16,000 electric, almost 20,000 gas, over 17,000 water and about 10,000 waste water meters. For their efforts to reduce petroleum use in their fleet, the organization was awarded a 2014 Local Government Energy Leadership Award from the SC Energy Office.

RESULTS AT A GLANCE

- Offset 77 metric tons of local carbon emissions
- Converted 14 light duty vehicles to CNG bi-fuel

THE RESULTS

CNG Station Promotes Alternative Fuels

Greer CPW is a provider of natural gas service to the greater Greer area in Spartanburg and Greenville counties. In April 2013, the organization opened a new public compressed natural gas (CNG) fast-fill station to promote the benefits of CNG both to their customers and to the general public. Greer CPW has also converted 14 of their light duty vehicles to CNG bi-fuel.

offset 77 metric tons of carbon dioxide

As a result of Greer CPW's commitment to the use of CNG as an alternative fuel, local carbon emissions have been offset by approximately 77 metric tons (equivalent to the carbon dioxide released from using 8,664 gallons of gasoline). The actions taken by Greer CPW have also encouraged other entities in the area to follow suit. There are currently two new CNG fast fill stations slated to open in the Greer area.

SC Energy Office
1401 Main Street, Suite 800
(803) 737-8030

Case Study

Lighting Upgrades
Water Conservation
Chiller Replacement

Performance Contracting

Performance contracting allows government-owned facility operators to finance renovations and improvements based on guaranteed future utility and operational savings.

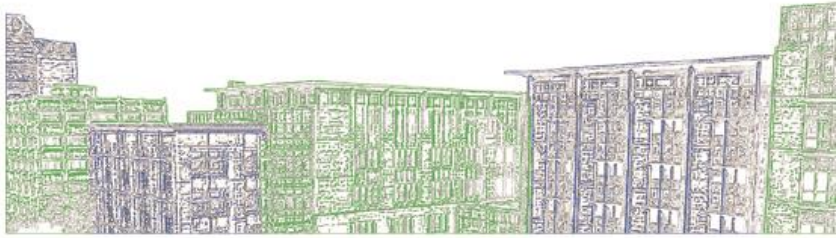
Medical University of SC

Charleston, SC

Serving the citizens of South Carolina since 1824, MUSC has expanded from a small private college to a state university with a medical center and six colleges for the education of a broad range of health related personnel.

RESULTS AT A GLANCE

- SAVINGS of $2,469,442 per year
- Payback of 5.8 years



THE RESULTS

Energy Retrofits with Guaranteed Savings

MUSC chose to enter into a performance contract to replace aging or inoperable energy infrastructure and to improve the efficiency of systems at several facilities. This included lighting upgrades and controls at numerous buildings, water conservation measures, boiler controls, energy management systems, upgrading fume hoods in a lab, adding/replacing chillers, and refurbishing fans. The initial investment for the project was $14,499,337. The guaranteed savings for the first year was $2,469,442. The project is expected to have a payback period of 5.8 years based on the measured and expected savings.

SC Energy Office
1401 Main Street, Suite 800
(803) 737-8030

Case Study

ACEM Certification
Sustainability Section
Light Bulb Exchange Program

Richland County

Columbia, SC

Located in the Midlands, Richland County received a 2014 Local Government Energy Leadership Award for their energy related iniatives.

RESULTS AT A GLANCE

- Leveraging federal grant money and incentives from SCE&G
- Retrofits and upgrades while promoting energy efficiency

THE RESULTS

Energy Retrofits and Communication

Since 2010 Richland County has been committed to advancing solutions to sustainability through policy, programs, and public awareness.

Richland County Sustainability Section

By leveraging federal grant money, as well as incentives from SCE&G, they were able to stretch their project dollars doing chiller retrofits at the county detention center, lighting upgrades in their administration building and judicial center, and a light bulb exchange program for county residents.

They were also able to get Energy Star building certification (SC's first county to do so), and Accredited Commercial Energy Manager certification for staff. They even added a sustainability section to the County's website, allowing residents to track their progress and get helpful tips on energy savings and sustainability.

SC Energy Office
1401 Main Street, Suite 800
(803) 737-8030

Case Study

Lighting Retrofits
Water Conservation
HVAC System Upgrades

Performance Contracting

Performance contracting allows government-owned facility operators to finance renovations and improvements based on guaranteed future utility and operational savings.

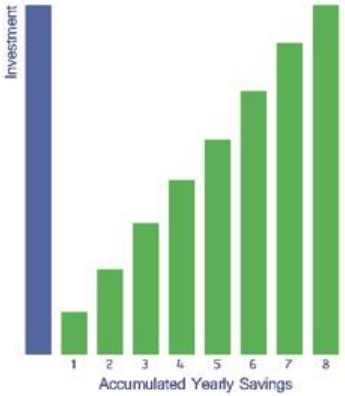
The Citadel

Charleston, SC

Founded in 1842, The Citadel is one of six miliatary colleges in the US. It offers bachelor's and graduate degrees to military cadets pursuing an education.

RESULTS AT A GLANCE

- SAVINGS of $605,320 per year
- Payback of 7.8 years



The Citadel

THE RESULTS

Energy Retrofits with Guaranteed Savings

The Citadel chose to enter into a performance contract to replace or modify their energy infrastructure and to improve the efficiency of systems at several facilities. This included liighting retrofits, water conservation measures, chilled water system expansions, boiler system modificaitons, energy management systems, installing direct digital controls, replacing steam traps, building envelope upgrades, and HVAC system replacements and upgrades. The initial investment for the project was $4,749,852. The guaranteed savings for the first year was $605,320. The project is expected to have a payback period of 7.8 years based on the measured and expected savings.

SC Energy Office
1401 Main Street, Suite 800
(803) 737-8030

APPENDIX B

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
Dorchester County School District 2
Florence County School District 4
Florence County School District 5
Saluda County School District
Sumter County School District

APPENDIX C

Disclaimer: The reports in this section are re-printed as submitted to the SEO by the reporting entities and are meant to illustrate the programs undertaken in FY 2015. Errors contained in this section are not the responsibility of the SEO and the reports have not been altered or corrected.

FY15 Annual Progress Report

To be submitted to the Office of Regulatory Staff, Energy Office
State Government Energy Conservation Act, Code of Laws of South Carolina

Organization Name:

Clemson University

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

Thomas Suttles 864-656-1075 suttles@clemson.edu

Please complete this report and return it to Julia Parris at the Office of Regulatory Staff, Energy Office (jparris@regstaff.sc.gov) no later than September 1, 2015. Sections I, III, IV, and V 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 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. If you need additional space, please attach pages or documents as necessary. If you have questions, please contact Julia Parris at 803-737-8030 or jparris@regstaff.sc.gov.

Section I: Energy Conservation Measures

§48-52-620 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 FY15. For each measure, please include the following:

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

If you implemented no energy conservation measures in FY15, simply write "None."

With assistance from the SC Energy Office, we used grant funds to help purchase 100 vending miser devices that were installed on cold beverage machines across campus. We expect savings of at least 115,000 kwh per year. We have contracted with JCI/Optimum Energy for a chiller optimization service for our East Chiller Plant that should reduce kw/ton from the present value of .777 to a projected .582 kw/ton. Working with Phillips Lighting, we performed lighting audits on 28 campus buildings to evaluate the potential for energy savings from the latest LED technology. Results will be studied to prioritize lighting upgrades in the near future. The retro-commissioning of the Biosystems Research Complex HVAC systems began in late spring and should improve efficiency, occupant safety, and comfort in that facility.

FY15 Annual Progress Report

To be submitted to the Office of Regulatory Staff, Energy Office
State Government Energy Conservation Act, Code of Laws of South Carolina

Section II: Energy Consumption Data

To verify progress made toward state energy conservation goals and to assist in statewide energy planning efforts, please provide your complete energy consumption data for FY15 (including all sources of energy used in your buildings) in a format described below:

- *If you use Utility Direct, please ensure that all energy data for FY15 is fully entered and complete. We will access your data directly.*
- *If you use energy accounting software other than Utility Direct, please submit a file containing data showing energy consumption, energy cost, and gross square footage in FY15:*
    - *As totals for your organization*
    - *If available, for each meter and/or each building in your organization*
- *If you do not use any energy accounting software:*
    - *You may choose to complete and submit the file entitled "SCEO Consumption Reporting Tool", which can be downloaded from our website (please click here).*
    - *You might also want to consider using Portfolio Manager, the free, web-based energy accounting system provided by ENERGY STAR. To access Portfolio Manager, please click here. If you would like more assistance with entering your data into Portfolio Manager, please email jparris@regstaff.sc.gov.*

Section III: Purchase of Energy Conservation Products

§48-52-640 mandates that all state agencies "shall submit a disclaimer statement to the State Energy Office with [their] annual report stating that [they] did not purchase an energy conservation product that had not been certified by the State Energy Office." The Energy Office has posted a list of pre-certified and/or approved energy conservation products/measures on our website (please click here). For any products/measures not listed here, agencies should contact Blaine Walker at bwalker@regstaff.sc.gov or by telephone at 803-737-8030

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 Energy Office.	TFS

Section IV: Energy Retrofit Financing

Did you enter into a performance contract in Fiscal Year 2015? 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, ConserFund Plus (an expansion of ConserFund that includes a 30% grant/70% loan option) and/or performance contracting? Yes No (Circle one)

Section V: Energy Plan Update & Success Stories

Energy Plan Updates

A. *You submitted an Energy Conservation Plan, required by law, to the Energy Office in 2009; if you have significantly revised your Plan please send a copy for our files to jparris@regstaff.sc.gov.*

B. *If you have not made significant revisions to your Plan, but have only refined it, please provide a brief write-up addressing any changes that may have occurred since submission of your Plan in 2009. Please include energy team training and education. In addition, please let us know about any successes deserving mention, or barriers to improvement that you have faced. We want to publicize your successes and assist with obstacles where we can.*

Despite the severe winter weather, we were able to realize a 2% reduction in energy consumption campus wide for FY15. In the coming fiscal year we plan to implement a chiller optimization project for the Hinson plant that will convert it from a primary secondary system to variable primary flow. We are also beginning the retro-commissioning of the Godley Snell facility this fall. Even though we are not quite half way toward our 20% reduction goal, we feel with the addition of more energy efficient facilities and planned efficiency projects we will be able to reach it by 2020.

FY15 Annual Progress Report

To be submitted to the Office of Regulatory Staff, Energy Office
State Government Energy Conservation Act, Code of Laws of South Carolina

Organization Name:

Greenville Technical College

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

Ted Westervelt, (864) 250-8955, ted.westervelt@gvltec.edu

Section I: Energy Conservation Measures

No specific Energy Conservation Projects were implemented and there are no measured energy savings to report for FY14.

The following is a review of ongoing conservation efforts on items identified in the Greenville Technical College Energy Conservation Plan.

Lighting:
Efforts continue to replace all remaining T12 lighting. As areas are remodeled or updated lighting is upgraded to T8, T5, or LED.

IT Equipment:
As older equipment is replaced (PCs, monitors, printers, copiers) more efficient Energy Star rated equipment is used. Network management software is used to shutdown PCs in some labs and classrooms each evening.

Maintenance:
LED exit and emergency lighting fixtures used to replace failed incandescent fixtures. LED replacement lamps have been used were applicable to retrofit interior and exterior can lights when possible. High-efficiency motors and high SEER or Energy Star rated equipment is used or specified if possible when replacing failed HVAC equipment.

HVAC System Controls and Operations:
Primary HVAC systems are scheduled through BMS; schedules are adjusted weekly. Programmable stats continue to be installed on small units and auxiliary equipment.

New Construction/Renovation:
Energy efficient mechanical and electrical systems are incorporated in the design of GTC's Center for Manufacturing Innovation which will be located adjacent to the Clemson University International Center for Automotive Research (CU-ICAR). When completed the Facility is designed to achieve a GBI Green Globes certification of (2) Green Globes.

Recycling:
All collected waste is sorted for recyclable materials to divert as much waste as possible from landfill. Paper collection bins are located in all office areas. Cardboard is collected and bailed. Scrap metal bins are in place to for waste metal products, electrical/electronic items are collected separately as well.

Corrugated Cardboard	12.0 tons	Co-mingled recycling (paper/bottles/cans/etc.)	42.43 tons
Office Paper	26.97 tons	Electrical/Electronic Products	4.59 tons
Assorted Metals	4.06 tons	Used Cooking Oil	0.55 tons

FY15 Annual Progress Report

To be submitted to the Office of Regulatory Staff, Energy Office
State Government Energy Conservation Act, Code of Laws of South Carolina

Section II: Energy Consumption Data

Greenville Technical College is longer using Utility Direct. The data used for Section II of the FY 15 Annual Progress Report was compiled from our monthly utility records and electrical usage data available from the Duke Energy EPO website. A number of buildings have shared or common electrical or gas services, energy usage is typically allocated to each building on these common utility services by % square footage. Additionally, heating and cooling energy used in Central Plants is allocated to each building served by that Plant based on either % square footage (for heating) or % electrical loads (for cooling).

Section III: Purchase of Energy Conservation Products

§48-52-640 mandates that all state agencies "shall submit a disclaimer statement to the State Energy Office with [their] annual report stating that [they] did not purchase an energy conservation product that had not been certified by the State Energy Office." The Energy Office has posted a list of pre-certified and/or approved energy conservation products/measures on our website (please click here). For any products/measures not listed here, agencies should contact Blaine Walker at bwalker@regstaff.sc.gov or by telephone at 803-737-8030

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 Energy Office.	TRW

Section IV: Energy Retrofit Financing

Did you enter into a performance contract in Fiscal Year 2015? ***No***

If so, please indicate the ESCO or company used:

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

If so, please indicate the ESCO or company used:

Are you interested in receiving information about the ConserFund loan program, ConserFund Plus (an expansion of ConserFund that includes a 30% grant/70% loan option) and/or performance contracting? ***Yes***

Section V: Energy Plan Update & Success Stories

Energy Plan Updates

A. *You submitted an Energy Conservation Plan, required by law, to the Energy Office in 2009; if you have significantly revised your Plan please send a copy for our files to jparris@regstaff.sc.gov.*

B. *If you have not made significant revisions to your Plan, but have only refined it, please provide a brief write-up addressing any changes that may have occurred since submission of your Plan in 2009. Please include energy team training and education. In addition, please let us know about any successes deserving mention, or barriers to improvement that you have faced. We want to publicize your successes and assist with obstacles where we can.*

An updated Energy Conservation Plan is attached.

The current Greenville Technical College Energy Team did not meet in FY 2015. No progress was made towards the development of and Energy Policy. Some members of the Energy Team have continued to attend various energy workshops, training sessions, and information exchanges sponsored by State Associations, local vendors, contractors, and utility suppliers. Several members of the Team have obtained Postgraduate Diplomas in Corporate Sustainability from Furman University's Center for Corporate and Professional Development.

Many members of the current team have assumed deferent role roles with the College. It has become evident that a new Energy Team needs to be formed if the College is to move forward with the development of a comprehensive policy that can be endorsed by faculty, staff, and college administration.

FY15 Annual Progress Report

To be submitted to the Office of Regulatory Staff, Energy Office
State Government Energy Conservation Act, Code of Laws of South Carolina

Organization Name:

Spartanburg County School District Five

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

John Ratterree, 864-949-2355, john.ratterree@spart5.net

Please complete this report and return it to Julia Parris at the Office of Regulatory Staff, Energy Office (jparris@regstaff.sc.gov) no later than September 1, 2015. Sections I, III, IV, and V 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 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. If you need additional space, please attach pages or documents as necessary. If you have questions, please contact Julia Parris at 803-737-8030 or jparris@regstaff.sc.gov.

Section I: Energy Conservation Measures

§48-52-620 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 FY15. For each measure, please include the following:

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

If you implemented no energy conservation measures in FY15, simply write "None."

One school, the Byrnes Freshman Academy, was completely retrofitted with LED lighting at the end of the 2nd quarter. The area retrofitted covered 1,513,077 sq ft. Based on vendor projections, it is estimated that the annual energy savings will be in excess of 150,000 kWh per year.
Other smaller projects include replacing metal halide lighting with LED lighting in a high school gym. According to estimates by the vendor, the gym retrofit should save at least 25,100kWh per year.

FY15 Annual Progress Report

To be submitted to the Office of Regulatory Staff, Energy Office
State Government Energy Conservation Act, Code of Laws of South Carolina

Section II: Energy Consumption Data

To verify progress made toward state energy conservation goals and to assist in statewide energy planning efforts, please provide your complete energy consumption data for FY15 (including all sources of energy used in your buildings) in a format described below:

- *If you use Utility Direct, please ensure that all energy data for FY15 is fully entered and complete. We will access your data directly.*
- *If you use energy accounting software other than Utility Direct, please submit a file containing data showing energy consumption, energy cost, and gross square footage in FY15:*
    - *As totals for your organization*
    - *If available, for each meter and/or each building in your organization*
- *If you do not use any energy accounting software:*
    - *You may choose to complete and submit the file entitled "SCEO Consumption Reporting Tool", which can be downloaded from our website (please click here).*
    - *You might also want to consider using Portfolio Manager, the free, web-based energy accounting system provided by ENERGY STAR. To access Portfolio Manager, please click here. If you would like more assistance with entering your data into Portfolio Manager, please email jparris@regstaff.sc.gov.*

Section III: Purchase of Energy Conservation Products

§48-52-640 mandates that all state agencies "shall submit a disclaimer statement to the State Energy Office with [their] annual report stating that [they] did not purchase an energy conservation product that had not been certified by the State Energy Office." The Energy Office has posted a list of pre-certified and/or approved energy conservation products/measures on our website (please click here). For any products/measures not listed here, agencies should contact Blaine Walker at bwalker@regstaff.sc.gov or by telephone at 803-737-8030

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 Energy Office.	GW

Section IV: Energy Retrofit Financing

Did you enter into a performance contract in Fiscal Year 2015? 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, ConserFund Plus (an expansion of ConserFund that includes a 30% grant/70% loan option) and/or performance contracting? Yes No (Circle one)

Section V: Energy Plan Update & Success Stories

Energy Plan Updates

A. *You submitted an Energy Conservation Plan, required by law, to the Energy Office in 2009; if you have significantly revised your Plan please send a copy for our files to jparris@regstaff.sc.gov.*

B. *If you have not made significant revisions to your Plan, but have only refined it, please provide a brief write-up addressing any changes that may have occurred since submission of your Plan in 2009. Please include energy team training and education. In addition, please let us know about any successes deserving mention, or barriers to improvement that you have faced. We want to publicize your successes and assist with obstacles where we can.*

The only change to our plan is an increased focus on retrofitting our buildings with LED lighting. As funds become available we are making a concerted effort to replace metal halide and fluorescent lighting with LED technology.

FY15 Annual Progress Report

To be submitted to the Office of Regulatory Staff, Energy Office
State Government Energy Conservation Act, Code of Laws of South Carolina

Organization Name:

South Carolina Law Enforcement Division

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

Kristen Lyttleton, 896-6292, klyttleton@sled.sc.gov

Please complete this report and return it to Julia Parris at the Office of Regulatory Staff, Energy Office (jparris@regstaff.sc.gov) no later than September 1, 2015. Sections I, III, IV, and V 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 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. If you need additional space, please attach pages or documents as necessary. If you have questions, please contact Julia Parris at 803-737-8030 or jparris@regstaff.sc.gov.

Section I: Energy Conservation Measures

§48-52-620 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 FY15. For each measure, please include the following:

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

If you implemented no energy conservation measures in FY15, simply write "None."

SLED upgraded its HVAC system for its Data Center server room. The room is 1,800 SF previously cooled by 4 15 year old Liebert units ranging from 7.5 ton to 12.5 ton capacity. These units were replaced by 4 modern high efficiency 20 ton Liebert cooling units. Space remodels continued to replace out older T-12 lighting fixtures with T-8 fixtures. SLED participates in SCE&G's curtailment program for natural gas in our Forensics laboratory.

FY15 Annual Progress Report

To be submitted to the Office of Regulatory Staff, Energy Office
State Government Energy Conservation Act, Code of Laws of South Carolina

Section II: Energy Consumption Data

To verify progress made toward state energy conservation goals and to assist in statewide energy planning efforts, please provide your complete energy consumption data for FY15 (including all sources of energy used in your buildings) in a format described below:

- *If you use Utility Direct, please ensure that all energy data for FY15 is fully entered and complete. We will access your data directly.*
- *If you use energy accounting software other than Utility Direct, please submit a file containing data showing energy consumption, energy cost, and gross square footage in FY15:*
    - *As totals for your organization*
    - *If available, for each meter and/or each building in your organization*
- *If you do not use any energy accounting software:*
    - *You may choose to complete and submit the file entitled "SCEO Consumption Reporting Tool", which can be downloaded from our website (please click here).*
    - *You might also want to consider using Portfolio Manager, the free, web-based energy accounting system provided by ENERGY STAR. To access Portfolio Manager, please click here. If you would like more assistance with entering your data into Portfolio Manager, please email jparris@regstaff.sc.gov.*

Section III: Purchase of Energy Conservation Products

§48-52-640 mandates that all state agencies "shall submit a disclaimer statement to the State Energy Office with [their] annual report stating that [they] did not purchase an energy conservation product that had not been certified by the State Energy Office." The Energy Office has posted a list of pre-certified and/or approved energy conservation products/measures on our website (please click here). For any products/measures not listed here, agencies should contact Blaine Walker at bwalker@regstaff.sc.gov or by telephone at 803-737-8030

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 Energy Office.	KAL

Section IV: Energy Retrofit Financing

Did you enter into a performance contract in Fiscal Year 2015? Yes or No (Circle one)

If so, please indicate the Energy Services Company 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, ConserFund Plus (an expansion of ConserFund that includes a 30% grant/70% loan option) and/or performance contracting? Yes No (Circle one) ***We are currently working with the Energy Office on the PEER program and starting other initatives.***

Section V: Energy Plan Update & Success Stories

Energy Plan Updates

A. *You submitted an Energy Conservation Plan, required by law, to the Energy Office in 2009; if you have significantly revised your Plan please send a copy for our files to jparris@regstaff.sc.gov.*

B. *If you have not made significant revisions to your Plan, but have only refined it, please provide a brief write-up addressing any changes that may have occurred since submission of your Plan in 2009. Please include energy team training and education. In addition, please let us know about any successes deserving mention, or barriers to improvement that you have faced. We want to publicize your successes and assist with obstacles where we can.*

There has been a complete turn-over in the facilities management group. The agency has enrolled in the Energy Office's PEER program and the site visit by the assessment team was completed on August 26, 2015. Once the assessment report is received, the agency will develop a new energy strategic plan and consider options such as ESCO and ConserFund. We are also currently working with SCE&G to identify energy related incentive programs and will be evaluating programs related to lighting and mechanical controls.

Our plan is to develop a 1 – 3 – 5 year energy strategic plan focusing on ROI initiatives and areas where grants and utility incentives are available.