

**ANNUAL REPORT ON THE  
IMPLEMENTATION OF ENERGY USE REDUCTION LEGISLATION,  
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, 2008**

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The South Carolina Energy Office 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 by one percent annually during fiscal years 2009-2013 and by a total of a 20 percent reduction in energy use by 2020, as compared to 2000 levels.

The specific requirements of this legislation include the following:

- Energy Conservation Plans – Each state agency and public school district is required to develop an energy conservation plan that addresses how the legislatively mandated energy use reduction goals are to be met. These plans are to be submitted to the South Carolina Energy Office.
- Annual Progress Reports – Each state agency and public school district is also required to submit an annual progress report to the South Carolina Energy Office that outlines actions taken to implement its energy conservation plan and chronicles progress made in achieving its energy reduction goals.
- Annual Report to Legislature – The South Carolina Energy Office is required, in turn, to compile the annual progress reports submitted by the state agencies and public school districts 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 South Carolina Energy Office (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 South Carolina Energy Office is to increase energy efficiency and diversity, enhance environmental quality and save energy dollars for South Carolina.

## **II: South Carolina Energy Office Implementation Plan**

As the agency responsible for the implementation of this law, the South Carolina Energy Office has developed an implementation plan involving several activities.

In order to ensure the development of a fair and equitable methodology for implementing this legislative requirement, the South Carolina Energy Office established an advisory group of knowledgeable representatives from a variety of state agencies, school districts, colleges and universities and technical schools – all of which are 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. The specific objectives of assembling this group were to (1) develop a methodology for the measurement of energy use reductions and (2) to determine how this new requirement can best be incorporated into existing energy use reporting requirements.

The advisory group was established in late summer 2008 and held its first meeting in early September. A second meeting was held in late October. The advisory group is comprised of representatives from the following entities:

- South Carolina Department of Mental Health
- South Carolina Budget & Control Board
- South Carolina Department of Disabilities and Special Needs
- South Carolina Department of Public Safety
- South Carolina Department of Corrections
- South Carolina School for the Deaf and Blind
- Horry County Public School District
- Marion School District 1
- Lexington/Richland County School District 5
- Lexington School District 2
- South Carolina State University
- University of South Carolina-Upstate
- Clemson University
- The Citadel
- Piedmont Technical College
- University of South Carolina

Issues discussed with the advisory group included specifics on how to measure energy reduction, reporting requirements, schedule, and training and other assistance needed. With the assistance of the advisory group, a schedule and process were developed for the implementation of the requirements of this legislation. In addition, the advisory group provided input on the type of training desired in order to assist the affected entities in the development of their energy conservation plans.

### **III: SCEO Assistance**

In response to the needs expressed by the advisory group for assistance in the development of energy conservation plans and in the implementation of energy reduction measures, the SCEO developed a plan to provide technical assistance.

#### **a. Energy Plan Development Workshops**

The SCEO contracted with Matt Pesce, P.E., of the Facility Strategies Group, LLC. Mr. Pesce was selected because of his broad experience in assisting public and private entities in developing energy plans and in identifying measures to achieve energy use reductions.

The first of several Energy Plan Development Workshops was held on Tuesday, December 9<sup>th</sup> in Columbia. A total of 40 people registered for this workshop, representing the full spectrum of affected entities. A registration fee of \$50 was charged to each participant to cover workbook and training expenses. A copy of the training workshop outline is included as Appendix A. Due to space limitations, participation had to be limited to 40; a waiting list for an additional workshop in Columbia has been filling up.

Due to the fact that no funds were appropriated to carry out the new legislative mandate, SCEO is actively pursuing sponsorship to offset the costs to the participating institutions. A private energy services company, Trane, Inc., provided the workshop location and lunch for the December workshop and has offered to sponsor two more. In addition, SCEO invited representatives from various utilities to the December workshop in an effort to solicit their sponsorship of future workshops.

Additional workshops are scheduled early in 2009 at various locations throughout the state to facilitate attendance. The schedule for future workshops is as follows:

Tuesday, January 20<sup>th</sup> – Charleston

Tuesday, February 3<sup>rd</sup> – Marion

Friday, February 20<sup>th</sup> – Greenville

It is anticipated that an additional workshop will be scheduled in Columbia, due to strong interest, and possibly at other sites. Also, a webinar training option is being considered for those entities unable to travel to a meeting location. This option is being explored with assistance from the South Carolina Department of Education.

#### **b. South Carolina Accredited Energy Manager Training**

This year, the SCEO and the Association of South Carolina Energy Managers created a state-specific alternative to the national Certified Energy Managers training offered in years past. The new South Carolina Accredited Energy Manager Training is intended to provide hands-on information to a broad range of participants. It is designed to specifically train facilities and energy managers to reduce energy consumption per the new legislative requirements. SCEO has contracted with Jim Herritage of Energy Auditors to conduct this training beginning in spring 2009.

#### **IV: Process and Schedule**

In light of the requirements outlined in the legislation, the following process and schedule were developed.

##### **2008**

- Letters sent to agency heads – SCEO Director John Clark sent a letter to all affected agency heads and presidents of universities and colleges to inform them of the new legislation and the Energy Plan Development Workshops.
- First Energy Plan Development Workshop held December 9<sup>th</sup>.
- First Annual Report to General Assembly by December 31<sup>st</sup>.

##### **2009**

- Energy Plan Development Workshops to be held January through March.
- South Carolina Accredited Energy Manager Training to be held.
- Annual Progress Report due to SCEO on September 15<sup>th</sup> that includes:
  - Energy Conservation Plan.
  - Energy consumption data for previous year (measured in BTU per square foot).
- Second Annual Report to General Assembly by December 31<sup>st</sup>.

##### **2010+**

- Ongoing assistance and training, as needed.
- Annual Progress Report due to SCEO on September 15<sup>th</sup> that includes:
  - Energy Conservation Plan Update (if needed).
  - Energy consumption data for previous year (measured in BTU per square foot).
- Annual Report to General Assembly by December 31<sup>st</sup>.

#### **V: Measurement and Reporting**

In conjunction with the advisory group, the SCEO has developed a draft template for the Annual Progress Report that each state agency, school district or public college or university will be required to submit. This reporting template is designed to be consistent with the energy use monitoring and reporting methods already in place at many of the affected institutions so as to create the least administrative burden for them. The reporting template is also designed to account for variations among institutions. A copy of the draft reporting template is included in Appendix B.

The 2009 Annual Report, to be submitted by December 31<sup>st</sup>, 2009, will include the energy use reduction data provided by state agencies, school districts and public colleges and universities in response to this legislation.

**Appendix A:**  
**Energy Plan Development Workshop Outline**

## South Carolina Energy Plan Development Workshop

### AGENDA

8:00 A.M. Registration

8:30 A.M. – 4:30 P.M. Workshop

Planning Requirements – South Carolina Energy Office

- Statutes, Regulations, and Policy
- State & Utility Resources

Energy Planning

Overview

- What is Energy Planning
- Planning Process

<Break>

Situation Analysis

- Assess Organizational Needs
- Assess Modernization Requirements & Physical Needs
- Review Maintenance Programs
- Utility Analysis
- Finance & Funding

<Lunch, 1hour>

Strategies & Actions

- Setting Goals
- Developing Strategies – specific and achievable
- Selecting Actions
- Aligning Resources
- Measuring Performance

Energy Plan

- Energy Team
- Facility Description and Assessment
- Plan Elements – Short Term and Long Term
- Plan Resources
- Verification Plan
- Refinement Process

<Break>

Annual Reporting Requirements – South Carolina Energy Office

CONCLUSION



**Appendix B:**  
**Annual Reporting Template (Draft)**

## Annual Progress Report on Energy Reduction for State Agencies, School Districts and Public Colleges and Universities

### Background:

The South Carolina General Assembly passed legislation in early June 2008, H.4766, requiring all state agencies to develop energy conservation plans to reduce their energy consumption by one percent per year during fiscal years 2009-2013 and by a total of a 20 percent reduction in energy use by 2020. (See Section 48-52-620, Code of Laws of South Carolina.)

This legislation requires that each of these entities develop an energy conservation plan that addresses how it will meet energy use reduction goals and submit it to SCEO. It also requires that each entity report its progress in meeting the energy use reduction goals on an annual basis.

### Section I: Energy Use Summary

1. Total calculated energy savings for current reporting year <i>(from Section 4)</i>	kBtu
2. Total energy use for previous reporting year	kBtu
3. Annual efficiency improvement <i>(from Section 4)</i>	%
4. Conditioned square footage <i>(from Section 3)</i>	sq ft
5. Energy use applied to conditioned space <i>(from Section 3)</i>	kBtu
6. Energy intensity for current reporting year <i>(from Section 3)</i>	kBtu/sq ft
7. Energy intensity for previous reporting year <i>(from Section 3)</i>	kBtu/sq ft
8. Total energy use for current reporting year <i>(from Section 3)</i>	kBtu
9. Description of any changes/amendments to Energy Plan:	
10. Additional comments, if any.	

## Section II: Energy Management Training/Education

**1. Energy Team/Committee – brief description:**

**List of Energy Team/Committee members:**

<i>Name:</i>	<i>Title/role within organization:</i>

**2. Training, education or other energy team advancement for the reporting year:**

**3. Policy statement or goals developed regarding energy use reduction:**

### Section III: Energy Consumption/Energy Intensity\* Detail

Meter # and Type	Building(s) (served by meter)	Building and/or Type	Building Area (sq.ft.)	% meter's energy used by building	Electricity (kWh)	N. Gas		Fuel Oil (gal)	Propane (gal)	Total Use (kBtu)
						Therms	CCF			
20-Electric	high school	Academic	122,164	100	128,820					439,663
23-Gas	high school	Academic	122,164	100		98	98			9,800
46-Propane	district office	Admin.	1,200	25					63.25	5,794
	bus shop	Maint.	3,000	50					126.5	11,587
	infirmary	Admin.	565	25					63.25	5,794
57-Electric	parking lot	Lighting	0	100	1,250					4,266
										-
										-
										-
										-
										-
										-
										-
										-
<b>Totals</b>			249,093		130,070	98	98		253	476,904

\* Energy Intensity based on conditioned space, as defined by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

## Section IV: Energy Efficiency Measures & Calculated Energy Savings Detail

### 1. Energy Efficiency Measures (EEMs) implemented and calculated energy savings from those measures for current reporting year

<b>EEM #1</b>
<b>Description of Energy Efficiency Measure implemented (current reporting year):</b> replacement of 20-year old chiller
<b>Efficiency calculations:</b>  <i>20-Year Old Chiller:</i> $500 \text{ tons} \times .80 \text{ kW/ton} \times 3600 \text{ hours} \times 3.413 \text{ kBtu / kWh} = 4,914,720 \text{ kBtu / yr}$  <i>New Chiller:</i> $500 \text{ tons} \times .52 \text{ kW/ton} \times 3600 \text{ hours} \times 3.413 \text{ kBtu / kWh} = 3,194,568 \text{ kBtu / yr}$
<b>Projected (calculated) energy savings from project = 1,720,152 kBtu / yr</b>
<i>Formula: (tons) x (kW/ ton) x (full load hours per year) x (3.413 kBtu / kWh) = kBtu / year</i>

<b>EEM #2</b>
<b>Description of Energy Efficiency Measure implemented (current reporting year):</b>
<b>Efficiency calculations:</b>
<b>Projected (calculated) Energy Savings from project =</b>

### 2. Total calculated energy savings

Total calculated energy savings for current reporting year:	kBtu
<i>Note: this is based on a summation of the savings from Energy Efficiency Measures implemented and listed above.</i>	

### 3. Annual Efficiency Improvement

Annual efficiency improvement for current reporting year:	%
<i>Formula:</i> <i>Annual efficiency improvement = (Total calculated energy savings from EEMs) / (previous yr. consumption) x 100</i>	

*Example:* If a given agency's total consumption the previous year was 20,000,000 kBtu:  
 Annual Efficiency Improvement = (1,720,152 kBtu/yr) / (20,000,000 kBtu) x 100 = 8.6 %

### 4. Optional – calculated savings for measures undertaken since 2000

<b>EEM #1</b>
<b>Description of Energy Efficiency Measure implemented (since 2000):</b>
<b>Efficiency calculations:</b>
<b>Projected (calculated) Energy Savings from project =</b>

<b>EEM #2</b>
<b>Description of Energy Efficiency Measure implemented (since 2000):</b>
<b>Efficiency calculations:</b>
<b>Projected (calculated) Energy Savings from project =</b>