



South Carolina School Success Stories



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



<http://www.tremainefoundation.org/>

The Emily Hall Tremaine Foundation (EHTF) is a family foundation established in 1986 by Emily Hall Tremaine. Based in Connecticut, the Foundation seeks to promote innovative solutions to basic and enduring problems in the United States through grant-making programs related to art, environment, and learning disabilities. In addition to annual grant-making, the Foundation also hosts periodic meetings on non-profit organizations, government agencies, and other stakeholders to facilitate collaboration among sectors to achieve common goals.

The South Carolina Energy Office is grateful for the support of the Emily Hall Tremaine Foundation in creating this document. Any errors or opinions expressed herein are those of the South Carolina Energy Office and do not necessarily reflect the views of the Emily Hall Tremaine Foundation.

TABLE OF CONTENTS

10 Abbeville
Aiken
Allendale
Anderson
Districts 1, 2, 3, 4 & 5

15 Bamberg
Districts 1 & 2
Barnwell
Districts 19 & 45
Beaufort
Berkeley

18 Charleston
Cherokee
Chester
Chesterfield
Clarendon
Districts 1, 2 & 3
Colleton

22 Darlington
Dillon
Districts 1, 2 & 3
Dorchester
Districts 2 & 4
Edgefield



17 Beaufort School District



38 Pickens School District
The District made HVAC chiller replacements at three different schools.

25 Fairfield
Florence
Districts 1, 2, 3, 4 & 5
Georgetown
Greenville
Greenwood
Districts 50, 51 & 52

30 Hampton
Districts 1 & 2
Horry
Jasper
Kershaw
Lancaster
Laurens
Districts 55 & 56
Lee
Lexington
Districts 1, 2, 3 & 5

34 Marion
Districts 1, 2 & 7
Marlboro
McCormick
Newberry
Oconee
Orangeburg
Districts 3, 4, & 5

38 Pickens
Richland
Districts 1 & 2
Saluda
Spartanburg
Districts 1, 2, 3, 4, 5, 6 & 7
Sumter
Districts 2 & 17

43 Union
Williamsburg
York
Districts 1, 2, 3 & 4

46 Project Breakdown
Visual representation of all
ARRA Projects by county.



SC Energy Office Financial Programs

The South Carolina Energy Office (SCEO), through the Plan for State Energy Policy, provides a broad range of resources designed to help citizens, businesses, and public entities save energy - and money - through greater efficiency, better information, and enhanced environmental quality. The SCEO has several financial programs that can assist both public and private entities with energy efficiency retrofits. Since their inception, these programs have loaned out nearly \$25 million and have a projected lifetime energy savings of more than \$60 million.

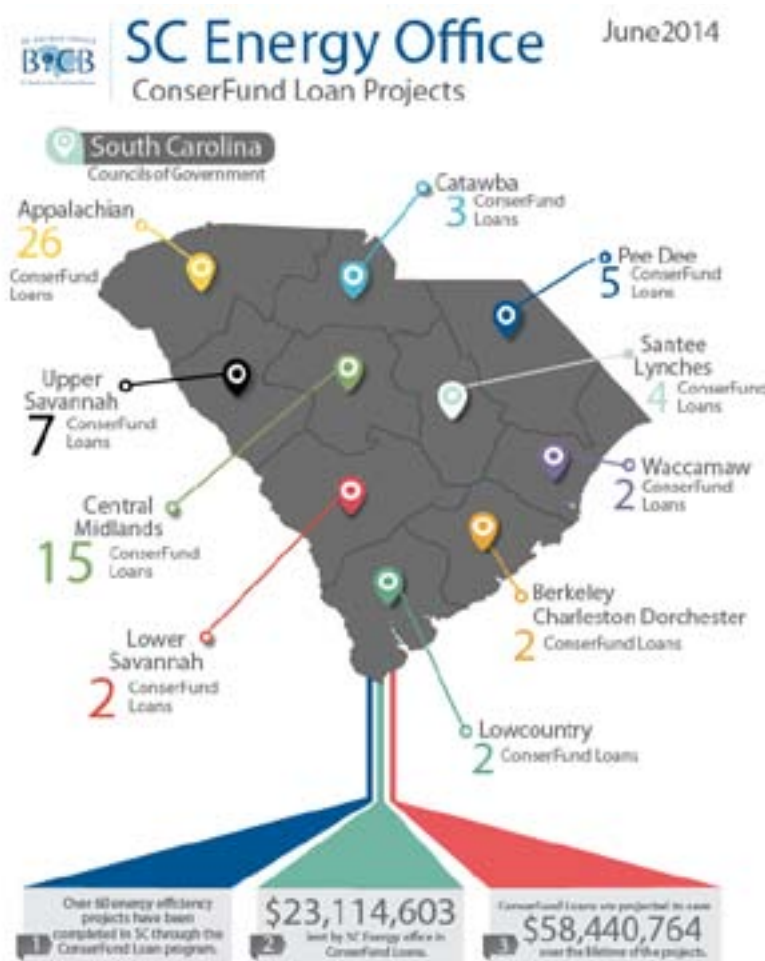
ConserFund

To continue the success of the American Reinvestment and Recovery Act (ARRA) grant projects, the SCEO created low interest loans to fund energy-efficiency improvements in state agencies, public colleges or universities, school districts, local governments, and private 501(c)(3) organizations. The ConserFund Loan Program is focused on supporting the implementation of energy-efficient improvements that provide long-term cost reductions and energy savings.

ConserFund benefits borrowers by using a fixed annual interest rate set below the Wall Street Journal prime rate (currently 2% through June 2014).

Loans may cover up to 100% of eligible project costs allowing borrowers to finance projects from \$25,000 up to \$500,000 per state fiscal year. For government borrowers, the first payment is not due for one year after construction is completed and payments will be made annually thereafter. For 501(c)(3) borrowers, the first payment is not due until the first quarter after construction is complete, and loan payments will be made quarterly thereafter.

For more information about ConserFund, visit the SCEO website at www.energy.sc.gov/incentives.



ConserFund Plus

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 program has recently been expanded using funds repaid to the State by entities which received loans under the American Recovery and Reinvestment Act (ARRA). ConserFund Plus loans will only be available to the state entities eligible for the original ARRA grants, and will consist of a 70% loan/30% grant option.

The minimum loan amount for the ConserFund Plus program is \$25,000 and the maximum is \$500,000 per (state) fiscal year. This will include the 30% grant amount. In other words, an agency borrowing the maximum amount would receive disbursements up to \$500,000 but would repay only \$350,000. Borrowers must comply with all ARRA requirements, including Davis Bacon wage reporting, (ARRA) Buy American requirements, and restrictions on transfer or sale of equipment costing more than \$5,000 without approval of the SCEO. ARRA requirements apply to both the grant and loan portions of the transaction.

For more information about the ConserFund Plus program, visit the SCEO website at: www.energy.sc.gov/incentives.

Energy Efficiency Revolving Loan (EERL)

The Energy Efficiency Revolving Loan (EERL) program was established through the US Department of Energy/South Carolina Energy Office using "stimulus" funding. It is administered by the Business Development Corporation (BDC) by contract with the Jobs-Economic Development Authority (JEDA). The purpose of the loan fund is to enable business and industry to save money by saving energy. Although the primary target of this program is business and industry, utilities, non-profits and government entities could be eligible under certain circumstances.

For more information about the Energy Efficiency Revolving Loan program, visit the SCEO website at: www.energy.sc.gov/incentives.

SUCCESS STORY: Randolph Trucking



In 2014, Randolph Trucking was able to use a mix of financing options to begin converting its diesel fleet to compressed natural gas (CNG). Phase one of the project covered the purchase of ten new CNG trucks for the Randolph fleet. The Business Development Corporation and South Carolina Bank and Trust joined with the South Carolina Jobs-Economic Development Authority to help Randolph expand its use of natural gas in its truck fleet through the use of two statewide energy conservation financing programs.

"Switching from diesel fuel to CNG fuel not only makes my trucking fleet more competitive, it is also good for the environment of South Carolina and for the health and well-being of its citizens," says Charles Randolph, President and owner of Randolph Trucking, LLC. With these ten trucks in operation, Randolph plans on displacing consumption of 158,000 gallons of diesel fuel annually with CNG fuel, resulting in fuel cost savings approaching fifty percent and reducing greenhouse gas emissions by the equivalent of 640 metric tons annually due to CNG's reduced emissions, which is the same as removing 135 cars from the road.

ARRA Project Overview

On February 17, 2009, President Barack Obama signed into law the American Reinvestment and Recovery Act (ARRA). Commonly referred to as “the Stimulus”, a portion of the money made available as part of ARRA was intended to save and create jobs by investing in infrastructure, education, health, and renewable energy. A total of \$27.2 billion was invested in energy efficiency and renewable energy research and investment nationwide.

To maximize the benefits of energy-related ARRA funding coming to South Carolina, the state focused on projects that would benefit all taxpayers by reducing energy expenditures in the public sector, encouraging the private sector through smaller, more targeted programs, and using the funds to maintain momentum for energy efficiency and clean energy in the years ahead. In order to ensure the success of these projects and to establish the foundation for a well-trained energy workforce going forward, the SCEO also planned a statewide training program through the technical college system.

The largest portion of South Carolina ARRA funding (75%) was devoted saving money in the public sector by increasing energy efficiency in state-owned buildings. It was distributed to state agencies, public colleges and universities, and school districts that have tracked and reported energy use to the SCEO over the course of almost two decades. Those entities were awarded funding based on past energy use and were charged with developing energy efficiency projects with a return on investment of 2.5 or better. The expected savings to the taxpayers of the state over the life of these energy conservation projects is \$193.7 million, based on applications as submitted. Eighty-six of South Carolina’s public school districts participated in the ARRA programs, using the monies to upgrade outdated heating and air equipment, replacing inefficient lighting, and installing energy management systems to help manage energy use.

Nationwide, public schools spend more than \$6 billion dollars annually on energy. As much as 30 percent of that energy use is the result of inefficiency. To ensure that participating agencies were taking a comprehensive look at their energy needs, the SCEO asked grantees to develop retrofit plans that outline a long-term strategy to manage energy use effectively. In 2008 the SC General Assembly passed a law requiring state agencies, public colleges and universities, and public school districts to reduce energy use by 20% by 2020, and to develop energy use plans. Completion of a comprehensive energy plan, required by legislation, was also made a condition of the ARRA grants, which encouraged state entities to take a long-term view of their energy management needs before finalizing grant requests.

SC ARRA GRANT TOTALS

K-12 Public Schools

Total Number of Buildings Retrofitted: 604

Square Feet Retrofitted: 30,528,189

Total Project Cost: \$28,244,555

ARRA Funding: \$19,779,468

Projected Annual Savings*: \$5,206,517

Projected Lifetime Savings*: \$86,088,111

**These numbers are estimates based on square footage, equipment life, and energy prices at the time the project was completed. Actual totals may vary.*

South Carolina School Districts

These are the school districts that were in existence at the beginning of the ARRA grant program. Since that time, several of the districts have combined, separated, or changed names.

- | | |
|---|--|
| 1. Abbeville County School District | 43. Horry County School District |
| 2. Aiken County School District | 44. Jasper County School District |
| 3. Allendale County School District | 45. Kershaw County School District |
| 4. Anderson County School District 1 | 46. Lancaster County School District |
| 5. Anderson County School District 2 | 47. Laurens County School District 55 |
| 6. Anderson County School District 3 | 48. Laurens County School District 56 |
| 7. Anderson County School District 4 | 49. Lee County School District |
| 8. Anderson County School District 5 | 50. Lexington County School District 1 |
| 9. Bamberg County School District 1 | 51. Lexington County School District 2 |
| 10. Bamberg County School District 2 | 52. Lexington County School District 3 |
| 11. Barnwell County School District 19 | 53. Lexington County School District 4 |
| 12. Barnwell County School District 45 | 54. Lexington County School District 5 |
| 13. Beaufort County School District | 55. Marion County School District 1 |
| 14. Berkeley County School District | 56. Marion County School District 2 |
| 15. Calhoun County School District 1
(did not participate) | 57. Marion County School District 7 |
| 16. Charleston County School District | 58. Marlboro County School District |
| 17. Cherokee County School District | 59. McCormick County School District |
| 18. Chester County School District | 60. Newberry County School District |
| 19. Chesterfield County School District | 61. Oconee County School District |
| 20. Clarendon County School District 1 | 62. Orangeburg County School District 3 |
| 21. Clarendon County School District 2 | 63. Orangeburg County School District 4 |
| 22. Clarendon County School District 3 | 64. Orangeburg County School District 5 |
| 23. Colleton County School District | 65. Pickens County School District |
| 24. Darlington County School District | 66. Richland County School District 1 |
| 25. Dillon County School District 1 | 67. Richland County School District 2 |
| 26. Dillon County School District 2 | 68. Saluda County School District |
| 27. Dillon County School District 3 | 69. Spartanburg County School District 1 |
| 28. Dillon County School District 4 | 70. Spartanburg County School District 2 |
| 29. Dorchester County School District 2 | 71. Spartanburg County School District 3 |
| 30. Dorchester County School District 4 | 72. Spartanburg County School District 4 |
| 31. Edgefield County School District | 73. Spartanburg County School District 5 |
| 32. Fairfield County School District | 74. Spartanburg County School District 6 |
| 33. Florence County School District 1 | 75. Spartanburg County School District 7 |
| 34. Florence County School District 2 | 76. Sumter County School District 2 |
| 35. Florence County School District 3 | 77. Sumter County School District 17 |
| 36. Florence County School District 4 | 78. Union County School District |
| 37. Florence County School District 5 | 79. Williamsburg County School District |
| 38. Georgetown County School District | 80. Williston School District 29 |
| 39. Greenville County School District | 81. York County School District 1 |
| 40. Greenwood County School District 52 | 82. York County School District 2 |
| 41. Hampton County School District 1 | 83. York County School District 3 |
| 42. Hampton County School District 2 | 84. York County School District 4 |

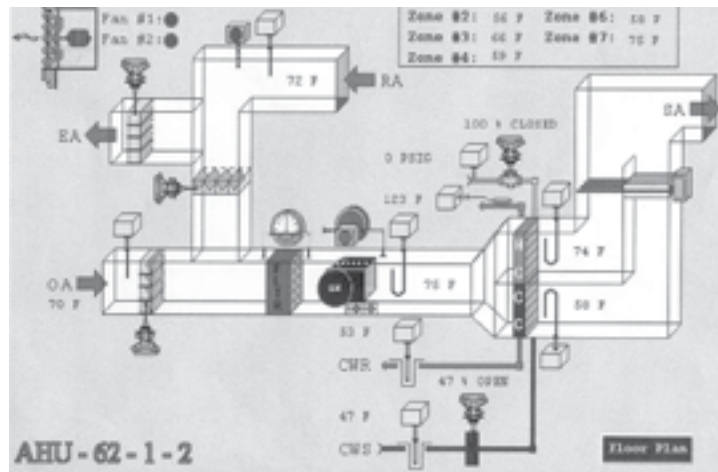
Abbeville

Abbeville County School District
400 Greenville Street
Abbeville, SC 29620

Project Title: Direct Digital Energy Management HVAC Control System for Abbeville County School District

Funding Amount: \$88,540
Project Cost: \$287,826
Annual Savings: \$39,381
Lifetime Savings: \$787,612
Equipment Lifetime: 20 years
Projected Payback Period: 2.2 years

Project Overview: Abbeville County School District began installing a Direct Digital Control system for HVAC equipment in 2001. This project used stimulus funds to continue installing the automated direct digital controls, which control 13 split system HVAC units at both Diamond Hill Elementary School and Cherokee Trail Elementary School.



An example of a direct digital control operating system with temperature settings and zone map



ABBEVILLE SCHOOL DISTRICT REDUCES ITS ENERGY USE & COST

Direct digital controls installed in Abbeville schools continuously help lower energy bills and is a great step towards reaching their goal.

The school District installed controls in its newest school in 2001. In 2009 the American Recovery and Reinvestment Act (ARRA) provided funds for the District to add controls to two more facilities: Diamond Hill and Cherokee Trail Elementary Schools.

Abbeville Facilities Director Samuel Jones stated, "Everybody wants to be warm and cool as the seasons change, but you have to moderate that to what your budget can afford."

With direct digital controls on heating and air units, one maintenance person can adjust heat and air settings using a computer, to adjust and monitor the temperatures for multiple District facilities.

Abbeville School District will reduce its energy use and save money with this monitoring system, especially during the colder months. The direct digital controls project has a projected return on investment of five percent.

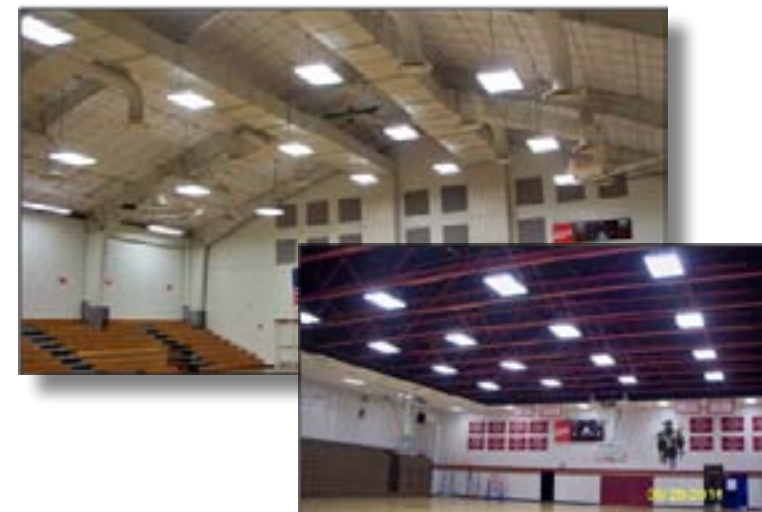
Aiken

Aiken County School District
1000 Brook Haven Drive
Aiken, SC 29803

Project Title: Aiken County Public Schools lighting and electrical energy upgrades

Funding Amount: \$586,739
Project Cost: \$702,491
Annual Savings: \$82,354
Lifetime Savings: \$1,782,212
Equipment Lifetime: 20 years
Projected Payback Period: 7.1 years

Project Overview: Aiken County School District, the sixth largest school District in the state, used stimulus funds to finance lighting and electrical upgrades. These funds allowed the school District to replace high intensity discharge (HID) with energy efficient linear high bay fluorescent lights in over twenty school gymnasiums.



New lighting in Aiken Middle School gymnasium (top) and South Aiken High School gymnasium (bottom)



AIKEN SCHOOL DISTRICT INSTALLS NEW LIGHTS IN OVER TWENTY SCHOOLS

Aiken County School District took advantage of stimulus funding to retrofit lighting in over twenty school gymnasiums. These projects will lower energy bills and continuously save money for the school District.

Using American Recovery and Reinvestment Act funds in 2009, the state's sixth largest school District upgraded gym lights in almost half of its schools. With over 24,000 students in the District, the gyms are used for assemblies, gathering places before and after school, physical education classes, and athletic events.

"We haven't had a lighting upgrade for probably fifteen years so the need was great," said Deputy Superintendent David Caver.

The District includes 41 schools covering 1,000 square miles and many are older buildings that are not energy efficient.

With a campus that large, Caver says the District is always seeking "ways to decrease energy usage." Decreasing the District's energy usage means a considerable reduction in energy costs. The recent re-lighting project has a projected return on investment of four percent.

Allendale

Allendale County School District
PO Box 458
Allendale, SC 29810

Project Title: Lighting Retrofits Allendale and Fairfax Elementary Schools

Funding Amount: \$88,540
Project Cost: \$287,826
Annual Savings: \$39,381
Lifetime Savings: \$787,612
Equipment Lifetime: 20 years
Projected Payback Period: 2.2 years

Project Overview: This project used stimulus money to implement lighting retrofits at Allendale and Fairfax Elementary Schools.



Replacing T12 fluorescent bulbs (top) with the more efficient T8 bulbs (center) can provide the same quality of light while drawing less power and reducing heat output, making the T8 a more efficient choice.

Anderson Districts 1, 2, 3, 4 & 5

1 Anderson County School District 1
801 North Hamilton Street
Williamston, SC 29697

Project Title: Anderson District 1 Controlling Energy in the Middle: Energy Efficient Controls for Wren Middle School

Funding Amount: \$175,837
Project Cost: \$175,837
Annual Savings: \$34,742
Lifetime Savings: \$694,848
Equipment Lifetime: 20 years
Projected Payback Period: 5.1 years

Project Overview: Anderson County School District One used stimulus funds to install an automated logic WebCTRL Energy Management System to have better control of HVAC equipment at Wren Middle School. This project also used stimulus funds to install a tank-free water heating system at Wren Middle School.

2 Anderson County School District 2
10990 Belton Honea Path Highway
Honea Path, SC 29654

Project Title: Anderson District 2 Energy Efficient Funding

Funding Amount: \$113,709
Project Cost: \$113,709
Annual Savings: \$33,735
Lifetime Savings: \$406,450
Equipment Lifetime: 20 years
Projected Payback Period: 3.4 years

Project Overview: Anderson County School District Two used funds to add electric utility metering to seven schools and link them to the pre-existing District-wide energy management system. The District also replaced telephone modems with Ethernet connections to energy management panels in four schools. Two schools used funds to replace old thermostats with new programmable thermostats.

3 Anderson County School District 3
335 West Front Street
Iva, SC 29655

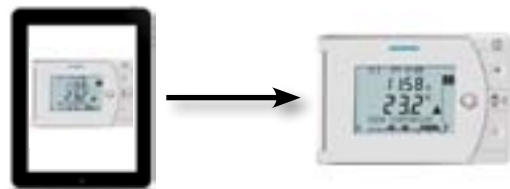
Project Title: Anderson District 3 Energy Efficient Funding

Funding Amount: \$92,296
Project Cost: \$92,296
Annual Savings: \$26,162
Lifetime Savings: \$265,072
Equipment Lifetime: 10 years
Projected Payback Period: 3.5 years

Project Overview: This project used stimulus funds to connect five separate schools to the District's energy management system. In 11 areas the District installed occupancy sensors for lighting control. In four schools Ethernet connections replaced old telephone modems in the energy panels. The stimulus funded lighting upgrades in parking lots and the installation of exhaust fan time controls.

Web-Based Controls

Anderson School District



Web-based control systems give energy managers the ability to set and monitor temperature and equipment function digitally.

4 Anderson County School District 4
PO Box 545, 315 East Queen Street
Pendleton, SC 29670

Project Title: Anderson 4-ARRA Energy Project

Funding Amount: \$98,929
Project Cost: \$98,929
Annual Savings: \$10,485
Lifetime Savings: \$209,710
Equipment Lifetime: 20 years
Projected Payback Period: 9.4 years

Project Overview: Pendleton Elementary and High School used stimulus funds to replace outdated HVAC units. “Anytime we have to replace equipment, we want to a look at buying more efficient equipment that consumes less energy,” said Chief Operations Officer Randy Abbot. “... these [new HVAC] units have a higher SEER rating.”



5 Anderson County School District 5
PO Box 2439, 400 Pearman Dairy Road,
Anderson, SC 29622

Project Title: Anderson School District 5 Energy Conservation Project

Funding Amount: \$336,537
Project Cost: \$347,447
Annual Savings: \$42,208
Lifetime Savings: \$874,269
Equipment Lifetime: 20 years
Projected Payback Period: 8 years

Project Overview: This project replaced inefficient boilers at Westside High School and Southwood Middle School. T-series lights replaced metal halide lights at T.L. Hannah High School and Westside High School. Also, thirteen schools installed motion detector lighting controls in various rooms.



Westside Highschool in Anderson School District 5.

Bamberg Districts 1 & 2

1 Bamberg County School District 1
3830 Faust Street
Bamberg, SC 29003

Project Title: Bamberg School District 1 Energy Efficiency Funding Project

Funding Amount: \$71,859
Project Cost: \$133,575
Annual Savings: \$32,323
Lifetime Savings: \$646,463
Equipment Lifetime: 20 years
Projected Payback Period: 2.2 years

Project Overview: Bamberg County School District’s project installed occupancy sensors in 69 classrooms. The District upgraded five HVAC units with heat pump replacements. In two schools, the District replaced inefficient T12 lighting with T8 lights.

2 Bamberg County School District 2
62 Holly Avenue
Denmark, SC 29042

Project Title: Installation of direct digital controls in Denmark-Olar High School

Funding Amount: \$82,239
Project Cost: \$82,239
Annual Savings: \$13,399
Lifetime Savings: \$267,974
Equipment Lifetime: 20 years
Projected Payback Period: 6.1 years

Project Overview: Denmark-Olar High School used stimulus funds to install direct digital controls (DDC) on forty-two HVAC units. Initially, the equipment was not on an energy management system and was controlled by individual room thermostats. The new system will optimize temperature settings and extend the equipment’s life.

“As a result of having SEP Stimulus Funds at Denmark-Olar High School, the following savings were realized: improved the overall cost efficiency for building, temperature is regulated in classrooms, HVAC will not activate if the room is not occupied which is cost effective...”

- Superintendent
Dr. Thelma F. Sojourner



Bamberg County School District 1
Administrative Offices

📍 Barnwell

Districts 19 & 45

19 Barnwell County School District 19
297 Pascallas Street
Blackville, SC 29817

Project Title: Energy Efficient Lightning Upgrade

Funding Amount: \$63,040
Project Cost: \$63,076
Annual Savings: \$8,378
Lifetime Savings: \$167,565
Equipment Lifetime: 20 years
Projected Payback Period: 7.5 years

Project Overview: Barnwell County School District 19's project included lighting replacements in elementary school classrooms and hallways. Blackville-Hilda High School switched to energy efficient lighting in the auditorium, classrooms, and science rooms.

Williston School District
12255 Main Street
Williston, SC 29853

Project Title: Williston School District 2009/2010 Energy Efficiency Upgrades

Funding Amount: \$67,283
Project Cost: \$67,470
Annual Savings: \$15,709
Lifetime Savings: \$280,767
Equipment Lifetime: 15 years
Projected Payback Period: 4.3 years

45 Barnwell County School District 45
770 Hagood Avenue
Barnwell, SC 29812

Project Title: Lighting Retrofits

Funding Amount: \$89,372
Project Cost: \$89,743
Annual Savings: \$25,428
Lifetime Savings: \$508,560
Equipment Lifetime: 20 years
Projected Payback Period: 3.5 years

Project Overview: Barnwell County School District 45 retrofitted T12 lights with energy efficient T8 lights.

Project Overview: In this project, efficient T8 lights replaced outdated T12 lighting. In order for the District to have more control over energy usage they installed new digital programmable thermostats with locking covers.



📍 Beaufort



Beaufort County School District
1300 King Street
Beaufort, SC 29902

Project Title: Energy Conservation Measures for Beaufort County School District

Funding Amount: \$737,034
Project Cost: \$737,054
Annual Savings: \$721,248
Lifetime Savings: \$13,517,487
Equipment Lifetime 20 years
Projected Payback Period: 1 year

Project Overview: Beaufort County School District used stimulus funds to replace inefficient ballasts and metal halide/halogen lights. They also installed motion sensors in several Beaufort County school gymnasiums to save energy when spaces are unoccupied.



BEAUFORT COUNTY SCHOOL DISTRICT EXTENDS ENERGY MANAGEMENT SYSTEM TO INCLUDE ISLAND SCHOOLS

Beaufort County School District is saving time and money after extending its energy management system to include two more facilities. The county-wide school District includes thirty-one schools on the mainland and island groups stretching from Hilton Head to Port Royal.

"We have challenges because we have to go around the water," said Chief Operational Services Director Phyllis White.

High humidity on the coast creates wear and tear on school equipment like heating and air units. Another challenge due to high humidity is controlling indoor air quality in coastal school buildings. As part of a grant funded by the American Recovery and Reinvestment Act (ARRA) in 2009, the District installed direct digital controls on HVAC units in two island schools, linking them into the District's pre-existing energy management system. Instead of making a day-long trip to Daufuskie Island, technicians now adjust air settings from the mainland, reducing the man hours needed to travel.

"In our mind it was an opportunity to make a difference," said White about the recent upgrades to the school District's equipment.

ARRA money funded other maintenance projects, including lighting upgrades in five school gymnasiums. Beaufort School District's projected return on investment for all the energy projects is 16 percent.

📍 Berkeley

Berkeley County School District
2226 Old Highway 52
Moncks Corner, SC 29461

Project Title: Energy Stimulus Project for Berkeley County Schools

Funding Amount: \$711,992
Project Cost: \$711,992
Annual Savings: \$144,180
Lifetime Savings: \$2,519,141
Equipment Lifetime: 20 years
Projected Payback Period: 4.9 years

Project Overview: This project replaced outdated water pumps on the HVAC unit at Stratford High School and replaced the chiller at Sedgefield Middle School. Direct digital controls were installed on the HVAC units at Stratford High School, Cross Elementary School, Marrington Elementary and Middle School, Stephen Middle School, HE Bonner Elementary School, Howe Hall Elementary School. Three schools also upgraded to more efficient lighting.

📍 Charleston

Charleston County School District
3999 Bridge View Drive
Charleston, SC 29405

Project Title: 2009-2010 Stimulus Upgrade

Funding Amount: \$1,296,664
Project Cost: \$1,296,664
Annual Savings: \$523,941
Lifetime Savings: \$9,882,937
Equipment Lifetime: 20 years
Projected Payback Period: 2.5 years

Project Overview: This project used funds to install over two thousand occupancy sensors in classrooms. Also, it installed two variable frequency drives and thirty-seven two-way valves on existing pumps. Additionally, it funded the new open cooling tower with a stainless steel closed circuit tower at West Ashley High School.

CHARLESTON COUNTY SCHOOL DISTRICT REDUCES ENERGY USE

Charleston County School District implemented a one-million-dollar project to make energy-efficient lighting upgrades in over twenty schools. A year after the project, the District is still seeing

a 25 percent reduction in its energy consumption. As part of a grant funded by the American Recovery and Reinvestment Act (ARRA) in 2009, the District installed over 2,000 occupancy sensors in various classrooms. The occupancy sensors detect an empty room and switch off the lights accordingly, saving both energy and money.

As the state's second largest school District, Charleston County School District includes almost eighty schools across 1,000 square miles, and serves over 43,000 students. It was important to District personnel that the students benefit from the new lights. The School District's Physical Plant Supervisor, Mike Stone, recognizes that the lights aid in the overall education process.

📍 Cherokee

Cherokee School District
PO Box 460
Gaffney, SC 29342

Project Title: Cherokee County Schools Energy Efficiency Measures

Funding Amount: \$273,307
Project Cost: \$273,307
Annual Savings: \$68,497
Lifetime Savings: \$1,537,286
Equipment Lifetime: 20 years
Projected Payback Period: 4 years

Project Overview: This project used funds to replace five boilers at Blacksburg Middle and High School, Luther Vaughan Elementary School, and Mary Bramlett Elementary School. The funds were also used to replace one chiller at Cherokee Technology Center and to replace one rooftop HVAC unit at Blacksburg High School. The District also upgraded the energy management system

"There is a tremendous difference in being able to see the appearance of the schools," Stone said.

In addition, the project focused attention toward the District's Sustainable Schools Initiative, a program committed to cost-efficient and sustainable education.

"There is a District wide effort to raise awareness and make energy efficiency upgrades on the higher level," said Sustainable Schools Initiative Co-Coordinator Maggie Harrelson.

Stimulus funds were also used to install variable frequency drives and two-way valves on pumps.

+ CHEROKEE SD'S NEW HVAC EQUIPMENT FACES FIRST TEST AGAINST WINTER WEATHER

Cherokee school District replaced five outdated boilers as part of an American Reinvestment and Recovery Act (ARRA) funded energy project. The District is eager to test the new equipment's heating performance during cold weather.

In addition to the installation of new boiler units, the stimulus funds also provided a new chiller and rooftop HVAC unit in the District. The District also upgraded its energy management system at Gaffney High School, the state's thirteenth largest school, which houses over 2,000 students. The system upgrade is a big help to HVAC technicians who can now control facility heat settings more efficiently.

Maintenance Supervisor Jeff Willis, who has worked in the District for over a year now, says "I see it's going to save us a lot on gas costs this coming year."

Willis predicts there will be more equipment upgrades in the future because there are still areas where the District can save energy. The ARRA funded projects have a projected return on investment of almost five percent.

"We have a lot of older equipment in our District," said Willis. "Within the next few years we'll replace chillers and boilers in other schools because they're less efficient than the newer equipment."

Two new stainless steel closed-circuit towers replaced the old open-cooling tower at West Ashley High School.

The District plans to move forward with energy-focused equipment upgrades in other schools while applying for more rebates through Energy Wise.

📍 Chester



Chester County School District
109 Hiron Street
Chester, SC 297061

Project Title: Installation of direct digital controls; Installation of T8 Lamps and Electronic Ballasts

Funding Amount: \$180,000
Project Cost: \$180,000
Annual Savings: \$25,679
Lifetime Savings: \$213,575
Equipment Lifetime: 20 years
Projected Payback Period: 7 years

Project Overview: Chester County used ARRA stimulus funding to expand their pre-existing Direct Digital Control (DDC) system. New DDC controls were installed on 24 HVAC units at Great Falls High School. New DDC controls were also installed on outdoor lighting circuits within the District. Funding was also used to upgrade the lighting from T12 to T8 lamps in Chester Park Elementary School.

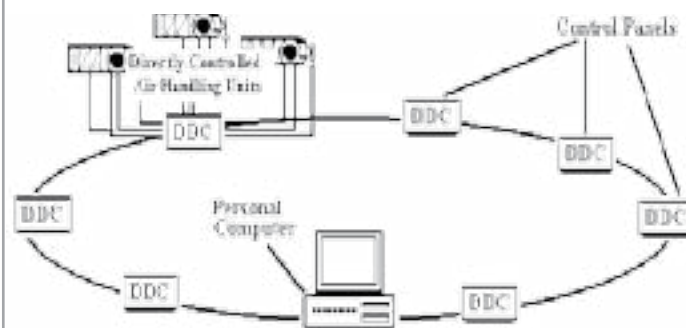
📍 Chesterfield

Chesterfield County School District
401 West Boulevard
Chesterfield, SC 29709

Project Title: Additions to the Existing Siemens direct digital controls System

Funding Amount: \$263,669
Project Cost: \$263,669
Annual Savings: \$91,124
Lifetime Savings: \$1,822,473
Equipment Lifetime: 20 years
Projected Payback Period: 2.9 years

Project Overview: Chesterfield County used stimulus funds to install new direct digital controls (DDC) on HVAC units at Central High School and twelve additional HVAC units at Cheraw High School. The funds were also used to install DDCs at Cheraw Intermediate School and Pageland Elementary School on 132 water pumps to connect them to the District's energy management system.



📍 Clarendon Districts 1, 2 & 3

1 Clarendon County School District 1
PO Box 38
Summerton, SC 29148

Project Title: Clarendon District 1 Stimulus Project

Funding Amount: \$68,109
Project Cost: \$68,109
Annual Savings: \$38,712
Lifetime Savings: \$735,920
Equipment Lifetime: 20 years
Projected Payback Period: 1.8 years

Project Overview: The District made lighting upgrades at Scott Branch High School. The District linked the HVAC units at three facilities into the District-wide Ethernet system in order to time control the HVAC units. These facilities were Scott Branch High School, the school Administration Building, and the Summerton Early Childhood Center.

2 Clarendon County School District 2
15 Major Drive
Manning, SC 29102

Project Title: Clarendon District 1 Stimulus Project

Funding Amount: \$107,124
Project Cost: \$113,551
Annual Savings: \$15,099
Lifetime Savings: \$301,977
Equipment Lifetime: 20 years
Projected Payback Period: 7.1 years

Project Overview: The District updated HVAC units with 20 heat pumps at Manning Elementary School. The project included lighting improvements with the installation of 24 motion sensors at Manning High School.

CLARENDON 1 SCHOOL DISTRICT EARNS OVER \$20,000 IN UTILITY REBATES

Energy-efficient utility upgrades brought utility rebates to Clarendon School District One, in addition to lower energy use and costs. Clarendon School District One used ARRA funds to upgrade light fixtures at Scott's Branch High School and extended its energy management system to three more facilities.

The school District serves over 3,500 people in four schools. Director of Finance, Lyde Graham, believes the District is doing the best it can for students.

"We have to use the money we have in a purposeful manner to provide the best instruction we can to kids in the community," said Graham.

The new lighting fixtures lowered operating expenses in the District. The ARRA funded energy projects have a predicted return on investment of 4.5 percent.

"We try to do a lot as far as energy conservation", said Graham. "The superintendent, principal, and staff know the biggest energy saver is turning off the light switch."

The District has earned over \$21,000 in utility rebates for the new lights and similar energy-efficient equipment. "(Superintendent) Dr. Rose H. Wilder and the Board of Trustees of the District played an integral part in insuring the success of the energy conservation efforts in the District," said Graham.

3

Clarendon County School District 3
PO Box 270
5239 Turbeville Highway
Turbeville, SC 29162

Project Title: Installation of direct digital controls for the High School and Middle School

Funding Amount: \$65,575
Project Cost: \$65,575
Annual Savings: \$9,784
Lifetime Savings: \$195,672
Equipment Lifetime: 20 years
Projected Payback Period: 6.7 years

Project Overview: Both schools added direct digital controls to HVAC units. The middle school also added zone controls to the rooftop HVAC units.

Darlington

Project Title: Darlington County School District Window Replacement Project

Funding Amount: \$136,139
Project Cost: \$136,139
Annual Savings: \$20,088
Lifetime Savings: \$502,211
Equipment Lifetime: 25 years
Projected Payback Period: 6.8 years

Project Overview: This project implemented the conversion of cooking oil to diesel fuel for the District's 26 activity buses at two biodiesel facilities: one in Darlington and one in Hartsville.

Colleton

Colleton County School District
213 North Jefferies Blvd.
Walterboro, SC 29488

Project Title: Thunderbolt Career and Technology Center (TCTC) Lighting Upgrades

Funding Amount: \$211,546
Project Cost: \$219,702
Annual Savings: \$31,287
Lifetime Savings: \$787,177
Equipment Lifetime: 20 years
Projected Payback Period: 6.8 years

Project Overview: Colleton County used ARRA funds to replace T12 light fixtures with T8 lamps and ballasts at the Thunderbolt Career and Technology Center. The District replaced dry-type transformers at Colleton County High School. The county is replacing mercury vapor and incandescent gymnasium lights with fluorescent lighting at Colleton High School.



Dillon

Districts 1, 2 & 3

Dillon County School District 1 (4) **1**
405 West Washington Street
Dillon, SC 29536

Project Title: Installation of direct digital controls at Stewarts Elementary School

Funding Amount: \$58,647
Project Cost: \$58,647
Annual Savings: \$14,252
Lifetime Savings: \$270,994
Equipment Lifetime: 20 years
Projected Payback Period: 4.1 years

Project Overview: The project used ARRA funds to add Stewart Heights Elementary School to the District's direct digital control (DDC) system. The DDCs were installed on the school's existing 35 Bard and 15 rooftop HVAC units.



Dillon County School District 2 (4) **2**
PO Box 644 207 E. Third Ave.
Lake View 29563

Project Title: Replace Heat Pumps and Re-lamp Specific Fixtures

Funding Amount: \$80,000
Project Cost: \$80,000
Annual Savings: \$13,667
Lifetime Savings: \$273,345
Equipment Lifetime: 20 years
Projected Payback Period: 5.9 years

Project Overview: The project updated HVAC equipment in the schools by replacing 23 split system heat pumps. The project included lighting upgrades for T8 bulbs and electronic ballasts.

Dillon County Districts 2 & 3 installed Direct digital controls and/or time controls to increase energy efficiency at area schools.

Dillon County School District 3 **3**
 205 King Street
 Latta, SC 29565

Project Title: Installation of direct digital controls at Stewarts Elementary School

Funding Amount: \$58,647
 Project Cost: \$58,647
 Annual Savings: \$14,252
 Lifetime Savings: \$270,994
 Equipment Lifetime: 20 years
 Projected Payback Period: 4.1 years

Project Overview: The project used ARRA funds to add Stewart Heights Elementary School to the District's Direct Digital Control (DDC) system. The DDCs were installed on the school's existing 35 Bard and 15 rooftop HVAC units.

Dorchester County School District 4 **4**

Project Title: Dorchester County District 4 T8 Lighting Conversion

Funding Amount: \$97,784
 Project Cost: \$97,784
 Annual Savings: \$30,410
 Lifetime Savings: \$608,194
 Equipment Lifetime: 20 years
 Projected Payback Period: 3.2 years

Project Overview: The District used stimulus funds to retrofit over 700 T12 magnetic ballast light fixtures to new T8 electronic ballast light fixtures at St. George Middle School.

Dorchester Districts 2 & 4

Dorchester County School District 2
 102 Green Wave Blvd.
 Summerville, SC 29483

Project Title: Dubose Middle School Installation Siemens direct digital controls

Funding Amount: \$391,060
 Project Cost: \$426,132
 Annual Savings: \$49,158
 Lifetime Savings: \$983,153
 Equipment Lifetime: 20 years
 Projected Payback Period: 8 years

Project Overview: The District installed direct digital controls at Dubose Middle School and Oakbrook Middle and High Schools. The District also replaced two rooftop HVAC units at Summerville High School.

Edgefield

Edgefield County School District
 17 Par Drive
 Johnston, SC 29832

Project Title: Edgefield County School Districts ARRA

Funding Amount: \$121,478
 Project Cost: \$125,480
 Annual Savings: \$18,636
 Lifetime Savings: \$372,726
 Equipment Lifetime: 20 years
 Projected Payback Period: 6.5 years

Fairfield

Fairfield County School District
 PO Drawer 622
 Winnsboro, SC 29180

Project Title: Fairfield Central High School Lighting Upgrade

Funding Amount: \$172,246
 Project Cost: \$180,946
 Annual Savings: \$35,994
 Lifetime Savings: \$719,877
 Equipment Lifetime: 20 years
 Projected Payback Period: 4.8 years

Project Overview: The District replaced T12 lamps with T8 lamps. Specifically, the metal halide fixtures in Fairfield Central High School's Media Center and Gymnasium were replaced with fluorescent T8 high-bay fixtures.



Project Overview: The Edgefield County project included lighting upgrades in the cafeteria, gym, library, classrooms, offices, restrooms, and hallways. The project also included replacing some packaged terminal air conditioning (PTAC) units that use strip heat with packaged terminal heat pump (PTHP) units.

Florence Districts 1, 2, 3, 4 & 5

Florence County School District 1 **1**
 319 South Dargan Street
 Florence, SC 29506

Project Title: Dewey L. Carter Elementary School

Funding Amount: \$323,642
 Project Cost: \$389,142
 Annual Savings: \$45,683
 Lifetime Savings: \$995,292
 Equipment Lifetime: 25 years
 Projected Payback Period: 7.1 years

Project Overview: The 126-ton centrifugal water-cooled chiller at the elementary school was classified as an ozone depleting refrigerant and this type is now banned on new equipment. The District replaced this chiller with a new water-cooled scroll chiller.

Florence County School District 2 **2**
 2121 S. Pamplico Highway
 Pamplico, SC 29583

Project Title: Florence School District 2 Stimulus Project

Funding Amount: \$70,219
 Project Cost: \$76,414
 Annual Savings: \$14,208
 Lifetime Savings: \$284,153
 Equipment Lifetime: 20 years
 Projected Payback Period: 4.9 years

Project Overview: This project included T12 lighting replacements with T8's at Hannah Pamplico High School's gym, District office, career center, and other areas.

3
 Florence County School District 3
 P.O. Box 1389
 125 S. Blanding Street
 Lake City, SC 29560

Project Title: Florence County School District 3 Stimulus Funding HVAC Upgrades

Funding Amount: \$130,615
 Project Cost: \$130,615
 Annual Savings: \$24,202
 Lifetime Savings: \$484,030
 Equipment Lifetime: 20 years
 Projected Payback Period: 5.4 years

Project Overview: Some HVAC equipment in the school was between 19-25 years old. This project replaced older HVAC equipment and included the addition of energy management controls.

4
 Florence County School District 4
 220 North Pinckney Street
 Timmonsville, SC 29161

Project Title: Smart Energy

Funding Amount: \$68,159
 Project Cost: \$68,159
 Annual Savings: \$23,518
 Lifetime Savings: \$455,814
 Equipment Lifetime: 20 years
 Projected Payback Period: 2.9 years

Project Overview: This project included T12 lighting replacements with T8 at the District Family Learning Center, converting the HVAC control units to an energy management system in the Educational Center. Heat pumps on the HVAC units at the District Office Family Learning Center were also replaced as a part of this project.

5
 Florence County School District 5
 PO Box 98
 156 E. Marion Street
 Johnsonville, SC 29555

Project Title: A/C Replacement

Funding Amount: \$71,517
 Project Cost: \$72,000
 Annual Savings: \$210,140
 Lifetime Savings: \$263,265
 Equipment Lifetime: 20 years
 Projected Payback Period: 0.3 years

Project Overview: This project replaced a total of 7 air conditioning units between Johnsonville Elementary, Middle and High Schools.



Lighting retrofits and/or upgrades can make a significant impact to a building's efficiency. By installing energy efficient lighting systems, Districts can begin to cut their energy costs while improving light quality in classrooms and reducing heat gain.

Georgetown

Georgetown County School District
 2018 Church Street
 Georgetown, SC 29440

Project Title: Georgetown County School District Energy Measures

Funding Amount: \$348,752
 Project Cost: \$348,752
 Annual Savings: \$82,838
 Lifetime Savings: \$1,656,754
 Equipment Lifetime: 20 years
 Projected Payback Period: 4.2 years

Project Overview: Project Overview: The District installed an energy management system on ten HVAC units at Waccamaw Elementary School and on 58 HVAC units at Waccamaw High School. The District also replaced 21 old HVAC units at Pleasant Hill Elementary School with 15 new HVAC units. The non-programmable thermostats at the school were replaced with seven-day programmable controls.



Georgetown SD Energy Management Department upgraded the District's energy management system, allowing administrators to track energy usage. The new system allowed the Energy Manager to monitor and make adjustments to save energy.



GEORGETOWN COUNTY SCHOOL SAVES ENERGY WITH "NO COST" MEASURES

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 the 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 in each building, creating friendly competition between local schools.

📍 Greenville

Greenville County School District
 PO Box 2848
 301 Camperdown Way
 Greenville, SC 29602

Project Title: Greenville County School District Energy Work

Funding Amount: \$1,979,340
 Project Cost: \$1,979,340
 Annual Savings: \$404,192
 Lifetime Savings: \$6,359,735
 Equipment Lifetime: 15 years
 Projected Payback Period: 4.9 years

Project Overview: The project upgraded lighting in Hillcrest High School, Heritage Elementary School, and Bethel Elementary School. HVAC units were upgraded at Hillcrest High School by installing a heat recovery chiller, installing variable frequency drives on the pumps, and installing a condensing boiler. The heat recovery chillers were also replaced at Wade Hampton and Greenville High Schools.



New chiller at Wade Hampton High School

+ THE FOCUS IS ON SAVING MONEY, THE BY-PRODUCT IS ON (SAVING) ENERGY

With a mission to educate students in a safe, efficient environment, Greenville County School District recently improved that environment with energy efficiency upgrades in its schools.

“In order to save money, you have to save energy and when you save energy, you save the environment,” said District Energy Manager Bill Knight about the school District’s ARRA-funded energy projects.

The school District serves over 70,000 students and maintains 90 District facilities. District staff knew from routine building audits that the best investment opportunity for the ARRA funds would be lighting replacement.

New lights were installed in Bethel Elementary, Heritage Elementary, and Hillcrest High Schools.

In addition, new chillers were installed in Greenville, Hillcrest and Wade Hampton High Schools, plate heat exchangers in Maudlin and Wade Hampton High Schools, and variable frequency drives on water pumps at Hillcrest High School.

Greenville County School District has earned over \$81,000 in rebates through Duke Energy’s progressive rebate program which awards rebates for energy-efficient customers and facilities.

“We’re not done yet,” said Knight about the future energy upgrades that will bring more rebate money to schools in the District.

📍 Greenwood Districts 50, 51 & 52

Greenwood County School District 50
 1855 Calhoun Road
 PO Box 248
 Greenwood, SC 29649

Project Title: Lighting upgrades and window replacements.

Funding Amount: \$130,615
 Project Cost: \$130,615
 Annual Savings: \$24,202
 Lifetime Savings: \$484,030
 Equipment Lifetime: 20 years
 Projected Payback Period: 5.4 years

Project Overview: The District upgraded T12 lights to T8s with electronic ballasts in their career center and District offices. They also replaced old windows, added new 12 SEER HVAC units to the Instructional Services Center an energy management system



Greenwood County School District 51

Project Title: Install new 13 SEER wall mounted heat pumps and add direct digital controls at Ware Shoals High School.

Funding Amount: \$130,615
 Project Cost: \$130,615
 Annual Savings: \$24,202
 Lifetime Savings: \$484,030
 Equipment Lifetime: 20 years
 Projected Payback Period: 5.4 years

Project Overview: The District installed 13 SEER wall mounted heat pump units and added direct digital controls for heating and cooling the Darby building at Ware Shoals High School.

Greenwood County School District 52

Project Title: Making our Primary and Elementary Schools More Efficient

Funding Amount: \$79,569
 Project Cost: \$287,429
 Annual Savings: \$37,414
 Lifetime Savings: \$589,506
 Equipment Lifetime: 20 years
 Projected Payback Period: 2.1 years

Project Overview: The District made lighting retrofits at Ninety Six Primary School. Additionally, they installed an energy management system to better control energy usage.

Hampton Districts 1 & 2

Hampton County School District 1 **1**
 PO Box 177
 Hampton, SC 29924

Project Title: Hampton One Air Conditioners and Water Heater

Funding Amount: \$94,731
 Project Cost: \$94,731
 Annual Savings: \$14,044
 Lifetime Savings: \$249,264
 Equipment Lifetime: 25 years
 Projected Payback Period: 6.7 years

Project Overview: The District installed a solar hot water heater at Ben Hazell Primary. Fluorescent lights in kitchens and temporary classrooms were upgraded to T8 fixtures. The District also replaced several outdated heat pumps.

Hampton County School District 2 **2**
 319 Fourth Street
 PO Box 1028
 Estill, SC 29918

Project Title: Hampton 2 Buildings

Funding Amount: \$74,933
 Project Cost: \$74,933
 Annual Savings: \$22,588
 Lifetime Savings: \$427,428
 Equipment Lifetime: 20 years
 Projected Payback Period: 3.3 years

Project Overview: The District installed lighting controls on the Estill High School parking lot lights. Fluorescent lighting in kitchens and classrooms were upgraded to T8 lamps and electronic ballasts. Outdated heat pumps were also replaced in the District.

Horry

Horry County School District

Project Title: Horry County Schools Occupancy Sensor Project

Funding Amount: \$598,438
 Project Cost: \$598,438
 Annual Savings: \$289,588
 Lifetime Savings: \$2,895,882
 Equipment Lifetime: 10 years
 Projected Payback Period: 2.1 years

Project Overview: The District installed ceiling-mounted occupancy sensors in 49 schools served by Santee Cooper and 1651 various locations in the District.

Jasper

Jasper County School District

Project Title: Jasper County School District Request for Energy Efficiency Stimulus Funding

Funding Amount: \$87,790
 Project Cost: \$87,790
 Annual Savings: \$79,554
 Lifetime Savings: \$1,704,828
 Equipment Lifetime: 20 years
 Projected Payback Period: 1.1 years

Project Overview: This project included the installation of light motion sensors in the main entrance ways of the K-12 schools in Hardeeville and Ridgeland. In the gymnasium, cafeteria, and elementary school multi-purpose room.

Kershaw

Kershaw County School District
 1301 Dubose Court
 Camden, SC 29020

Project Title: Lugoff-Elgin Middle School HVAC Upgrade

Funding Amount: \$248,270
 Project Cost: \$544,424
 Annual Savings: \$34,884
 Lifetime Savings: \$697,681
 Equipment Lifetime: 20 years
 Projected Payback Period: 7.1 years

Project Overview: The District replaced five rooftop HVAC units with new heat pumps. Sixty-two PTAC units in classrooms and offices were replaced with 26 wall-mounted heat pumps in classrooms and eight ductless split system heat pumps in offices.

Laurens Districts 55 & 56

Laurens County School District 55
 1029 West Main Street
 Laurens, SC 29360

Project Title: Laurens School District 55 Performance Contract

Funding Amount: \$338,988
 Project Cost: \$3,656,618
 Annual Savings: \$416,413
 Lifetime Savings: \$7,582,460
 Equipment Lifetime: 20 years
 Projected Payback Period: 8 years

Project Overview: This District made an energy performance contract to reduce its overall energy use by fifteen percent. There were T12 to T8 lighting upgrades in ten buildings and the District's Direct Digital Control system was expanded to include areas not previously linked to the system. Window and door replacements were made at Hickory Tavern schools. Also at Hickory Tavern, 21 Bard units and 2 packaged units were replaced.

Lancaster

Lancaster County School District
 300 S. Catawba Street
 Lancaster, SC 29720

Project Title: New Lighting Fixtures and Controls at North Elementary and Buford Middle

Funding Amount: \$294,500
 Project Cost: \$294,500
 Annual Savings: \$45,413
 Lifetime Savings: \$908,255
 Equipment Lifetime: 20 years
 Projected Payback Period: 6.5 years

Project Overview: New lighting fixtures and controls were installed at the two schools.

Laurens County School District 56
 211 North Broad St., Suite B
 Clinton, SC 29325

Project Title: Replacement of water heater in kitchen at existing Clinton High School

Funding Amount: \$112,000
 Project Cost: \$112,000
 Annual Savings: \$14,165
 Lifetime Savings: \$283,300
 Equipment Lifetime: 20 years
 Projected Payback Period: 7.9 years

Project Overview: The gas fired boiler at Clinton High School was built in 1974. The District replaced this and the water storage tank with two new condensing, gas-fired water heaters. The District also replaced the fifty-year-old cast iron gas fired hot water heating boiler with a new copper hot water boiler.

Lee

Lee County School District
PO Box 507
521 Park Street
Bishopville, SC 29010

Project Title: Replace inefficient HVAC for five of our schools

Funding Amount: \$78,000
Project Cost: \$78,000
Annual Savings: \$16,698
Lifetime Savings: \$333,951
Equipment Lifetime: 20 years
Projected Payback Period: 4.7 years



Project Overview: The District replaced twelve HVAC units at various schools including Mt. Pleasant Middle School, Dennis Middle School, Bishopville Primary School, Lower Lee Elementary School, and West Lee Elementary School. This project also included installation of automatic changeover thermostats to allow for regulation of the HVAC units.

Lexington Districts 1, 2, 3, 4 & 5

Lexington County School District 1 **1**
PO Box 1869
100 Tarrar Springs Road
Lexington, SC 29071

Project Title: Saxe Gotha Elementary School

Funding Amount: \$407,613
Project Cost: \$506,000
Annual Savings: \$61,310
Lifetime Savings: \$1,226,205
Equipment Lifetime: 20 years
Projected Payback Period: 6.6 years

Project Overview: The HVAC system at SGES was 18 years old. The project replaced the HVAC system (55 units) while incorporating humidity controls and upgrading the energy management system.

Lexington County School District 2 **2**
715 Ninth Street
West Columbia, SC 29169

Project Title: Replacement of HVAC units

Funding Amount: \$253,818
Project Cost: \$271,269
Annual Savings: \$34,242
Lifetime Savings: \$684,833
Equipment Lifetime: 20 years
Projected Payback Period: 7.4 years

Project Overview: The project replaced 21 HVAC units at BC Grammar #1 School that were installed in 1974. The project also installed Direct Digital Controls on them.

Lexington County School District 3 **3**
338 West Columbia Avenue
Batesburg-Leesville, SC 29006

Project Title: Lexington School District 3 Lighting Retrofit

Funding Amount: \$108,316
Project Cost: \$118,000
Annual Savings: \$23,822
Lifetime Savings: \$476,433
Equipment Lifetime: 20 years
Projected Payback Period: 5.5 years

Project Overview: This project included T12 to T8 lighting upgrades and metal halide replacements at Batesburg-Leesville Primary, Elementary, and Middle schools

Lexington County School District 4 **4**
607 East 5th Street
Swansea, SC 29160

Project Title: Lexington District 4 Stimulus Application

Funding Amount: \$128,353
Project Cost: \$128,353
Annual Savings: \$23,347
Lifetime Savings: \$466,944
Equipment Lifetime: 20 years
Projected Payback Period: 5.5 years

Project Overview: The District replaced outdated HVAC units at the District Office, First Steps Office, and Francis Mack Elementary School. Building.

Lexington County School District 5 **5**
1020 Dutch Fork Road
Irmo, SC 29063

Project Title: Lexington Richland District 5 ARRA Lighting and Controls Project

Funding Amount: \$386,296
Project Cost: \$397,311
Annual Savings: \$62,408
Lifetime Savings: \$1,248,169
Equipment Lifetime: 20 years
Projected Payback Period: 6.2 years

Project Overview: Lighting upgrades were made at Dutch Fork and Irmo High Schools. These upgrades were made in school offices, storage rooms, classrooms, gyms, cafeterias, and restrooms.



Marion Districts 1, 2 & 7

Marion County School District 1
719 North Main Street
Marion, SC 29571

Project Title: Installation of direct digital controls in Johnakin Middle School and Easterling Primary School.

Funding Amount: \$116,904
Project Cost: \$116,904
Annual Savings: \$15,797
Lifetime Savings: \$315,933
Equipment Lifetime: 20 years
Projected Payback Period: 7.4 years



Project Overview: The District expanded its energy management system by installing direct digital controls on five HVAC units at Easterling and 48 HVAC units at Johnakin.

Marion County School District 2
PO Box 689
200 Broad Street
Mullins, SC 29574

Project Title: Installation of direct digital controls in Palmetto Middle School and McCormick Elementary School

Funding Amount: \$89,166
Project Cost: \$89,166
Annual Savings: \$12,361
Lifetime Savings: \$247,212
Equipment Lifetime: 20 years
Projected Payback Period: 7.2 years

Project Overview: The District installed direct digital controls on 40 HVAC units at Palmetto Middle and McCormick Elementary Schools, linking them to the District's pre-existing energy management system.

Marion County School District 7
PO Drawer 1439
Rains, SC 29589

Project Title: Direct Digital Control System Elementary Schools

Funding Amount: \$57,500
Project Cost: \$57,500
Annual Savings: \$7,252
Lifetime Savings: \$154,041
Equipment Lifetime: 20 years
Projected Payback Period: 7.9 years

Project Overview: The District installed Direct Digital Control Systems on 28 total HVAC units at Britton's Neck Elementary School and on seven HVAC units at the Rains Centenary Early Childhood Center.

McCormick

McCormick County School District
821 North Mine Street
McCormick, SC 29835

Project Title: Replacement of HVAC & Lighting System

Funding Amount: \$24,810
Project Cost: \$24,810
Annual Savings: \$5,796
Lifetime Savings: \$89,450
Equipment Lifetime: 20 years
Projected Payback Period: 5.8 years

Project Overview: The District replaced the T12 lights in the kitchen of Building A of the McCormick Learning Center. Manual thermostats were replaced with automatic thermostats in Building B of the Center. Also, window units were replaced with HVAC units in the Adult Ed Buildings A and C.



Marlboro

Marlboro County School District
122 Broad Street
Bennettsville, SC 29512

Project Title: Classroom HVAC Upgrade

Funding Amount: \$151,575
Project Cost: \$193,145
Annual Savings: \$25,933
Lifetime Savings: \$518,655
Equipment Lifetime: 20 years
Projected Payback Period: 5.8 years

Project Overview: The District replaced 64 wall-mounted HVAC units with newer energy efficient HVAC units in Bennettsville Primary and Elementary Schools and McColl Elementary School. The estimated age of the units is around twenty years old.

Lighting retrofits and/or upgrades can make a significant impact to a building's efficiency. By installing energy efficient lighting systems, districts can begin to cut their energy costs while improving light quality in classrooms and reducing heat gain.

📍 Newberry

Newberry County School District
1539 Martin Street
Newberry, SC 29108

Project Title: Newberry County School District Stimulus Application

Funding Amount: \$186,143
Project Cost: \$186,143
Annual Savings: \$28,790
Lifetime Savings: \$575,805
Equipment Lifetime: 20 years
Projected Payback Period: 6.5 years

Project Overview: The project included the replacement of T12 with T8 lights in the Newberry HS Learning Center and 400 Wing and also in the Mid-Carolina Middle School. To prevent air infiltration through the attic, the walls were extended outward to the roof deck.



📍 Oconee



Oconee County School District
414 South Pine Street
Walhalla, SC 29691

Project Title: West Oak High School Chiller System Replacement

Funding Amount: \$311,823
Project Cost: \$950,000
Annual Savings: \$60,735
Lifetime Savings: \$1,518,376
Equipment Lifetime: 25 years
Projected Payback Period: 5.1 years

Project Overview: The District replaced the 25-year-old chiller at West-Oak High School with a newer energy efficient chiller. The project also included replacing the single natural draft boiler with three high efficiency boilers. In conclusion, the original pneumatic control system was upgraded to a direct digital controls Building Automation System.

📍 Orangeburg Districts 3, 4 & 5

Orangeburg County School District 3
Post Office Box 98
Holly Hill, SC 29059

Project Title: Saxe Gotha Elementary School

Funding Amount: \$407,613
Project Cost: \$506,000
Annual Savings: \$61,310
Lifetime Savings: \$1,226,205
Equipment Lifetime: 20 years
Projected Payback Period: 6.6 years

Project Overview: The HVAC system at SGES was 18 years old. The project replaced the HVAC system (55 units) while incorporating humidity controls and upgrading the energy management system.



Orangeburg County School District 4
6030 Slab Landing Road
Cope, SC 29038

Project Title: Update remote monitoring and alert for HVAC to wide area networking controls

Funding Amount: \$136,876
Project Cost: \$146,425
Annual Savings: \$33,982
Lifetime Savings: \$679,633
Equipment Lifetime: 20 years
Projected Payback Period: 4 years

Project Overview: The District installed direct digital controls on HVAC units.

Orangeburg County School District 5
578 Ellis Avenue
Orangeburg, SC 29115

Project Title: Orangeburg Wilkinson HVAC Controls Upgrade and Cooling Tower Rebuild

Funding Amount: \$241,055
Project Cost: \$241,055
Annual Savings: \$41,368
Lifetime Savings: \$827,362
Equipment Lifetime: 20 years
Projected Payback Period: 5.8 years

Project Overview: Orangeburg School District Five made HVAC controls upgrade to units in Orangeburg Wilkinson High School. The District also rebuilt the cooling tower at this school.

Pickens

Pickens County School District
1348 Griffin Mill Road
Easley, SC 29640

Project Title: Pickens County School District Energy Savings Project

Funding Amount: \$393,000
Project Cost: \$393,000
Annual Savings: \$89,095
Lifetime Savings: \$1,336,430
Equipment Lifetime: 15 years
Projected Payback Period: 4.4 years

Project Overview: The District made HVAC chiller replacements at A.R. Lewis Elementary School, Pickens High School, and Forest Acres Elementary School. Energy management system controls were added to the HVAC.



Richland Districts 1 & 2

Richland County School District 1
201 Park Street
Columbia, SC 29201

Project Title: Measure 1 and Measure 2

Funding Amount: \$921,962
Project Cost: \$921,962
Annual Savings: \$227,579
Lifetime Savings: \$4,551,580
Equipment Lifetime: 20 years
Projected Payback Period: 4.1 years

Project Overview: The District installed Direct Digital Control 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.

Richland County School District 2
6831 Brookfield Road
Columbia, SC 29206

Project Title: Lighting Upgrades

Funding Amount: \$613,740
Project Cost: \$613,740
Annual Savings: \$131,568
Lifetime Savings: \$2,631,354
Equipment Lifetime: 20 years
Projected Payback Period: 4.7 years

Project Overview: The District replaced T8 and T12 light fixtures with 25-watt lamps and ballasts. They also integrated an EMS into the District.

Saluda

Saluda County School District
404 N. Wise Road
Saluda, SC 29138

Project Title: HVAC and Controls Upgrade at Hollywood Elementary School

Funding Amount: \$90,891
Project Cost: \$90,891
Annual Savings: \$13,200
Lifetime Savings: \$264,010
Equipment Lifetime: 20 years
Projected Payback Period: 6.9 years

Project Overview: There were 18 heat pump units over 30 years of age. The District replaced these in addition to installing time-of-day controls on the new HVAC units.



Spartanburg Districts 1 & 2

Spartanburg County School District 1
PO Box 218
Campobello, SC 29349

Project Title: New Prospect Elementary School HVAC Upgrade

Funding Amount: \$97,318
Project Cost: \$150,397
Annual Savings: \$12,263
Lifetime Savings: \$245,261
Equipment Lifetime: 20 years
Projected Payback Period: 7.9 years

Project Overview: The District replaced two pipe HVAC units at New Prospect Elementary School with self-contained heat pumps. Metal halide light fixtures were replaced at three schools.

Spartanburg County School District 2
4606 Parris Bridge Road
Boiling Springs, SC 29316

Project Title: Lake Middle School Geothermal HVAC Project

Funding Amount: \$218,281
Project Cost: \$270,079
Annual Savings: \$40,853
Lifetime Savings: \$817,061
Equipment Lifetime: 20 years
Projected Payback Period: 5.3 years

Project Overview: The District installed a two-pipe water source HVAC system with ground source piping (using geothermal energy with a ground source heat exchange system) and water wells at Rainbow Lake Middle School.

Spartanburg (Continued)

Spartanburg County School District 3
3535 Clifton Glendale Road
Spartanburg, SC 29307

Project Title: Cowpens Elementary School

Funding Amount: \$110,404
Project Cost: \$119,623
Annual Savings: \$30,691
Lifetime Savings: \$613,814
Equipment Lifetime: 20 years
Projected Payback Period: 3.6 years

Project Overview: The HVAC system at Cowpens ES was over 30 years old. The District replaced the closed circuit cooler with an open cooling tower and plate frame heat exchanger. The electric heating boiler was replaced with a gas fired boiler.



Spartanburg County School District 5
P.O. Box 307
Duncan, SC 29334

Project Title: Spartanburg District 5 Energy Efficiency Improvement Plan

Funding Amount: \$157,939
Project Cost: \$157,939
Annual Savings: \$44,164
Lifetime Savings: \$883,290
Equipment Lifetime: 20 years
Projected Payback Period: 3.6 years

Project Overview: The project replaced metal halide light fixtures with high bay fixtures, replaced T12 lamps with T8 lamps, and removed external wall pack light fixtures with core and coil ballasts to replace them with CFL lamps and electronic ballasts.

Spartanburg County School District 4
118 McEdco Road
Woodruff, SC 29388

Project Title: Woodruff High School Chiller

Funding Amount: \$93,993
Project Cost: \$188,150
Annual Savings: \$16,560
Lifetime Savings: \$413,999
Equipment Lifetime: 25 years
Projected Payback Period: 5.7 years

Project Overview: The District replaced the twenty-year-old chiller at Woodruff High School.

Spartanburg County School District 6
1390 Cavalier Way
Roebuck, SC 29376

Project Title: Lighting Retrofits at Jesse Bobo Elementary and Dawkins Middle Schools

Funding Amount: \$258,726
Project Cost: \$722,895
Annual Savings: \$42,067
Lifetime Savings: \$829,767
Equipment Lifetime: 20 years
Projected Payback Period: 6.2 years

Project Overview: The District made lighting retrofits at Jesse Bobo Elementary School and Dawkins Middle School.

Spartanburg County School District 7
610 Dupre Drive
Spartanburg, SC 29307

Project Title: HVAC and Lighting Upgrades

Funding Amount: \$258,649
Project Cost: \$298,871
Annual Savings: \$32,471
Lifetime Savings: \$649,423
Equipment Lifetime: 20 years
Projected Payback Period: 8 years

Project Overview: The District made HVAC upgrades in three buildings and upgraded their lighting from metal halide fixtures to CFL bulbs.



SPARTANBURG SCHOOL DISTRICT 7 RE-COMMITS TO ENERGY EDUCATION

Spartanburg School District 7 used ARRA funds to upgrade heating and air units in three facilities. Funds were also used to replace incandescent light fixtures with fluorescent fixtures in eleven gymnasiums.

HVAC upgrades in the elementary schools were met with positive feedback. The quietness and comfort level of the new heating units were welcome changes in classrooms that were used to noise from the original units.

In addition to the new comfort level, the utilities had an educational benefit. The lighting upgrades provide a springboard for environmental discussions among students and teachers, according to Assistant Superintendent Thomas White.

“I think it helped renew our commitment to our own energy education program that we’ve had in the District for at least the last five years,” White said about the stimulus project.

“We’ve had a lot of compliments from students and teachers,” White said.

The District is exploring further opportunities for energy upgrades despite the lack of further grant funding.

Sumter Districts 2 & 17

Sumter County School District 2
1345 Wilson Hall
Sumter, SC 29150

Project Title: Sumter School District 2 Stimulus Application

Funding Amount: \$241,757
Project Cost: \$241,757
Annual Savings: \$48,826
Lifetime Savings: \$976,527
Equipment Lifetime: 20 years
Projected Payback Period: 5 years

Project Overview: The District upgraded lighting fixtures at three schools. The project also involved connecting eight facilities to the District wide Ethernet system for HVAC controls.

Sumter County School District 17
1109 N. Pike West Road
Sumter, SC 29151

Project Title: Energy management system for HVAC

Funding Amount: \$273,237
Project Cost: \$312,170
Annual Savings: \$100,285
Lifetime Savings: \$2,005,691
Equipment Lifetime: 20 years
Projected Payback Period: 2.7 years

Project Overview: The District installed direct digital controls in Bates Middle School. The District wide Ethernet system was re-networked to include ten more schools in the District. The temperature control system was re-commissioned in five schools.



**SUMTER SCHOOL DISTRICT 17
NEW UTILITIES EARN REBATES**

Sumter School District 17 (previously Sumter School District Two) earned almost \$100,000 through Progress Energy’s rebate program.

“When we initially did the [stimulus] application we didn’t know about the rebates”, said Energy Conservation Consultant J. Blaine Walker. “... after we started we became aware and met with the power companies.”

Walker and his company partnered with Sumter School District 17 during the initial stimulus project and following rebate process.

ARRA funds provided eight District facilities with direct digital controls on HVAC units, linking them into an energy management system.

In addition, funds were used to upgrade lighting fixtures in three schools.

“Lighting ... is a no-brainer.” said Walker. “It just saves an intense amount of energy and it pays back and they [Sumter School District 17] got a rebate.”



Union

Union County School District
130 West Main Street
Union, SC 29379

Project Title: Installation of direct digital controls in Buffalo Elementary School and upgrade lighting at Buffalo Elementary School

Funding Amount: \$139,077
Project Cost: \$139,077
Annual Savings: \$17,378
Lifetime Savings: \$347,565
Equipment Lifetime: 20 years
Projected Payback Period: 8 years

Project Overview: The District installed direct digital controls on 36 HVAC units in Buffalo Elementary School. Previously, HVAC in the school was controlled by individual room thermostats. In the same school, the District upgraded 572 light fixtures from T12 to T8 lamps and ballasts.



Williamsburg

Williamsburg County School District
423 School Street
Kingstree, SC 29556

Project Title: Williamsburg County School District Efficiency Upgrades

Funding Amount: \$124,766
Project Cost: \$125,966
Annual Savings: \$26,239
Lifetime Savings: \$426,612
Equipment Lifetime: 20 years
Projected Payback Period: 4.8 years

Project Overview: The District made lighting upgrades at DP Cooper Elementary School. The project also included the replacement of over thirty HVAC units, which were over twenty years old, with new HVAC units in three buildings. These units will be linked to the District’s energy management system.

York Districts 1, 2, 3 & 4

York County School District 1
PO Box 770
York, SC 29745

Project Title: York School District 1 Energy Conservation Plan

Funding Amount: \$159,764
Project Cost: \$159,764
Annual Savings: \$89,022
Lifetime Savings: \$1,707,074
Equipment Lifetime: 20 years
Projected Payback Period: 1.8 years

Project Overview: The District installed an energy management system for computers and vending machines. The District made lighting upgrades, from T12 to T8 fixtures, and the previous exit signs were converted to LED lighting controls.

York County School District 2
604 Bethel Street
Clover, SC 29710

Project Title: Light replacement and control

Funding Amount: \$183,724
Project Cost: \$323,581
Annual Savings: \$854,189
Lifetime Savings: \$1,083,770
Equipment Lifetime: 20 years
Projected Payback Period: 3.4 years

Project Overview: The project included replacing T12 light fixtures with T8's at Clover High School in Clover District Two of Union County. Motion detectors and automatic lighting controls were added to classroom

York County School District 3
660 N. Anderson Road
Rock Hill, SC 29730

Project Title: Energy Conservation Measures for York School District 3, Rock Hill Schools

Funding Amount: \$471,000
Project Cost: \$471,000
Annual Savings: \$163,497
Lifetime Savings: \$3,248,474
Equipment Lifetime: 20 years
Projected Payback Period: 2.9 years

Project Overview: The District re-commissioned direct digital controls (DDC) on three buildings, installed DDCs in another building, and improved exterior lighting 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.



York County School District 4
120 E. Elliott Street
Fort Mill, SC 29715

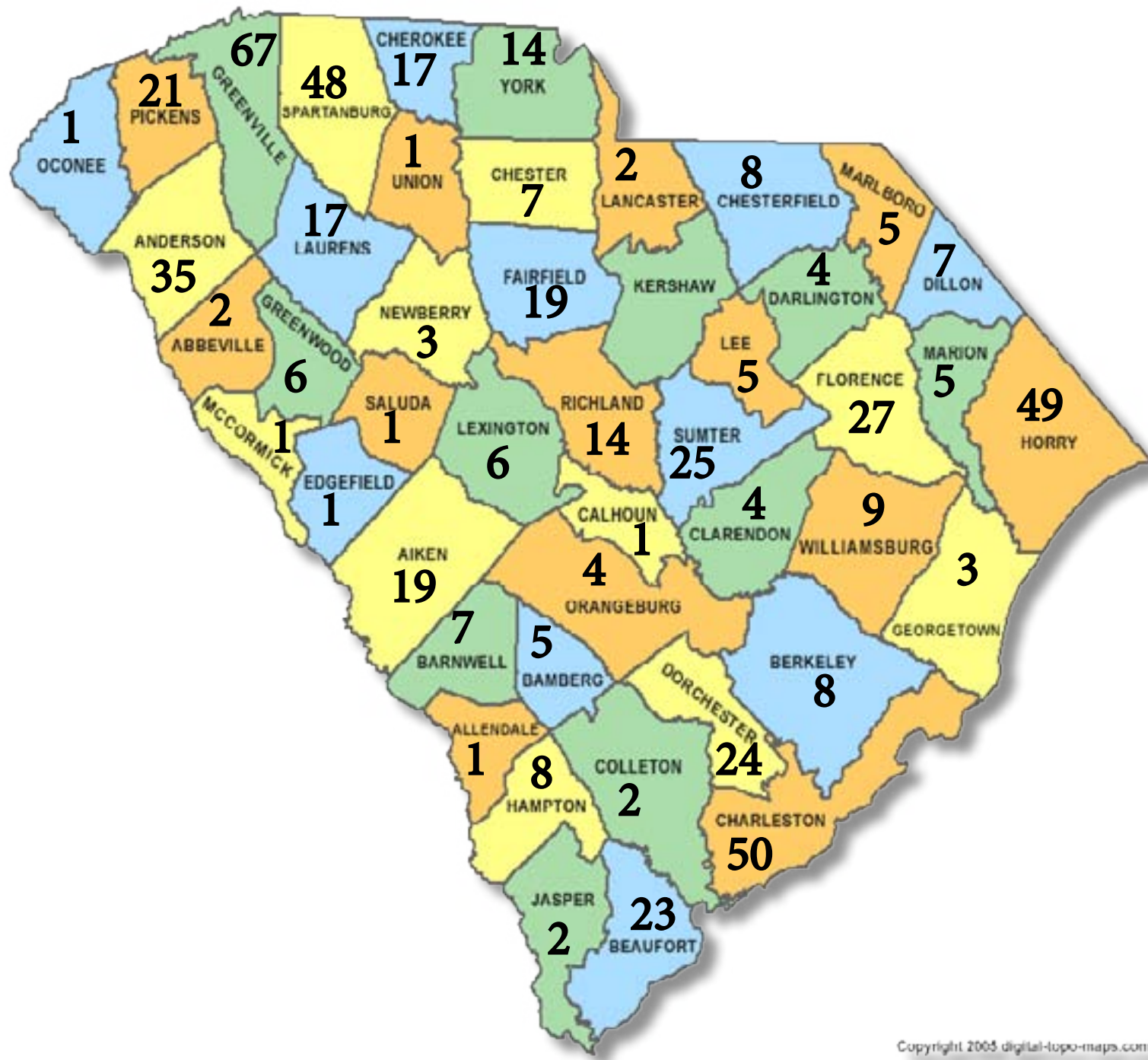
Project Title: Lighting Retrofits and Hot Water Replacement

Funding Amount: \$195,419
Project Cost: \$195,419
Annual Savings: \$131,336
Lifetime Savings: \$2,626,728
Equipment Lifetime: 20 years
Projected Payback Period: 1.5 years

Project Overview: The District replaced the hot water tank at the Fort Mill High School complex, which includes two schools and an annex. This project also included lighting retrofits within the complex and lighting replacements at Fort Mill High School's Auditorium. Additionally, an energy management system was installed to better control energy usage



Total Projects Per County



This material is based upon work supported by the Department of Energy under Award Number(s) DE-EE0003884.

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.