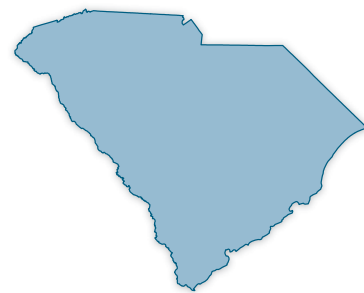




# Department of Energy Recovery Act State Memos

## South Carolina



For questions about DOE's Recovery Act activities, please contact the DOE Recovery Act Clearinghouse:  
1-888-DOE-RCVY (888-363-7289), Monday through Friday, 9 a.m. to 7 p.m. Eastern Time  
<https://recoveryclearinghouse.energy.gov/contactUs.htm>.

*All numbers and projects listed as of June 1, 2010*



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# American Recovery and Reinvestment Act



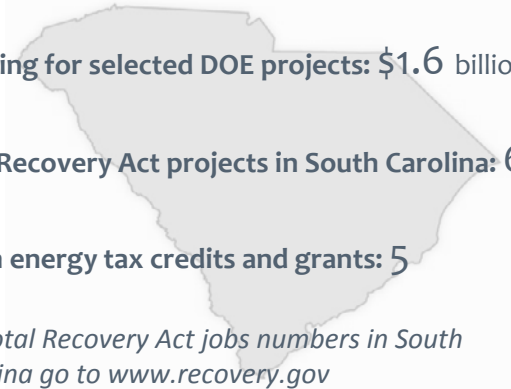
## U.S. DEPARTMENT OF ENERGY • SOUTH CAROLINA RECOVERY ACT SNAPSHOT

Funding for selected DOE projects: \$1.6 billion

DOE Recovery Act projects in South Carolina: 63

Clean energy tax credits and grants: 5

For total Recovery Act jobs numbers in South Carolina go to [www.recovery.gov](http://www.recovery.gov)



South Carolina has substantial nuclear and hydroelectric resources. The **American Recovery & Reinvestment Act (ARRA)** is making a meaningful down payment on the nation's energy and environmental future. The Recovery Act investments in South Carolina reflect a broad range of clean energy projects, from energy efficiency and the smart grid to wind and solar, as well as nearly \$1.6 billion to accelerate the environmental cleanup efforts at the Savannah River Site. Through these investments, South Carolina's businesses, Clemson University, non-profits, and local governments are creating quality jobs today and positioning South Carolina to play an important role in the new energy economy of the future.

### EXAMPLES OF SOUTH CAROLINA FORMULA GRANTS

| Program             | State Energy Program   | Weatherization Assistance Program   | Energy Efficiency Conservation Block Grants  | Energy Efficiency Appliance Rebate Program  |
|---------------------|--|---|--|---|
| Award (in millions) | <b>\$50.6</b>  | <b>\$58.9</b>   | <b>\$31.6</b>  | <b>\$4.3</b>  |
|                     | The South Carolina Office of the State Treasurer has received \$50.6 million to invest in state-level energy efficiency and renewable energy priorities. | The South Carolina Governor's Office has received \$58.9 million to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions and saving money for South Carolina's low-income families. Over the course of the Recovery Act, South Carolina expects to weatherize approximately 6,500 homes. | Twenty-two communities in South Carolina received a total of \$31.6 million to develop, promote, implement, and manage local energy efficiency programs. | The Office of the State Treasurer has received \$4.3 million to offer consumer rebates for purchasing certain ENERGY STAR® appliances, which reduce energy use and save money for families, while helping the environment and supporting the local economy. |

### EXAMPLES OF SOUTH CAROLINA COMPETITIVE GRANTS AND TAX CREDITS

|       |  |  |   |  |
|-------|--|--|---|--|
| Award | <b>\$1.4 billion</b>   | <b>\$43.2 million</b>  | <b>\$26.9 million</b>   | <b>\$15.1 million</b>  |
|       | <b>The Savannah River Site</b> received nearly <b>\$1.4 billion</b> to create jobs and accelerate the site's legacy waste cleanup efforts. | <b>Clemson University</b> was awarded <b>\$44.6 million</b> for a wind energy test facility in North Charleston. | <b>General Electric Gas Turbines, LLC</b> , based in Greenville, was awarded a <b>clean energy manufacturing tax credit</b> for <b>\$26.9 million</b> to manufacture heavy-duty gas turbines that will deliver greater output and efficiency. | <b>KEMET Corporation</b> in Simpsonville was awarded <b>\$15.1 million</b> to produce DC bus capacitors necessary for electric drive system power electronics. |

## Funding Allocation Table (Figure 1)

Total dollar amounts in this document are accurate as of June 1, 2010. Please note that Recovery Act Programs are ongoing and the dollar amounts are subject to change. Recipient locations are based on project sites rather than recipients' headquarters locations.

| Recovery Act Pillar   | Flagship Program Names & Funding Type <sup>1</sup>                            | Number of Selections | Selected Amount (in millions) <sup>2</sup> |
|---|---|----------------------|--|
| Energy Efficiency   | <i>Weatherization Assistance Program (F)</i>                                  | 1                    | \$58.9                                     |
|   | <i>State Energy Program (F)</i>   | 1                    | \$50.6                                     |
|   | <i>Energy Efficiency and Conservation Block Grant (F)</i>                     | 22                   | \$31.6                                     |
|   | <i>Energy Efficient Appliance Rebate (F)</i>                                  | 1                    | \$4.3                                      |
|   | <i>Industrial Efficiency (CM)</i>   | 1                    | \$0.3                                      |
|   | <i>Additional Programs (CM &amp; C)</i>                                       | 1                    | \$2.5                                      |
|   | <b>TOTAL Energy Efficiency</b>  | <b>27</b>            | <b>\$148.2</b>                             |
| Renewable Energy  | <i>Solar(CM)</i>  | 2                    | \$1.0                                      |
|   | <i>Wind (CM)</i>  | 2                    | \$44.6                                     |
|   | <b>TOTAL Renewable Energy</b>   | <b>4</b>             | <b>\$45.6</b>                              |
| Electric Grid   | <i>State and Local Energy Assurance and Regulatory Assistance (F)</i>         | 2                    | \$1.5                                      |
|   | <i>Smart Grid Workforce Training (CM)</i>                                     | 1                    | \$0.7                                      |
|   | <b>TOTAL Electric Grid</b>  | <b>3</b>             | <b>\$2.2</b>                               |
| Transportation  | <i>Advanced Battery Manufacturing (CM)</i>                                    | 2                    | \$50.1                                     |
|   | <i>Advanced Fuels (CM)</i>  | 1                    | \$0.6                                      |
|   | <b>TOTAL Transportation</b>   | <b>3</b>             | <b>\$50.7</b>                              |
| Carbon Capture and Storage  | <i>Geologic Characterization Projects (CM)</i>                                | 1                    | \$5.0                                      |
|   | <b>TOTAL Carbon Capture and Storage</b>                                       | <b>1</b>             | <b>\$5.0</b>                               |
| Environmental Cleanup   | <i>Environmental Management Contracts (C)</i>                                 | 23                   | \$1,362.5                                  |
|   | <b>TOTAL Environmental Cleanup</b>  | <b>23</b>            | <b>\$1,362.5</b>                           |
| Science and Innovation  | <i>Energy Frontier Research Centers (CM)</i>                                  | 1                    | \$1.1                                      |
|   | <i>Small Business Research (SBIR/STTR ) (CM)</i>                              | 1                    | \$0.1                                      |
|   | <b>TOTAL Science and Innovation</b>   | <b>2</b>             | <b>\$1.2</b>                               |
| <b>TOTAL - DOE Programs<sup>3</sup></b>   |   | <b>63</b>            | <b>\$1,615.4</b>                           |
| Tax Credits/<br>Payments <sup>4</sup>   | <i>Payments for Renewable Energy Generation in Lieu of Tax Credits (1603)</i> | 1                    | \$0.1                                      |
|   | <i>Clean Energy Manufacturing Tax Credits (48C)</i>                           | 4                    | \$38.7                                     |
|   | <b>TOTAL Tax Incentives</b>   | <b>5</b>             | <b>\$38.8</b>                              |
| <b>TOTAL - DOE/Treasury + DOE</b>   |   | <b>68</b>            | <b>\$1,654.2</b>                           |
| <sup>1</sup> F=Formula Grant, CM=Competitive Grant, C=Contract  |   |                      |  |
| <sup>2</sup> "Selected" indicates DOE has selected a potential funding recipient, which begins the process of negotiating an agreement. This does not necessarily indicate that a final agreement has been reached. |   |                      |  |
| <sup>3</sup> Total does not include administrative funds.   |   |                      |  |
| <sup>4</sup> Jointly administered by DOE and the U.S. Department of Treasury.   |   |                      |  |

## **ENERGY EFFICIENCY – 27 projects totaling \$148.2 million**

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*Helping millions of American families cut utility bills by making homes and appliances more energy efficient, expanding the home efficiency industry in sales and manufacturing. For more information, visit <http://www.energy.gov/recovery/energyefficiency.htm>.*

### **Award(s): \$58.9 million, Weatherization Assistance Program (WAP)**

#### **Location: Statewide**

The South Carolina Governor's Office received \$58.9 million to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions and saving money for South Carolina's low-income families. Over the course of the Recovery Act, South Carolina expects to weatherize approximately 6,500 homes. The Weatherization Assistance Program (WAP) enables low-income families to permanently reduce their energy bills by making their homes more energy efficient. Funds improve the energy performance of houses using the most advanced technologies and testing protocols available in the housing industry.

### **Award(s): \$50.6 million, State Energy Program (SEP)**

#### **Location: Statewide**

The South Carolina Office of the State Treasurer received \$50.6 million to invest in state-level energy efficiency and renewable energy priorities. The State Energy Program (SEP) funding for South Carolina is providing grants and loans to improve energy efficiency in public school districts, public colleges and universities, and state agencies. This funding will reduce the burden of energy bills for taxpayers, while creating jobs and reducing greenhouse gas emissions. South Carolina also intends to provide financial assistance to various industrial, commercial and small business entities in support of energy efficiency and renewable energy projects. This financial assistance, along with education and training programs included in the SEP, is creating clean energy jobs in the state, while making business and industry more economically stable.

### **Award(s): 22 totaling \$31.6 million, Energy Efficiency and Conservation Block Grant Program (EECBG)**

#### **Location: Statewide**

**Recipients:** Aiken County, Anderson County, Beaufort County, Catawba Indian Nation (aka Catawba Tribe of South Carolina), Charleston, Columbia, Florence County, Goose Creek, Greenville, Greenville County, Horry County, Lexington County, Town of Mount Pleasant, North Charleston, Richland County, Rock Hill, South Carolina State Energy Office, Spartanburg, Spartanburg County, Town of Summerville, Sumter, York County

Twenty-two communities in South Carolina received a total of \$31.6 million to develop, promote, implement and manage local energy efficiency programs.

This project assists states, U.S. territories, Indian tribes, counties and cities to develop, promote, implement and manage localized energy efficiency programs through individual program grants. The project funds programs which reduce fossil fuel emissions in a manner that is environmentally sustainable, maximizes cost savings, reduces the total energy use of eligible entities and improves energy efficiency in the transportation, building and other appropriate sectors. Examples of EECBGs include:

- **Lexington County - \$2.3 million**

Lexington County is using this funding for building improvements that will reduce energy bills. The Lexington historic courthouse received \$940,000 in improvements, including new water and air systems, new windows and new lighting. Similar improvements are being made at eight other office buildings, with new lighting at nineteen of the county's 24 fire stations. The county also accounted for \$20,500 to continue a successful lawn mower exchange program with Richland County. That annual program, first held in April 2007, allows citizens to replace gas-powered mowers with electric ones.

- **Columbia - \$1.4 million**

With this grant, Columbia is investing in lighting upgrades for six buildings, including park buildings, office buildings, City Hall, and police and fire stations.

**Award(s): \$4.3 million, Energy Efficient Appliance Rebate Programs**

**Location: Statewide**

The Office of the State Treasurer received \$4.3 million to offer consumer rebates for purchasing certain ENERGY STAR® appliances, which reduce energy use and save money for families, while supporting the local economy. This funding assists state-level rebate programs by paying up to 50 percent of the administrative costs of establishing and executing these types of programs. Though states and territories determine the appliances which apply, these typically include clothes washers, dishwashers, refrigerators, freezers, room air conditioners and water heaters.

**Award(s): \$300,000, Advanced Materials RD&D in Support of EERE Needs to Advance Clean Energy Technologies and Energy-Intensive Process R&D**

**Location: Aiken**

Savannah River Nuclear Solutions, LLC, in Aiken received \$300,000 for Advanced Materials RD&D in Support of EERE Needs to Advance Clean Energy Technologies and Energy-Intensive Process R&D. This funding supports research and development on anti-reflection coatings for high efficient crystalline silicon solar cells.

**Award(s): \$2.5 million, Ground Source Heat Pumps**

**Location: Greenville**

Furman University in Greenville received \$2.5 million for Ground Source Heat Pumps. Pumps are being installed in eleven student housing buildings on campus, covering 1,020 students in 255 apartments. Furman also plans to use this grant as a teaching tool, catalyst and model for its students and other universities. The Shi Center for Sustainability will conduct data gathering and analysis of the project's effectiveness in reducing greenhouse gases, thus transforming almost 40 percent of campus student housing into a living laboratory on the effectiveness of this renewable energy technology.



## **RENEWABLE ENERGY – 9 projects totaling \$84.4 million**

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*Developing the clean renewable resources in order to double our supply of renewable energy and boost domestic renewable manufacturing capacity. For more information, visit <http://www.energy.gov/recovery/renewableenergy.htm>.*

**Award(s): \$149,000 from DOE / Treasury, 1603 Payment for Renewable Energy Generation**

**Location: Columbia**

\* For current number of 1603 awards, see the weekly update at <http://www.treas.gov/recovery/1603.shtml>

LOGANEnergy Corporation in Columbia received \$149,000 for a fuel cell project.

**Award(s): 4 totaling \$38.7 million from DOE / Treasury, Clean Energy Manufacturing Tax Credits (48C)**

**Location: Statewide**

- **General Electric Gas Turbines, LLC, Greenville - \$26.9 million**  
General Electric Gas Turbines, LLC, in Greenville received \$26.9 million to manufacture heavy-duty gas turbines that will deliver greater output and efficiency.
- **Itron, West Union - \$5.2 million**  
Itron in West Union received \$5.2 million to re-equip an existing facility to produce the OpenWay CENTRON meter, a fully inter-operable, solid-state smart meter with a built-in, two-way communications path and integrated remote on / off switch. The CENTRON meter is the first advanced meter for the residential market. It provides open-standards architecture, modular design for communications, flexibility and extensive functionality to support Smart Grid infrastructure.
- **Metglas, Inc., Conway - \$4.9 million**  
Metglas, Inc., in Conway received \$4.9 million to purchase equipment for a casting expansion that will increase domestic production of amorphous metals. These metals comprise the core of the most energy efficient transformers. The equipment will reduce the amount of electricity lost in transformer distribution.
- **Kaydon, Sumter - \$1.8 million**  
Kaydon in Sumter received \$1.8 million to re-equip and expand an existing manufacturing facility to produce critical pitch and yaw bearings used in the production and assembly of wind energy turbines.

**Award(s): \$16,000, Concentrating Solar Power**

**Location: Aiken**

Savannah River Nuclear Solutions, LLC, in Aiken received \$16,000 to characterize and investigate ionic liquid nanofluids for corrosion and erosion behavior when in contact with common stainless steels at high temperatures.

**Award(s): \$1 million, PV Systems Development**

**Location: Aiken**

Savannah River Nuclear Solutions, LLC, in Aiken, received \$1 million for PV Systems Development. Development includes a project that enhances the heat transfer and solar thermal energy collection of CSP systems by dispersing small volume percentages of nanoparticles into the ionic liquid carriers. If successful, this could result in a 10-40 percent improvement in thermal conductivity.

**Award(s): 2 totaling \$44.6 million, Wind Turbine Drivetrain Testing Facility**

**Location: North Charleston, Aiken**

- **Clemson University, North Charleston - \$43.2 million**  
Clemson University in North Charleston received \$43.2 million for a wind energy test facility in North Charleston. The Large Wind Turbine Drivetrain Testing facility enables the U.S., which leads the world in wind energy capacity, to expand development and testing of large-scale wind turbine drive-train systems. Wind turbine sizes have increased with each generation of turbines and have outgrown the capacity of existing U.S. drivetrain testing facilities. The new testing capability will ultimately improve U.S. competitiveness in wind energy technology, lower energy costs for consumers and maintain rapid growth in the deployment of wind energy systems. The new facility is to be located at the Charleston Naval Complex, a former Navy base in North Charleston and will be a part of the Clemson University Restoration Institute campus.
- **Savannah River Nuclear Solutions, LLC, Aiken - \$1.4 million**  
Savannah River Nuclear Solutions, LLC, in Aiken received \$1.4 million to provide direct technical assistance in the design, specification, integration, configuration and deployment of a high fidelity, custom Data Acquisition System (DAS) for the Large Wind Turbine Drive Train Testing Facility.

**MODERNIZING THE ELECTRIC GRID – 3 projects totaling \$2.2 million**

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*Harnessing clean energy sources and integrating them onto a modernized electric grid, while giving consumers better choices and more control over their energy use. For more information, visit <http://www.energy.gov/recovery/smartgrid.htm>.*

**Award(s): \$611,000, Enhancing State and Local Governments' Energy Assurance**

**Location: Columbia**

The South Carolina Office of the State Treasurer in Columbia received \$611,000 to focus on building regional energy assurance capabilities by enhancing inter- and intra-state coordination and cooperation during energy emergencies. This project funds states to update and develop State Energy Assurance Plans that incorporate new energy portfolios such as wind, renewables, and biofuels. This program also funds cities updating and developing Energy Assurance Plans within local areas. The two sets of funding are being used to hire or retrain staff, building in-house expertise in the areas of Smart Grids, critical energy infrastructure interdependencies and cyber-security.

**Award(s): \$744,000, Smart Grid Workforce Training**

**Location: Clemson**

Clemson University's Electric Power Research Association in Clemson received \$744,000 for Smart Grid Workforce Training. This project involves a Power Industry Essentials Certificate Program which is designed to train the power engineering sector on the fundamentals of power systems and the

advanced applications on power systems operation, control and protection. The project is developing three certificate programs, Power Systems Engineering, Renewable Energy and Advanced Power Systems, as well as a Masters of Engineering Program.

**Award(s): \$864,000, State Assistance on Electricity Policies**

**Location: Columbia**

State of South Carolina Comptroller General in Columbia received \$864,000 for State Assistance on Electricity Policies. This project funds states and their Public Utility Commissions (PUCs) to hire staff trained to facilitate the review of time-sensitive requests approving electric utility expenditures undertaken as part of the Recovery Act.

## **TRANSPORTATION – 3 projects totaling \$50.7 million**

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*Investing in a new generation of advanced fuels and vehicles to reduce our dependence on foreign oil and revitalize domestic manufacturing. For more information, visit <http://www.energy.gov/recovery/vehicles.htm>.*

**Award(s): 2 totaling \$50.1 million, Advanced Battery Manufacturing**

**Location: Schaumburg, Simpsonville**

These projects will accelerate the development of U.S. manufacturing capacity for batteries and electric drive components as well as the deployment of electric drive vehicles, helping to establish American leadership in creating the next generation of advanced vehicles. The initiative marks the single largest investment in advanced battery technology for hybrid and electric-drive vehicles ever made.

- **Toda America, Inc., Schaumburg - \$35 million**  
Toda America, Inc., in Schaumburg received \$35 million for Advanced Battery Manufacturing. This project involves production of nickel-cobalt-metal cathode material for lithium-ion batteries.
- **KEMET Corporation, Simpsonville - \$15.1 million**  
KEMET Corporation in Simpsonville received \$15.1 million to produce DC bus capacitors including soft wound film and stacked film capacitors, both necessary for electric drive system power electronics.

**Award(s): \$640,000, Fundamental Research in Key Program Areas**

**Location: Aiken**

The Agricultural Research Service received \$640,000 for Fundamental Research in Key Program areas. This project is supplementing existing funding for research in biofuels, including establishment and / or enhancement of research centers and working groups. This funding is allocated to the Forest Service for the sustainability of short rotation woody biomass.

## **CARBON CAPTURE AND STORAGE – 1 project totaling \$5 million**

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*Developing clean coal technologies so we can to utilize America's coal resources sustainably. For more information, visit <http://www.energy.gov/recovery/ccs.htm>.*

**Award(s): \$5 million, Geologic Sequestration Site Characterization**

**Location: Columbia**

The South Carolina Research Foundation (SCRF) in Columbia received \$5 million for a Carbon Capture and Storage project, titled Geologic Characterization of the South Georgia Rift Basin for Source Proximal Carbon Dioxide Storage. SCRF is evaluating the feasibility of carbon dioxide storage in the Jurassic / Triassic saline formations of the buried South Georgia Rift. Scientific, technical and economic benefits are expected to come from this project. The South Georgia Rift saline formations were identified as a prospective area for carbon dioxide storage with several storage characteristic unknowns that are being targeted by this project.

## **ENVIRONMENTAL CLEANUP – 23 projects totaling \$1.4 billion**

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*Creating jobs and reducing the legacy cold war footprint of the Department of Energy, and clean up the polluted land and water resources in communities. For more information, visit <http://www.energy.gov/recovery/cleanup.htm>.*

The Savannah River Site received nearly \$1.4 billion to create jobs and accelerate the site's legacy waste cleanup efforts.

**Award(s): 4 totaling \$21 million, Savannah River Site Deactivation and Demolition, M & D Areas**

**Location: Aiken**

This deactivation and demolition (D&D) project at the Savannah River Site (SRS) includes the complete closure of D Area, former site of Heavy Water Production Facilities, the deactivation and decommissioning of D-Area Powerhouse and 30 support facilities, the complete remediation of eleven waste units, the complete closure of M Area, former reactor fuel manufacturing area, and the remediation of nineteen waste units.

- **Savannah River Nuclear Solutions, LLC, Aiken - \$21 million**
- **Concord Personnel Services, Inc., Aiken (2) - \$106,000**
- **J G Masters, Inc. - \$18,000**

**Award(s): 4 totaling \$379.3 million, Savannah River Site Deactivation and Demolition, P & R Areas**

**Location: Aiken**

By the end of fiscal year 2011, this project will reduce the Savannah River Site (SRS) operational footprint by 25 percent (approximately 78 square miles) through deactivation and demolition (D&D) of Areas P and R. This ARRA funding will accelerate work scheduled in the SRS existing baseline.

- **Savannah River Nuclear Solutions, LLC, Aiken - \$379 million**
- **MAS Consultants, Inc., Aiken - \$148,000**
- **Concord Personnel Services, Inc., Aiken - \$106,000**

**Award(s): 6 totaling \$288.2 million, Savannah River Site Deactivation and Demolition, Soil & Groundwater Activities Site-Wide**

**Location: Aiken**

This project at the Savannah River Site (SRS) is slated to remove 3,000,000 gallons of contaminated water from the C Reactor disassembly basin building, remove more than 90 percent of the plutonium-238 source term from 235-F, complete characterization of four A-Area waste units (approximately 18 acres), complete remediation of waste units and decommission facilities, approximately 1,220,720 square feet.

- Savannah River Nuclear Solutions, LLC, Aiken - \$226.6 million
- Advanced Technologies and Laboratories International, Aiken - \$183,000
- MAS Consultants Inc, Aiken - \$191,000
- Consolidated Safety Services, Inc., Aiken - \$90,000
- Concord Personnel Services, Inc., Aiken - \$106,000

**Award(s): 8 totaling \$536.3 million, Savannah River Site Transuranic & Solid Waste**

**Location: Aiken**

By the end of fiscal year 2011, this project at the Savannah River Site (SRS) will reduce the solid waste footprint by 75 percent, including characterization and / or off-site disposal of the legacy transuranic (TRU) waste, and reconfiguration, relocation and replacement of impacted systems that are required to support remaining site operations. This ARRA Project accelerates work, particularly the removal of the depleted uranium oxide drums from the F Area storage facilities.

- Savannah River Nuclear Solutions, LLC, Aiken - \$532 million
- Cavanagh Services Group, Inc., Aiken - \$3.3 million
- PAI Corporation, Aiken - \$314,000
- MAS Consultants, Inc., Aiken (2) - \$436,000
- McNeal Professional Services, Inc., Aiken - \$126,000
- Concord Personnel Services, Inc., Aiken (2) - \$106,000

**Award(s): \$198.7 million, Liquid Waste Tank Infrastructure**

**Location: Aiken**

Savannah River Remediation, LLC, in Aiken received \$198.7 million for a Liquid Waste Tank Infrastructure project to support base operations, waste tank closure and radioactive sludge and salt disposition. This work includes activities that accelerate the refurbishment of existing liquid waste infrastructure and provides new infrastructure to increase reliability for transfer and treatment of radioactive liquid waste. The ARRA projects will upgrade and extend the life of operating facilities, improve systems for processing waste at Saltstone and the Defense Waste Processing Facility (DWPF), providing support for the future operations of SWPF and supporting tank closure activities and bulk waste removal.

## **SCIENCE AND INNOVATION – 2 projects totaling \$1.2 million**

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*Renewing our commitment to science and innovation to ensure global competitiveness in the future. For more information, visit <http://www.energy.gov/recovery/innovation.htm>.*

**Award(s): \$1.1 million, Energy Frontier Research Centers**

**Location: Aiken**

Savannah River Nuclear Solutions, LLC, in Aiken received \$1.1 million to build a scientific basis for bridging the gap between making nano-structured materials and understanding how they function in a variety of energy applications.

**Award(s): \$149,000, Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Round 1**

**Location: Charleston**

Techfish, LLC, in Charleston received \$149,000 from the Small Business Innovation Research (SBIR) / (Small Business Technology Transfer) STTR program to develop a new process to increase production rates of papermaking operations, helping power companies to achieve renewable energy goals, both for low-capital and operating expense. These new facilities which are located throughout the country will increase jobs nationwide. This technology also applies to enzymatic biomass-to-ethanol plants under development.

ENERGYEMPOWERS.GOV

# Recovery Act Success Stories

Energy Empowers is a U.S. Department of Energy clean energy information service. Our team produces stories featuring the people and businesses that are fueling the energy transformation and economic recovery in America. For more stories from your state, go to [energyempowers.gov/SouthCarolina](http://energyempowers.gov/SouthCarolina)

CONWAY

## South Carolina company expands transformer production for U.S. market

Since the 1980s, Metglas, Inc. has manufactured an amorphous metal alloy with unique mechanical and magnetic properties. The alloy is primarily used to construct the cores of highly efficient electrical transformers called Amorphous Metal Transformers (AMTs), which are used on power grids to manage the distribution of electricity from power plants to residential, commercial and industrial buildings.

“Electricity is transmitted across power lines at very high voltage, and transformers are needed to reduce that voltage to a usable level,” says Dave Millure, Metglas’ Senior VP of Sales and Marketing. “Amorphous Metal



Giant spools at Metglas’ facility in Conway, S.C., hold the thin metal alloy used in the cores of Amorphous Metal Transformers. | Photo courtesy of Metglas

Transformers can be more energy efficient than traditional silicon steel transformers, which means that power plants don’t have to generate as much electricity to begin with.”

As part of the American Recovery and Reinvestment Act of 2009, Metglas received \$4,890,000 in Advance manufacturing (48C) tax credits. The money helped the company add an additional casting line at its manufacturing facility in Conway, S.C., that has increased the facility’s production capacity by 50 percent and provided 25 additional factory jobs.

The expansion began in August 2009; Metglas has added 10 additional employees to man the new line. According to Dave Millure, Metglas’ Senior VP of Sales and Marketing, the company plans to add 15 more full time employees within the next year. Those jobs are a boon to South Carolina, which, according to the U.S. Bureau of Labor and Statistics, had the nation’s seventh highest unemployment rate in May 2010. Horry County, where Metglas’ facility is located, had an unemployment rate of 10.7 percent in May 2010, according to the South Carolina Department of Employment and Workforce.

### Targeting domestic market

With the new casting line in place, Metglas’ South Carolina facility can produce enough alloy to build 150,000 AMTs a year.

Traditionally, Metglas has exported most of its alloy overseas, but Millure says the new casting line was built to service the domestic

“The community [in Charleston] doesn’t realize what you can do with energy efficiency. There is no negative. Who doesn’t want to cut their energy bill?” – Tim Fulford, environment projects manager at Trident Technical College

market, as American power companies continue to look for ways to increase energy efficiency and reduce operating costs.

Electrical transformers use the principle of magnetic induction to reduce voltage to a useable level, and the process requires transformers to constantly maintain an alternating magnetic field within their cores. The random molecular structure and thin nature of Metglas’ amorphous metal alloy allows AMTs to maintain a magnetic field without losing as much energy through friction and other means as traditional silicon steel transformers. This reduces the total amount of energy needed to maintain the alternating magnetic field in AMTs by 60-70 percent, making them much more energy efficient than traditional transformers.

To manufacture the alloy, Metglas uses a proprietary process in which the alloy’s components are melted together. The liquid is then subjected to a rapid cooling process, which prevents the atoms from crystallizing naturally and leaves them in an amorphous state. The process produces little material waste. “Any metal that ends up on the floor gets put back into the melter, giving us close to a 100 percent yield from a material use standpoint,” says Millure.

In 2007, the U.S. Energy Information Administration estimated that 6.5 percent of all energy produced in the U.S. was lost during transmission and distribution. Using AMTs to increase grid efficiency can help significantly reduce the amount of energy lost in transmission.

CHARLESTON

## Technicians receive training for South Carolina’s muggy weather

Trident Technical College in Charleston, SC., has added another sustainability component to its curriculum: weatherization.

A program already filled with renewable energy courses, TTC Green, now offers training and certification for technicians. This training, available for anyone from novices to the experienced, teaches how to weatherize the diverse array of homes in the muggy Charleston area to be more energy efficient.

Two of the school’s continuing education courses, both under three weeks in length, offer certification to individuals with weatherization backgrounds, giving them additional credentials and skills in the industry. TTC Green also provides a seven-week course for individuals wishing to enter the industry.

### Training for the area

The South Carolina environment provides extra weatherization challenges with staggering heat and moisture accumulation.

“We’re in a bad zone,” says Tim Fulford, TTC environment projects manager, regarding the problematic climate.

Typical air leaks in homes arise from holes and crevices, says

Fulford, and these are the first items that are weatherized.

TTC specifically trains with mobile homes because of how prone the properties are to poor insulation and structural damage. Holes are frequently found in the walls of mobile homes which lead to energy loss. To combat these damages, students are trained with the college's mobile home on how to insulate in structure's challenging thin walls and prevent further deterioration and energy loss.

The town also has lots of old homes, says Russell Darnall, director of TTC Green. So the college developed tools and processes to maintain the historical district values, as well as make them more energy efficient.

Additionally, the program provides training on weatherizing manufactured homes, a type of property prevalent in the Charleston area.

"People don't realize the energy consumption of mobile homes," says Fulford.

Poor insulation in the mobile homes, on top of the climate challenges, can make the situation worse for these residents.

The school recently purchased a mobile home to provide hands-on training opportunities for students to learn how to deal with these challenges.

On average, weatherization reduces residents' monthly energy bills by 30 percent, according to the Department of Energy's Weatherization Assistance Program.

"The community [in Charleston] doesn't realize what you can do with energy efficiency," says Fulford. "There is no negative. Who doesn't want to cut their energy bill?"

#### Infusing sustainability

The college has sought to instill sustainability in every aspect of its education. TTC Green was created roughly a year ago partly as a result of feedback provided to college president Mary Thornley from honors society and other students at the college.

"Through Dr. Thornley's efforts, the TTC Green Initiative was established as a means of expanding and showcasing TTC's sustainability efforts and energy efficiency" says Bill Landry, chair of Trident's TTC Green Steering Committee.

Thornley began this new initiative by signing the American College and University Presidents' Climate Commitment (ACUPCC), a high-visibility national effort to recognize a need to achieve climate neutrality through education, training and research.

One aspect of TTC Green is the college's solar installer certification training. With this program, funded by the State Energy Office, TTC is able to provide credentials and solar installation work for the newly certified technicians.

"This is not going to be a flavor of the day," says Darnall. "We as a college have a commitment to our students, community, and our future to create a sustainable campus and create a sustainable community."

### Rebates bring cool air, business to South Carolina

In the weeks leading up to the opening day of South Carolina's Appliance Rebate Program, Frank Medley, the general manager of Air Waves Heating and Air in Columbia, knew the store would have more traffic. What he didn't know was just how much — the store ended up selling three weeks' worth of units in just two days.

"It was unreal how busy we were," Medley says. "Most people will usually call us in the spring when their unit isn't working. I

would tell them about the rebate coming up, and for a lot of people, this was the extra push they needed to make the decision."

South Carolina's Appliance Rebate Program offered \$3.9 million in rebates—ranging from \$50 to \$500 depending on the unit—to residents purchasing energy efficient air conditioners, refrigerators, washing machines, dishwashers, heat pumps, furnaces and water heaters.

More than 900 vendors distributed 31,000 rebates on ENERGY STAR appliances to 27,000 South Carolina households. Under the program, which ran from late March to mid-May, approximately 215 retail locations sold refrigerators, washing machines and dishwashers and 710 contractors sold air conditioners, heat pumps, furnaces and water heaters.

Due to incredibly high demand, the program ran out of rebates for items typically installed by contractors like Air Waves Heating and Air in less than 48 hours. In comparison to 2009 sales data, there was a 30 percent increase in the sale of ENERGY STAR appliances in South Carolina during the program.

"It was hectic, but it really increased our business," Medley says. "People really wanted to take advantage of this rebate. I was mid-order on one when the funding ran out—I wish they'd had more money to give out. It was really great for the store."

Not only did the contracting rebates boost Medley's business, he was also able to take advantage of the retail rebates by purchasing a new ENERGYSTAR washing machine. Retail rebates were available until the program ran out of funding in mid-May.

"We saved \$100 on a new washer," says Medley. "If they ran another program like this in the future, I would absolutely participate."

#### COLUMBIA

### Brightening South Carolina's state capitol

Two years ago, the city of Columbia drafted a proposal to revamp lighting in some of the city's most used and important buildings, including fire stations, city hall, and gymnasiums. But, because of a tight budget, the lighting plan — and savings — were put on hold.

That changed with the American Recovery and Reinvestment Act, when Columbia was awarded a \$1.4 million Energy Efficiency and Conservation Block Grant, — enough to complete the energy efficiency lighting upgrades in 46 buildings across the city.

"The grant was a perfect opportunity to pursue this project," says David Knoche, the general services director of Columbia. The majority of the grant will support the energy efficiency project.

Through this change, the city will save more than \$131,000 per year on energy and maintenance. In a time of tight budgets and limited spending, this amount makes a huge difference, says Mary Pat Baldauf, sustainability coordinator.

"Instead of using that money toward electricity bills, it can go to other city services," says Baldauf. "We can tell the residents of Columbia that we're saving money and really lead by example."

Lighting installation began in February and by mid July is approximately 70 percent complete. In total, more than 15,000 compact florescent lights will be installed at buildings, including fleet services building, a waste water plant and others.

The city contracted out the lighting installation to a North Carolina company for the project, but all five positions are being filled by Columbia residents.