



CASE STUDY

DEPARTMENT OF ENERGY – SAVANNAH RIVER SITE, SC

In 2009, Ameresco was awarded an ESPC task order for the design, construction and operation of three biomass-fueled cogeneration plants at the DOE Savannah River Site (SRS) to replace the existing 1950s-era coal powerhouse and oil-fired boilers. In 2014, Ameresco was awarded a modification to the contract to construct an additional biomass steam plant to provide additional reliability for mission critical steam and to reduce peak demand load from additional power generation.

TECHNOLOGY TYPE

ENERGY SAVINGS PERFORMANCE CONTRACT
RENEWABLE ENERGY
BIOMASS
COGENERATION
MICROGRID

FACILITY SIZE

300+
SQ MILES

ENERGY PROJECT SIZE

\$795
MILLION, TASK ORDER AWARD 2009

ENERGY PROJECT SIZE

154
MILLION, TASK ORDER AWARD 2014

ANNUAL ENERGY SAVINGS:

\$36,200,000



SERVICES PROVIDED



The Ameresco Biomass Cogeneration Facility was contracted under the DOE Biomass and Alternate Methane Fuel (BAMF) Energy Savings Performance Contract. The project was constructed under the largest renewable ESPC and the facility is the largest biomass cogeneration facility of its type in operation in the Federal sector.

Woody biomass and bio-derived fuels are the primary fuel source for the boilers. The woody biomass consists of various types of non-merchantable forest and logging residues.

Biomass is used to fuel two steam boilers capable of producing 240,00 lb/hr of high pressure steam, and to power a steam turbine with nameplate capacity of 20MW of electricity. The Biomass Cogeneration Facility generates onsite electricity and steam for SRS mission-critical site needs used in SRS's industrial processes and building heating systems. During the project's construction, it is estimated to have sustained and created approximately 800 jobs spanning the mechanical, construction, engineering, and supplier sectors.

CUSTOMER BENEFITS



In 2009, the U.S. Department of Energy (DOE) awarded Ameresco an Energy Savings Performance Contract (ESPC) to finance, design, construct, operate, maintain and fuel a Biomass Cogeneration Facility under a 19-year fixed price contract valued at \$795 million.

CUSTOMER BENEFITS (cont.)



Ameresco operates and maintains the 20 megawatt(MW) electric capacity biomass-fueled steam cogeneration plant and two smaller biomass-fueled plants at the DOE Savannah River Site (SRS) in Aiken, South Carolina. The facility has been operational since January 2012.

The SRS biomass facilities are long-term national assets in the areas of environmental



stewardship and innovative technology.

Ameresco constructed the 20MW Biomass Cogeneration Facility to replace a deteriorating and inefficient 1950s-era coal powerhouse and oil-fired boilers. The facility has a design capacity of 295,000 pounds per hour of steam.

Combined, the plants are designed to reduce carbon emissions annually by 100,000 tons and reduce site water consumption by approximately 1.4 billion gallons of water a year from the Savannah River. The plant combusts approximately 300,000 tons of forest residue for site process steam and the generation of 100,000 MW of on-site energy annually—generating up to half of the necessary energy and steam to power the 300-square mile SRS facility. Over 600,000 hours of construction and operational labor were invested into the 30-month construction of the plant.

Today, the plant sustains more than 30 full-time jobs on-site. Ameresco will continue to operate and maintain the \$195 million (construction value) renewable energy facility through a 20-year plant performance agreement. Under the budget-neutral ESPC, the biomass cogeneration facility is expected to generate \$944 million of energy, water, operations and maintenance savings. During the first three years of operation the biomass facility generated approximately 5.8 billion pounds of steam, over 1,400million pounds of steam exported in support site operations, and over 330,000 MW of electricity.

In 2014, DOE awarded to Ameresco a \$39 million implementation value modification to the original ESPC to increase critical steam security and to provide additional electrical generation of 3-4 MW to SRS on average across a year and extend the performance period by a year. Under the modification, Ameresco constructed a new biomass heating plant with a new fuel yard and

CUSTOMER BENEFITS (cont.)



additional plant auxiliaries. The new plant is located in the southeast corner of the existing 35-acre Ameresco site. In addition to providing Operations & Maintenance (O&M) services for the original biomass cogeneration facility, Ameresco also provides O&M services for the new equipment over the modified 20-year performance period term.

More than 20 million tons of forest residue are generated annually in the state of South Carolina. There are numerous sources of woody biomass within a 100-mile radius of the project site. The use of renewable energy fuel sources provides many positive economic and environmental benefits to the SRS, and to the entire Central Savannah River Area.

KEY BENEFITS

- Over **2 million MBtu/year** of thermal renewable energy production and a minimum generation of 77 million kWh of green power
- Annual energy reductions of approximately **500,000 MBtu/year**
- Decrease of water intake from the Savannah River by **1.4 billion gal/year**, supporting water conservation efforts in the region
- Created approximately **800 jobs** in the mechanical, construction, engineering and supplier sectors
- Reduction of **400 tons/year** of Particulate Matter emissions



- Reduction of **100,000 tons/year** of Carbon Dioxide emissions
- United State Department of Energy, Best in Class, **2012 Sustainability Award**



ABOUT THE SAVANNAH RIVER SITE, SC

The Savannah River Site is located in the southeastern coastal area of the United States in the state of South Carolina. It is bordered to the west by the Savannah River and Georgia, and is close to several major cities, including Augusta and Savannah, GA, and Columbia, Greenville and Charleston, SC. SRS is recognized as a long-term national asset in the areas of environmental stewardship, innovative technology, national security and energy independence. It acts with an inspired workforce and mature, efficient management processes, while sustaining public confidence in our people and capabilities.

Learn more at www.srs.gov.

ABOUT AMERESCO

Ameresco, Inc. (NYSE:AMRC) is one of the leading energy efficiency and renewable energy services providers. Our energy experts deliver long-term customer value, environmental stewardship, and sustainability through energy efficiency services, alternative energy, supply management, and innovative facility renewal all with practical financial solutions. Ameresco and its predecessors have constructed billions in projects throughout North America and Europe.

For more information about Ameresco and our full-range of energy efficiency and renewable energy solutions, please visit ameresco.com.