

## Contract Details

### Contract Type:

Energy Savings Performance Contract;  
Energy Efficiency; Guaranteed Energy  
Savings

### Facility Size:

68 buildings; 3 million square feet

### Energy Project Size:

\$16 million

### Energy Savings:

\$ 2,469,442 annually



## Summary

Located in Charleston, South Carolina, the Medical University of South Carolina (MUSC) is a public institution of higher learning which provides an environment for learning and discovery through education of health care professionals and biomedical scientists, research in the health sciences and provision of comprehensive health care. MUSC partnered with Ameresco to provide much needed energy improvements and efficiency. Simultaneously, this allows the university to become an environmental leader with an eye toward sustainability.



## Customer Benefits

Facing a growing enrollment, diminished state budgets and aging infrastructure, the Medical University of South Carolina (MUSC) partnered with Ameresco on a budget-neutral energy efficiency project that would be able to not only improve the learning environment, but improve both patient care and medical research facilities. MUSC is a teaching facility, medical research facility and regional health-care provider for the Charleston area. Through this Energy Savings Performance Contract (ESPC), Ameresco was able to increase the energy infrastructure capacity for the growing campus, improve reliability and control, improve air quality and significantly cut energy and operational costs. Given the sensitivity of these facilities, Ameresco installed all the measures on a “not to interfere” basis.

## Environmental Benefits

Through MUSC’s partnership with Ameresco, they have reduced their carbon footprint.

The annual green benefits from this carbon reduction equal:

- ▶ the removal of 3,223 tons of CO<sub>2</sub>
- ▶ the planting of 59 acres of trees

## Services Provided

Ameresco reviewed the major energy-consuming systems of the buildings to provide MUSC with a high-quality visual solution for the energy project. This

upgrade to the lighting system also improved the overall color rendering and consistency of the lighting. This energy efficiency measure resulted in savings exceeding 43% of current energy usage.

Ameresco replaced or retrofitted the existing water fixtures with fixtures/equipment that use water and energy more efficiently. These replacements and retrofits included domestic plumbing fixtures, a new partial recycling system for the reverse osmosis system, replacement of the venturi vacuums on the sterilizers with pumps or re-circulating systems, new temperature control devices, flow restrictors and other measures. The proposed designs resulted in decreased water consumption and energy costs.

The implementation of the mechanical upgrades and controls project provided advantages for the campus, including overall improvement in the steam system, steam consumption reduction, the replacement of malfunctioning equipment and greater reliability and safety. Additional measures included steam trap repair or replacement and the replacement of old boiler controls and sensors. Ameresco also added boiler stack economizers to various boilers. Ameresco implemented energy-saving control strategies in several buildings through the existing Johnson Controls Metasys energy management system (EMS) and expanded the system to include the newer NAE extended architecture in several of the buildings.

## About the MUSC

The Medical University of South Carolina (MUSC) is a concentrated medical campus located in the center of Charleston, South Carolina, founded in 1824. The university has the following concentrations and centers: medicine, pharmacy, nursing, graduate studies, dental medicine, professions and the MUSC Medical Center. The 76-acre campus is a unique combination of cutting-edge research and clinical care in an intimate student setting.

Learn more at [www.musc.edu](http://www.musc.edu).

## 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.

For more information about Ameresco and our full-range of energy efficiency and renewable energy solutions, please visit <http://www.ameresco.com>.



## Services Provided (cont.)

Ameresco found several different fume hoods throughout the Clinical Sciences, Hollings Cancer Center and Thurmond Gazes Research buildings. Laboratory fume hoods are designed to release toxic and irritating vapors from the work environment. Low airflow caused inadequate exhaust and increased hood spillage. Ameresco retrofitted the existing fume hoods with Flow Safe's exclusive stable VORTEX II conversion. The design of these fume hoods more effectively removes the contaminants from the workspace with lower airflow volumes.

In many of the buildings, the air handling units, distribution units and chillers were updated. This resulted in decreased energy consumption by HVAC systems. At the Childrens Hospital, Ameresco replaced the two 780-ton Carrier chillers on the ninth floor with a new 1,300-ton Trane variable-speed centrifugal chiller located in the tenth floor chiller penthouse. For the Rutledge Tower Building, Ameresco performed numerous upgrades. As an example, one of the larger upgrades included modifying the chilled water plant to preferentially operate the electric chillers and only use the absorption chiller as a backup.

Additionally, Ameresco installed a chilled water flow meter and temperature sensor in the piping connecting the Main Hospital to the Storm Eye Institute

building. The cooling system at the Clinical Sciences Building was improved for future load by installing a 557-ton Carrier variable-speed rotary screw chiller.

## Accolades

*"This was MUSC's first performance contract experience, and we were concerned about the challenges we might face as the work progressed. I am pleased to report that Ameresco has done what they said they would do and more, and that the work has been accomplished on schedule and with minimal interruption to building occupants."*

*"MUSC is a stand-alone academic health-care center, so the work was accomplished within academic, clinical, and research areas, and Ameresco has been very flexible and responsive to our fluid operational work environment. We are very pleased with their performance and the project outcomes to date."*

*"Based on our experience with Ameresco, I am confident you will not be disappointed if you choose them to execute your energy savings project."*

*- John Malmrose, Chief Facilities Officer  
Medical University of South Carolina*