

Contract Details

Contract Type:

Biogas; Cogeneration; Energy Efficiency; Energy Savings Performance Contract; Guaranteed Energy Savings; Renewable Energy

Facility Size:

15 member institutions
over 5.2 million square feet

Energy Project Size:

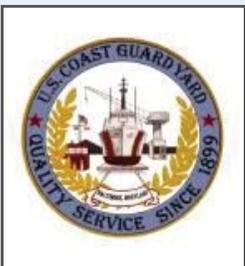
\$31 million

Energy Savings:

20 to 30% energy and operational savings

Summary

Ameresco provided the turnkey installation (including engineering, design, construction, and commissioning of the project) to implement a new landfill gas-fueled renewable Energy Center (REC) at the United States Coast Guard (USCG) Yard in Baltimore, Maryland.



The landmark contract between the U.S. Coast Guard, City of Baltimore and Ameresco is the largest Energy Savings Performance Contract in Coast Guard history and is the Coast Guard's largest Renewable Energy project ever.

Customer Benefits

This project is the result of a successful collaboration between the U.S. Coast Guard Yard, City of Baltimore and Ameresco Federal Solutions Group. Under a historic intergovernmental sales agreement, the City of Baltimore will provide landfill gas (LFG) to the USCG from the Quarantine Road Landfill, which sits adjacent to the Yard. Under the \$41 million contract signed in October 2007, Ameresco constructed a Renewable Energy Center (REC) to combust the LFG and provide electricity and steam to the USCG. Ameresco will operate the REC under the term conditions. The contract is the largest Energy Savings Performance Contract (ESPC) in Coast Guard history and is the Coast Guard's largest renewable energy project ever.

The benefits of the project include improved energy security, energy cost savings, operational efficiency, long-term cost stability relating to energy costs, and significant decrease in greenhouse gas emissions to the local environment. The Yard will realize significant energy cost savings through the displacement of current electric and gas supplies. Furthermore, through the establishment of long-term agreements, this project will provide price protection against future energy cost volatility.

Environmental Benefits

Through the Coast Guard's partnership with Ameresco, the USCG reduced its carbon footprint.

Annual green benefits from carbon reduction equal:

- ▶ the removal of 33,000 cars from the road
- ▶ the powering of more than 2,500 average-size homes

Services Provided

Ameresco designed, built, financed, and will own, operate, and maintain the LFG processing system, or delivery skid, at the Landfill and the pipeline from the processing plant to the Yard's property line. Utilizing LFG extracted from the City of Baltimore's nearby Quarantine Road Landfill as a fuel source for the REC will be a highly valuable, long-term benefit to the Yard. The vehicle used for the assessment and construction of the facility was the Department of Energy's (DOE) Biomass and Alternate Methane Fuel (BAMF) Technology-Specific Super ESPC program.

The project included the installation of four 1 MW Jenbacher 320 LFG engine generators, each installed with a Heat Recovery Steam Generator (HRSG), the electrical interconnection equipment, steam system upgrades, and the construction of a new facility. To provide even greater annual energy savings, the project also included the retrofit of the burner management system of Boiler #3 located in the Yard's existing steam plant to enable the boiler to combust LFG.

The REC is a 5,000-square-foot building that houses the equipment that uses the LFG to make electricity and steam. Four LFG Engine Generators (GE Jenbacher 320), each with an output of 1 MW, generate electricity at 4160 kV, which is then stepped up to 33 kV. A 33 kV feeder in a concrete-encased ductbank has been installed between the REC and the Yard's substation. The substation has been modified to allow the connection of the REC and to accommodate new pad-mounted switches with automatic normal-alternate switching.

About the U.S. Coast Guard Yard

For over a century, the United States Coast Guard Yard has built, repaired and renovated ships in Baltimore. It is the sole shipbuilding and major repair facility, and it is an essential part of the Coast Guard's core industrial base and fleet support operations. The Yard operates as a revolving fund activity, with annual revenue of approximately \$88 million.

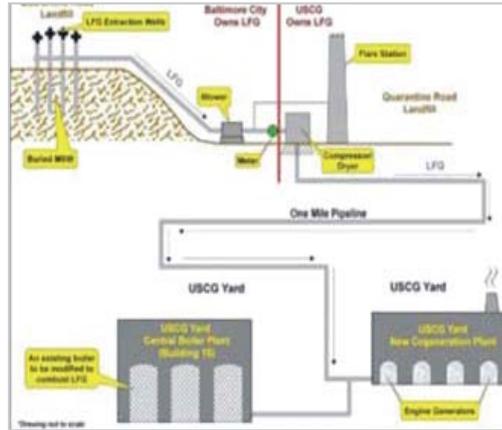
Learn more at

www.uscg.mil/hq/cg4/yard/.

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 www.ameresco.com.



This drawing provides an overview of the system designed for USCG and the interaction of the system components.

Services Provided (cont.)

The modification to the substation also includes the installation of a new 3,750 kVA step down transformer to serve the existing USCG 4.16 kV switchgear and the necessary equipment to export power. The waste heat emitted in the engine exhaust stack is recovered in HRSG and delivered to the Yard's steam distribution system. Each of the HRSGs has the capacity to generate approximately 2000 lbs/hr of 95 psig steam. In addition, the methane is also directed to the Yard's central boiler plant where it is burned in a retrofitted boiler to produce the balance of the winter steam requirements.

The project consists of a number of components that all perform in conjunction with one another. The Quarantine Road Landfill is owned by the City of Baltimore and is located on a 157-acre site less than one mile from the USCG Yard. It contains approximately 10 million tons of waste. About 45% of the waste is Municipal Solid Waste (MSW), which produces LFG, which is created as MSW decomposes in a landfill. LFG is the largest source of human-made methane emissions in the United States, and methane is a significant greenhouse gas that is 21 times more potent than carbon dioxide with regard to ozone depletion. The city's LFG Collection System consists of 34 LFG wells, a header, a blower and a flare. The LFG wells are perforated plastic piping buried deep into the landfill to collect the LFG.

The header is a long piping system that connects all the LFG wells to the blower, which then draws a vacuum on the header/wells in order to pull the LFG from the landfill. The flare combusts any LFG that is not sent to the LFG Conditioning System to be utilized in the USCG's REC. The LFG Conditioning System is owned by Ameresco and consists of a refrigeration dryer and compressor. The refrigeration dryer cools the LFG down to 40° F to remove the moisture and contaminants. The condensate from the dryer is piped to the landfill's existing leachate pond. The compressor compresses the LFG in order to push it through the pipeline to the REC. The LFG pipeline is approximately 1.5 miles long, 12" in diameter, and is constructed of High Density Polyethylene (HDPE). It runs under I-695 (Baltimore Beltway), a city road and railroad tracks.



USCG Renewable Energy Center, Landfill-to-Gas piping, and Heat Recovery Steam Generators.