

**Contract Details**

*Contract Type:*

Landfill Gas to Energy (LFG); Power Purchase Agreement; Design/Build Turbine Retrofit; Cogeneration Power Plant

*Capacity:* 14.9 MWe

**Summary**

Landfill Gas Drives BMW Plant—Methane gas drawn from Waste Management's Palmetto Landfill is providing the energy needs at BMW's manufacturing facility in Spartanburg, South Carolina.



**Customer Benefits**

To help offset BMW's energy demand, BMW maintains its own power station on site. The station is powered by four turbines fueled by reclaimed methane gas piped in from the nearby Palmetto Landfill. The turbines create enough energy to satisfy about 30% of the plant's electrical needs and over 50% of the plant's total energy requirements. Use of methane gas reduces the plant's carbon dioxide emissions by approximately 92,000 tons per year. Based on calculations provided by the EPA, the reduction of 92,000 tons of carbon dioxide emissions per year is equivalent to the benefit of planting over 23,000 acres of trees annually or 30 times the size of New York's Central Park.

**Accolades**

*"BMW's landfill gas program has been a tremendous initiative for the plant," said Josef Kerscher, president of BMW Manufacturing. "Using methane gas to power our plant is one example of our focus on environmentally friendly production processes."*

**Environmental Benefits**

Turning this methane into energy reduces carbon dioxide emissions equivalent to removing close to 61,000 automobiles from U.S. highways each year. The green power harnessed by this project also equals the amount necessary to heat about 15,000 homes a year.

**Awards**

- ▶ Project of the Year - EPA's LMOP (2006)
- ▶ EPA's Green Star Award (2005)
- ▶ EPA's Green Power Leadership Award (2003)
- ▶ Governor's Excellence Award (2003)
- ▶ Project of the Year - EPA's LMOP (2003)
- ▶ BMW Landfill Gas - Project of the Year (2003)

**Green Benefits**

**Services Provided**

In early 2003, four turbines located at BMW Manufacturing Co.'s Energy Center came alive with the combustion of methane gas piped in from the nearby Palmetto Landfill. At that moment, the facility's environmental leadership broke new ground. This was the culmination of a partnership between BMW Manufacturing, Ameresco and Waste Management.

In 2002, BMW Manufacturing started working with Ameresco on a way to bring landfill gas to its plant after several failed attempts by other developers. The project entailed the development, engineering, construction and operation of a 9.5 mile landfill gas pipeline with cleaning and compression stations and the retrofit of the existing energy center. BMW had four 1.25 MW gas turbines largely sitting idle on their property. Ameresco was able to recycle the turbines by putting them into service using landfill gas.



## About BMW

Located in Spartanburg, South Carolina, BMW Manufacturing Co. is BMW's first production facility in the US and serves as the only X5 and X6 production site in the world. Responsibility is an integral part of BMW's corporate identity. As such, corporate sustainability is firmly anchored in their entire manufacturing process: from clean production processes to green recycling practices. In 2003, BMW embarked on a partnership with Ameresco that now brings environmentally responsible power resources to its 1,150-acre, 4-million-square-foot campus.

Learn more at

[www.bmwusfactory.com](http://www.bmwusfactory.com)

## About Ameresco

Ameresco, Inc. is one of the leading global energy services providers. We deliver long-term customer value, environmental stewardship, and sustainability through energy efficiency services, alternative energy solutions, supply management, and innovative facility renewal strategies. The company has over 650 employees in regional offices throughout North America. Ameresco, Inc. has constructed billions in energy projects throughout the world.

Learn more at

[www.ameresco.com](http://www.ameresco.com)



## Services Provided (cont.)

BMW now purchases the equivalent of 4,000 cfm of landfill gas for use in their turbines, which generate about 5 MW of electricity for BMW's manufacturing facility, enough power to meet 30% of their power needs. The project also supplies 275° high temperature hot water, which provides 80%, or approximately 500,000 mmbtu/year, of BMW's thermal needs.

Ameresco's landfill gas utilization project is one of the few landfill gas projects in the U.S. that cogenerates electricity and hot water for use at an industrial location remote from the landfill. Each turbine can generate 18 MMBTUs per hour of thermal energy in the form of recovered waste heat. The high temperature hot water recovered from the landfill gas fired turbines is also used to provide up to 1,600 tons of cooling for BMW's production and office areas. Two 1,000 ton (12mmBtu/hr) single effect Trane absorption chillers are configured in series, the first machine provides up to 1,000 tons cooling whereas the second machine is derated to about 600 tons. BMW's peak cooling load is in excess of 15,000 tons and thermal storage tanks are included to reduce peak electrical loads in the summer.

By transforming the landfill gas into usable energy for BMW's plant, Ameresco achieves a double environmental benefit: using a resource that otherwise would

have continued to be wasted through flaring, and preventing the need for other more polluting forms of power to be generated. The methane in the landfill gas is a potent greenhouse gas, and contributes to local smog formation. By converting the landfill gas into usable energy, Ameresco reduces methane emissions equivalent to driving 105 million miles per year or more than 4,000 times around the earth.

*"The project with BMW and Ameresco is just another example of a beneficial use project that is helping to chart the course for the future, by taking readily available, renewable energy and making it part of a company's energy plan," said Maury Myers, Chairman, President and CEO of Waste Management.*

*"Cogeneration is used at many of BMW's worldwide facilities. We take great pride in being able to add a 'Green Power' component by using this renewable energy source." said Robert Hitt, Manager for Media and Public Affairs. "We take pride in being a good environmental partner with the community by simultaneously improving energy utilization and regional air quality." BMW is a charter member of the EPA's National Environmental Achievement Track that recognizes companies for their environmental stewardship and performance.*

