

Italian Utility Hera and GE Energy Inaugurate Model Sewage Gas-to-Energy Cogeneration Project

Hera Forli-Cesena, one of Italy's leading multi-utilities, has selected GE Energy's Jenbacher gas engine technology for its newest cogeneration plant. The plant will utilize sewage gas to generate electricity and thermal power at a wastewater treatment facility in the northern city of Forli.

The Forli project, in the province of Forli-Cesena, is one of only a few sewage gas-to-energy plants of its kind in Italy, making Emilia Romagna one of Italy's leading regions in this innovative energy application. GE's expertise in specialty gas technology and the performance of the Savignano and Cesena cogeneration plants resulted in Hera selecting the Jenbacher engine for the Forli plant as well.

The project is designed to help reduce the treatment facility's energy costs by utilizing an available renewable energy source in support of Italy's energy and environmental priorities. As a result, the project is eligible to participate in Italy's Certificati Verdi (green certificate) trading system, which supports the production of renewable energy.

The new Forli cogeneration plant features one of GE Energy's Jenbacher JMS 208 GS-L.L engines, which will use sewage gas to generate an output of 330 kWel and 400 kWth to support the wastewater treatment plant's operations. The engine is similar to the Jenbacher units operating in Hera's other sewage gas-to-energy plants in Savignano and Cesena, which are also within the Forli-Cesena system.

Sewage sludge is created as a waste product in the mechanical/biological process

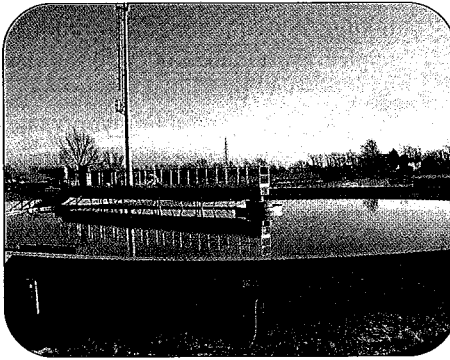
stages of sewage treatment plants. The sludge is dried and then transferred to a digester where the anaerobic fermentation process takes place. The fermentation produces biogas, so called sewage gas, consisting of 60 to 70 percent methane and 30 to 40 percent carbon dioxide.

The sewage gas then is sent to GE's Jenbacher engine to produce electricity, which is utilized for the operation of the whole facility. The thermal energy is used for heating the sewage sludge (37°C). The engine will supply up to 50 percent of the water treatment facility's onsite power needs, thereby reducing their need for grid power.

"Our enduring collaboration with Hera is important to us and we are pleased to provide solutions that meet their needs in terms of energy savings, environmental benefits, operating flexibility and efficiency," said Mario Artoni, general manager for GE Energy's Jenbacher gas engine business in Italy. "Over the years, GE's Jenbacher engines have been selected by Hera not only for its other treatment plants in Savignano and Cesena, but also for different applications, such as a district heating project in Bologna and several waste-based power generation projects in

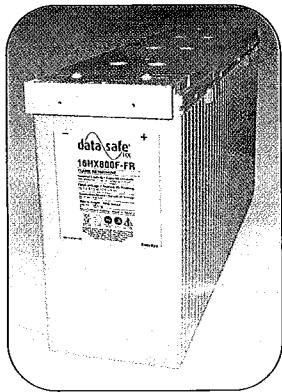
Bologna, Forli and Ravenna."

Like the Savignano and Cesena plants, the engines at the Forli plant were installed by CPL Concordia, the company that, within the scope of a global service agreement with Hera, also will be providing maintenance and replacement spare parts to keep the plant running at optimal levels.



EnerSys Adds 800 WPC Model to Its DataSafe 16 V Front Terminal UPS Battery Line

EnerSys has added a new product to its DataSafe 16 V Front Terminal UPS Battery line, the 16HX800F-FR. The DataSafe16HX800F-FR is a valve-regulated lead acid (VRLA) battery that produces 800 WPC for 15 minutes to 1.67 volts per cell at 77°F. DataSafe 16 V are VRLA batteries that provide more power than 12 V batteries and use less space. They are specially designed to back up the primary power system for UPS applications and supply power for 15 min-



utes until the backup generator is fully operational.

The DataSafe16HX800F-FR can produce the necessary power to handle the runtime for large UPS systems without having to use smaller 12 V batteries that require more strings and therefore drives up the system cost. They have up to 50 percent fewer connections which simplify wiring and helps reduce costs. The high power rating of the 16 V batteries also give users a more economical and space efficient option to large single cell VRLA batteries in high power rated UPS systems.

With the addition of the DataSafe16HX800F-FR, EnerSys offers the 16 V VRLA batteries in three sizes: 500 watts per cell (WPC), 800 WPC and 925 WPC. They require only 44 sq. ft. to support a typical 750 kVA UPS system with a full 15 minutes of runtime.

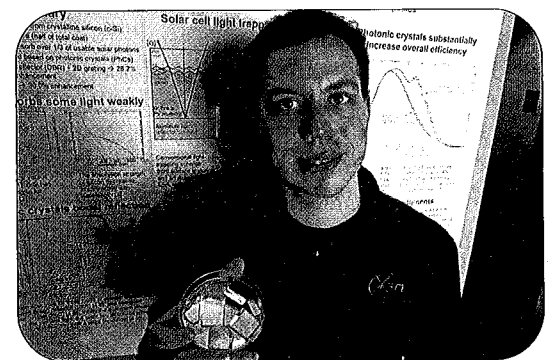
"Now, UPS systems are no longer limited to top terminated 12 V batteries or bulky 2 V cells. Expanding the line to three sizes gives our customers the tools they need to maximize their power density and footprint savings,"

said Steve Vechy, director, UPS and Utility Marketing, EnerSys. "A well-rounded line of 16 V offers efficiencies for better productivity and bottom lines."

With the same dimensions (27.2 by 7.0 inches) and 20 pounds lighter (220 lbs.), the DataSafe 16HX800F-FR fits in the same rack system as the 925 DataSafe 16 V batteries. Cabinets are available in gray or black to match other data center equipment. Complete front access in the 16 V front-terminated DataSafe models makes access and maintenance easier than top-terminated 12 V batteries.

MIT Finds Ways to Boost Solar Cell Efficiency

New ways of squeezing out greater efficiency from solar photovoltaic cells are emerging from computer simulations and lab tests conducted by a team of physicists and engineers at MIT. Using computer modeling and a variety of advanced chip-manufacturing techniques, they have applied an anti-reflection coating to the front, and a novel combination of multi-layered reflective coatings and a tightly spaced array of lines, called a diffraction grating, to the backs of ultrathin silicon films to boost the cells' output by as much as 50 percent.



The carefully designed layers deposited on the back of the cell cause the light to bounce around longer inside the thin silicon layer, giving it time to deposit its energy and produce an electric current. Without these coatings, light would just be reflected back out into the surrounding air.

"It's critical to ensure that any light that enters the layer travels through a long path in the silicon," said Peter Bermel, a postdoctoral researcher in MIT's physics department. "The issue is how far does light have to travel, in the

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