

Energy Sector Oil & Gas Division

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Siemens introduces combined heat and power (CHP) solution incorporating VOC destruction

Siemens Energy, in line with its global initiative to bring the most complete range of energy solutions to the industry, has recently entered into an agreement with Environment & Power Systems International (EPSI) to work with U.S. industrial customers on CHP project solutions incorporating the destruction of unwanted volatile organic compounds (VOC). The sensible use of VOCs in the SGT-300 cogeneration system designed for industry is a pivotal waste-to-energy technology for major sources of environmentally regulated VOCs in the manufacturing, petrochemical, synthetic and organic manufacturing industries.

The single-shaft SGT-300 gas turbine combines advanced technology with a rugged industrial design. It has a power output of 7.9 MW and is available as a factory-assembled package. The SGT-300 is designed to operate on a wide range of gaseous and liquid fuels and is equipped with a Dual-fuel Dry Low Emissions (DLE) combustion system, meeting the most stringent legislation for nitrogen oxides. This state-of-the-art combustor design is ideal for the ingestion of vaporized and gaseous VOCs, which are thermally oxidized into the end-products carbon dioxide and water. This means that waste VOC emissions can be captured, conveyed and ingested into the air intake of the turbine. Not only are the harmful hydrocarbons destroyed but the VOC is utilized in the combustion chamber as a supplemental fuel in addition to the natural gas fuel that is directly injected into the combustor to fuel the operation of the engine.

Most importantly, this technology has been successfully demonstrated in an industrial application in the Netherlands. Full-size design verification, or "spiking" testing of the SGT-300 turbine at Siemens' test facility in Houston, Texas, has shown that the combustion temperature, residence time and mixing capabilities of the SGT-300 are sufficient to ensure acceptable burn-out of a wide range of concentrations and variants of VOC in the air.

"The now commercially available SGT-300 VOC CHP solution can result in efficient and environmentally beneficial energy independence and security for industry," said Daniel Duncan, vice president and general manager of Siemens Energy's Oil & Gas business in the U.S. "It also offers an impressive return on investment and a sustainable opportunity for industry to deploy cogeneration."

"The destruction efficiency of regulated volatile organic compounds (VOC) by the Siemens 7.9-MW(e) SGT-300 VOC CHP solution significantly enhances the value of a typical economic sensitivity model for a CHP system operating at industry," stated Steve Sexton, president of EPSI. "Thousands of existing industrial facilities that rely on abatement equipment and many more with the potential to utilize VOC abatement equipment represent a ready replacement market for the SGT-300 VOC CHP solution. Given the goals of the USEPA and the USDOE to strategically deploy DG/CHP throughout the power grid, the opportunity for energy efficiency and sustainable operations for industry is at hand."

The **Siemens Energy Sector** is the world's leading supplier of a complete spectrum of products, services and solutions for the generation, transmission and distribution of power and for the extraction, conversion and transport of oil and gas. In fiscal 2009 (ended September 30), the Energy Sector had revenues of approximately EUR25.8 billion and received new orders totaling approximately EUR30 billion and posted a profit of EUR3.3 billion. On September 30, 2009, the Energy Sector had a work force of more than 85,100. Further information is available at: www.siemens.com/energy.