

Houston, April 9, 2019

Siemens selected to deploy, operate and maintain cogeneration plant in Brazil

- **Siemens' broad energy portfolio and services will help ensure long-term reliability and efficient operations**
- **Integrated, redundant plant design features two SGT-600 gas turbines with DLE technology running on residue gas with high concentrations of hydrogen**
- **Project highlights the integrated value of Siemens Gas and Power**

Braskem, the largest petrochemical company in Latin America, recently entered into an agreement with Siemens to modernize a cogeneration power and steam plant at its Petrochemical Complex in Sao Paulo, Brazil. Completion of the project is expected in early 2021.

Siemens will be responsible for implementation and the 15-year operation of an electric and steam cogeneration plant. The plant's state-of-the-art technology solutions will combine high energy efficiency and extreme operational reliability with low emissions. Project deployment is already underway, whereby Siemens will implement a fully integrated and redundant equipment solution, including two SGT-600 gas turbines, an E-house, as well as an extension of the existing high-voltage substation, three reciprocating compressors, an advanced load-shedding system, and associated software for plant control.

These elements are part of an energy-as-a-service concept, which means that the customer will receive the energy without having to invest in, build, and operate the plant on its own.

“This energy-as-a-service contract underscores the value our newly aligned Siemens Gas and Power Operating Company brings to customers, with synergies crossing the entire energy value chain,” said Tim Holt, Chief Operating Officer of Siemens Gas and Power, effective April 1, 2019.

Braskem’s project involves the complete overhaul and technological update of the existing cogeneration plant, which provides steam and power to the petrochemical complex’s cracking unit. The unit has an ethylene production capacity of 700,000 metric tons per year (kta) and produces raw materials for the chemical and plastic sectors. The optimized design leads to an increased efficiency of the ethylene plant. Braskem estimates that the upgrade project will reduce the cracking unit’s water consumption by 11.4 percent and CO₂ emissions by 6.3 percent.

“Siemens was uniquely capable of proposing this comprehensive engineering and service solution that will help Braskem meet its sustainability goals and maximize value over the life of the cogeneration plant,” said Dan Simpson, Head of Global Solutions for Siemens Gas and Power, Oil & Gas. “The integrated and redundant design of the facility and use of Siemens equipment, coupled with the adoption of a build, own, and operate business model will result in 100 percent plant availability and reduced energy consumption, both of which are critical to Braskem’s business.”

The power output of an SGT-600 turbine is 24 megawatts (MW). For this application, each turbine will provide 19 MW of power and 80 tons per hour (t/h) of steam. In addition, they will feature third-generation dry low emissions (DLE) technology and run on residue gas with high concentrations of hydrogen. The DLE technology will reduce CO₂ emissions, and NO_x levels from the turbines will be low at just 25 parts per million (ppm). A load shedding system ensures safe operation of the plant by managing all loads depending on the available power supply.

The entire electric and steam cogeneration plant will be engineered, deployed, operated, and maintained by Siemens for a period of 15 years under a long-term contract that includes performance guarantees for reliability, availability, efficiency, costs, maintenance, and emissions.

“The combined cogeneration of electricity and gas with this project exemplifies our efforts to achieve greater operational excellence and reinforces our commitment to

sustainable development,” said Braskem Chemicals southeast region chief industrial officer, Luís Pazin. “The modernization will help us meet our sustainability goals by reducing the facility’s overall energy consumption by an amount equivalent to that of a city with one million inhabitants.”



Above: *The two SGT-600 turbines for this project, like the one pictured above, will feature third-generation dry low emissions (DLE) technology and run on residue gas with high concentrations of hydrogen.*

For further information on Siemens SGT-600 gas turbine, visit: <http://bit.ly/SGT-600>

This press release and press pictures are available at www.siemens.com/press/PR2019040211GPEN

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Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for more than 170 years. The company is active around the globe, focusing on the areas of power generation and distribution, intelligent infrastructure for buildings and distributed energy systems, and automation and digitalization in the process and manufacturing industries. Through the separately managed company Siemens Mobility, a leading supplier of smart mobility solutions for rail and road transport, Siemens is shaping the world market for passenger and freight services. Due to its majority stakes in the publicly listed companies Siemens Healthineers AG and Siemens Gamesa Renewable Energy, Siemens is also a world-leading supplier of medical technology and digital healthcare services as well as environmentally friendly solutions for onshore and offshore wind power generation. In fiscal 2018, which ended on September 30, 2018, Siemens generated revenue of €83.0 billion and net income of €6.1 billion. At the end of September 2018, the company had around 379,000 employees worldwide. Further information is available on the Internet at www.siemens.com.