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Case Study

Siemens generator sets provide 100% operating load for Bolivian cement plant

Siemens engines and gen-sets

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The Opportunity

Cement, a global commodity, is manufactured at thousands of plants and used principally in the construction industry. Cement plants employ a complex process and consume a lot of energy.

Due to increasingly strict environmental regulations, cement producers must identify process improvements to meet these environmental regulations and optimize energy consumption.

A prominent Brazil-based cement company operates the first integrated cement plant in Yacuses, Bolivia, approximately 500 km (311 miles) from the capital, Sucre. The plant has been in operation since mid-2016. It covers the entire cement production process – from extraction to production, to cement packing and distribution. At full operating capacity, the plant is expected to produce 870 tonnes of cement per year.

The Solution

The Brazilian cement company approached Gas & Electricidad (G&E) that has a long record of reliable performance from Siemens gen-sets at other plants in Bolivia. In 2015, G&E contacted Siemens to build an in situ generation plant to meet all the Bolivian cement plant's energy needs. Siemens provided 16 SGE-56SM (SFGM560) natural gas containerized gen-sets of 1014 ekW each. In addition, the client moved two of its 805-ekW SGE-56SM (SFGM560) gen-sets, previously supplied for another plant, to this new cement plant for a combined total output of 17.5 eMW.

Because of the cement plant's remote location (it is not connected to the grid) the installation relies heavily on pipeline-sourced natural gas. The gen-sets run in island-mode and the configuration of the equipment is such that it must provide 100 percent operating load every moment. Thus, long life cycles are an essential requirement for generation plants located in remote areas.



Siemens delivered 16 SGE-56SM (SFGM560) natural gas containerized gen-sets to Brasileria-Boliviana.



The plant of Itacamba is located in Yacuses, Bolivia, approximately 500 km (311 miles) from the country's capital of Sucre.

The cement plant staff received training from Siemens gas engine experts to ensure proper maintenance techniques needed to maximize the engines' operating lives. In addition to the gen-sets, Siemens also provided the following equipment and services:

- Supervisory control and data acquisition (SCADA) plant control panel
- Medium voltage (MV) switchgears for generation and distribution
- Direct current (DC) power supply module
- MV switchgear basement
- 18 step-up transformers for the gen-sets
- Transformer for ancillary services
- Low voltage (LV) power distribution panel
- Plant commissioning.

The client obtained the certification bond for carbon emission reduction by replacing diesel fuel with natural gas in this power generating plant.

Benefits

- Constant, reliable power in remote area
- Lower operating costs as generating costs are much lower than the costs charged by the public electricity network
- Reduced carbon emissions

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