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a GE company

Driving project execution excellence at the Guddu Thermal Power Plant

In Guddu, Pakistan, ENGRO Fertilizer Limited appointed Baker Hughes, a GE company (BHGE), to install three compression units driven by a gas engine, delivering installation, commissioning, startup, and performance tests in only six weeks.

3	500 MW	6
compressors driven by one gas engine	increase in electricity production	weeks from project start to completion

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Challenge

The Guddu thermal power station is located in the Sindh region of Pakistan, 650 km from Karachi, the largest and most populous city in Pakistan. Here, a vast reservoir of natural gas was discovered in the 1950s, paving the way for development of the Guddu power system, a complex with a capacity of 2,400 MW, enough to power more than 700,000 homes annually.

The project was challenging because of the harsh conditions, location, and a tight deadline—requiring us to deliver installation, pre-commission, commission, startup, and performance tests in only six weeks. ENGRO had the confidence in the BHGE team to make this strategic work.

One of the challenges for our team was to stagger the shipment of the equipment components due to the short project schedule. The engine-compressor skid and the compressor cylinders were the first two items received at the site, while pulsation bottles and suction scrubbers were received towards the end of the schedule. This posed a huge task for the execution team to assemble the units on site and ensure that no assembly-related problems occurred during the startup.

Solution

We installed three SUPERIOR MH-64 compression units driven by a SUPERIOR 16SGTD gas engine. This increased the Guddu powerhouse electricity production by ~500 MW, improving the electricity shortage situation in Pakistan to a good extent.

Guddu's case is a good example of BHGE's Project Management Excellence philosophy. The Service team in charge of the operation collected and studied all project requirements and history of the project phase, before starting the activities on site.

Due to the harsh environment, our first priority was to guarantee a safe environment for everyone on site, which was accomplished through logistics support from the Customer. Secondly, due to the high number of tactical decisions required and the tight schedule, the project team used extensively on-site management tools to facilitate the communication between the multitude of parties involved.

A rigid work activities protocol was established that included 24/7 onsite support, alternating field coverage schedules, engineering support, management prioritization and daily updates. The Red Flag Review Process kept everybody involved until the issues were resolved including the customer's management crew, while taking immediate actions in compliance with the customer's requirements.

At the end of the six-week project, the customer feedback was the best reward: "We're truly grateful for your unconditional support, guidance and effort in this challenging time to help us commission this project."

Results

In the end, within six weeks, all three units were assembled, commissioned and lined up with the gas turbine-generator units. This result was reached with the direct collaboration between the project team in Milan, Houston and the Field Service Representative (FSR) in charge of the activities on site.

"We are highly grateful to and appreciative of BHGE for their remarkable support throughout the project. It was the FSRs incredible commitment and dedication which enabled us to commission all three compression units at the earliest."

ENGRO Fertilizer

Our engineering and service teams' strong relationship with ENGRO was the key to success for different problems faced during installation on site. In addition, the knowledge of our products, processes and the environmental scenarios, allowed us to put units online with the turbines and thus reach the customer's outcomes.

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