Replacement Of An Old KG2 Turbine

Industrial & Commercial

SUCCESS STORY

At A Glance

Installation:
1 X OP16-3A

Location: Delfzijl, Netherlands

Output:
Electricity: 1.8 MWe
Hot Air: 8.7 kg/s at 575°C

Customer: SINIAT B.V.

The Challenge

SINIAT is a manufacturer of gypsum board, a process that requires continuous & reliable electric power and thermal energy. SINIAT was operating a KG2 gas turbine with a low electrical efficiency of 14%, and an electrical power output limited to 1.1 MWe. With the evolution of the energy market, this was no more economically viable and a solution with higher electrical efficiency and higher heat output was required. The facility required that the new turbine occupy the same footprint and location, with all work completed within a two-week period to avoid production downtime.

The Solution

OPRA and SINIAT jointly replaced the cogeneration plant with an OP16-3A gas turbine, outputting 1.8MWe and 5.8MWth with 26% electrical efficiency and an overall plant efficiency of 85%.
The exhaust stream of the turbine is ducted partially to two calcifiers, with an integrated post-firing system that allows SINIAT to tune the flow temperature according to the process requirements. The direct post firing of the exhaust stream is possible thanks to the high O2 content of the flue gases (15%).

The remaining exhaust flow is used for direct drying of the gypsum board product, at a temperature that perfectly matches the thermal output of the turbine.
The OP16 turbine has preventive maintenance requirements limited to one annual inspection and extended time between overhaul.

The Results

OPRA was able to adapt to the specific requirements of the project by installing and commissioning the new turbine within the two-week window of planned summer outage.
The new co-generation plant has a total efficiency that exceeds 85%, with simplified maintenance requirements and a reduction of emissions up to 30%.
As the plant's production is dependent upon the co-generation system, OPRA and SINIAT signed a Long-Term Service Agreement with guaranteed availability and 24/7 assistance. Today, the unit continues to operate as required, with over 8 years of successful operation.

30% Reduction Of Emissions

28% Savings On Energy Costs

40% Reduction Of Maintenance Activities

2 weeks Removal, Installation, and Commissioning

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