



Plant Details

- Saltend Power Station
- IPP owned by Triton Power
- Hull, England, UK

Equipment Notes

- 1200 MW Cogeneration Gas Turbine Combined Cycle Plant
- 3 MHPS M701F Gas Turbines
- 3 MHPS Steam Turbines
- MHPS-TOMONI™ Solutions Installed: 2015

Taking down fuel costs
£400,000 a year powers up
Saltend's competitiveness.

MHPS-TOMONI™ Solutions Used:

IGV Optimization
TCA Optimization

CHALLENGE

Renewable penetration and challenging market demands in the United Kingdom changed the landscape for Saltend Power Station (Saltend), which saw a decrease in annual operating hours of approximately 34% from 2011 to 2015. This forced them to look for solutions that improved competitiveness in this challenging market. Saltend collaborated with Mitsubishi Hitachi Power Systems (MHPS) to determine a solution that minimized capital cost, improved average plant efficiency and could be implemented during an existing planned outage.



SOLUTION

The MHPS-TOMONI™ solutions IGV Optimization and TCA Optimization were determined to be a good fit. The two solutions arm Saltend with the improved ability to pair with renewables by improving efficiency when operating at part loads and supporting the grid as renewables output fluctuates. Both also included hardware upgrades that will improve reliability and reduce maintenance costs. This will aid Saltend in meeting the market needs while maintaining business and environmental goals.

IGV Optimization, a Flexible Operation and Performance Improvement solution, combines hardware modifications with new digital control strategies to more precisely control inlet guide vane (IGV) closing to maximize exhaust temperature at part loads while maintaining combustion stability. This allows Saltend to run more efficiently during partial load operation.

TCA Optimization, a Performance Improvement solution, provides more precise control of the turbine cooling air (TCA) fans to optimize rotor cooling air (RCA) temperature through digital control logic modifications and digital power electronic inverters. This improves efficiency at part loads by maintaining optimum RCA temperature.

These solutions were implemented during a planned outage in 2015.

RESULT

IGV Optimization and TCA Optimization improved the plant's average efficiency to help increase Saltend's competitiveness in the highly challenging trading environment in the United Kingdom power market. These solutions combined to improve efficiency by about 0.5%.

For more information about the MHPS-TOMONI™ suite of digital solutions visit changeinpower.com or contact your MHPS representative.

This led to a fuel savings of as much as £400,000 per year, which is helping Saltend meet challenging financial targets, and positions it well for future increases in partial load operation.

"We feel the most important quality of a strategic supplier is the ability to listen to the customer and respond accordingly to market conditions. As we've worked together with MHPS, I've found individuals who are not only willing to listen but also willing to learn and improve. In working together, they provided a solution with clear economic benefits for us, allowing us to be more competitive by improving reliability and reducing nonproductive costs. These solutions helped Saltend Power Station exceed its 2016 financial targets."

Mick Farr

President and COO at Triton Power



**O&M
OPTIMIZATION
SOLUTIONS**



**PERFORMANCE
IMPROVEMENT
SOLUTIONS**



**FLEXIBLE
OPERATION
SOLUTIONS**

MHPS-TOMONI™

MHPS is leading the development of the digital power plant of the future with MHPS-TOMONI™, a suite of digital solutions enabled by decades of O&M and plant knowledge. Our solutions are driven by customer collaboration and use advanced analytics and adaptive control to lower the cost of electricity and achieve environmental and business goals.