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POWER AND ENERGY MANAGEMENT, UTILITIES

Customer Success Story

Al-Rusail Power Plant
Muscat, Oman

Real-Time Gas Quality Monitoring for Efficient Power Generation

Al-Rusail Power Plant is a 665 MW power plant located in an industrial area approximately 40 km west of Muscat, Oman. It consists of eight Frame 9E gas turbines that primarily run on natural gas with diesel oil as a backup fuel. The power plant was the first state-owned power generation company to be privatized in the Sultanate of Oman and is now owned by SMN Power Holding SAOG. SMN also owns SMN Barka Plant and together with Al-Rusail provides 1,342 MW of power and 120,000 m3/day potable water capacity. Both power entities are aligned with SMN's mission "to contribute to the growth of the Sultanate of Oman and to improve people's lives by providing reliable power and water, while being committed to employee development and empowerment".

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SMN POWER HOLDING SAOG

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OCS ORIENTAL CONTROL SYSTEMS LLC



Key Points

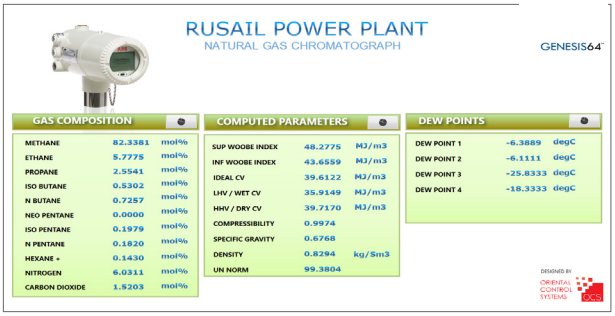
- **Deployed GENESIS to continuously monitor natural gas composition and quality at the 665 MW Al-Rusail Power Plant, providing operators with real-time visibility into critical fuel parameters.**
- **Enabled operators to optimize turbine combustion efficiency and reduce emissions through customized dashboards, real-time gas quality monitoring, and trend analysis.**
- **Streamlined data logging and reporting with automated data collection and Excel exports, eliminating manual reporting errors and improving operational efficiency.**

The Challenge

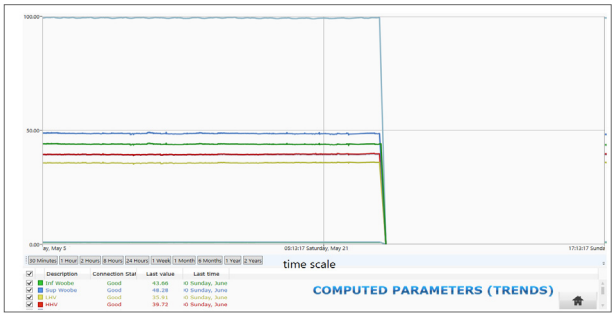
SMN Holding Company wanted to monitor and record the composition and quality of the gas being used by the gas turbines to run the power plant. In particular, they wanted to know specific quality metrics of the gases using a natural gas chromatograph and to analyze those within the context of a SCADA system. Therefore, SMN Power was looking for a simple yet reliable solution for this application.

The customer reached out to one of the leading solution providers in Oman: Oriental Control Systems LLC (OCS). Established in 2014, OCS provides turnkey control and automation solutions for oil and gas, power utility, and industrial sectors. They have a dedicated team of engineers who are highly qualified and skilled in the respective domains in which they operate.

OCS continues to expand and develop their team to meet the growing requirements of their customers, not only for delivering the projects but also for providing in-country service for the operation and maintenance of their customers' systems. Over the years, OCS has successfully completed multiple projects for various government ministries, corporations, industries, and private clients.



Rusail Power Plant Dashboard



Trends Overview

Moreover, since its inception in 2014, OCS has been a longtime system integrator and solution provider for GENESIS and has worked with and supported Mitsubishi Electric Iconics Digital Solutions' customers in Oman. In addition, GENESIS satisfied all the requirements that SMN Power had laid out in terms of data connectivity, display, and logging, as well as charting data trends. Therefore, given these reasons and the flexibility and scalability of GENESIS, the solution was a logical choice for this application.

Software Deployed

- GENESIS
- GraphWorX64
- ReportWorX64

The Results

Al-Rusail Power Plant implemented GENESIS to monitor natural gas composition and quality, improve turbine efficiency, and streamline operational reporting. The SCADA system connects to a natural gas chromatograph through a Modbus Ethernet OPC server over a fiber-optic link.

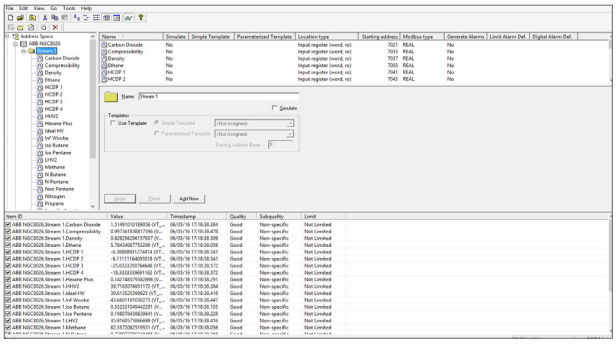
The solution delivers the following benefits:

- **Real-time gas quality monitoring:** GENESIS enables operators to continuously monitor natural gas composition and quality, providing accurate, real-time visibility into critical fuel parameters.
- **Improved turbine efficiency:** GraphWorX provides customized dashboards that display real-time gas quality data, helping operators optimize the combustion process, improve turbine efficiency, and reduce emissions.
- **Automated data logging:** TrendWorX Logger records gas quality data, supporting historical analysis and trend monitoring.
- **Streamlined reporting:** ReportWorX Express enables operators to export data directly into Excel, reducing manual reporting errors and improving workflow efficiency.

Conclusion

SMN Holding is extremely satisfied with the GENESIS system and the OCS team. The system is exactly what the company wanted – a highly intuitive system with basic visualization that provides predefined symbols and simple graphics.

Moreover, OCS completed the project with a minimum turnaround time allowing SMN to quickly begin monitoring the natural gas metrics. With this system, SMN can continuously monitor and ensure the quality of the natural gas they buy from the procurement/supply company.



Modbus OPC Controllers

"The GENESIS solution deployed at our plant helped us with continuous monitoring of gas quality to maintain the optimal efficiency of our gas turbines. The software was straightforward and user-friendly for a simple application like ours. We have been using it for more than a decade now without any performance issues or downtime. We look forward to scaling this solution for other applications in the future, as needed."

Mr. Mohammed Asif
Maintenance Coordinator
ENGIE-STOMO
(Operations and Maintenance for SMN Power Holding)

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