

Al-Rusail Power Plant

📍 Muscat, Oman



اس ام ان باور القابضة ش.م.ع.ع.
SMN POWER HOLDING SAOG



الشرق لأنظمة التحكم ش.م.م
ORIENTAL CONTROL SYSTEMS LLC

Al-Rusail Power Plant

About Al-Rusail Power Plant

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”.

Project Summary

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

RUSAIL POWER PLANT

NATURAL GAS CHROMATOGRAPH

GAS COMPOSITION		COMPUTED PARAMETERS		DEW POINTS	
METHANE	82.3381 mol%	SUP WOOBE INDEX	48.2775 MJ/m3	DEW POINT 1	-6.3889 degC
ETHANE	5.7775 mol%	INF WOOBE INDEX	43.6559 MJ/m3	DEW POINT 2	-6.1111 degC
PROPANE	2.5541 mol%	IDEAL CV	39.6122 MJ/m3	DEW POINT 3	-25.8333 degC
ISO BUTANE	0.5302 mol%	LHV / WET CV	35.9149 MJ/m3	DEW POINT 4	-18.3333 degC
N BUTANE	0.7257 mol%	HHV / DRY CV	39.7170 MJ/m3		
NEO PENTANE	0.0000 mol%	COMPRESSIBILITY	0.9974		
ISO PENTANE	0.1979 mol%	SPECIFIC GRAVITY	0.6768		
N PENTANE	0.1820 mol%	DENSITY	0.8294 kg/Sm3		
HEXANE +	0.1430 mol%	UN NORM	99.3804		
NITROGEN	6.0311 mol%				
CARBON DIOXIDE	1.5203 mol%				

DESIGNED BY
CHEN/AL
CORNER
SYSTEMS
OCS

Rusail Power Plant Dashboard

time scale

SF	Description	Connection	Status	Last value	Last time
1	Sup Wooobe	Good	43.66	Sunday, June	
2	Inf Wooobe	Good	48.28	Sunday, June	
3	LHV	Good	35.91	Sunday, June	
4	HHV	Good	39.72	Sunday, June	

COMPUTED PARAMETERS (TRENDS)

Trends Overview

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.

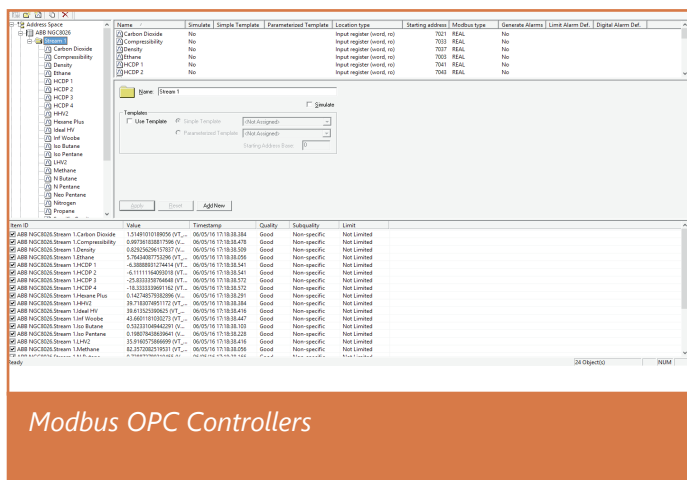
Moreover, since its inception in 2014, OCS has been a longtime system integrator and solution provider for ICONICS and has worked with and supported ICONICS' customers in Oman. In addition, ICONICS software satisfied all the requirements that SMN Power had laid out in terms of data connectivity, display, and logging, as well as charting data trends. Therefore, given these reasons and the flexibility and scalability of GENESIS64, the solution was a logical choice for this application.

ICONICS Software Deployed

- GENESIS64™
- GraphWorX™64
- ReportWorX™64

Realized Benefits

Al-Rusail Power Plant immediately realized benefits from several angles of the business. The automation system includes ICONICS GENESIS64 SCADA with a Modbus Ethernet OPC server connected directly to a natural chromatograph over a fiber optic link. This application is a simple, straightforward software solution designed specifically to monitor the gas composition of the fuel used for the power plant.



With ICONICS, the operational team can constantly visualize and monitor the quality of the natural gas in real-time and more accurately keep track of gas quality metrics.

For example, using GraphWorX, the operational team can visualize real-time data on customized dashboards that are easy to read and understand. This ability helps the operations team optimize the combustion process thereby allowing them to improve the efficiency of the gas turbines. The increase in efficiency in turn helps them to reduce their emission and carbon footprint. Additionally, they can log the data using TrendWorX Logger and export the data instantly into Excel files using ReportWorX Express thereby eliminating errors in manual reporting and increasing workflow efficiency.

Conclusion

SMN Holding is extremely satisfied with the ICONICS 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.

“The GENESIS64 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)

