

## Qatargas Attains 20 Percent Emissions Reduction with Honeywell Advanced Process Control



“We chose Honeywell because we wanted to improve the reliability and efficiency of our facilities to continue to drive core value to our shareholders. Honeywell provided the wide breadth of solutions and the industry experts in the areas we needed.”

Pawandeep Singh, Senior APC Expert, Qatargas Operating Company Ltd.

### Benefits

Qatargas is a natural gas company in the State of Qatar, the world's largest LNG exporter. It has offshore natural gas production and on shore processing which supplies the liquefied natural gas (LNG) plant in Ras Laffan. Currently has three LNG trains. Train four is under construction. By 2010, due to a rigorous expansion program, there will be seven liquefaction trains.

Qatargas chose Honeywell's Advanced Process Control (APC) to improve the efficiency of its LNG production facilities. The company wanted to reduce emissions and gain energy efficiencies in order to produce the maximum amount of product in the most efficient way.

Some of the benefits achieved by Qatargas since implementing Advance Process Control include:

- Twenty percent reduction in emissions
- Improved reliability
- Increased overall production
- Reduced steam consumption
- Increased sulfur recovery and reduction in sulfur emissions
- Payback period of less than eight months
- Enhanced visibility into operations to monitor effectiveness



Qatargas LNG plant uses Honeywell's APC solutions to improve efficiency.

### Background

Qatargas pioneered liquefied natural gas (LNG) production in Qatar in 1984 . and it's core LNG business continues to grow aided by the application of world leading business solutions.

The Qatargas LNG plant is located within the Ras Laffan Industrial City about 80 kilometers north of Doha. North Field processed gas is used as feedstock for the plant. Following

filtration and metering of this dry gas in the onshore feedstock reception facility, it is distributed to the plant's three identical liquefaction trains for processing into LNG.

Qatargas' vision is to be the world's leading supplier of LNG and condensate - as measured by customer satisfaction; profitability; efficient and reliable operations; high standards of safety, health and environmental compatibility; and maintenance of a diverse work force of the highest caliber.

Qatargas has signed long, mid-term and short-term agreements to supply LNG cargoes to a number of markets worldwide: Japan (6 million metric tons per annum under a long term SPA agreement), Spain, Turkey, Italy, U.S., France, South Korea and U.K.

### Challenges

The key challenge Qatargas faced was energy efficiency. The company wanted to improve the reliability and efficiency of the facilities to continue to deliver core value to shareholders. Qatargas also faced hardware constraints and stabilization challenges with water addition procedures and feed inlet temperatures.

Knowledge capture was also a critical concern because of the aging workforce. The employee resource pool is shrinking, and Qatargas needed a solution that would capture best practices and enable them to be executed on a high frequency basis.

Qatargas consists of three trains of LNG, which process gas coming from the offshore facility and separate the gas flow into natural gas liquids, natural gas and sulfur at the LNG facility. The acid gas removal (AGR) unit separates H<sub>2</sub>S and CO<sub>2</sub> from the

### More Information

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LNG and sends product to the acid gas enrichment (AGE) units where a selective removal of H<sub>2</sub>S happens. The CO<sub>2</sub> is incinerated and the H<sub>2</sub>S is converted into sulfur in the sulfur recovery unit (SRU), which consists of three stage clauss reactors and a super-clauss reactor.

### Solution

Qatargas implemented Honeywell's Advanced Process Control and now all three AGRs, two AGEs and two SRUs are controlled by six Honeywell's Profit<sup>®</sup> Controller. Each AGE and SRU has a feed controller to balance the feed according to the process requirement. The controllers communicate with the DCS through a Honeywell historian, Enterprise PHD, as a gateway and the Profit Toolkit.

"We chose Honeywell because they offer a complete set of solutions across the board, and they have industry experts in the areas we needed improvement. Honeywell truly provided the best solution for our needs," said Pawandeep Singh, Senior APC Expert, Qatargas Operating Company Ltd.

After the implementation of the SRU/AGE project, Qatargas achieved a reduction of 20 percent in emissions and increased LNG production of over 1.5%. There are other tangible benefits such as reduction in steam consumption and increased sulfur recovery. In addition other benefits were achieved, such as stability of plant and increased automated plant operation. The payback period of the project was less than eight months.

"Qatargas is committed to a cleaner, healthier environment and strives to protect the environment in many ways. In an effort to drive our corporate goals of energy monitoring we have partnered with Honeywell and installed Honeywell Profit Expert to remotely monitor all our applications and give us vital statistics on how we are doing against our benchmarks," said Singh.

Qatargas has been experiencing substantial growth and plans to expand its Honeywell installation along with the expansion of its facilities. The company currently processes 10 million tons and plans to increase that to 42 million tons. Currently it has 25 controllers and they will expand that to 75 controllers with three optimizers, and Honeywell will monitor all of them.

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