

IT'S NEVER BEEN DONE BEFORE

Emerson Technology Helps Qatargas Boost Liquefied Natural Gas Production to Meet World Demand for Clean, Reliable Energy

Natural gas is considered the most environmentally friendly of the fossil fuels and demand for it is growing. Converting natural gas to liquefied natural gas (LNG) allows for cost-efficient storage and transport of this energy source and Qatargas wanted to expand its facilities to boost LNG production from 10 million tonnes annually to 42 million tonnes annually by the end of the decade. To meet this ambitious goal, Qatargas' productive capacity is set to grow to a scale never been built before – and Emerson technology is helping make it possible, safe, and cost effective.

Natural gas is considered the most environmentally friendly of the fossil fuels and demand for it is growing. Natural gas burns more cleanly than oil or coal, and emits fewer harmful chemicals into the atmosphere.

The country of Qatar has the world's third largest reserves of natural gas after Iran and Russia. But its location in the Middle East does not make it possible or economical to build pipelines to customers in Europe, Asia, and elsewhere that need natural gas for fuel or to help reduce their carbon emissions.

Qatargas was established in 1984 to build the infrastructure to convert natural gas to liquefied natural gas (LNG), which takes up a fraction of the volume and allows for cost-efficient storage and transport by ship. Through a complex process, the gas is purified and super-cooled to a liquid state. Once the LNG arrives at its port destination, it is reheated and returned to a gas at a regasification terminal for distribution through pipelines to customers.

To capitalize on the growing demand for clean-burning natural gas, Qatargas came to Emerson with a challenge in 2004. Qatargas wanted to aggressively expand its facilities to boost LNG production from 10 million tonnes annually to 42 million tonnes annually by the end of the decade – and it needed a technology partner with the industry expertise and global capabilities to make it happen.

It's Never Been Done Before. To meet this ambitious goal, Qatargas' productive capacity is set to grow to a scale never been built before – and Emerson technology is helping make it possible, safe, and cost effective.

In Qatar's Ras Laffan Industrial City, Qatargas is constructing the world's four largest-ever LNG "trains" – the term for LNG production facilities. The new facilities are massive in scale – covering approximately 10 square kilometers of land. The section of each new train that cools and condenses the gas to a liquid is one kilometer in length. Each mega train will be able to produce 7.8 million tonnes of LNG annually, compared to the 2.6 million to 3.2 million tonnes of annual output of Qatargas' older trains.

Qatargas selected Emerson Process Management to equip its mega trains with the latest digital automation technology to enable these plants to operate as efficient, reliable, and

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safe as possible. Emerson's PlantWeb digital architecture networks with its DeltaV digital automation system and more than 10,000 intelligent field devices. The digital field devices continuously run real-time monitoring and diagnostics on virtually every aspect of the production process as well as storage. Emerson's predictive maintenance software alerts operations and maintenance personnel when issues are detected, enabling prompt correction before they affect plant operations.

In addition, deployment of Emerson's Smart Wireless technology, linking its intelligent field devices to the control system without wires, has helped Qatargas reduce commissioning time and installation costs. Emerson engineers are also providing asset management services, advanced skills training, and a comprehensive parts management program.

Qatargas is accessing Emerson's global network of experts and manufacturing capabilities for this project. There are approximately 50 Emerson employees working on-site with Qatargas in Ras Laffan Industrial City to install and commission the process automation systems. Thousands of Emerson personnel on three continents (Europe, North America, and Asia) have been involved in developing the process management technologies, devices, and software programming to support the successful launch and operation of the Qatargas mega trains.

On April 6, 2009, Qatargas Operating Company will inaugurate the Qatargas 2 Project. This facility will be used to supply markets primarily in the United Kingdom, Europe, and Asia. Two other mega trains -- as part of the Qatargas 3 & 4 Projects -- are planned for startup before the end of the decade. All are fully equipped with Emerson process automation technologies.

With the help of Emerson, Qatargas is on its way to supplying greater quantities of a clean-burning fuel that provides an energy option for countries around the world and a better choice for the environment.