

Oil and Gas Industry Segment Profile

Liquified Natural Gas – LNG

Capabilities

Distributed Control System

- Site-wide capabilities including integrated motor control, and SIL-rated safety systems based on the PlantPax® Distributed Control System (DCS)
- Open and scalable integration of skid packages leveraging Ethernet protocols

Emissions Monitoring

- Software based predictive emissions monitoring system
- Real time environmental management application

Network and Security Services

- Facilitate management of security technology, policies and procedures
- Manage network convergence

Visualization Everywhere

- Effective and consistent user experiences in multiple platforms, from local operator stations to remotely located computers leveraging cloud-based services and solutions

Engineering Services

- Full scope capability from concept to support
- Front End Engineering & Design (FEED)
- Turnkey engineering, procurement and construction
- Main Automation Contractor (MAC)
- Global OEM coordination
- Installation, commissioning and support

Comprehensive Support Services

- Local spare parts and repair availability
- Remote and on-site technical support
- Training
- Lifecycle management



Greater Control, Greater Productivity, Greater Profitability

As a petroleum producer, you know that Liquified Natural Gas (LNG) represents one of energy's fastest growing opportunities. LNG is an efficient way to transport fuel from producer to consumer, helping the world meet its ever increasing energy needs. But while liquified natural gas offers substantial rewards, it also poses significant challenges: tough environmental and safety regulations mandate constant vigilance; volatile markets demand agile responses; and dynamic business conditions require operational excellence.

At Rockwell Automation, we know the problems you face. Our proven process automation solutions are helping producers around the world satisfy demand, maintain a competitive edge, while contributing to the bottom line. Knowing that multiple technologies and devices are required to operate your plant is why our solutions integrate process and motor control, as well as safety and information technologies. We offer a broad range of automation products and services that help assure you of excellent reliability and efficient terminal operation – from plant level devices, to supervisory control and terminal management systems.

Benefits

- Our PlantPax DCS provides unparalleled integration of all the disciplines found in a LNG facility: discrete, process, safety and motor control
- Based on the ControlLogix® platform, integration with modules/skid packages supplied by OEMs becomes easier
- Global execution with full scope project delivery capabilities
- Full range of local support services from spare parts availability and phone/on-site technical support to complete Lifecycle management resulting in a lower total cost of ownership

LISTEN.
THINK.
SOLVE.®

A Modern Approach to Process Control

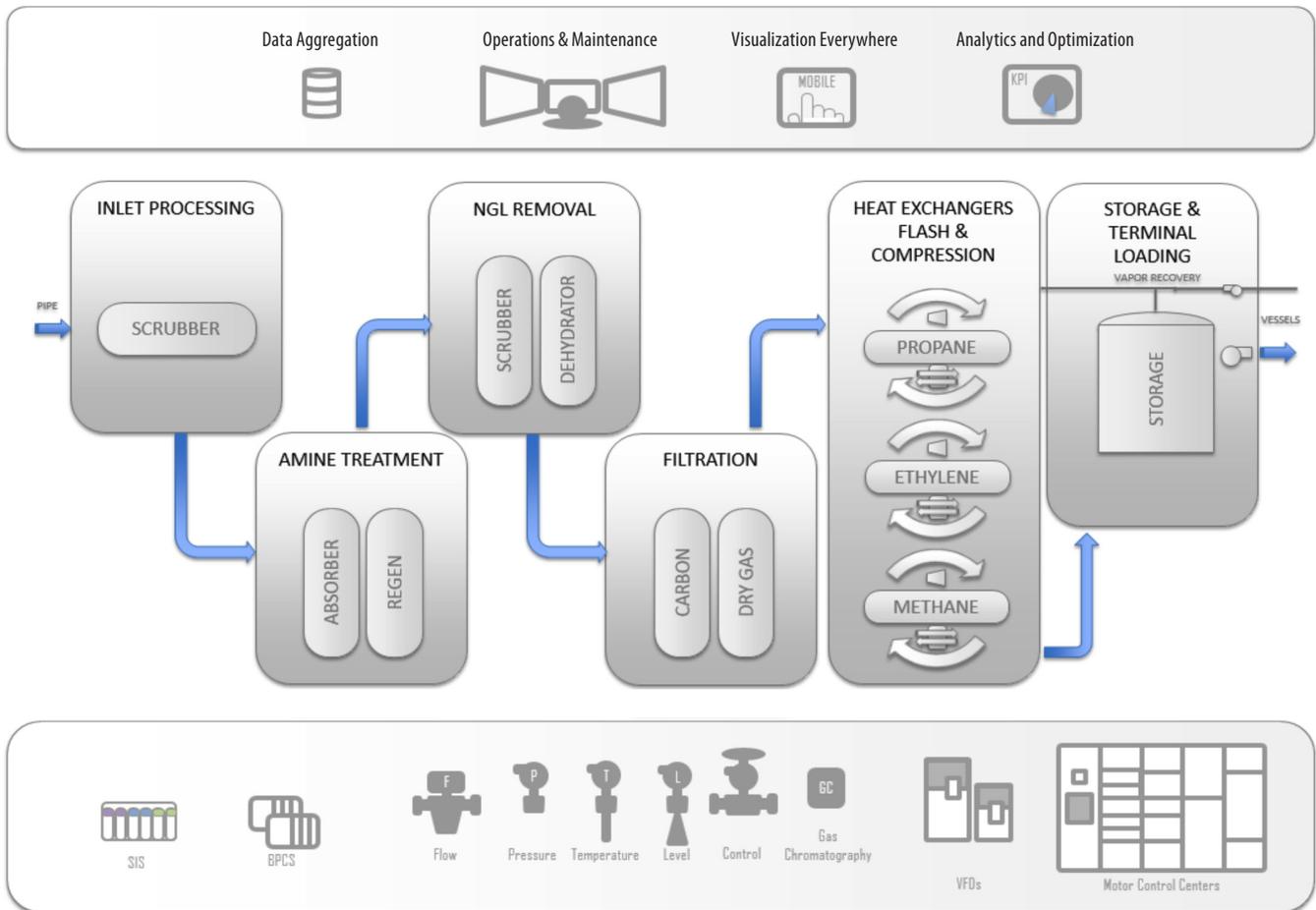
A typical LNG facility consists of multiple process units that are fabricated modularly and then integrated into a fully functional plant. Many of these packages: compressors, chillers, turbo-expanders, pumps and storage tanks will require specific controllers optimized for the type of function they will perform. For example, specific functions in a plant with high speed, discrete logic might be controlled using dedicated Programmable Logic Controllers (PLCs). A central control system or DCS would traditionally be commissioned in a supervisory mode to control all operations in the facility as well as the main process area. Integration of the DCS with the skid packages used in the balance of plant is often costly and engineering intensive. Maintaining multiple disparate automation systems can strain operations and support resources, restricting flexibility and responsiveness.

The Rockwell Automation PlantPax system provides an unparalleled level of versatility, from discrete high speed control, to complex process algorithms, and motor control in one platform. It delivers all of the core capabilities of a DCS to address the requirements of process control and is built on a technology-unified platform that easily integrates with other automation systems and critical business systems.

PlantPax has the capability to handle points and control loops commonly found in LNG facilities. This provides unrestricted access to all plant assets, as well as scalability, and connectivity for improved safety and efficient operation of your plant.

PlantPax:

- Enables site-wide control and optimization resulting in a lower total cost of ownership
- Provides system scalability and modularity for engineering flexibility
- Is open and information-enabled, which allows operational improvements and integration with enterprise-level reporting tools



Intelligent Motor Control

Our Intelligent motor control offering assists with optimizing the performance and reliability of your control system. We have combined our leading-edge motor control and protecting devices with the advanced networking and diagnostic technologies of our Rockwell Automation Integrated Architecture® to provide you with Intelligent Motor Control.

In LNG terminal facilities as well as ship board automation it is critical that operators of the system have access to information regarding critical motor status, and health. Intelligent Motor Control technologies monitor numerous aspects of motor operations, be it a remote across-the-line starter, or a complete motor control center. This vital data is served to the Integrated Architecture via proven EtherNet/IP networking. Our Rockwell Automation information system turns the data into actionable information, assisting LNG facility operators in keeping their systems performing at peak efficiency.

Intelligent Motor Control technologies from Rockwell Automation are integrated into our complete line of low- and medium-voltage solutions. We have engineered industry-leading communication and protection technologies into our broad portfolio of motor control products including:

- Across-the-line starters
- Soft starters
- Variable frequency drives
- Motor control centers
- Custom-packaged motor control enclosures

Global Supply, Local Availability

Chances are, wherever business takes you, Rockwell Automation will be there, with our excellent products and a wide variety of end-to-end commercial services, which are designed to support your local operations. We have offices and personnel in more than 80 countries, and we maintain alliances with hundreds of global partners, which means we offer product availability and local support wherever you are.

Proven Solutions for Peace Of Mind

It's no wonder petroleum industry OEMs and end users trust Rockwell Automation. Our solutions help them achieve excellent reliability, peak performance and peace of mind, around the world. Applications include:

- **Process** – Process Safety, Emergency Shutdown (ESD), Pump Control, Turbo Expander Control, Flow Measurement, Generator Control, Fire and Gas, Compressor Control, Process Control
- **Storage** – Emergency Shutdown (ESD), Fire and Gas, Pump Control
- **Terminal** – Emergency Shutdown, Custody Transfer, Loading/Unload Control, Pump Control, Terminal Automation, Fire and Gas, Terminal Management
- **Distribution** – Emergency Shutdown, Custody Transfer, Terminal Automation, Pump Control, Terminal Management, Fire and Gas

Our open systems approach makes it easier to integrate equipment from multiple vendors into a single control system – one that delivers the flow, controllability and flexibility today's business requires.

Value-Added Services and Expertise

We supplement these technical capabilities with excellent value-added services and expertise. Our people and extensive PartnerNetwork™ have expertise in the automation and control industry. While your challenges are complex, your ultimate goal is likely a simple one: to run a profitable, safe and sustainable operation.

Reaching that goal is easier with a partner who knows your industry and processes, who understands what is standing between you and the results you want to achieve – and how to remove those roadblocks. We draw on our global pool of in-house experience and PartnerNetwork resources to deliver repeatable, scalable and maintainable solutions – tailored to you and the specific challenges you face every day.

Our commitment to you is to use our broad and deep domain expertise, extensive global capabilities and proven project management methodology to help reduce project risk and provide solutions specific to your needs – executed globally and supported locally.

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