

Enable on-time start-up and
compliance with low project risk
and long term asset support



Biomethane to Grid Injection Solutions

Expertise and support from the global leader in automation





Innovative technologies can give you unprecedented flexibility and confidence in meeting your business goals.

Reduce project complexity, ensure safe and consistent production and lower lifecycle costs

Biomethane injection into the grid is helping to contribute towards meeting the European Union renewable energy targets and is showing the highest level of growth of any gas market in the world. New biomethane projects need to be brought on line on time and within budget. Gas must then be produced safely and to the required standard.

Selecting the right automation supplier is critical to the success of a new project. It is important to look for a partner that can provide a complete solution that is compliant with current legislation, as well as offers lifecycle support to ensure continued top quartile performance. Installed equipment must support maximum plant availability by helping to avoid any unplanned downtime, thereby generating a greater return on investment.

“The European policy in the field of energy is to increase security of energy supply in the EU as well as to contribute to reduce the emission of greenhouse gases accepted by the EU at Kyoto.”
– EN16723-1



“Natural gas, biomethane and blends of those intended for injection into NG networks shall be free from any constituents or impurities.”
– EN16723-1



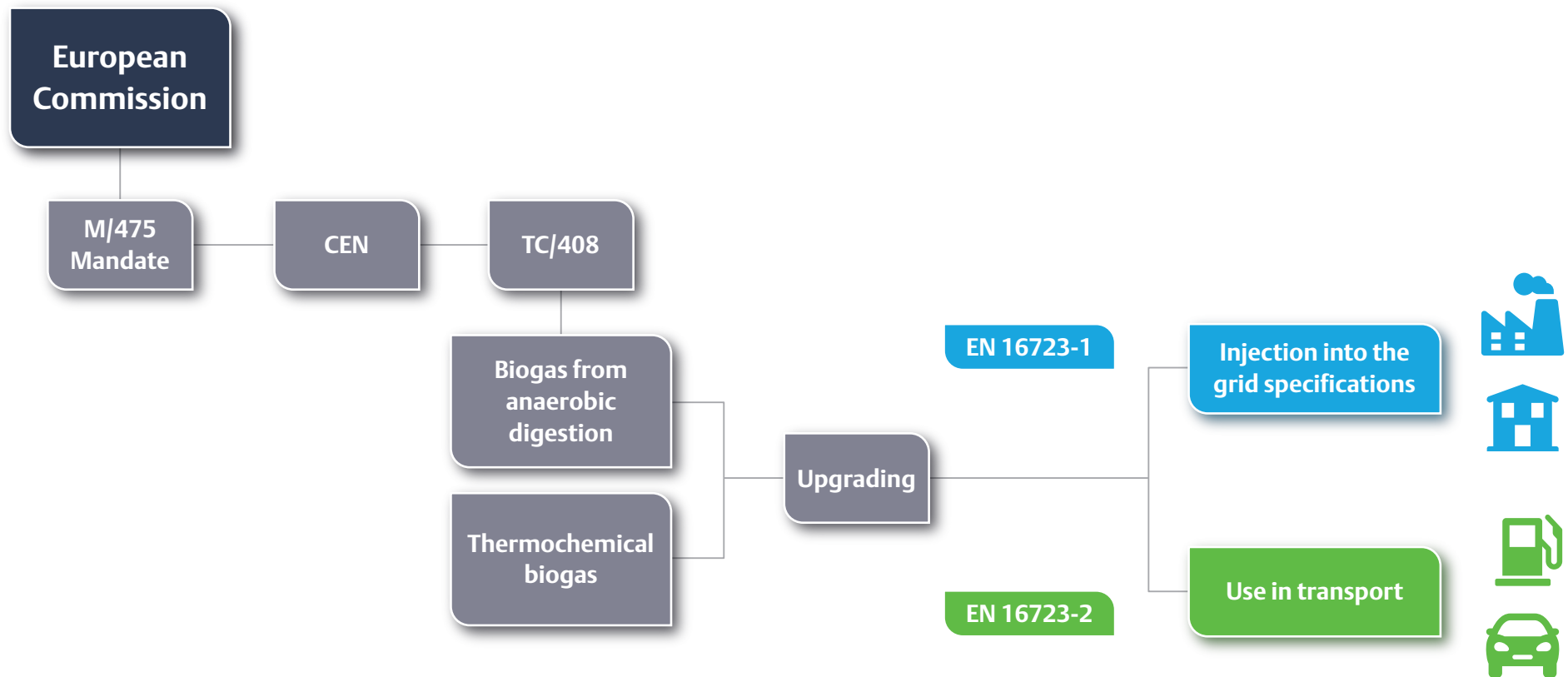
“The biomethane production must be pursued in the respect of the following:
Economicity and economic sustainability, Safety and Efficiency.”
– Authority 484-17



Europe's path to legislation

Biomethane is gaining a lot of consideration due to the growing attention to the environment, and in particular to the increase in global heating that is causing temperature rise with catastrophic effects. Biomethane presents a great new opportunity for Europe in terms of a low-cost, eco-friendly form of energy. Its implementation can decisively contribute to the de-carbonization of the economy, helping the transition to an energy system based on sustainable resources. New regulations within many European countries not only enable biomethane to be added to the natural gas networks, but incentives are also available to increase the amount of biomethane added to the grid.

Europe agreed on several directives on the promotion of the use of energy from renewable sources; common rules for the internal market of gas have been created, and they allow the regulated circulation of biomethane, together with the interconnection to the natural gas grids. The new EN16723 standard will regulate the use of biomethane for both injection into natural gas pipelines and use in transport.



16723-1: Biomethane for injection in the natural gas network

16723-2: Natural gas and biomethane for use in transport

Why Emerson? We understand biomethane injection into the natural gas network

Emerson continues to help customers stay competitive by offering scalable, smart integrated systems and solutions.

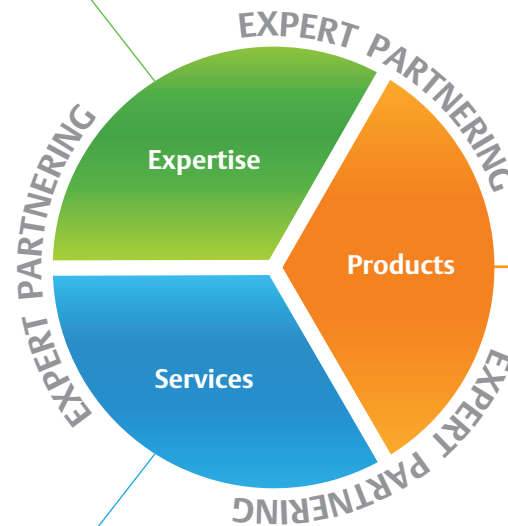
Learn how Emerson expert partnering can help natural gas operators meet the European renewable energy target while reducing project complexity, ensuring safe and consistent production and lowering lifecycle costs.

Expertise

- Know-how in the natural gas industry
- Proven expertise in turnkey projects
- Experts available in each of the key areas:
 - Instrumentation
 - Pressure control and overpressure protection systems
 - Gas analysis
 - Metering
 - Odorant Injection
 - Propane injection for PSC modulation
 - Flow control
 - Local and remote monitoring and control
 - Industry 4.0 ready automation
- A team of experts from each domain grouped together around the same project

Services

- Design and feasibility study
- Integration, factory reception
- Project management, unique contact point
- Risk management (time, expertise, commissioning, operation and maintenance)
- Testing strategy
- Cyber security
- Advanced analytics
- Lifecycle services: maintenance, odorant refilling, remote supervision and troubleshooting, routine inspections/checks, logistic solutions



Products

- One stop shop with solutions including most Emerson core components
- Less interface with third party providers and unclear responsibility
- Best in class accuracy and reliability of all equipment and instrumentation
- Know-how to ensure the best performance of all the devices

Main Products

- Filters and heat exchangers
- Pressure regulators and back-pressure regulators
- Slam shut valves
- Safety relief valves
- Odorant injection systems
- Flow meters
- Pressure and temperature transmitters
- Electrical and pneumatic actuators
- Control valves
- Solenoid valves
- Manual valves
- Industrial automation and computing
- Local and connected control systems

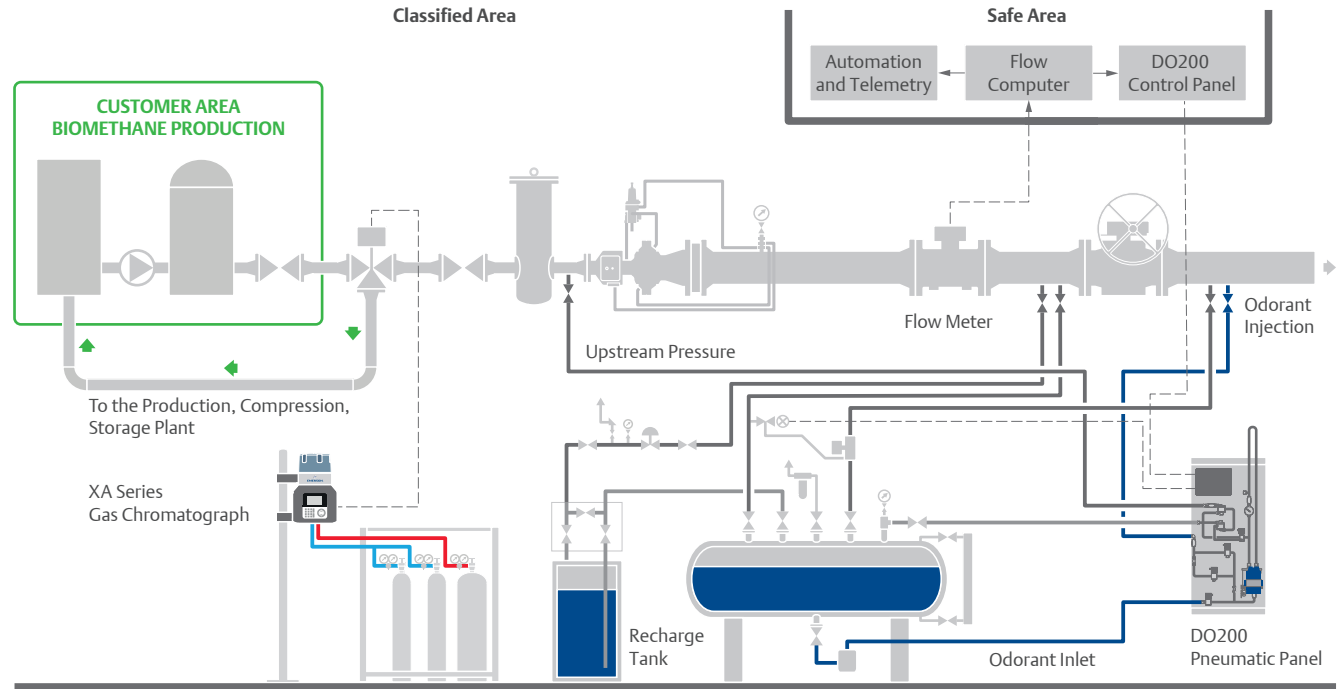
Biomethane skid solutions from a single supplier

Emerson offers a complete portfolio of solutions that address all your biomethane injection skid requirements.

Our technology ensures safe gas production to desired quality standards.

This includes gas chromatographs that set the industry standard for accurate on line analysis, fiscal metering equipment to measure gas volumes, best-in-class pressure control equipment to prevent over pressurization and odorization systems to enable safe injection.

Emerson can support you from the concept design phase through the lifetime of your asset.



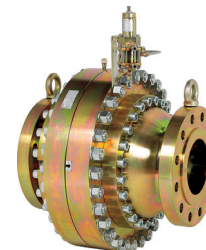
Gas Analysis

- Fully compliant gas quality measurements
- Metrology approved gas chromatograph
- Proven sample conditioning system



Pressure Control, Metering, Odorization

- Pressure regulators, control valves
- Overpressure protections
- Pressure, temperature measurement
- Custody transfer flow measurement
- Odorization systems
- Fully assembled injection systems



Control & Communication

- State-of-the-art connected controls and SCADA solutions
- Flow, industrial and edge computing to perform advanced analytics
- Smart grid management solutions
- Industry 4.0 ready
- UPS



Smart Grid management

The use of a greener energy such as biomethane contributes to meeting the European Union renewable energy targets; therefore, the injection of biomethane into the grid must be prioritized over the traditional fossil gas.

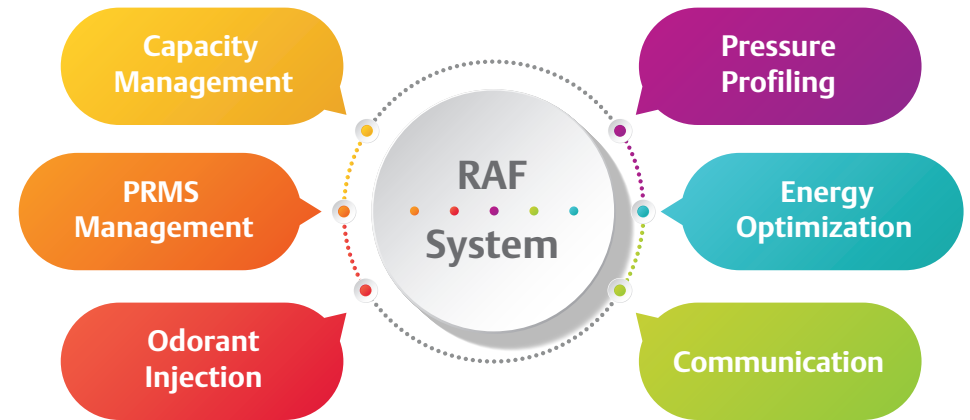
The biomethane injection stations will be set at priority flow while the traditional grid is kept inactive, until the biomethane flow rate will result insufficient to the real need (i.e. in case of climate change or consumption excess).

The manual management of biomethane injection points throughout the entire grid would be very complicated and require many resources. It is necessary to implement scalable automated solutions that can be controlled locally or from remote locations. Emerson solutions can be customized for each network depending on specificity.

Smart grid management allows for inter-operation of smart equipment and help optimize pressure profiles to automatically manage biomethane injection in the natural gas grid, allowing seamless integration with other sources.

Additional features will include:

- Set point modification from remote
- Flow rate limitation and diagnostic information
- Pressure profiles optimization adapting to real end user needs



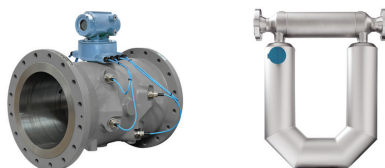
Biomethane Injection into the Grid - Main Components

Gas Chromatograph



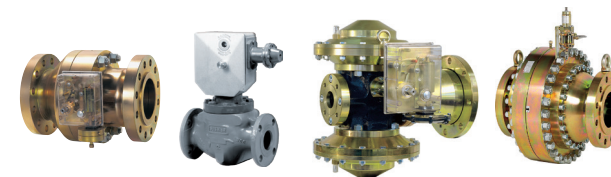
- One device only with very low uncertainty on BTU and low detection limits for H₂S
- Compact gas chromatographs available to overcome the limited space typically available
- Minimized calibration intervals, reduced carrier gas usage
- Well designed modular sample handling system - fully integrated - Low maintenance philosophy
- Intuitive software and maintainable module simplify operation and reduce maintenance & operational costs
- Remote technical support

Flow Meters



- New technologies: Ultrasonic and Coriolis
- No moving parts, meaning that very low maintenance is needed
- Advanced meter diagnostics: conditions of the meter, of the gas, of the piping
- Quick troubleshooting

Pressure Control



- Axial Flow and Top Entry technology
- Different solutions for noise reduction
- Overpressure protections: monitor, relief valves, slam shut valves

Biomethane Injection into the Grid - Main Components

Odorant Injection



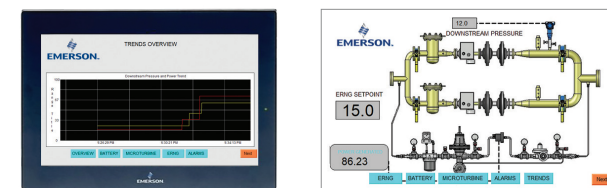
- New technologies ensure ease of use, reduced maintenance and remote access/control
- Higher accuracy, almost infinite turn-down
- Automatic calibration
- Configurable alarms
- Different safety systems
- Direct or SCADA access

RAF Technology



- One box solution for smart pressure reducing and metering stations, and grid management applications.
- Applicable to all existing pilot operated regulators
- Open/Expandable modular architecture
- Low installation impact (does not affect existing installation layout)
- Online troubleshooting

Automation & Control Systems



- Advanced industrial control systems to enable local and remote process control
- Embedded algorithms to perform advanced analytics, trending and remote monitoring/diagnostics
- Integrated Emerson industrial automation & control systems (RTU, Flow/Industrial Computers, SCADA)
- Seamless integration with centralized/existing control/IT networks
- Intuitive, sunlight-readable, interactive, operator interface



For more information visit: www.Emerson.com

Solving the process industry's challenges, with predictable success, any time, any place



Emerson provides innovated and tested solutions for the biomethane injection into the grid. Contact us regarding our technologies and our global level services, that enable operators to meet the European renewable energy target while reducing project complexity, ensuring safe and consistent production and lowering lifecycle costs.

Starting is easy. Visit [Emerson.com](https://www.emerson.com)

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