



APPLICATION REPORT

Oil & Gas

Flow measurement of green hydrogen at a power-2-gas plant (P2G)

- Accurate and consistent information for the grid injection of green gases
- Flow measurement of hydrogen, synthetic methane (SNG), carbon dioxide and natural gas
- Full scope of delivery from one source incl. instrumentation, testing, commissioning and training



1. Background

GRTgaz is one of the leading European operators in natural gas transmission. The company is an innovator in the area of sustainable energy production and distribution. GRTgaz is the project coordinator of the Jupiter 1000 project (www.jupiter1000.eu), which is France's first industrial power-2-gas (P2G) demonstrator with injection into the gas grid, located in Fos-sur-Mer in southern France. This project was supported in particular by the French Agency for Ecological Transition (ADEME), the European Regional Development Fund (ERDF) as well as the administrative region of Provence-Alpes-Côte d'Azur and has been awarded by the Investments for the Future (PIA) programme of the French government.

P2G is a technology that uses electrical power to produce gaseous fuels. In the Jupiter 1000 project, renewable energy is used to produce hydrogen by means of electrolysis of water. This green hydrogen can be applied either as a fuel, an energy carrier or as feedstock, and will play an important role in de-carbonizing the industry and energy sector. In the Jupiter 1000 project the produced green hydrogen is applied in two different ways to de-carbonize the natural gas supply. In the first method the hydrogen is directly injected in the grid and forms a blend of hydrogen and natural gas. In the second method the hydrogen (H_2) is converted into synthetic methane (CH_4) via the methanation process in which it reacts with CO_2 captured at a nearby industrial site. Subsequently the synthetic methane is injected in the natural gas grid.

5. Products used

OPTIMASS 6400 C

- Coriolis mass flowmeter for advanced process applications with hydrogen and other gases and liquids
- Custody transfer: OIML R117, R137, MI-002, MI-005; API, AGA, etc.
- Flange: DN10...300 / ½...12", max. PN 160 / ASME CI 1500
- SIL 2/3 certification acc. to IEC 61508-2010, up to DN200 / 8"



OPTISONIC 7300 C

- Ultrasonic flowmeter for natural gas, process gas and utility gas applications
- 2-path meter, for standard volume flow metering, independent of media properties
- No maintenance, no pressure loss, large dynamic range
- Flange: DN50...1000 / 2...40", max. PN450 / ASME CI 2500; also weld-in connections



OPTISWIRL 4200 C

- Vortex flowmeter for utility applications and energy management systems
- For liquids, (wet) gases, saturated and superheated steam (+240°C / +464°F)
- Integrated P+T measurement: direct output of mass, nominal flow, energy, gross/net heat
- Flange: DN15...300 / ½...12"; wafer version: max. DN100 / 4"



SUMMIT 8800

- Flow computer for visualisation of measurements, managing multiple measured values of several meter types simultaneously
- Compliant with all main international standards, such as OIML, ISO, API, AGA, GOST
- Cost effective solution due to modular hard- and software design
- Full colour graphical touch screen for maximum process transparency



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