PCI 14.2 Croatia and Slovenia Smart Gas Grid Project

Information leaflet

1. General information

Project name:	Croatia and Slovenia Smart Gas Grid Project
Project PCI number:	14.2
Category:	Smart gas grids
Countries concerned:	Croatia and Slovenia
Project promoters:	Plinacro Ltd. (HR), Plinovodi d.o.o. (SI)
Projects included:	The project is an integral part of the following EU TYNDP projects in Croatia: • RET-N-1155 Gas system retrofitting for 100% H2 future capability • OTH-N-778 Gas transmission methane emission reduction project and will significantly help implementation of the following EU TYNDP H2 projects: • H2T-N-619 H2 interconnection Croatia/Slovenia • H2T-N-1274 H2 backbone Croatia – North • H2T-N-1307 H2 backbone Croatia – South • H2T-N-1255 H2 repurposing interconnection HR-HU • H2T-A-68 H2 Ionian-Adriatic Pipeline Plinacro Ltd • H2T-A-302 Interconnection Croatia-Bosnia and Herzegovina (South). The project is an integral part of the following EU TYNDP projects in Slovenia: • HYD-N-442 SLOP2G • OTH-N-1201 Reduction of transmission system methane emission and will significantly help implementation of the following EU TYNDP H2 projects: • HYD-N-1237 Croatia-Slovenia-Austria H2 corridor • HYD-N-1356 Italy-Slovenia-Hungary H2 corridor.
Project location:	Major gas nodes and interconnection points in gas transmission systems of Croatia and Slovenia.

2. Project description

Croatia and Slovenia Smart Gas Grid Project includes the project of planning and reconstruction of gas nodes and safety and measuring equipment for the reception and addition of decarbonized gases to the gas transmission system. This includes the development of a 'smart gas network' to enable interactive and intelligent monitoring, measurement, quality control and management of the reception and transmission of decarbonised gases. The implementation of the project will enable the reception and mixing of decarbonised gases (biomethane and hydrogen) into the gas transmission system, which will reduce greenhouse gas emissions and facilitate the transition to a transmission system that will transport 100% of decarbonised gases in the future. The project will contribute to the achievement of the objectives set by the European Green Deal. The project also envisages the implementation of a system that will monitor, measure and reduce methane emissions to reduce the carbon footprint of gas transmission systems of both countries.

The 'smart gas network' is based on advanced digital systems and components, control systems, sensor reconstruction, chromatography equipment, telereading, IoT, etc. The project envisages the development of an integrated SCADA system at each project promoter, enabling simulations of operations and the automatic control of natural, mixed, and biomethane gas flows, with the long-term aim of full decarbonisation of the gas transmission system.

3. Expected benefits

The project will with the use of innovative and digital solutions in a cost-efficient manner transform and integrate the existing transmission network of both countries in such a way that it will enable transmission of low-carbon and particularly renewable gases in accordance with consumers' needs and gas quality requirements in order to reduce the carbon footprint of the related gas consumption. It will enable an increased share of renewable and low-carbon gases, and create links with other energy carriers and sectors, including the related physical upgrades if they are indispensable to the functioning of the equipment and installations for integration of low carbon and particularly renewable gases.

The project will create the preconditions for optimizing the flow and level of hydrogen blending into the transport system and maintaining gas quality at the interconnection points at the levels in compliance with the future harmonized approach on blending of hydrogen into the natural gas system in the form of a Union-wide allowed cap at cross-border interconnection points between Member States, where transmission system operators have to accept natural gas with a blended hydrogen level below the cap, which would limit the risk of market segmentation. The project will enable the development and connection of hydrogen production facilities, blending of hydrogen, accelerated transition towards dedicated hydrogen transmission networks and management and control of gas systems with biomethane as well as undisturbed cross-border exchange all in compliance with the provisions from Directive (EU) 2024/1788 of the European Parliament and of the Council of 13 June 2024 on common rules for the internal markets for renewable gas, natural gas and hydrogen.

4. Project location

The Project is located along the entire gas transmission systems of Croatia and Slovenia. It will impact all interconnection points and major gas nodes as well as current and future compressor stations in both countries.

5. *Scope of the project*

By this project all chromatography sets will be replaced or reconstructed in such a way as to enable blending and measuring of hydrogen in the gas flow. To increase operability of current gas transmission networks gas operated pneumatic actuators will be replaced with electro-hydraulic actuators.

All necessary equipment for the reduction of methane emissions will be acquired and applied in accordance with the provisions of Regulation (EU) 2024/1787 on the reduction of methane emissions in the energy sector and amending Regulation (EU) 2019/942 in order to reduce the carbon footprint of gas transmission systems and related gas consumption.

In the second phase of the project implementation, all significant gas nodes will be reconstructed to enable the smooth blending of decarbonized gases into the gas transmission system, the separation and management of gas and hydrogen parallel pipelines, and in the final phase the efficient management and cross-border exchange of biomethane and hydrogen.

The project envisages the development of an integrated monitoring and control system at each project promoter, enabling simulations of gas flows and the automatic management of natural, mixed, and decarbonized gas flows, with the aim of accommodating the largest possible amounts of decarbonized gases within the transmission system. In addition to the basic goal of receiving the largest possible amount of decarbonized gas into the transport system, the integrated advanced intelligent monitoring and control system will enable the management of cross-border gas flows.

6. Preliminary project timetable

The project will start in 2026 with the procurement and installation of new hydrogen enabled chromatographs and methane emissions control and monitoring, what will be carried out in 2026-2028 period. In the 2026-2028 period a study, design and permitting phase for reconstruction of gas nodes and other advanced digital systems and components, control systems (including SCADA), sensor technologies, gas flow and quality management devices (compressors, gas flow control sets) will commence. The construction phase will start in 2030 and finish in 2034.

7. Additional information

- Official European Commission PCI Website:
  https://energy.ec.europa.eu/topics/infrastructure/projects-common-interest-and-projects-mutual-interest_en

- Interactive Map for PCI Projects:
  https://ec.europa.eu/energy/infrastructure/transparency_platform/map-viewer/main.html

- Website of the Slovenian NRA - The Energy Agency on PCIs:
  https://www.agen-rs.si/web/en/projects-of-common-interest-pci-

- Ten Year Gas Transmission Network Development Plan for the 2025 – 2034 period:
  https://www.plinovodi.si/sl/prenosni-sistem/razvojni-nacrt/ (only in Slovene)

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