THOTH2

NOVEL METHODS OF TESTING FOR MEASUREMENT OF NATURAL GAS AND HYDROGEN MIXTURES

Project ID	101101540
PRR 2024	Pillar 5 – Cross-cutting
Call topic	HORIZON-JTI-CLEANH2-2022-05-04: Development of validated test methods and requirements for measuring devices intended for measuring NG/H_2 mixtures
Project total costs	EUR 1 997 361.25
Clean H_2 JU max. contribution	EUR 1 997 360.50
Project period	1.2.2023–31.7.2025
Coordinator	Snam SpA, Italy
Beneficiaries	Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile, Alma Mater Studiorum – Università di Bologna, Cesame-Exadébit SA, Commonwealth Scientific and Industrial Research Organisation, Eidgenössisches Institut für Metrologie METAS, Enagás Transporte SA, Fondazione Bruno Kessler, Groupe Européen de Recherches Gazières, GRTgaz, INRETE Distribuzione Energia SpA, Instytut Nafty i Gazu – Państwowy Instytut Badawczy, Istituto Nazionale di Ricerca Metrologica, Operator Gazociągów Przesyłowych GAZ-SYSTEM S.A.

https://thoth2.eu/

PROJECT AND GENERAL OBJECTIVES

Thoth2 aims to cover the normative and standards gaps related to methodologies and protocols for evaluating the performances and identifying the limits and tolerances of state-of-the-art (SOA) measuring devices in transmission and distribution systems when carrying mixtures of H_2 and natural gas (NG) or pure H_2. Thoth2 will design dedicated methodologies to test types of measuring devices (gas metres, gas volume conversion devices, pressure and temperature transducers, gas quality analysers and gas leak detectors) under various operating conditions.

NON-QUANTITATIVE OBJECTIVES

The Thoth2 project will help the scientific and industrial communities understand the potential impact of different H_2NG mixtures on the performances of SOA measuring devices installed in the transmission and distribution gas infrastructure. European transmission system operators (TSOs) and distribution system operators (DSOs) will benefit from the project results, as they will obtain important information about the limits and tolerances of the measuring instruments under various operating conditions. As Shimmer is a pre-normative research project, recommendations will be sent to the normative bodies to support the development of new standards and the updating of existing ones.

PROGRESS AND MAIN ACHIEVEMENTS

Within work package (WP) 1, the SOA, barriers and bias of metering devices for NG blends and pure H_2 have been assessed. Three deliverables (public reports) describe the analysis performed.

The definition of the methodologies for testing the measuring devices is in progress (under WP 2). They will then be applied in the validation of selected devices in order to evaluate the devices' performances under various operating conditions (WP 3).

FUTURE STEPS AND PLANS

Once the methodologies have been defined the next step will be to apply these methodologies/protocols to a list of selected measuring devices. These measuring devices have been selected based on the analysis performed in WP 1 in order to represent the most typical/common devices and systems installed in the gas infrastructure operated by the TSOs and DSOs involved in the project and in the analysis previously performed. The test activities will validate the methodologies and provide data that will be included in the recommendations. These recommendations will then be shared with standardisation bodies and manufacturers through the Stakeholder Advisory Board of the Thoth2 project.

PROJECT TA RGETS

Target source	Parameter	Unit	Target	Achieved to date by the project	Target achieved?
Project's own objectives	Organisation of at least one Stakeholder Advisory Board workshop	number	1	1	✓
	Four papers submitted to gold open access peer-reviewed journals during the project	number	4	1	
	Presentation of the project at at least five professional workshops/exhibitions	number	5	3	
	Articles submitted to the popular press or trade journals to enable other stakeholders to understand and have access to the results of the project	number	3	0	
	Organisation of a closing workshop to present the project results to all interested stakeholders	number	1	N/A	⚙
	Presentation of at least seven papers at international conferences and other relevant conferences identified during the project	number	7	3	
	Impact on standards at scope	number	1	N/A	
	Safety, PNR/RCS workshops	number	2	1	