

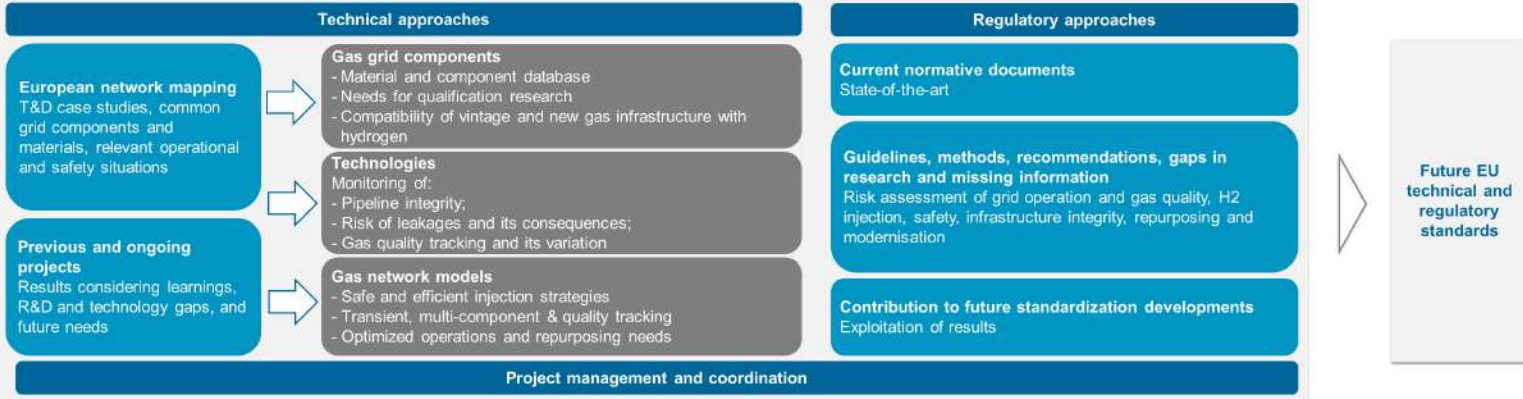


INTRODUCTION

To accelerate the transition to a low-carbon economy while exploiting existing infrastructure, hydrogen can be injected to the natural gas network. However, many technical and regulatory gaps should be closed, and adaptations and investments made to ensure that multi-gas networks across Europe will be able to operate in a reliable and safe way while providing a highly controllable gas quality and required energy demand.

The SHIMMER project aims to enable a higher integration and safer hydrogen injection management in multi-gas networks by contributing to the knowledge and better understanding of hydrogen projects, their risks, and opportunities.

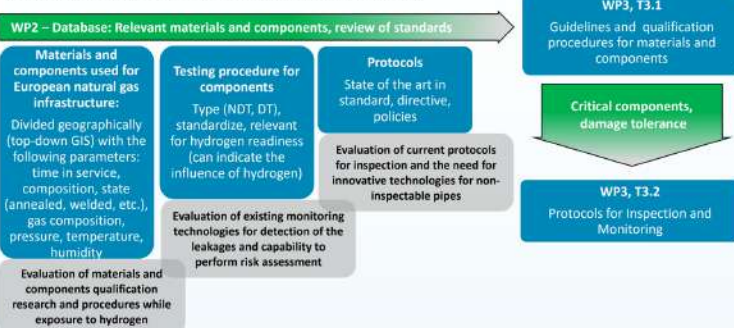
SHIMMER METHODOLOGY



METHODS

Gas grid components

SHIMMER will establish a database using data from four TSOs and two DSOs in the consortium and several projects. Currently, the approach taken to inject H2 in gas networks is conducted locally in each country, based on unharmonized protocols for material qualification, physical conditions, concentration thresholds and gas purity. The SHIMMER database will be open to all EU countries, allowing to introduce their data at a later stage.



Technologies

To ensure the transmission and distribution of H2, it is necessary to have complete information regarding the technical condition of the section of the transmission network in which H2 will be present. SHIMMER will investigate how the current inspection technologies address the challenges posed by H2 (or blends) transport and define a set of guidelines for future research requirements, especially in non-piggable sections.

Gas network models and network management

After defining the network data model, the consortium will deploy available models and develop new open-source models to design and simulate operations of different scenarios for H2 blends within gas networks.

Contribution to future standardization developments

SHIMMER will review standards with regards to material compatibility with hydrogen, gas quality control and variation, different end user types, etc. The SHIMMER partners will provide results to the relevant standardisation bodies, supported by the interaction between GERG and CEN TC within the recently completed GERG CEN H2 PNR project.

With 4 TSOs (covering close to 1/3 of the EU gas transmission network), 2 DSOs, 5 research institutes, a university and an international association, the SHIMMER consortium is ideally placed to deliver these ambitious goals.

Norway Hydrogen Transport Alternatives



Example of a TSO gas grid to be used in WP4: Flow assurance

RESULTS

The SHIMMER project will be summarising a great amount of data and knowledge, as well as providing the tools and guidelines for safe H2 injection into the gas networks, with following expected results:

- **Definition of methods, tools and technologies for multi-gas network management and quality tracking**, including simulation, prediction and safe management of transients, in view of widespread H2 injection in a context of European-wide interoperability and gas market reform;
- **Best practice guidelines for handling the safety of H2 in the natural gas infrastructure**, managing the risks (with prevention and mitigation protocols) for guaranteeing the safe interoperability of gas transport at European level;
- **Mapping and assessing T&D infrastructure components at European level** to identify best available technologies, the H2 readiness of components, network technologies and monitoring protocols to steer stakeholders towards effective regulation and technical standards, network repurposing and modernisation investments.

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