

Welcome to the first newsletter of the SmartGasNet project!

Six months in already! This is a perfect time to celebrate our progress, reconnect with one another, and ensure we're all aligned on who we are and what we're working toward together.

Want to know how we are supporting the introduction of low-carbon and renewable gases? Read on!

SmartGasNet updates

Kick-Off Meeting

The SmartGasNet project partners met at the premises of the National Metrology Institute of the Netherlands (VSL) in Delft (Netherlands) to hold their Kick-Off Meeting. On October 14 and 15, representatives from the consortium's partner organisations presented the various tasks that will be carried out over the three-year duration of the project. The meeting also served to share the first steps and actions of SmartGasNet.



[Click here!](#)

Webpage launch

During the first few months of the project, we have been working hard to create our image so that you can recognize us at a glance. Visit our website and access our content!

[Click here!](#)



SmartGasNet: objectives and WPs

SmartGasNet aims to enhance the processes for data collection, modelling, processing, and prediction to promote the safe, efficient, and economic operation of gas grids. Findings will facilitate the introduction of renewable energy gases, such as hydrogen and biomethane, into current gas grids, partially replacing natural gas.

This project will provide the necessary methods, algorithms, datasets and good practice guides to enable gas grid operators to adapt their data processing for fiscal metering, custody transfer and billing.

To accomplish this objective, SmartGasNet has been divided into five work packages to help achieve the objective correctly:

WP1: Empirical Datasets of Time-Resolved Gas Flow Measurements

Time-resolved data of gas metering are scarcely available. Most of these data are obtained from Transmission System Operators (TSOs) and Distribution System Operators (DSOs) and are perceived as sensitive commercially and strategically.

Moreover, that data rarely contains all the metadata to make them interoperable. This WP package aims to create datasets for time-resolved gas flow measurements to enable studying and modelling of autocorrelation effects.

WP2: Methods for the evaluation of time-correlation and uncertainty in gas metering data

Gas grid data is obtained as a time series and can show interdependencies that can be assessed using statistical tests and

modelled with various kinds of statistical models. The interdependencies in the measurement data are called time

correlations, which cover both completely correlated uncertainty contributions, as well as partial correlations over time. This work package aims to develop analytical and numerical methods for identifying and evaluating time-correlations between different measurement uncertainty contributions and to use this insight when propagating measurement uncertainties through accumulation and averaging processes.

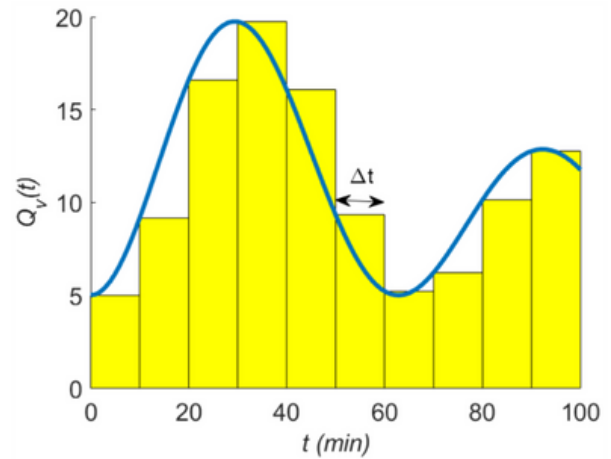


Fig. Numerical approximation of the integration of metering data using the approach of ISO 15112. From [Met4H2 project](#).

WP3: Machine learning for smart gas networks

WP3 aims to assess the feasibility and possibility of integrating Machine Learning (ML), in smart metering and monitoring systems used in gas grids. The activities will provide guidance with a proposed workflow on how to set up, train, and validate ML models for gas grid monitoring and measurement in a way that the outcome gives input for existing guidelines and standards.



Fig. Machine Learning for Smart Gas Networks: Visualising Data Analytics and Predictive Insights (AI-generated image)

WP4: Evaluation methods for gas allocation and fiscal metering

This WP will develop novel evaluation methods for fiscal metering data of natural gas, Hydrogen-Enriched Natural Gas (HENG), biomethane, hydrogen and other energy gases that are traded on either quantity (volume or mass) or energy.

The evaluation methods will propagate the uncertainty from the measurements, including the dependencies that exist between the measurement results used in the totalisation of quantity and energy, in accordance with ISO/IEC Guide 98.

WP5: Creating impact

The project will share its findings to support all relevant stakeholders from industry, measuring equipment manufacturers, standardisation committees, metrology institutes and the scientific community. To facilitate the dissemination of project results, SmartGasNet will implement an

exploitation strategy to promote the rapid uptake of our results by key target groups.

Want to learn more about our work packages?

[Click here!](#)

Consortium

The consortium is made up of 10 entities from 8 countries that include NMIs, universities, research groups and centers. Meet us!

[Click here!](#)



Contact

Did you find what you read interesting? Would you like to stay up to date with SmartGasNet news and developments? Then don't hesitate to follow us on our channels!

If you are an interested stakeholder willing to contact project participants, if you have any questions or recommendations, if you would like to provide any input to the team, etc. Reach us!

[Click in the icons below](#)



EUROPEAN PARTNERSHIP



METROLOGY PARTNERSHIP



The project (24GRD10 SmartGasNet) has received funding from the European Partnership on Metrology, co-financed by European Union Horizon Europe Research and Innovation Programme and from the Participating States. Funded by the European Union, Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Euramet. Neither the European Union nor the granting authority can be held responsible for them.