

# Focus on smart grids experimentations

## Gas “Reverse flow” unit to export surplus amount of biomethane to neighboring territories

The reverse flow unit is a facility that allows gas transfer from the distribution system to the transmission system thanks to a gas compression mechanism. Thus, it enables an increase in local storage capacity for biomethane injection into the distribution system.

In Pontivy and Pouzauges, GRTgaz has designed and settled the first two French reverse flow units. The objective is now to assess how they operate under real conditions to optimize infrastructure settings.



## Gas “Smart delivery” unit to prioritize biomethane injection over conventional gas delivery

Adjusting pressure reference at a transmission/distribution interface point allows transmission network operators to finely adapt the volume of conventional gas delivered to the distribution network. Therefore, conventional gas delivered complements the biomethane delivery.

The remote setting of delivery unit pressure reference will be experimented as part of the West Grid Synergy demonstrator. It does not require any on-site visit from a technician. Therefore, pressure reference adjustments can be more frequent to increase biomethane injection capacity.



## Flexible solutions through biomethane storage features

Storage is a good option when the grid is facing congestion (i.e. consumption is locally and intermittently lower than production).

The West Grid Synergy demonstrator has to assess the feasibility and the value of biomethane storage features. The objective is to optimize the use of different gas storage capacities already available in the gas system, for instance at the NGV station or at the production site.

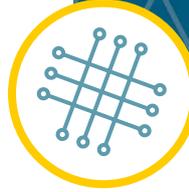


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## Network meshing allows more consumers to benefit from local and renewable gas

Biomethane production projects often take place in rural areas. To make the projects sustainable, production has to meet consumption. This can be done by connecting a major consumer to the grid or by interconnecting consumption areas.

In the West Grid Synergy territories, different meshing infrastructures have been implemented: a 43 km gas pipeline has connected a manufacturer to the grid and some connections have allowed formerly independent distribution systems to be merged. These meshing operations allow biomethane production projects to be conducted in those territories since their production is now locally absorbed.



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## Communicating sensors and smart meters, useful tools to better monitor the grids

- Communicating sensors give frequent pressure data at many points of the grid. The pressure level reflects the balance between consumption and production.
- Smart meters are key enablers for smart grids. They also help consumers to reduce their gas consumption.

Designing smart grids solutions requires a gas system modeling fuelled by a comprehensive set of data.

As part of the West Grid Synergy demonstrator, GRTgaz, Soregies, and GRDF implement sensors into their grid. IoT technology allows high-frequency remote data collection without extra infrastructure implementation. GRDF implements smart meters throughout France.



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## Infrastructures from the transmission and distribution networks interacting with each other to optimize the overall functioning of the grid

A smart gas system does not merely rely on the sum of performant grid infrastructures in local mode. A smart gas system rather relies on a comprehensive functioning with interacting grid infrastructures.

Throughout the West Grid Synergy territories, transmission and distribution system operators will optimize the overall functioning of the grid while making existing and future infrastructures interact with each other.

