Biomethane in France: Reasons for success and challenges ahead

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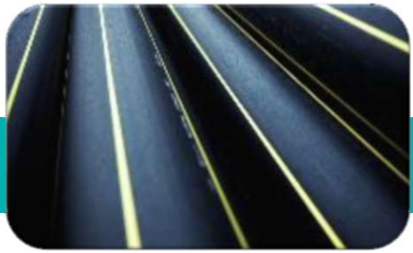
GRDF, main French and European natural gas distribution operator



200,000 km

of network

11 million

delivery points in France

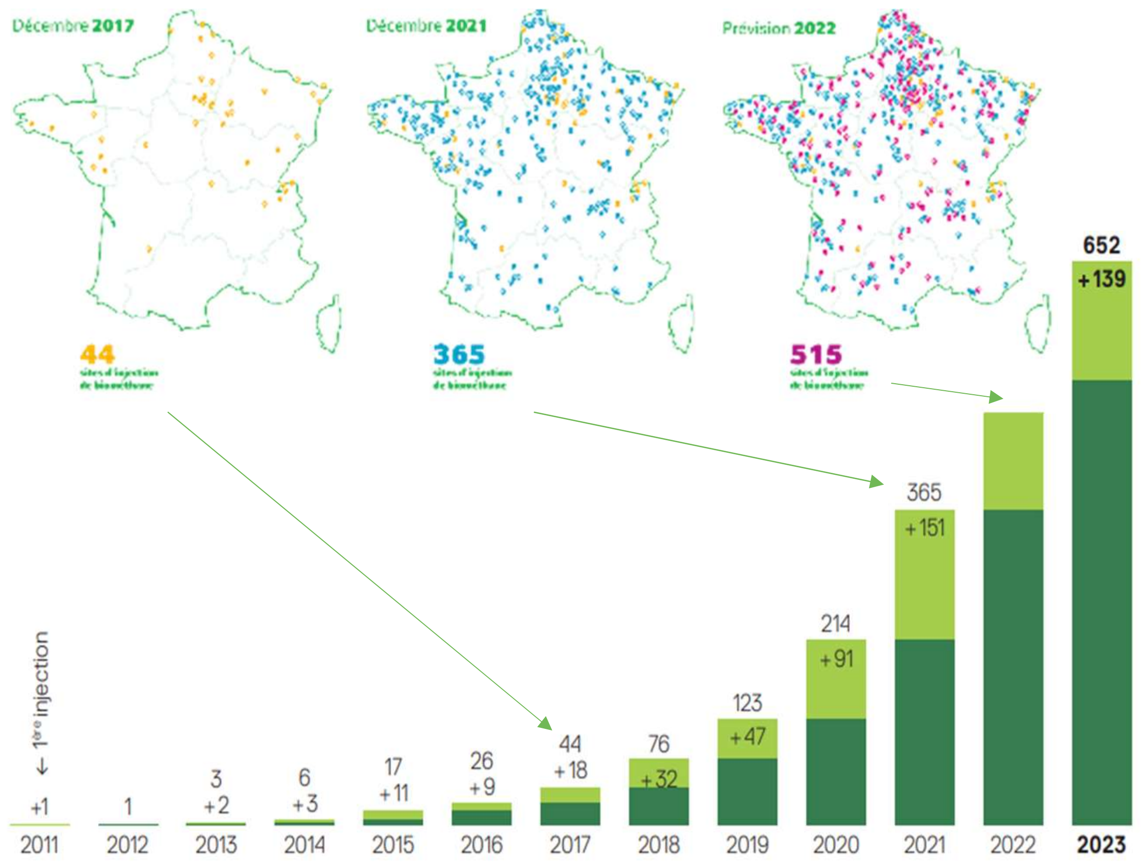
A grid operator

committed to the development of biomethane and bioNGV

500+ sites injecting

Fast growth of the biomethane sector over the last decade

Linked to an adapted and evolutive regulatory framework



Sources: *Panorama des gaz renouvelables, SER, 2024*

- **2011** — **1st feed-in tariff for biomethane injection**
- **2018** — **"Right to inject"**
- **2020** — **2nd feed-in tariff for biomethane injection (<300nm³/h) + Call for tenders (>300 nm³/h)**
- **2023** — **Modification of 2020 feed-in tariff & Calls for tender criteria (inflation, energy costs,…)**
- **2024** — **Results of 1st call for tender**
  Decree on CPB?

Situation at the end of 2023

Installed capacity equivalent to 2 nuclear reactors in 6 years

652

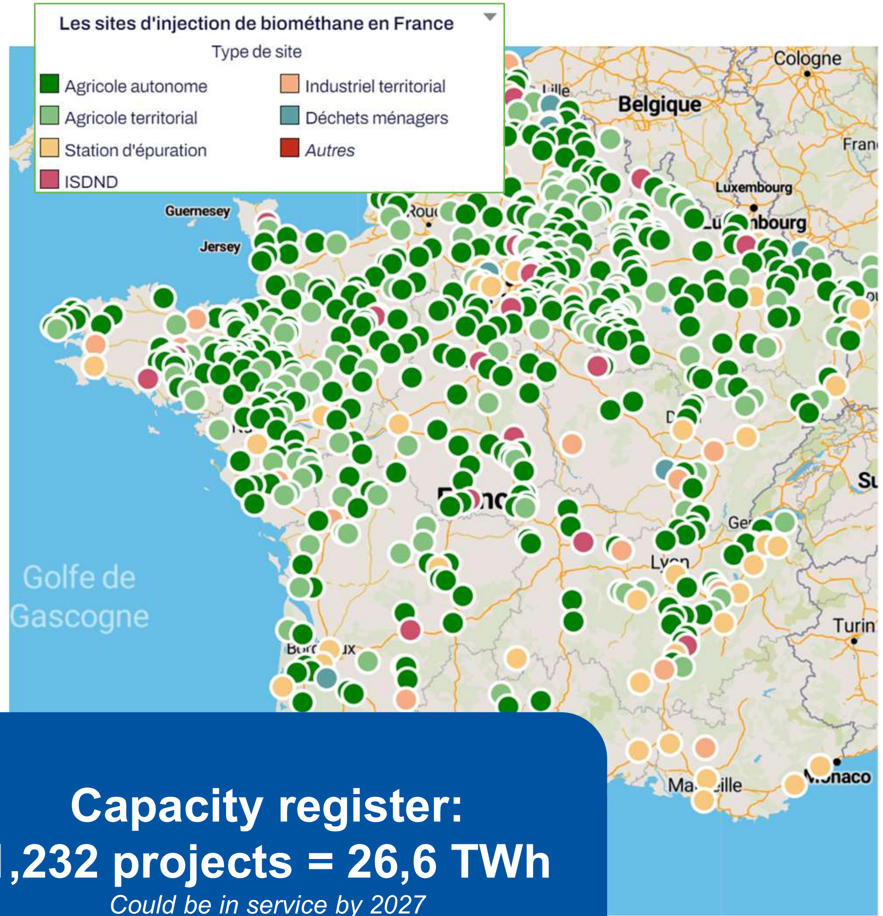
Biomethane production sites injecting in the French network at the end of 2023

86% on distribution network

12TWh/y

Installed capacity

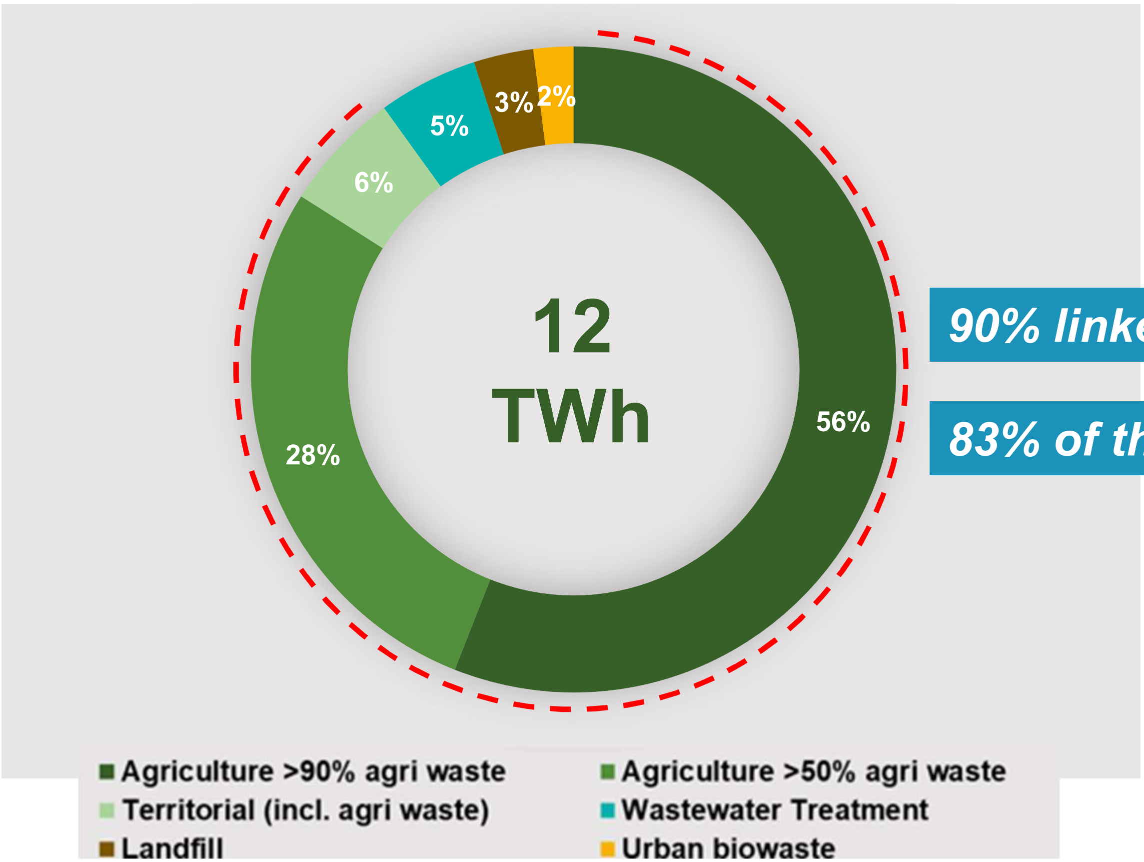
+2-3 new biomethane plant per week



Capacity register:
1,232 projects = 26,6 TWh
Could be in service by 2027

Situation at the end of 2023

A development strongly linked to the farmers and the agriculture sector



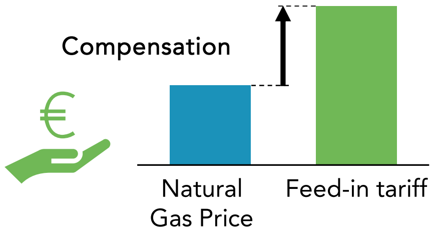
90% linked to agriculture / agro-industrial feedstocks

83% of the production capacity is owned by farmers

***Sources**: Panorama des gaz renouvelables, SER, 2024*

Several reasons for success

Support mechanisms to develop production



Feed-in tariff

- Installation <25 GWh/year
- 15-year contract
- Premium for manure projects

Short-term option suitable for the emergence of a sector

Call for tender

- Installation >25 GWh/year
- Pure economic logic : the least expensive projects get the priority

Suited for medium-term development

Certificate of Production of Biogas (CPB)

- Renewable gas incorportation requirement for energy suppliers, with penalties

Private support induced by a regulatory obligation

Public Support

Non-Budgetary

TotalEnergies & Saint Gobain,
Engie & Arkema
Engie & Veolia

Direct sale contract or BPA

- Bilateral contract between producer and buyer freely negotiated

Secured direct purchase, less suitable for an emerging sector

GRDF

Several reasons for success

Acknowledgment of the importance of gas networks

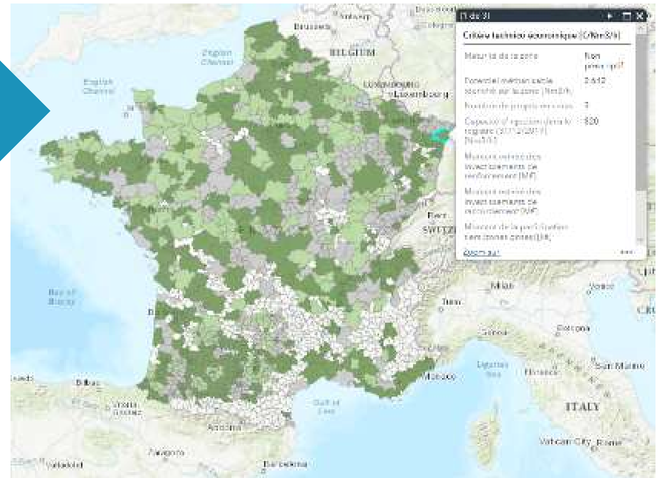
The "Right to Inject"

A principle established by Law in 2018 to **organize necessary infrastructure adaptations** for biomethane injection.

- **Guarantee the connection** of a biomethane producer even outside a gas-served zone
- A **financing framework for the grid reinforcements**, specifying investment criteria
- Treatment of **shared connections** for several producers
- Establish prescriptive **infrastructure development plan**

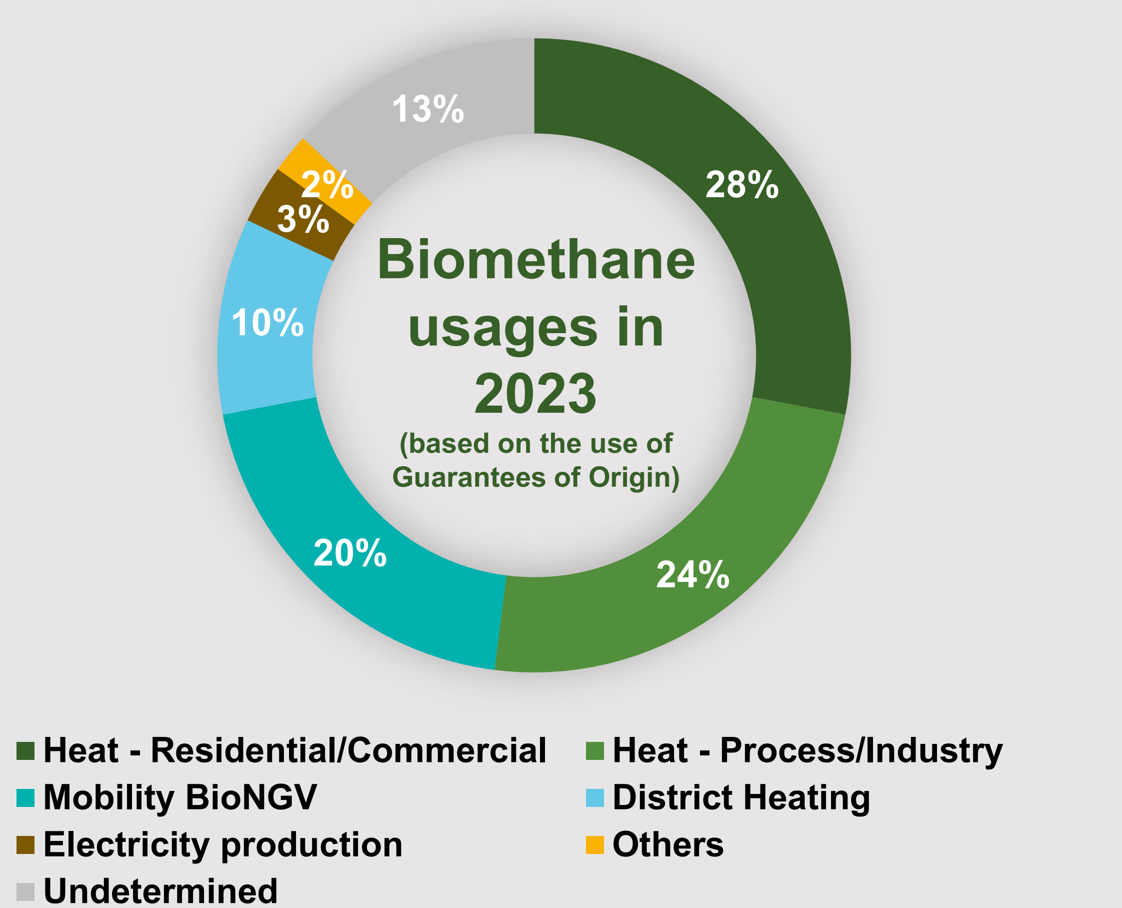
323 zones validated by the Energy Regulator

representing 1.1 B€ of investments to allow the injection of 1,175 plants or 35 TWh/year.

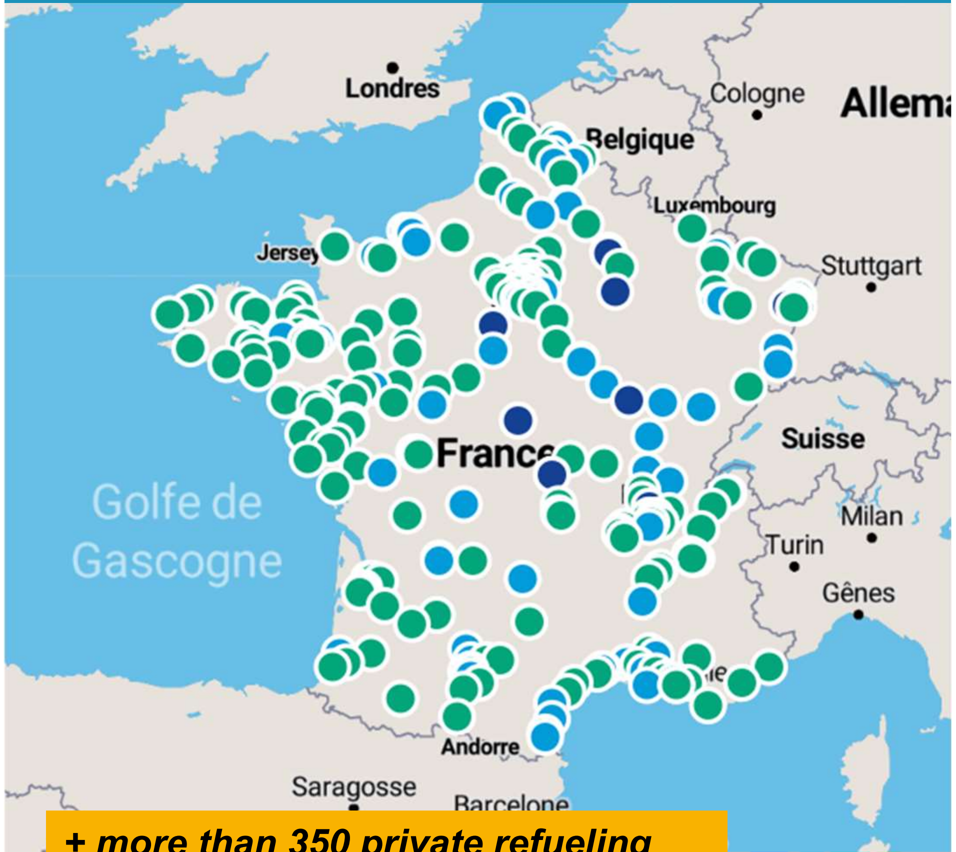


Several reasons for success

Development of biomethane usages



~350 public NGV/bioNGV refueling stations



+ more than 350 private refueling stations for captive vehicles fleets

Sources: *Panorama des gaz renouvelables, SER, 2024; France Mobilité Biogaz*

Some challenges ahead to realize the full potential of renewable gases

Methanization: *the x4 challenge*

- → **Reduce project development time and costs**
- → **Strengthen the skills**
- → **Mobilize some players able to develop larger-capacity projects**
- → **Manage acceptability issues**

2023 12 TWh → **2030** **50 TWh**

Gas Networks: *the need to adapt*

- → **Dynamic management of the network**: network pressure management, reverse flows, temporary surplus storage,…)
- → **Only 6-10 B€ of investments until 2050 to adapt the Gas infrastructures** (French Energy regulator)

2023 652 → **2030** **1800 plants**

Paving the future: *pyrogasification, hydrothermal gasification, e-methane*

- → **Accompany the development of injection projects based on new technologies, by 2030:**
  - **Pyrogasification : 6 TWh**
  - **Hydrothermal Gasification: 2 TWh**
  - **Power-to methane: 1 TWh**

2023 ~0 TWh → **2030** **9 TWh**

Building an ecosystem to support the development of biomethane

Federate and accompany the development of the sector

Developers

Design & Engineering

Agriculture

Gas networks operators

Energy providers

Waste Sector

- Non-exhaustive list -

Construction

Biogas upgrading and valorization

Research centers

Associations

French State, Regulator & local authorities

GRDF’s involvement in the development of the biomethane sector

In France:

- Connects biomethane plants, operates the injection stations and adapt the network to ensure injection of biomethane
- Animation and development of the biomethane industry
- Research & Innovation

In Europe:

- GD4S - DSOs working together to adapt the European framework with the goal to reach 35bcm
- Sharing experience
  - Today
  - An event being planned for 2025 in Paris

For any further questions:

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