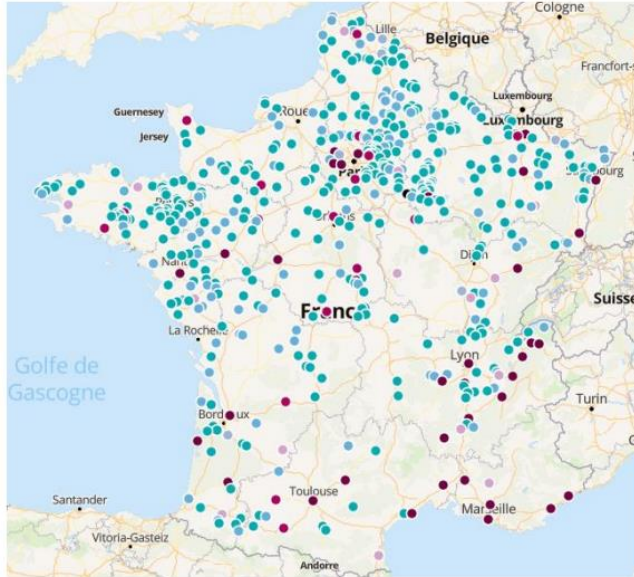


Best practices in biomethane regulation : French framework

Samuel TANA ASSIGA – Analyst - CRE

01/03/2024

Increase of biomethane production in France

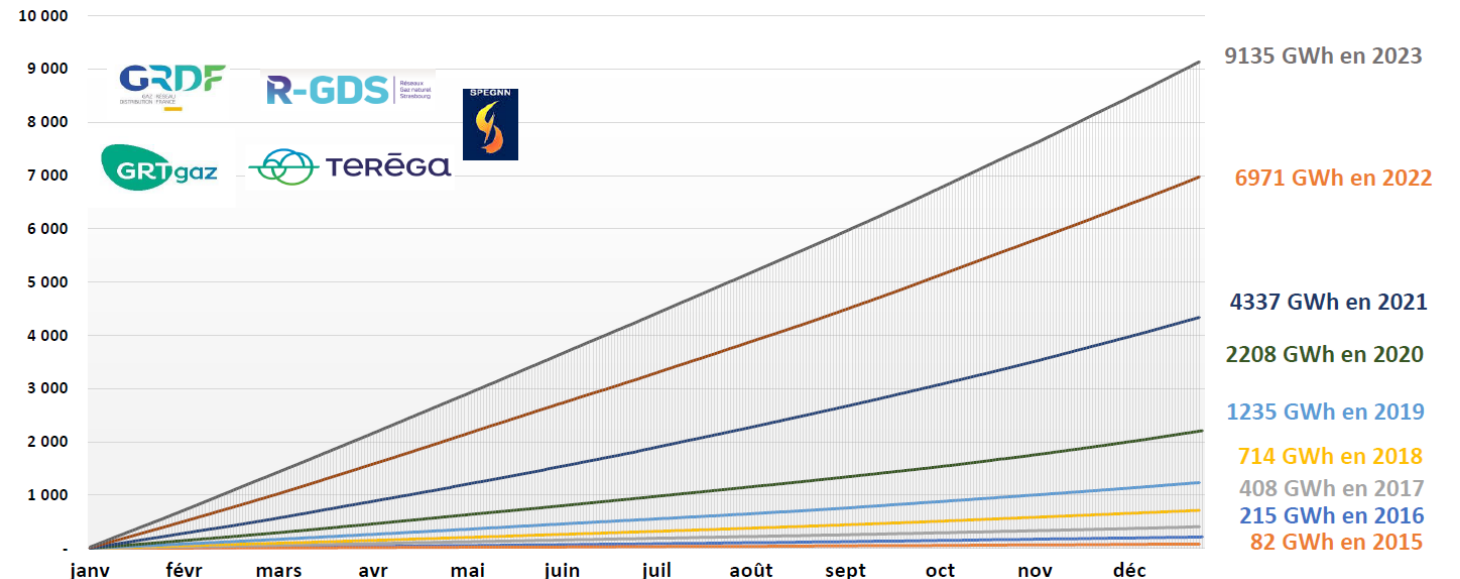


French pluriannual energy programming set in 2018 2 objectives :

- 6 TWh production in 2023 => **exceeded**
- 14 to 22 TWh production in 2028

> 652 injection sites => >10 TWh/y injection capacity

- 92% bio-wastes (agriculture, collective restauration...)
- 6% methanization of wastewaters treatments (oils, mud, organic liquids)
- 2% capture of landfills fatal emissions



Ensuring the development of biomethane

Biomethane (and biogas in general) :

prevents GHG emissions across the whole value chain:

→ A study commissioned by ADEME and GRDF* concluded in 2017 that, based on a life-cycle analysis, biomethane produced in France emits on average 23,4g CO₂eq/kWh – 10 times less GHGs than fossil natural gas – which is comparable to other electrical and thermal RES.

- embodies the concept of circular economy and helps develop a local bioeconomy
- creates additional business models and revenues in the farming sector.

- To fulfil its potential and play its role in the decarbonisation of the gas sector, the biomethane production facilities need :
 - to access the network;
 - to be profitable;
 - to access the market.
- In order to do so, France has gradually implemented a tailored legal and regulatory framework aimed at providing a favourable economic environment:
 - a 'right to injection' principle to ensure equal and fair access to the network in an economic rationale;
 - a regulated feed-in tariffs system together with the possibility for public tenders to ensure the economic viability of the industry;
 - a purchase obligation for gas suppliers with a system of guarantees of origin to ensure an access to the market.

* Study *Evaluation des impacts GES de la production et l'injection du biométhane dans le réseau de gaz naturel*, Quantis & ENEA, 2017:
https://www.bioenergie-promotion.fr/wp-content/uploads/2020/04/evaluation-des-impacts-ges-biomethane-synthese-quantis_2017.pdf

Access to the network : the 'right to injection' (1)

Biomethane injection requires changes in the network, such as connection infrastructures, but also the creation of meshing pipes (between 2 consumption zones) or backhauls (to get the gas towards upper pressure pipes).

In the first years of the 2010s, the biomethane sector in France was still in its early days and had difficulty to take-off, contrary to other EU countries where it has been much more developed (Germany & UK in the lead).

Until 2019, the costs incurred for the access to the network (reinforcements, connection) of biomethane production plants **were entirely paid by the producer**, which was in most cases extremely costly and not economically viable.

- ▶ *only those production sites close to the network and which implied no or very limited network reinforcements were able to emerge ;*
- ▶ *besides, this system of 'first come, first pay' was unfair as some producers could benefit from the network reinforcements which were financed by first-movers → there was a 'first-mover disadvantage'.*

This problem gradually appeared a clear **hindrance to the development of the biomethane sector**, jeopardising the decarbonisation objectives of France.

Solutions were discussed and elaborated by stakeholders of the sector in various working groups and materialised in law in 2018.

Access to the network : the 'right to injection' (2)

The "EGAlim"^{*} law adopted in October 2018 introduces the 'right to injection', which recognises:

- the right for biomethane producers to get connected to the network (either distribution or transmission) with respect to a **technico-economic criteria**
- the necessity to modify and ease the financing modalities for network's adaptation and reinforcement investments

A decree was published in June 2019 which defines:

- The **new financing framework**
- The criterion of **technical relevance and economic profitability** of reinforcements
- The modalities for **allowing the project promoter or a third-party** to contribute to network reinforcements
- The principles for cost-sharing in order to move away from the previous 'first come, first pay' issue

A public decision by CRE of November 2019 implements this new framework

I/V criteria sets a threshold for cost pooling :

I = investments

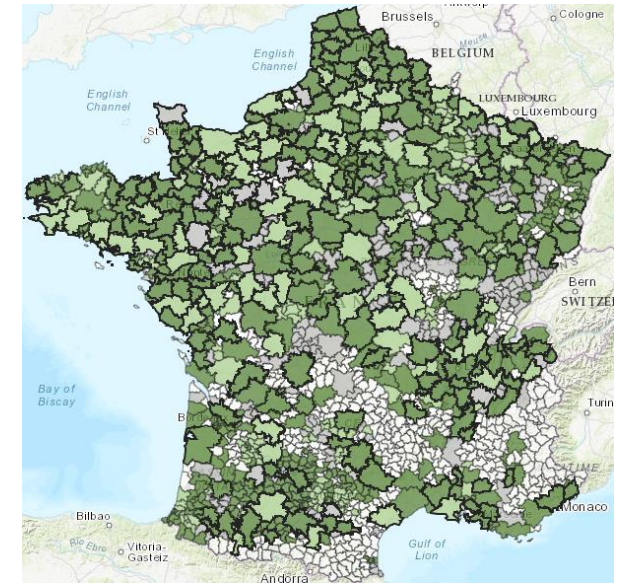
V = probabilized volumes

- **$I/V < 4\,700 \text{ €/Nm/h}$** : all reinforcement investments costs are pooled
- **$I/V > 4\,700 \text{ €/Nm/h}$** : a third-party financial participation is required to launch the investments (producers, local authorities, private investors...)

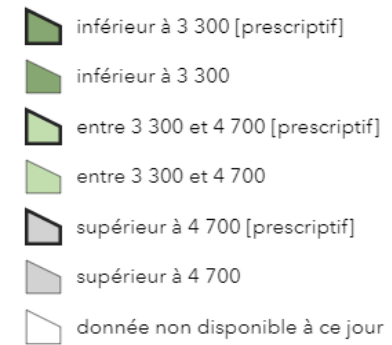
Access to the network : the 'right to injection' (3)

- A **national register for injection capacity** development and booking:
 - the register is managed by both French TSOs (GRTgaz, Teréga) ;
 - it acknowledges the 'first come, first serve' principle for capacity allocation ;
 - it helps follow the degree of progress of each project.
- An indicative **mapping of the areas eligible for network reinforcements** :
 - Provides an indication to project promoters of the areas where network operators consider reinforcements technically feasible and economically suitable

CRE published a report in 2023 on the future of gas infrastructures in different demand scenarios : one of the conclusions is that networks will require 6 to 9,7 Md€ for renewable gas injection until 2050.



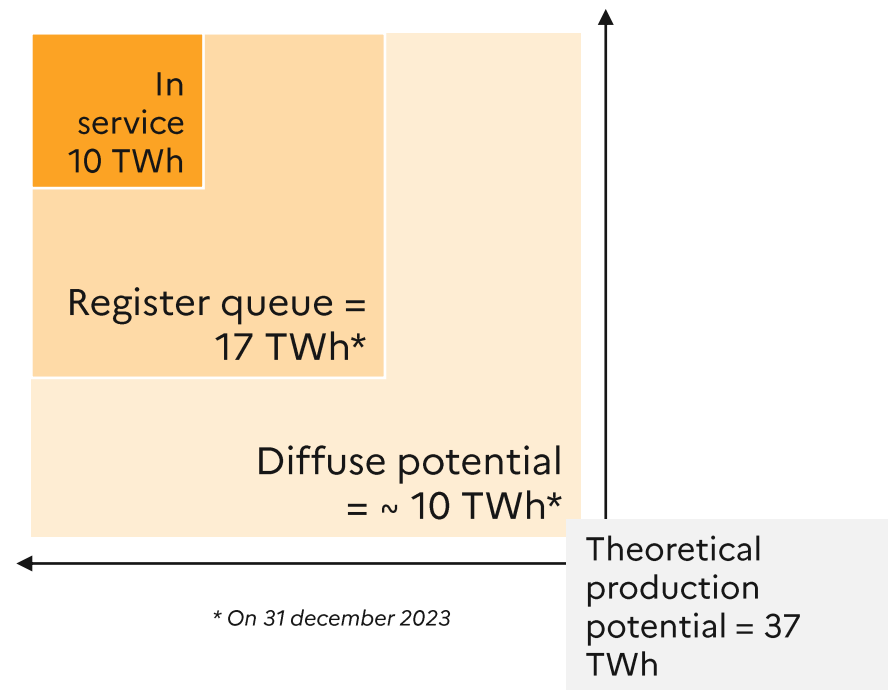
Critère technico-économique [€/Nm³/h] [03/2023]



Access to the network : the 'right to injection' (4)

- The establishment by DSOs and TSOs of a prescriptive connection zoning, according to the level of the technico-economic criteria :
 - Established after concertation of local parties
 - Provides an indication to project promoters of the best areas to build new biomethane capacity in terms of investment costs and biomethane production potential
 - revised every 2 years
 - CRE validates the zoning -> it becomes prescriptive
- CRE validates the realization of the investments at the most appropriate time (close to the effective need, to avoid stranded assets)
 - ~200 M€ validated on distribution networks
 - >100 M€ validate on transmission networks (~40 backhaul units)

351 zonings validated (o.w. 230 revised)



Since 2021, the right to injection has been extended to renewable gases.

Access to the network : injection tariff (2020-2024)

CRE also introduced an **injection tariff** in 2020 in the transmission and distribution tariffs aiming at sending an economic signal to the project holders in order to reflect the level of direct operational expenditures of system operators incurred by the location and connection conditions of their projects.

CRE defined a 3-level tariff term depending on the level of costs incurred for the network operator, which is **attributed to each project at the early stage of the process** :

- if the zone needs a backhaul or mutualized compression → level 3
- if not:
 - → level 2 if the zone includes a grid extension
 - → level 1 in all other situations (including units in service before 2020)

Level	<i>Injection tariff €/MWh injected</i>
Level 3	0,7
Level 2	0,4
Level 1	0,0

Access to the network : injection tariff (2024-2028)

- For the next tariff period, CRE decided to add a capacity-based term to cover indirect operational expenditures. This term has been fixed at a level of 50 €/MWh/day.

Indeed, biomethane producers are and will be a growing category of network users.

- CRE decided to maintain the same injection term than before, with the same 3-level tariff term depending on the level of costs incurred for the network operator.

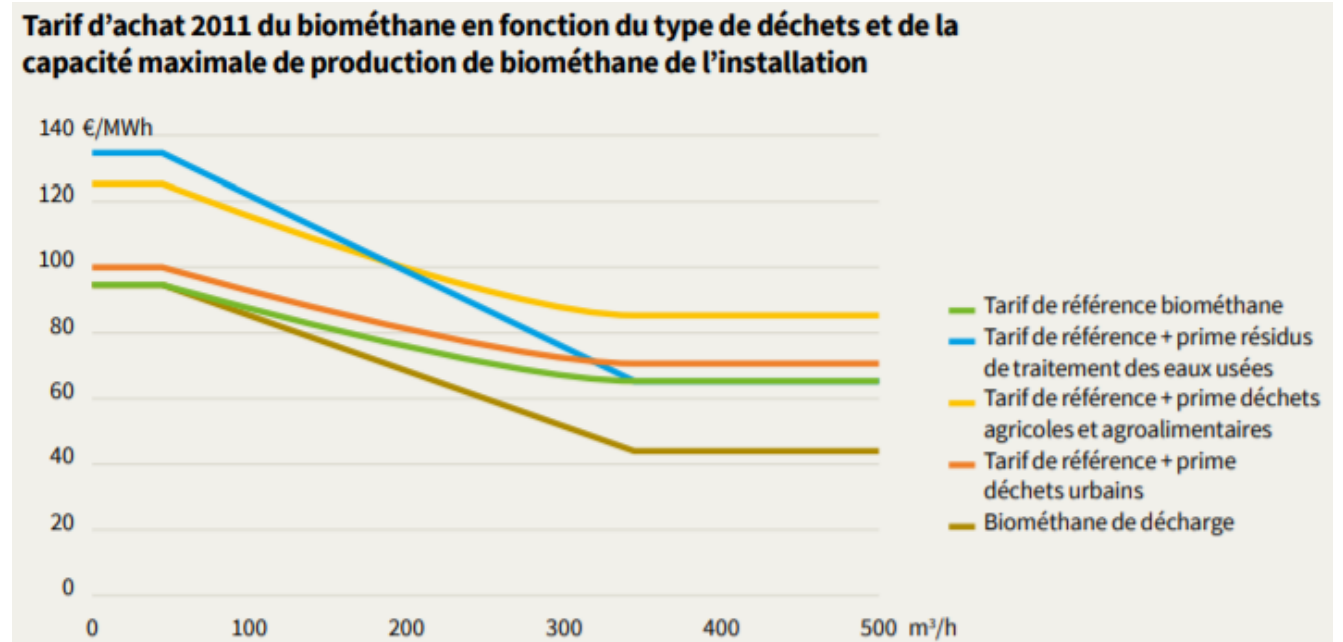
Level	<i>Injection tariff €/MWh injected</i>	<i>Capacity-based term €/MWh/j installed</i>
Level 3	0,7	50
Level 2	0,4	
Level 1	0,0	

Tariff support scheme - *Support to injection (1)*

Since its authorisation in 2011, producers that inject biomethane into the networks benefit from a **regulated feed-in tariff** set by the French government.

The first and current tariff was set in 2011 (decree of 23rd November 2011) :

- guaranteed for a duration of 15 years
 - spans from 46€ to 139€/MWh (since 2011)
 - depends on the size of the production facility (maximum production capacity) and on the nature of the waste or organic material treated
 - End of 2022 : tender for larger installations
-
- The French government also has the ability to launch public tender offers



Source: renewable gas panorama 2020 (GRDF, GRTgaz, SPEGN, SER, Teréga)

Tariff support - *Support to injection* (2)

To ensure a market outlet for their biomethane production, producers benefit from a purchase obligation system.

Contrary to electricity renewable energy which initially benefited from a system in which electricity suppliers were obliged to buy the entire production, in the biomethane framework, the government sets a list of gas suppliers which are, by law, **buyers of last resort** (specific criteria, incl. market share).

▶ If a biomethane producer does not find a gas supplier to sign a sale contract, it can appeal to any of the buyers of last resort which has the obligation to purchase the quantities of biomethane produced.

Gas suppliers buy the biomethane at the regulated feed-in tariff and get compensated for:

- The (positive) difference between the wholesale gas price and the regulated tariff
- Other associated costs (linked to the administrative and management costs)

Tariff support - *Support to injection* (3)

A **system of guarantees of origin (GOs)** has been implemented, since 2011.

GOs ensure the **traceability** of biomethane and allow its **valorization** with the consumer as part of green offers.

Guarantees of origin allow :

- ✓ To **decorrelate the physical consumption of molecules of biomethane** produced and injected in the network **from its commercial sale** to end customers.
 - This allows to sell biomethane to all consumers, even to those not located in areas supplied by biomethane producers.
- ✓ To provide a certification that the quantities of gas sold in 'green' or 'renewable' gas offers actually correspond to equal quantities of biomethane acquired by gas suppliers.
- A **national registry** records all the quantities of biomethane produced, injected, exchanged and sold in France.
 - GRDF, the main DSO, was chosen to manage the capacity register since 2012 and until 2023 (public tender for public service delegation mission)

Coming next : biomethane production certificates -> producers who don't benefit from public support will be able to deliver certificates (number depending on produced volumes) and to sell it on a dedicated market

Conclusion

The French framework has been gradually set up and gives biomethane access and financial support.

The right to injection = balance between :

- Giving producers visibility,
 - Taking into account production evolution
 - Developing biogas at the best cost for collectivity and taking rational investment decisions
-
- More on CRE's report on the future of gas infrastructures : <https://www.cre.fr/actualites/la-cre-publie-son-rapport-sur-l-avenir-des-infrastructures-gazieres>