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INJECTING BIOMETHANE INTO GAS DISTRIBUTION GRID

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Definitions

- **Biogas:** gas produced by biological reaction – methanisation or anaerobic fermentation (biological process which degrades organic matter without oxygen)
- **Biomethane or bio-CH₄:** purified biogas. Biomethane (=Green Gas) having the same composition than natural gas.
- **Biogas purification:** elimination of components such as CO₂, N₂ and O₂ from biogas. Consequently purification increases biogas methane (CH₄) content.

Background

8 decrees published in November 2011. Main measures :

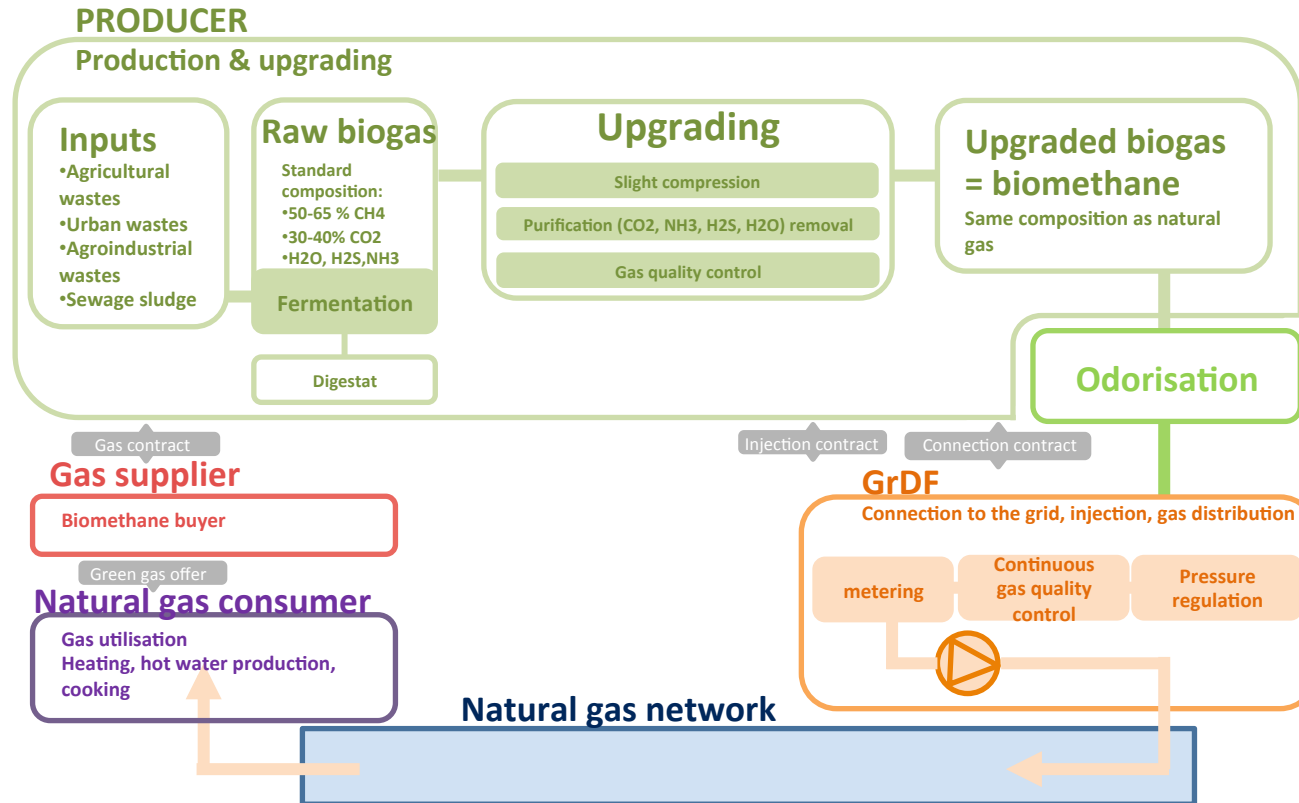
- Only biomethane from **landfill** or produced with **agricultural, agroindustrial and urban** waste is allowed to be injected into the natural gas grid.
- If flow rate of biomethane is compatible with consumptions on the grid and with natural gas specifications,
 - a) DNO is obliged to distribute biomethane
 - b) The producer is guaranteed to sell its biomethane to a gas supplier (eventually the “ultimate buyer”) at a regulated price rate for **15 years**
- Biomethane buyers = gas suppliers
- **Garanties of origin** will help tracking biomethane once injected into the grid. Those should encourage gas suppliers to develop green gas offers.
- **Feed-in tariffs:**
 - Landfill : between 45 and 95 €/MWh
 - Methanisation : between 69 and 134€/MWh

In 2013-2014, additional texts were published, to enable:

- « Double valorization » for both electricity and biomethane production with a specific feedin tariff
- Biomethane from **sewage sludge**

GrDF role into biomethane production (1/2)

Responsibilities share into biomethane production



GrDF role into biomethane production (2/2)

Feasibility studies

- Injection potential regarding consumptions on the grid
- Connection to the grid cost
- Degree of risk regarding the dependence on few consumers

Injection station

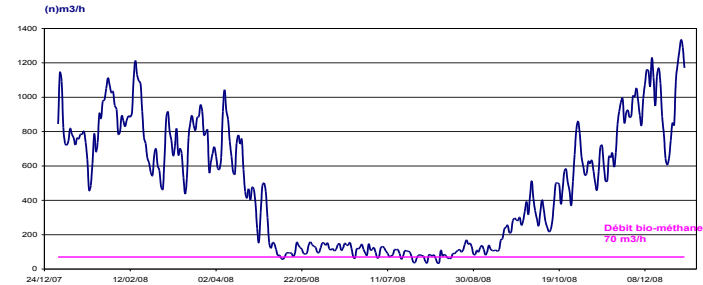
- Takes care of the connection to the grid.
- Owns the installation of injection and offers to the producer a service of injection for an annual cost of 67 to 74 k€ including investment, operation, maintenance
- Operates additional mensual controls of gas quality (2,5 k€/control)

Garantees of origins manager

GrDF = garanties of origin registry (public service delegation) for 5 years

The GoO registry guaranties:

- Green gas valorization registering and traceability
- Conformity of biomethane way of production



Current biomethane injections in France



Létang Biogaz
Sourdun
Agri



BioEnergie de la Brie
Chaumes-en-Brie
Agro/agri



Agribiométhane
Mortagne-sur-Sèvre
Agro/agri

O' Terres Energie
Ussy-sur-Marne
Agri



Biogaz Pévèle
Wannehain
Agri



CVO
Lille-Séquedin
Household wastes



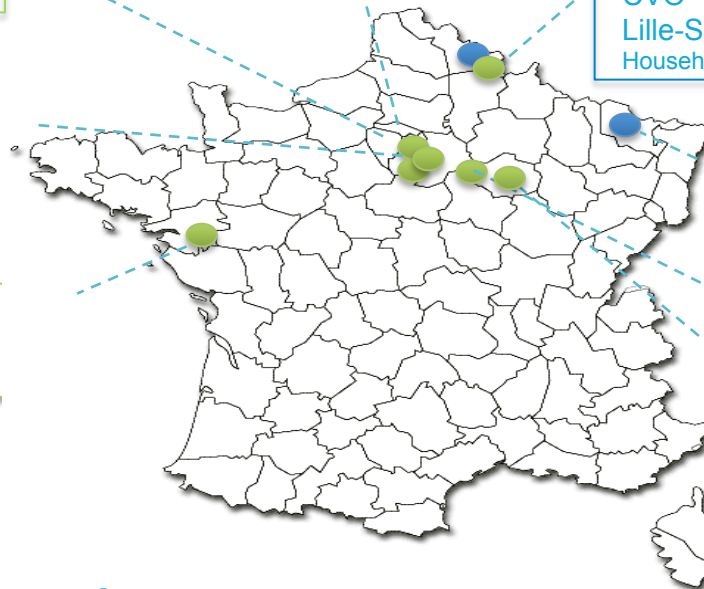
Méthavalor
Morsbach
Household wastes



Bio'Seine
Méry Sur
Seine



Thennelières
agri

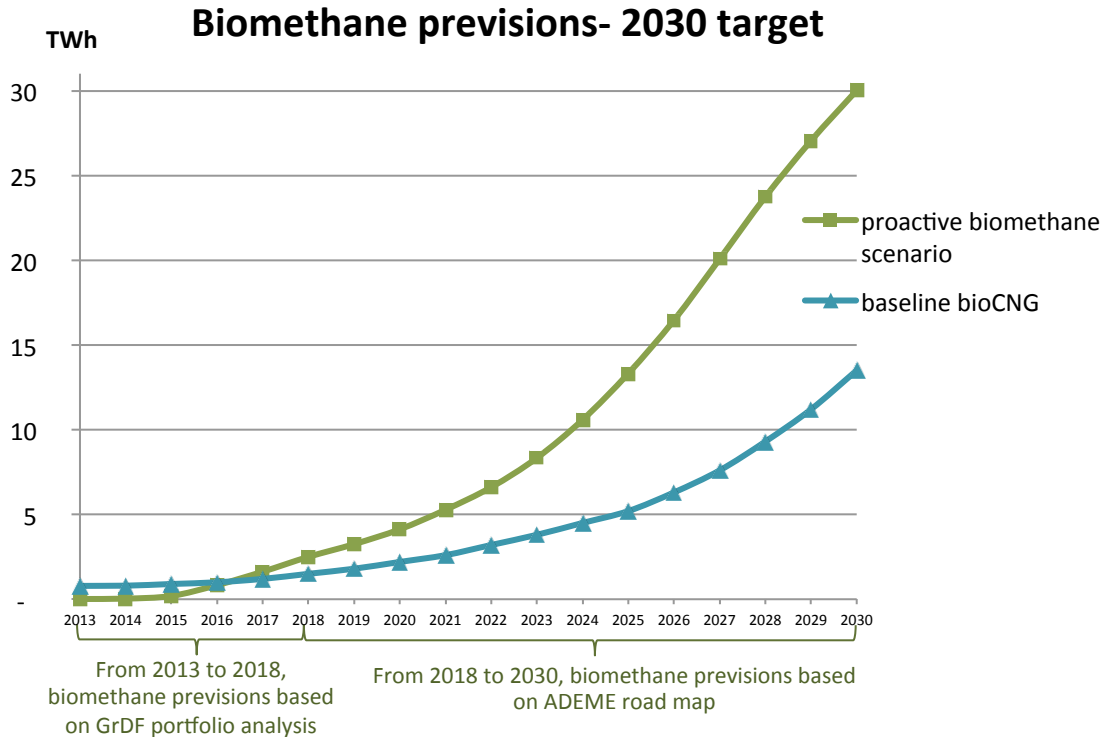


- Urban wastes
- Agricole wastes

Injection volume previsions : It represents ~107 GWh annual biomethane injection supplying 9000 holdhouses*

* Assumptions: 8200 hours/year
Client annual consumption = 12 MWh/an (GrDF statistics)

Perspectives: reaching the ambitious 30 TWh target in 2030



The French Minister of Ecology, Sustainable Development, and Energy has set a target of **10 %** of injected biomethane in the total gas consumption by 2030. This goal is based on the French biogas roadmap carried out by ADEME in 2013 which foresees 30 TWh biométhane injected into gas grids by 2030.

Biomethane framework perpetual construction

GTInjection works on solutions to increase biomethane grid absorption

Locally: linking and meshing downstream consumptions

- closing/opening a valve over winter/summer
- building bonds between 2 zones that did not used to be connected

At the grid(s) level: studying overall solutions such as **reverse (upstream) flow**

- Compressing the gas in order to jump up from one pressure level to a higher one, thus reaching larger consumption zones.

When injection does not turn to be feasible at all :

- propose more adequate location
- develop centralized injection

