GRDF
GAZ RÉSEAU
DISTRIBUTION FRANCE

Biomethane development in

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GRDF (*Gas Réseau Distribution France*) is France's and EU's largest gas distributor.

200 000 km

a network that could circle the Earth almost five times!

11 million

delivery points in France

57

biomethane plants inject in GRDF network
(out of 65 in France as of 09/01/2018)

1. Biomethane development in France

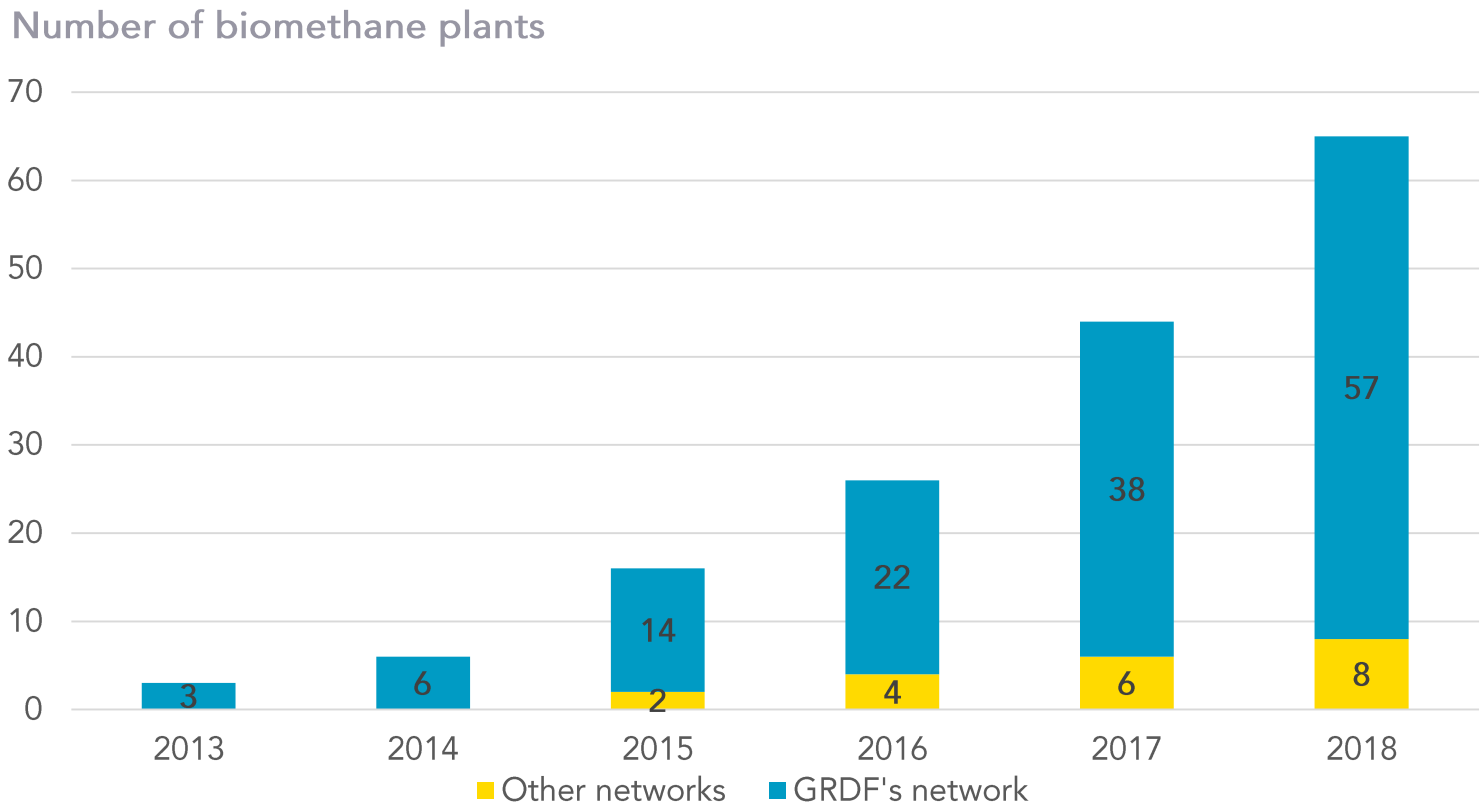
2. Biomethane support scheme & GoO system

3. Biomethane role in France: Vision & Strategy

I – Biomethane in France today

A recent and strong growth

65 biomethane injection plants in September 2018



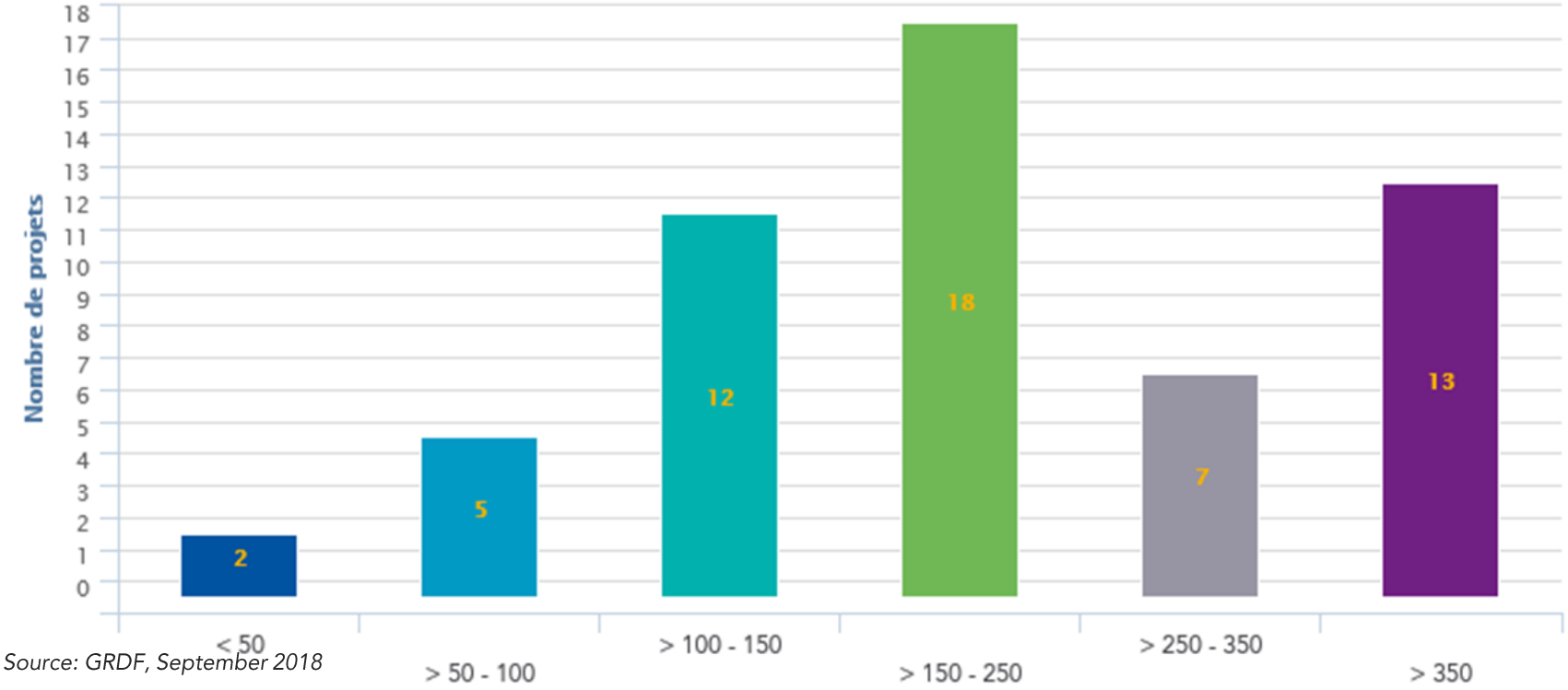
1 TWh/year capacity
including 764 GWh/year on GRDF network

Characteristics of French biomethane plants

Distribution of site by feedstocks

AGRICULTURE & AGROFOOD INDUSTRY EFFLUENTS	SEWAGE	URBAN WASTE	NON HAZARDOUS WASTE (ISDND)
49 sites	**8 sites**	**4 sites**	**4 sites**

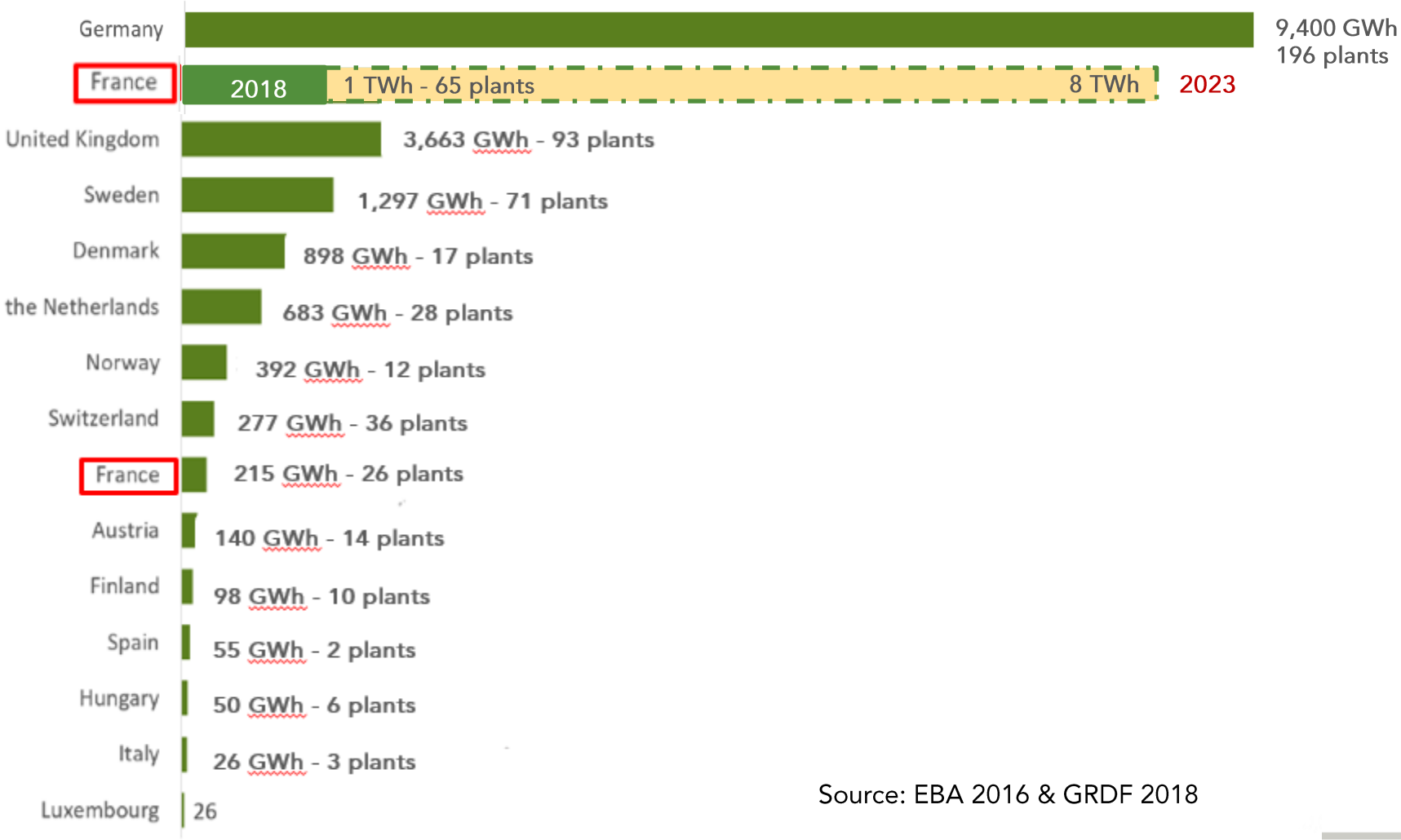
Distribution of plants by injection capacity (Nm3/h)



Source: GRDF, September 2018

I – Biomethane in France today

Pipe of projects: 485 projects pending for ~10 TWh
90 % of projects & 82% of capacity request to DSO grid



Source: EBA 2016 & GRDF 2018

Figure 13-EU: Biomethane production in Europe (GWh) and EU countries active in biomethane production

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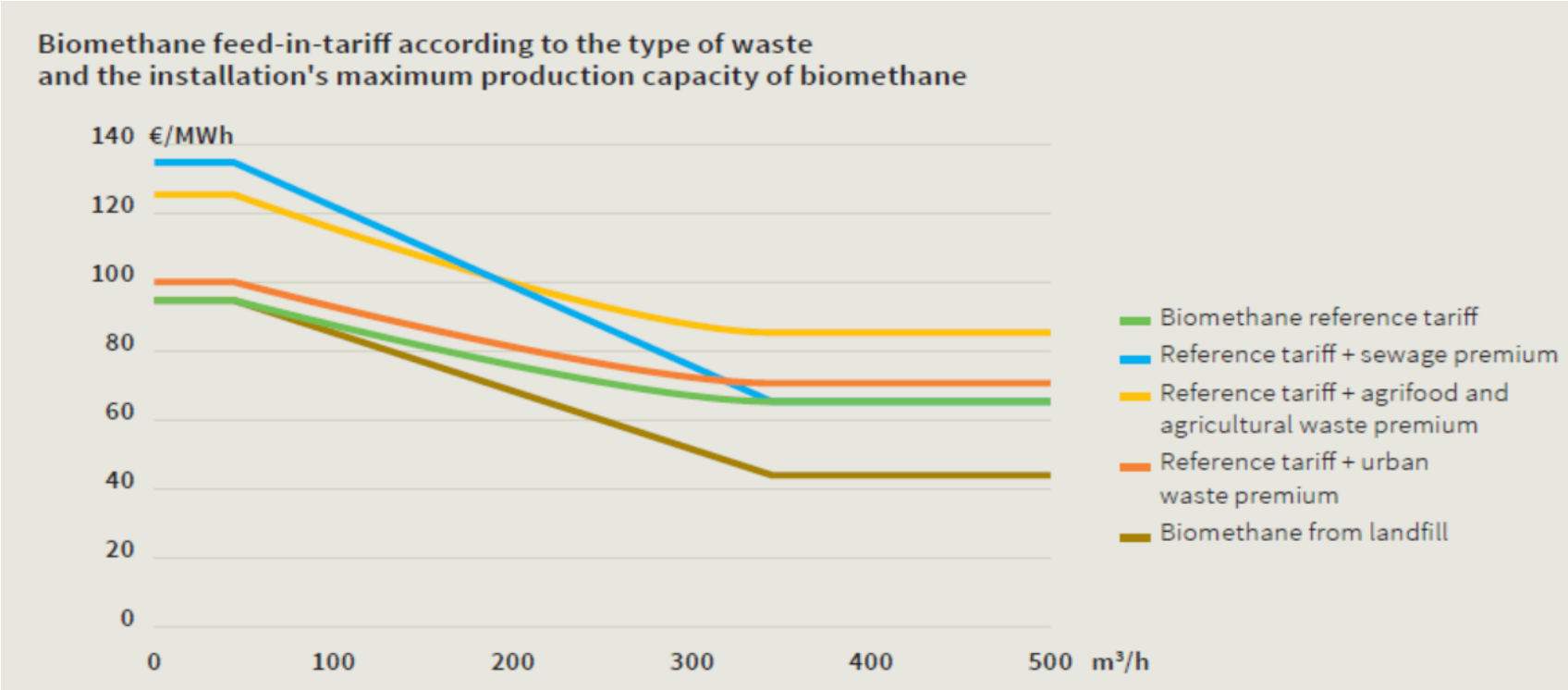
French Support Scheme for Biomethane

Feed in tariffs

❖ **A feed-in-tariff of between 46 and 139 €/MWh is granted and guaranteed for 15 years.** It depends on:

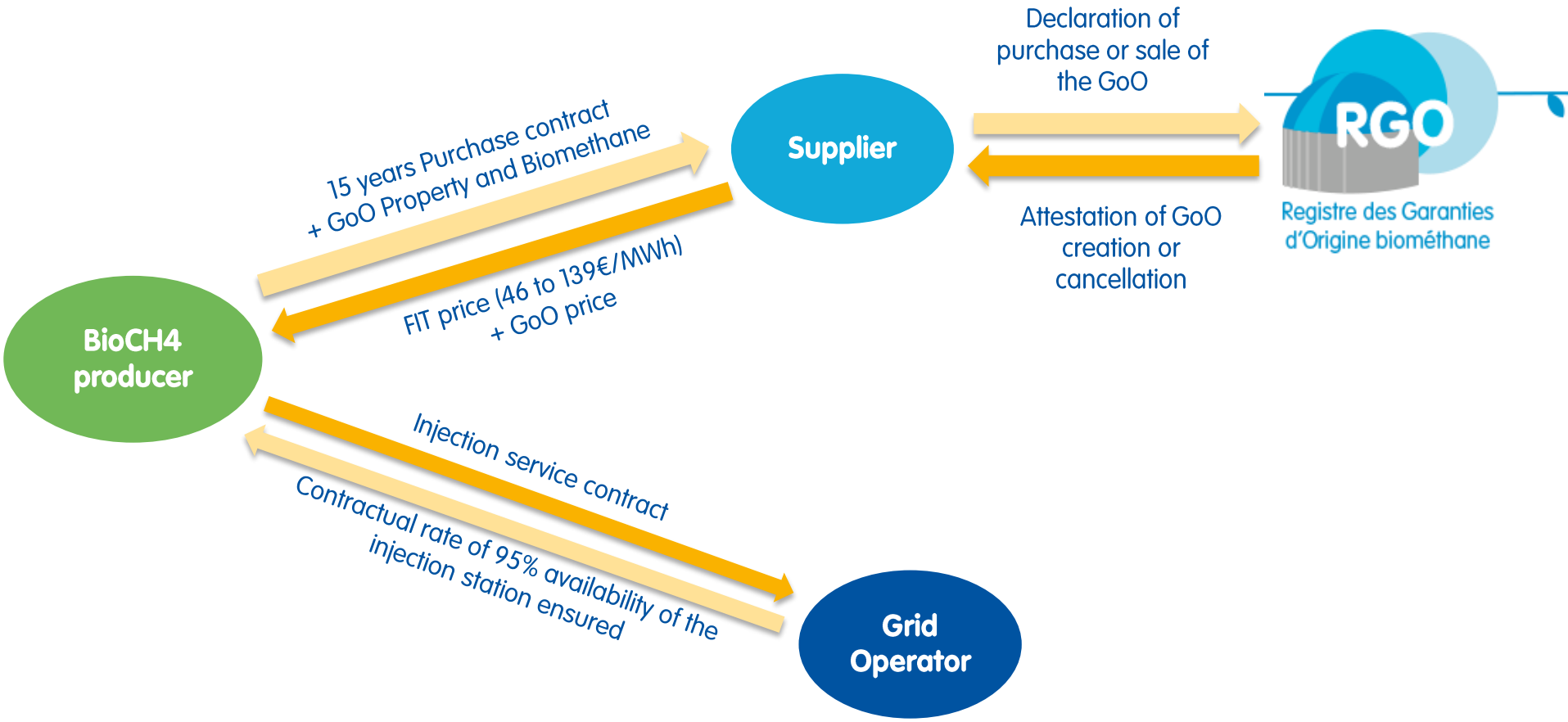
- The size of the installation (flow capacity)
- The types of feedstock, to incentive producer to process waste and in particular agri-waste.

❖ **Feed-in tariffs (FIT) are composed of a reference tariff (45-95 €/MWh) and premiums:**



French Support Scheme for Biomethane

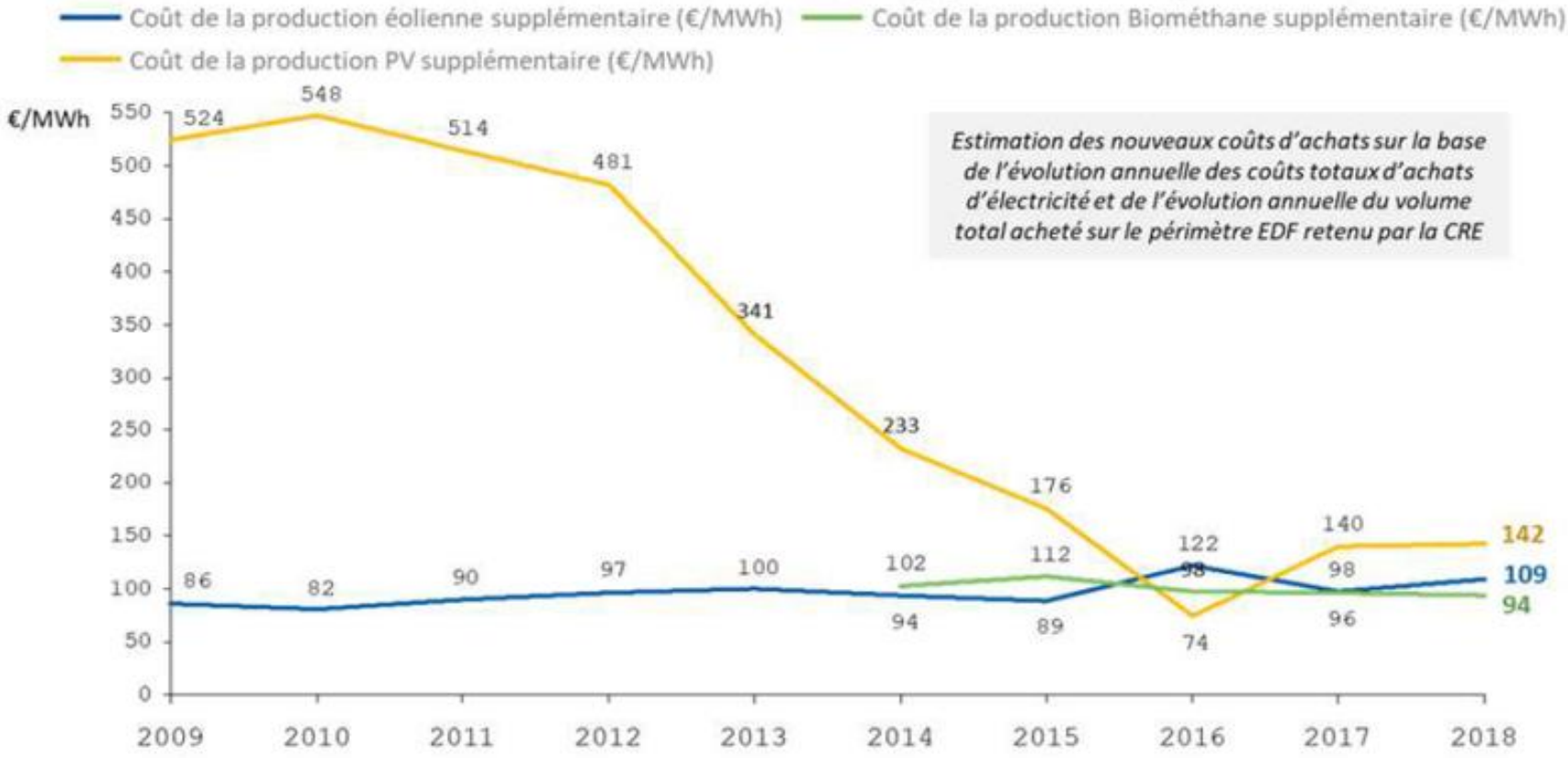
Contractual Scheme



Biomethane cost is < wind or solar PV in France

Estimation des coûts d'achats des nouvelles installations ENR installées chaque année entre 2009 et 2017

EVOLUTION DES COÛTS D'ACHAT DES NOUVELLES QUANTITES PRODUITES [€/MWh - 2009-2017]



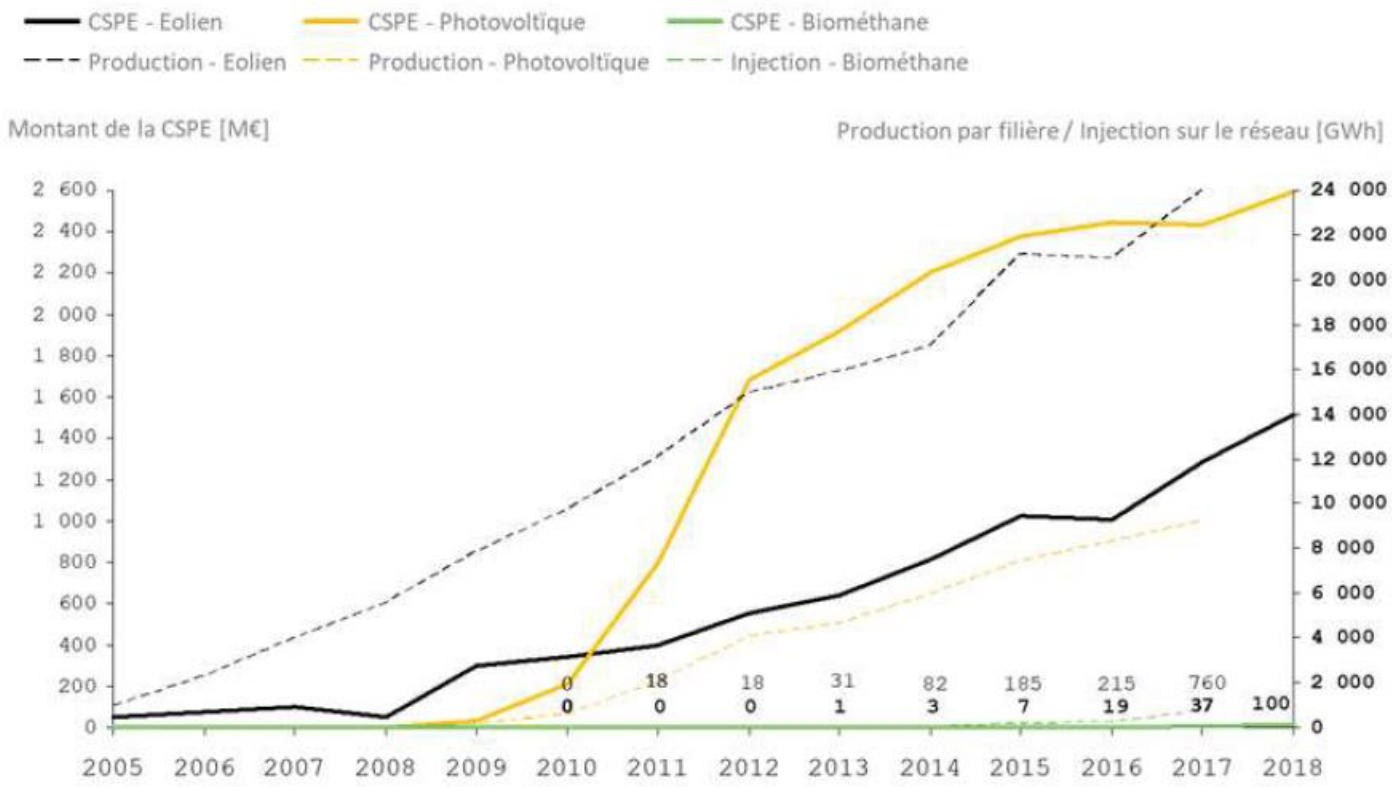
Source: CRE – Délibérations relatives à l'évaluation des charges de service publique (2008 à 2017)

Biomethane subsidies << wind/solar support in France

Historique du volume de soutien

- Il existe par exemple aujourd'hui un écart[39] d'un facteur 100 de volume cumulé de soutien entre la filière biométhane et le photovoltaïque entre 2008 et 2018 :

EVOLUTION DES CHARGES DE SERVICE PUBLIC DE L'ENERGIE (CSPE) PAR FILIÈRE [M€ - 2010-2018]



Source: CRE – Délibérations relatives à l'évaluation des charges de service publique (2005 à 2017) ; RTE ; Enea

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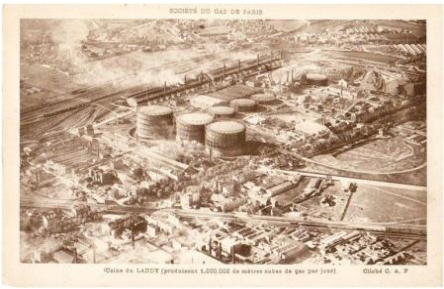
Vision of Past, present and future of Gas Industry

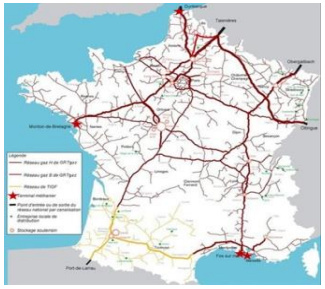
Manufactured gas
Local production and distribution

Lighting …. Cooking



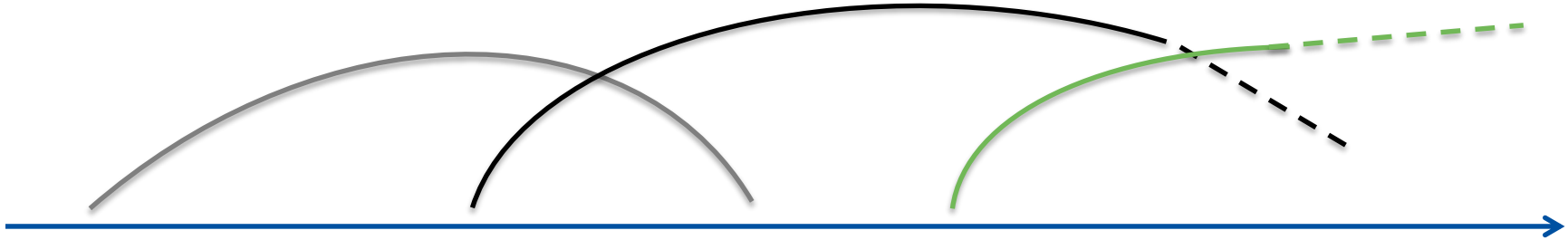
Natural gas
Centralised infrastructures

… Heating, Hot water…



Renewable gas
Decentralised and interconnected infrastructures

… Mobility, Power to gas, Fuel Cells…



Future of Gas will be green…
Or There Will Be No Gas!

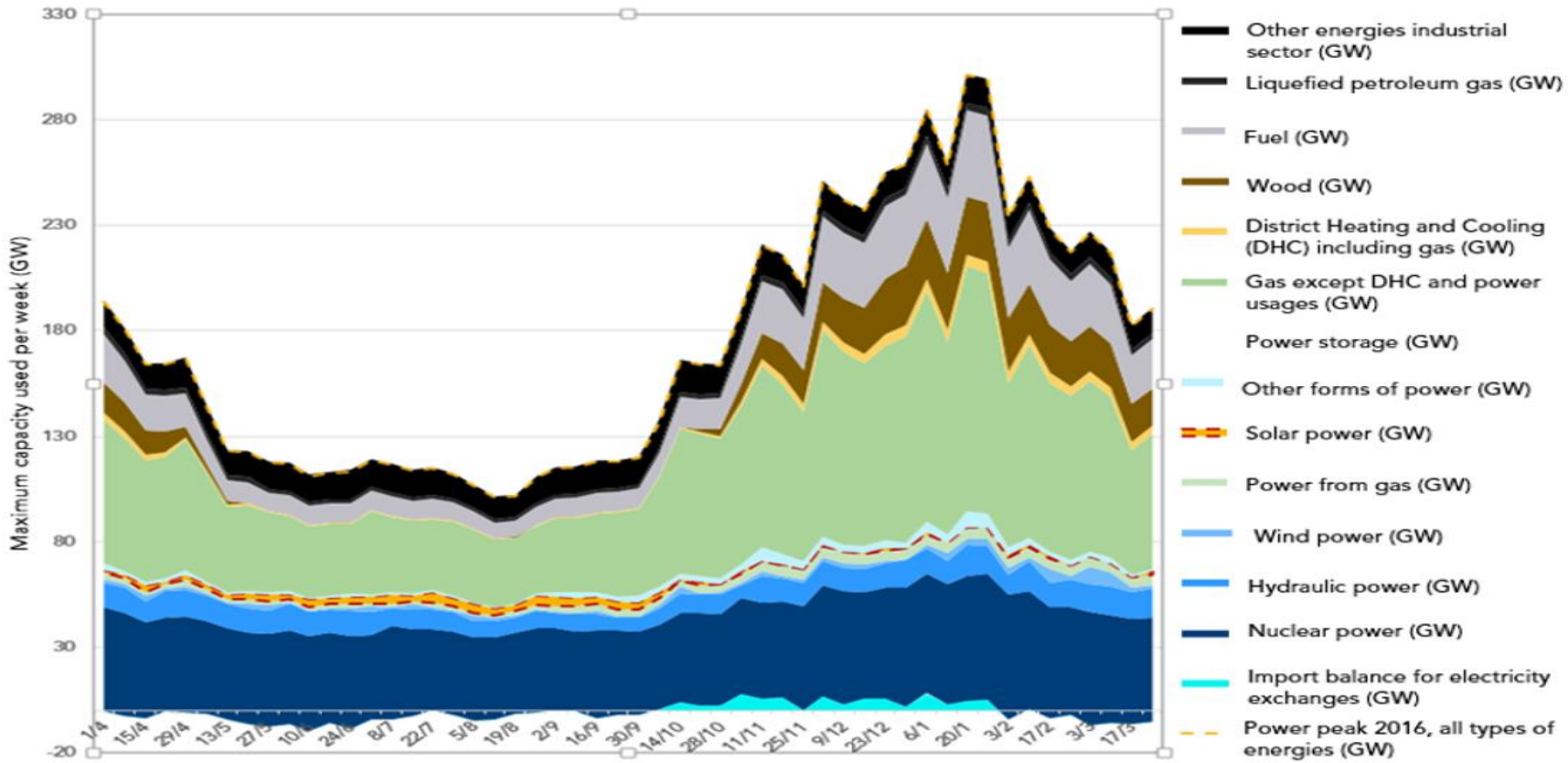
« If your child does not finish his/her broccoli, we will do it for him/her »

« This is a heating potato »

« Our gas is now produced with cows dung, but this does not prevent it from being cleaner »

Gas provides flexibility to the energy system

Energy Peak per week over the period from 01.04.2016 to 31.03.2017



A French electricity system has a peak capacity of 100 GW
A gas system with an available capacity ranged between 200 and 220 GW, which accounts for more than 3 times of the nuclear French fleet

GRDF vision on renewable gas development

2023
8 TWh
of renewable gas injection in gas network

2028
60 TWh
of renewable gas injection in gas network

2030
90 TWh
of renewable gas injection in gas network

Feedstocks	Process	Technical maturity (2010 – 2020 – 2030)	
• Urban waste • Agricultural and agro-food industry effluents • Non-hazardous waste • Sewage sludge	Fermentation of organic matter	Anaerobic digestion	70 TWh
• Wood residues (ligneous biomass) • Ultimate waste (CSR)*	Combustion	Gasification	20 TWh
• Renewable power	Hydrogen production (electrolysis of water) and methane production (methanation)	Power-to-gas Methanation	

Strategic Partnerships with stakeholders

GRDF is founding member of French Renewable Gas Association, along with Farmers Associations

France gaz renouvelables

fnsea · GRDF · Association Agriculteurs Méthaniseurs -de France- · GRTgaz · territoire d'énergie · France Biométhane · atee Club Biogaz

GRDF announces partnership with WWF France

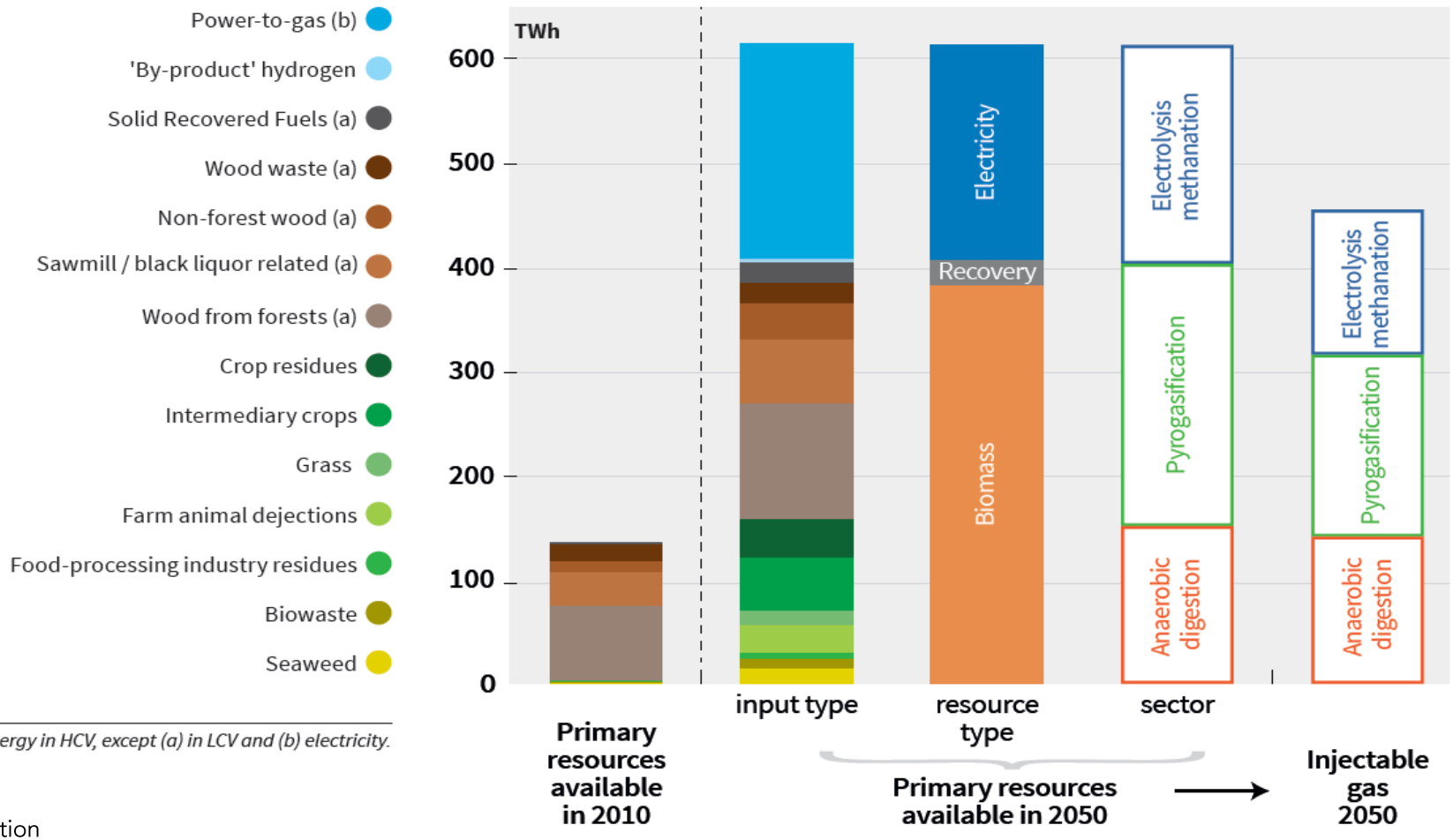
- Promotion of sustainable conditions of production of biomethane
- Promotion of renewable gas to accelerate enegry transition

WWF

ADEME

Agence de l'Environnement et de la Maîtrise de l'Energie

100% of Renewable Gas in 2050 in France is Technically Feasible



Energy in HCV, except (a) in LCV and (b) electricity.

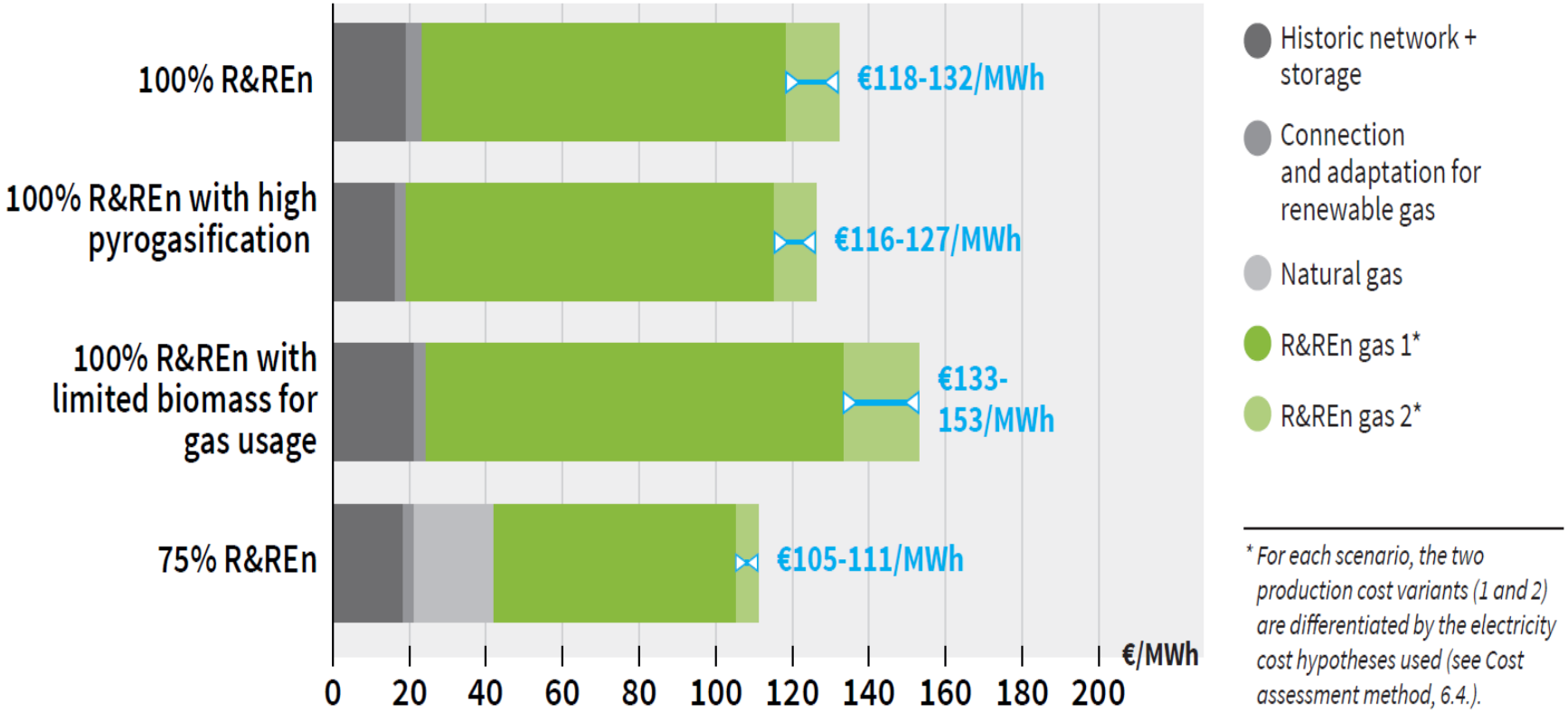
Source: ADEME
Excl. Elec Generation

ADEME

Agence de l'Environnement et de la Maîtrise de l'Energie

Total Production Cost of 100% Renewable Gas equals Total Production Cost of 100% Renewable Electricity

FIGURE 5: TOTAL COST PER MWh OF GAS CONSUMED



** For each scenario, the two production cost variants (1 and 2) are differentiated by the electricity cost hypotheses used (see Cost assessment method, 6.4.).*

Source: ADEME

Thank you !

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