



Natural and renewable gas: key enablers of decarbonisation & digitalisation of the EU energy system



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Who is GRDF ? The EU largest gas DSO



200 000 km

a network that could circle the
Earth almost five times!



11 million

delivery points in France



82

biomethane plants injecting in the GRDF
network

(

GRDF Vision:

Past, present and future of Gas Industry in France

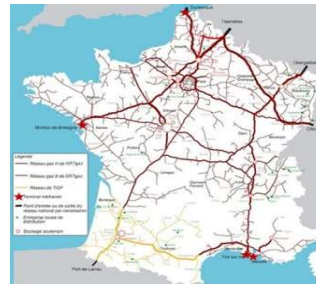
Manufactured gas
Local production and
distribution

Lighting Cooking



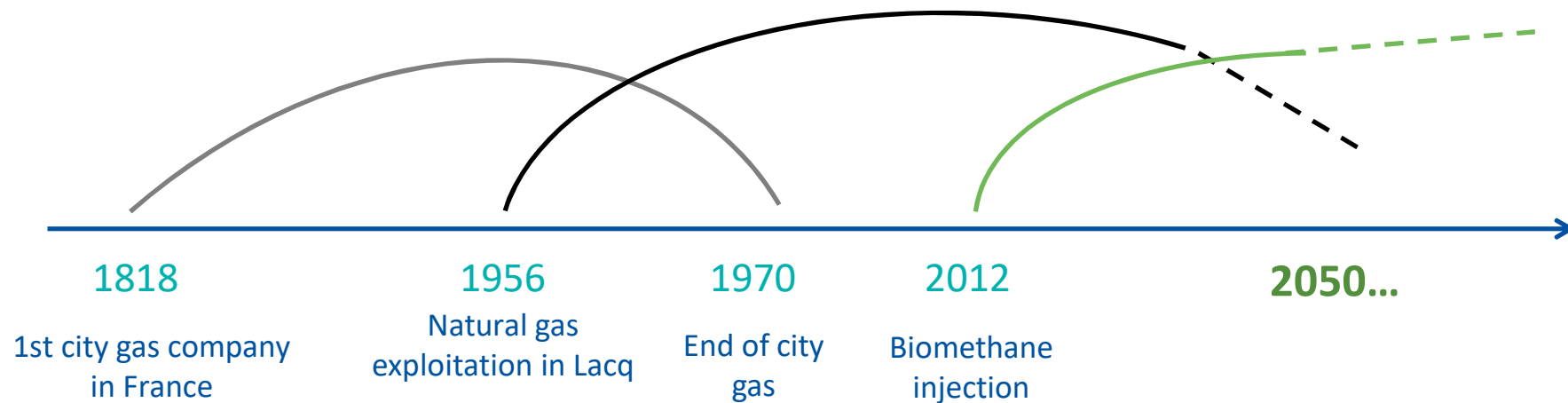
Natural gas
Centralised
infrastructures

... Heating, Hot water...



Renewable gas
Decentralised and
interconnected infrastructures

*... Mobility, Power to gas, Fuel
Cells...*

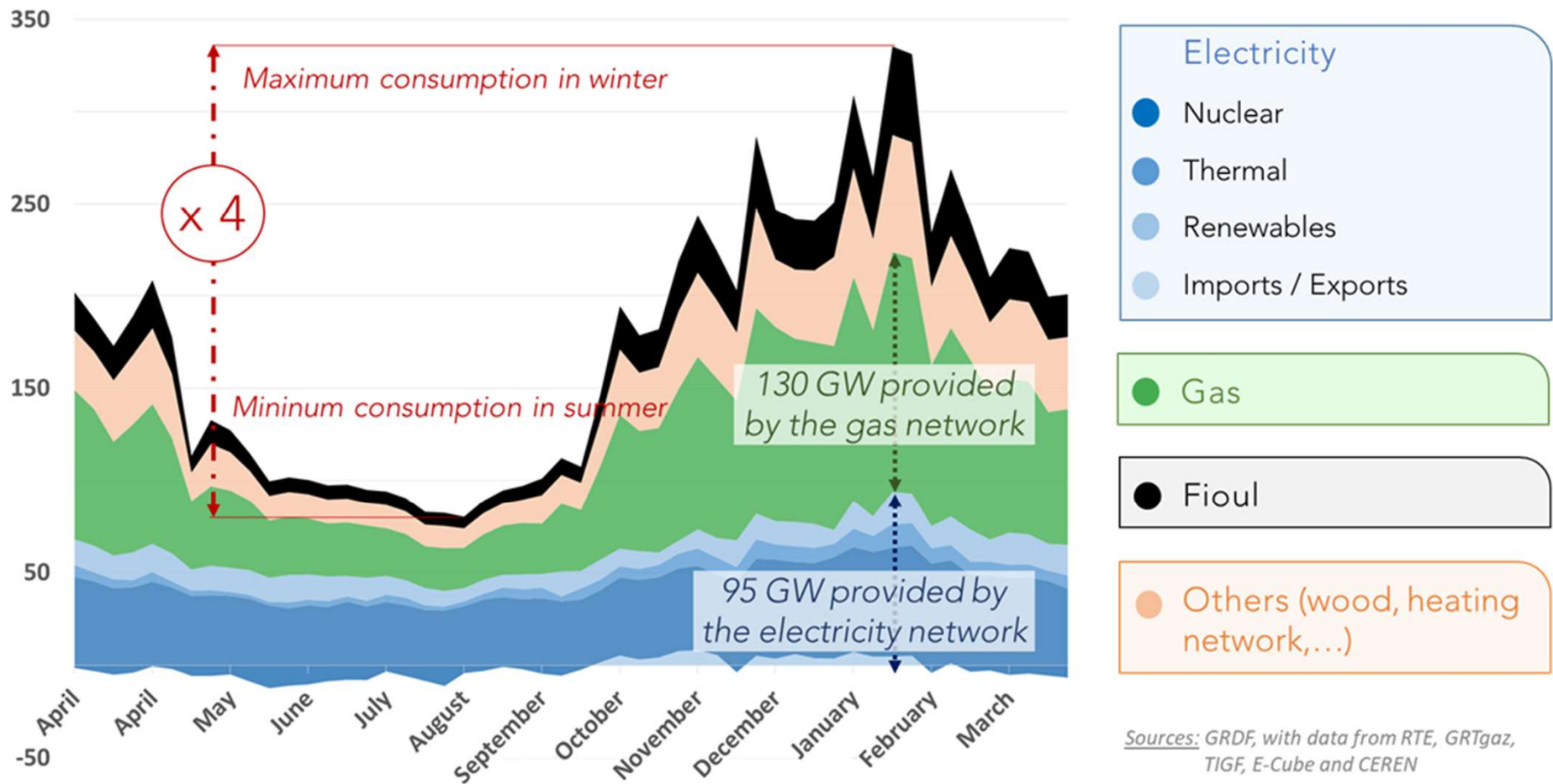


Why gas is a key enabler of decarbonisation ?

- 1/ Natural gas is the solution to manage seasonal peaks
- 2/ Gas can be renewable
- 3/ Renewable gas is a cost-efficient solution

1/ Natural gas is key to manage seasonal peaks

Weekly energy peaks at 8am, starting from April 1st 2016 to March 31th 2017



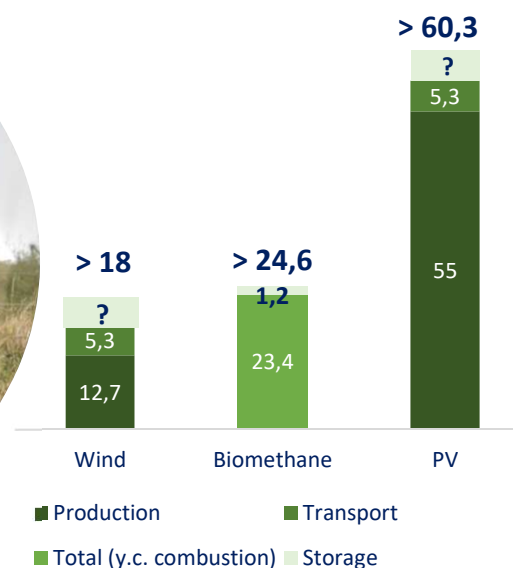
2/ Gas can be renewable

Climate

Biomethane emits 23,4gCO₂/KWh,
compared to 18 gCO₂/KWh for wind and
60,3 gCO₂/KWh for PV



Life-cycle analysis of different
renewable energies (gCO₂/kWh)



Source : Base carbone ADEME (éolien et PV) ; Etude ENEA/Quantis, 2017 (biométhane) ;
ENGIE, Rapport « Développement durable », 2011 (stockage gaz)

2/ Gas can be renewable

Climate

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Competitiveness

Savings of € 2 billion in France by
2030 as a result of a decrease in
energy imports (70TWh)

Job creation

7 to 10 jobs created
for each unit of
biomethane
production

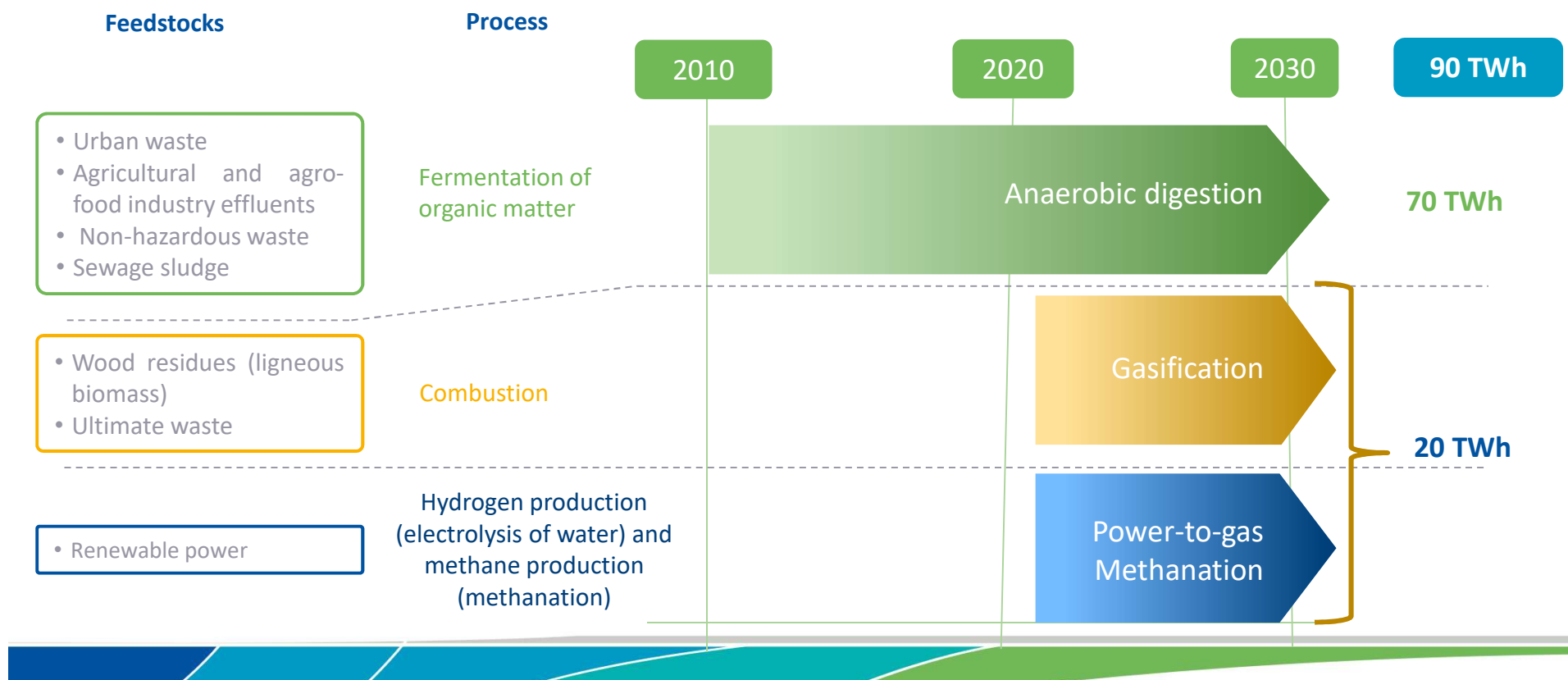
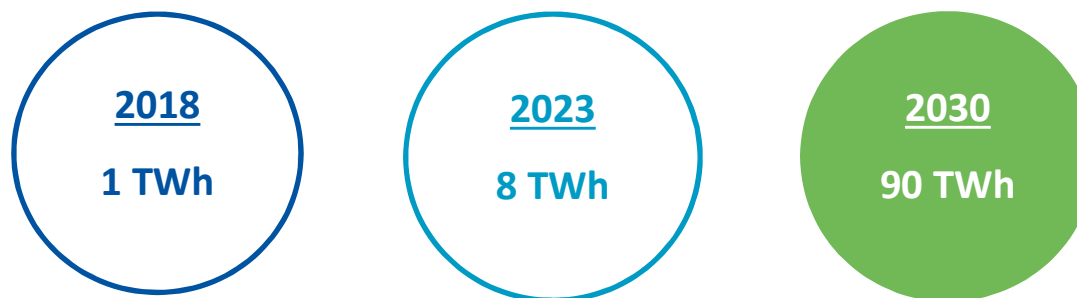
Sustainable agriculture

95% of waste transformed into
digestate will be used as natural
fertilizer



2/ Gas can be renewable

Forecasted development in France

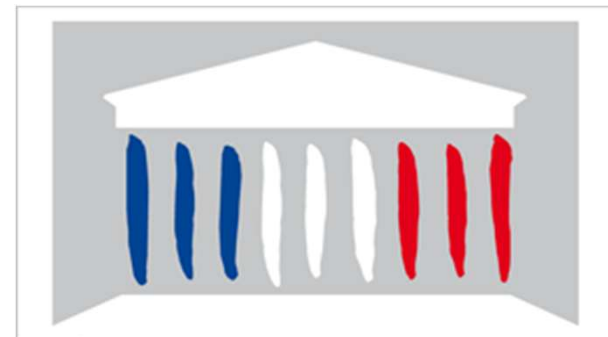


2/ Gas can be renewable

The right to inject

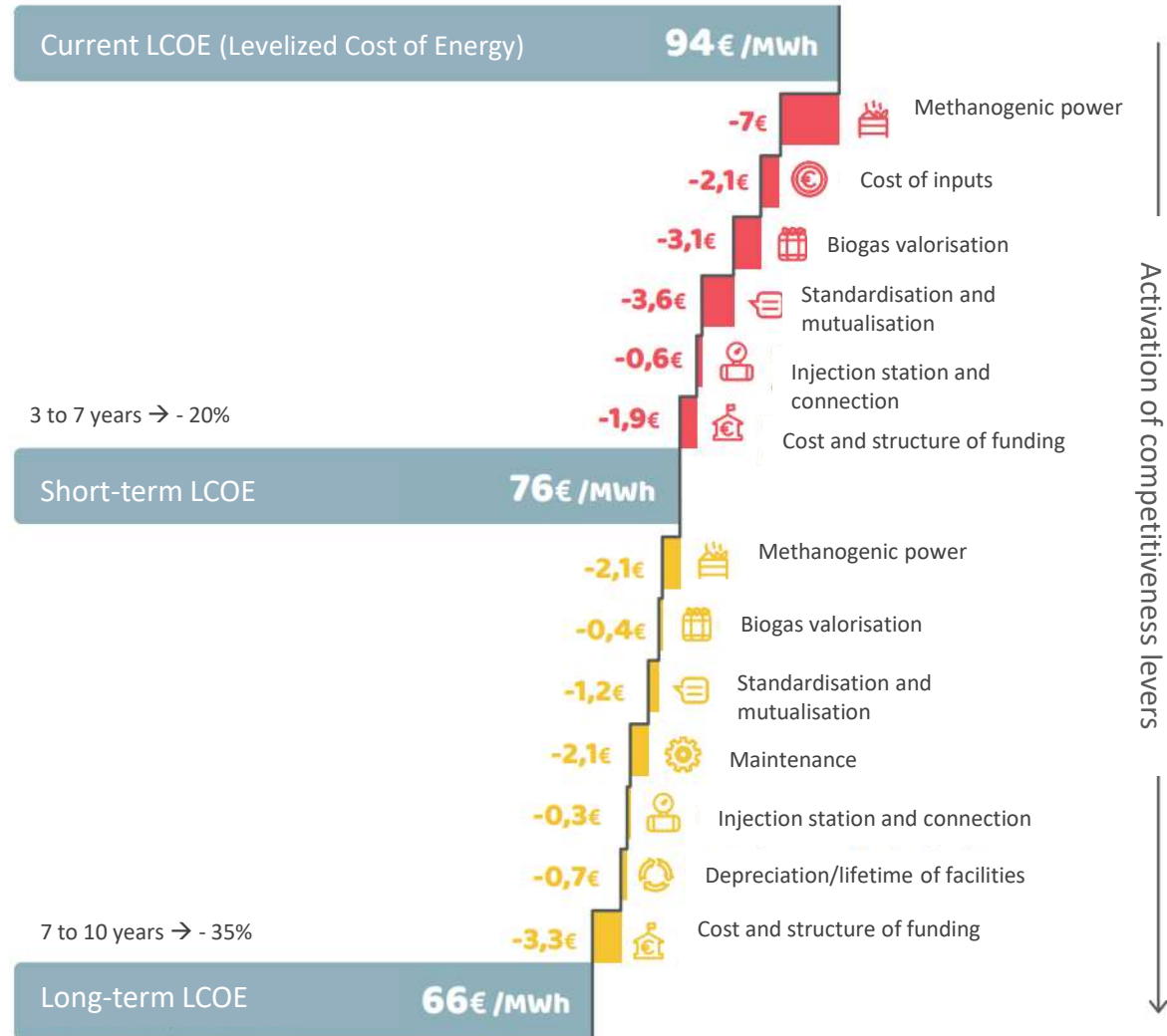
« The right to inject » has been adopted in France recently:

- What does it mean ?
 - The right for any biomethane producers to inject into the gas grid
- How will it be implemented ?
 - Gas DSO will be allowed to develop meshing, reverse flows or any other needed network reinforcements
 - A decree is expected to detail the technical and economical criteria that will be applied



3/ Renewable gas is a cost-efficient solution

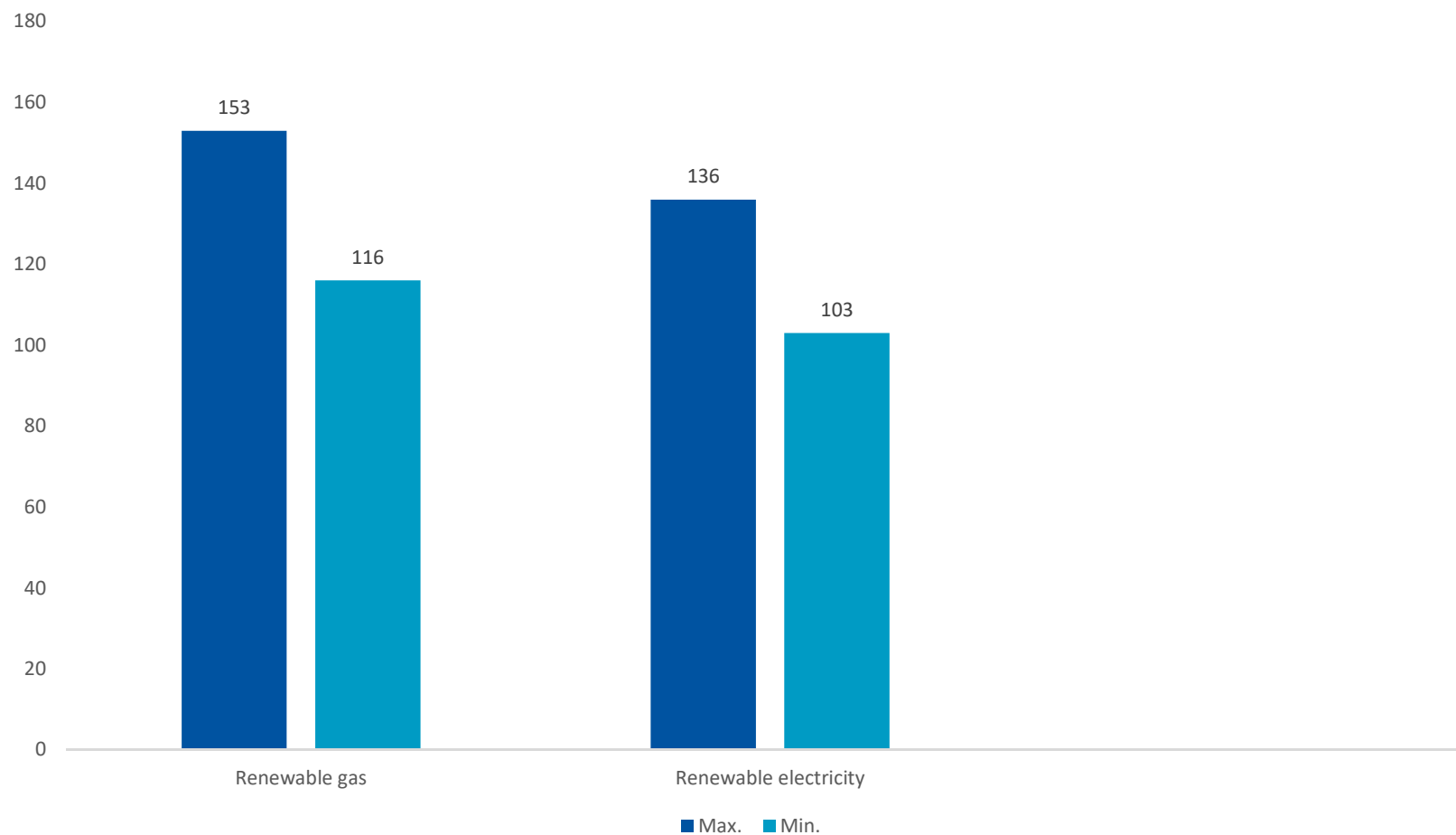
Evolution of the cost of biomethane production in the industrial and territorial case at short and medium-term by competitiveness leverage



Source: « Reinforcing competitiveness of French biomethane production - Synthesis », October 2018, Enea

3/ Renewable gas is a cost-effective solution

Total costs of renewable electricity and renewable gas by 2050 in France (in €/MWh)



Sources: Un mix électrique 100% renouvelable ? (Ademe, 2016) , Mix de gaz 100 % renouvelable en 2050 ? (Ademe, 2018)

Thank you !



**Ceci est
une patate
chauffante.**

L'épluchure de cette pomme de terre produit un gaz vert, local et renouvelable, capable de chauffer votre logement.

**CHOISIR LE GAZ
C'EST AUSSI
CHOISIR L'AVENIR**

GRDF
GAZ RÉSEAU
DISTRIBUTION FRANCE

#LeGazCestLavenir
Plus d'informations sur www.legazcestlavenir.fr

L'énergie est notre avenir, économisons-la !

Quel que soit votre fournisseur

This is a heating potatoe.



**Si votre
enfant ne
finit pas
ses brocolis,
on le fera
pour lui.**

Les déchets de la restauration collective servent à produire un gaz vert, local et renouvelable, le biométhane. Et ce gaz vert circule déjà dans les tuyaux !

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L'énergie est notre avenir, économisons-la !

Quel que soit votre fournisseur

If your child doesn't eat all his broccolis, we will do it for him!



**Maintenant,
notre gaz
est produit
à partir de
bouses de vaches.
Ça ne l'empêche
pas d'être
plus propre.**

Les déchets agricoles produisent un gaz vert, plus respectueux de l'environnement, local et renouvelable appelé biométhane.

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Quel que soit votre fournisseur

Our gas is now produced from manure...which ironically makes it considerably cleaner!