Gas Sector Priorities – European Level

Eurogas – Finnish Gas Association

Helsinki – 10 April 2019

Our members – mid and downstream & DSOs

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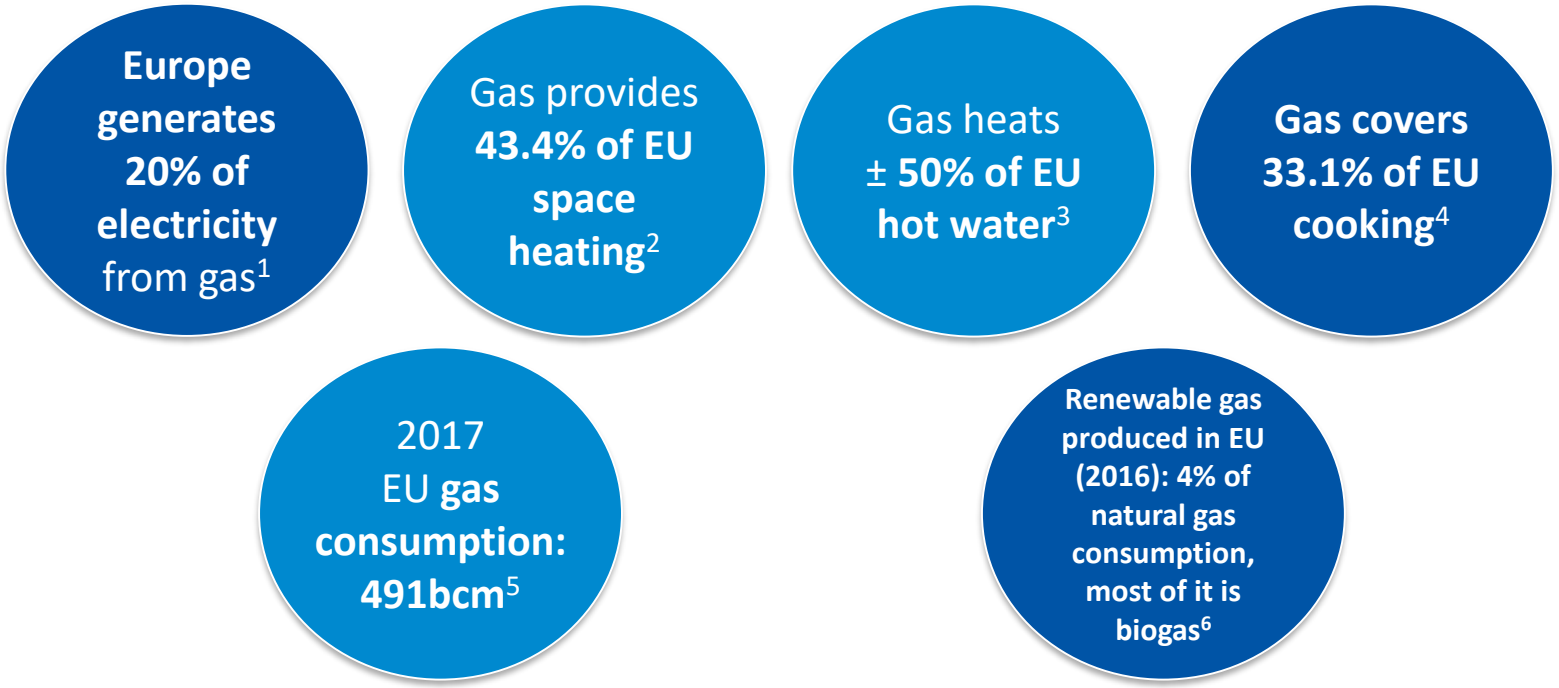
Gas…in EU daily lives and our economy today



[1] Source: BP *Statistical Review of World Energy 2018*

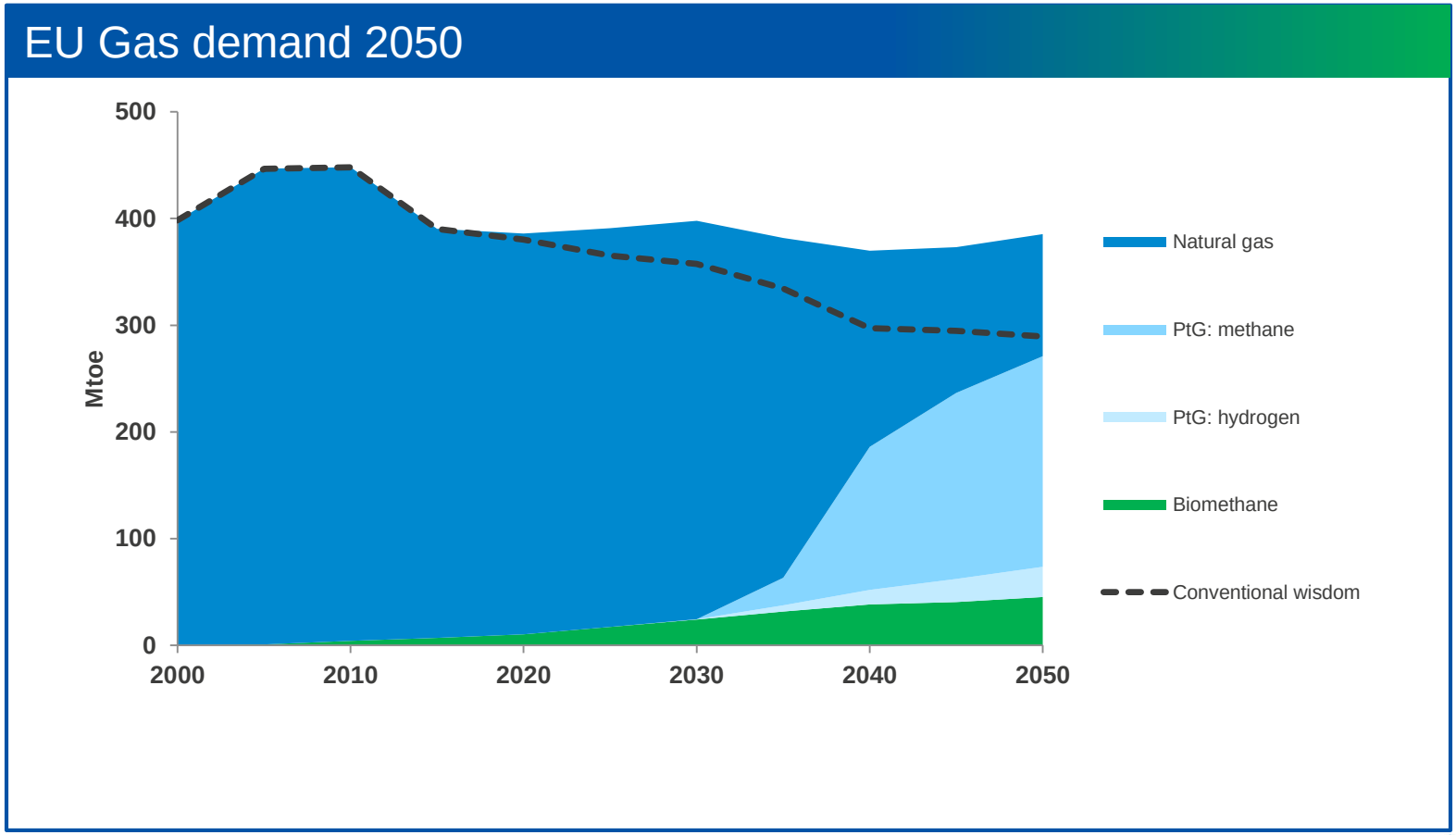
[2 3 4] Expressed in shares, in EU residential sector. Source: Eurostat

[5] source: European Commission, *Gas Market Report Q4 2017*

[6] Source: European Commission with reference to Eurostat

Full Eurogas EU market demand projection to 2050

Demand for natural gas could be 400+ bcm in 2050 according to the PRIMES modelling in 2017

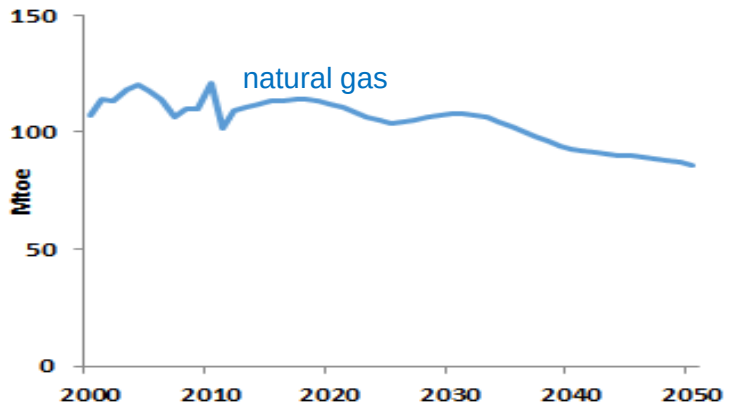


Eurogas forecasts for Gas to 2050 in different sectors

Important gas customer sector demand predictions

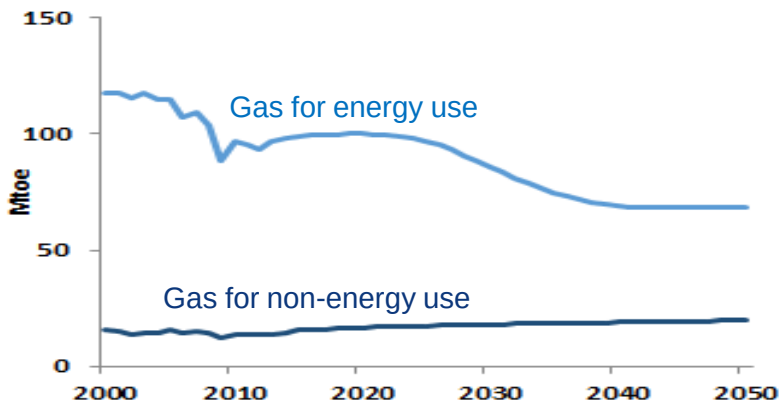
Residential

- 76% of current houses still remain in 2050.
- High renovation rates.
- Quite stable gas demand to 2030.



Industry

- Economic growth is a key parameter
- Efficiency and some alternatives drive energy-use; chemicals is a separate sector.



Comments on the Eurogas Forecasts

- The Eurogas PRIMES study envisages a major shift into hydrogen by 2050 – over 70% of demand will be met by it
- Power to gas is increasingly an option for Europe
- Strong biomethane growth
- Opportunities exist for natural gas as a feedstock for hydrogen
- EU could still need to import gas in 2050 – likely to be hydrogen
- Consideration for CCS development not just in EU but in neighbouring regions

European Commission Long Term Strategy Forecast

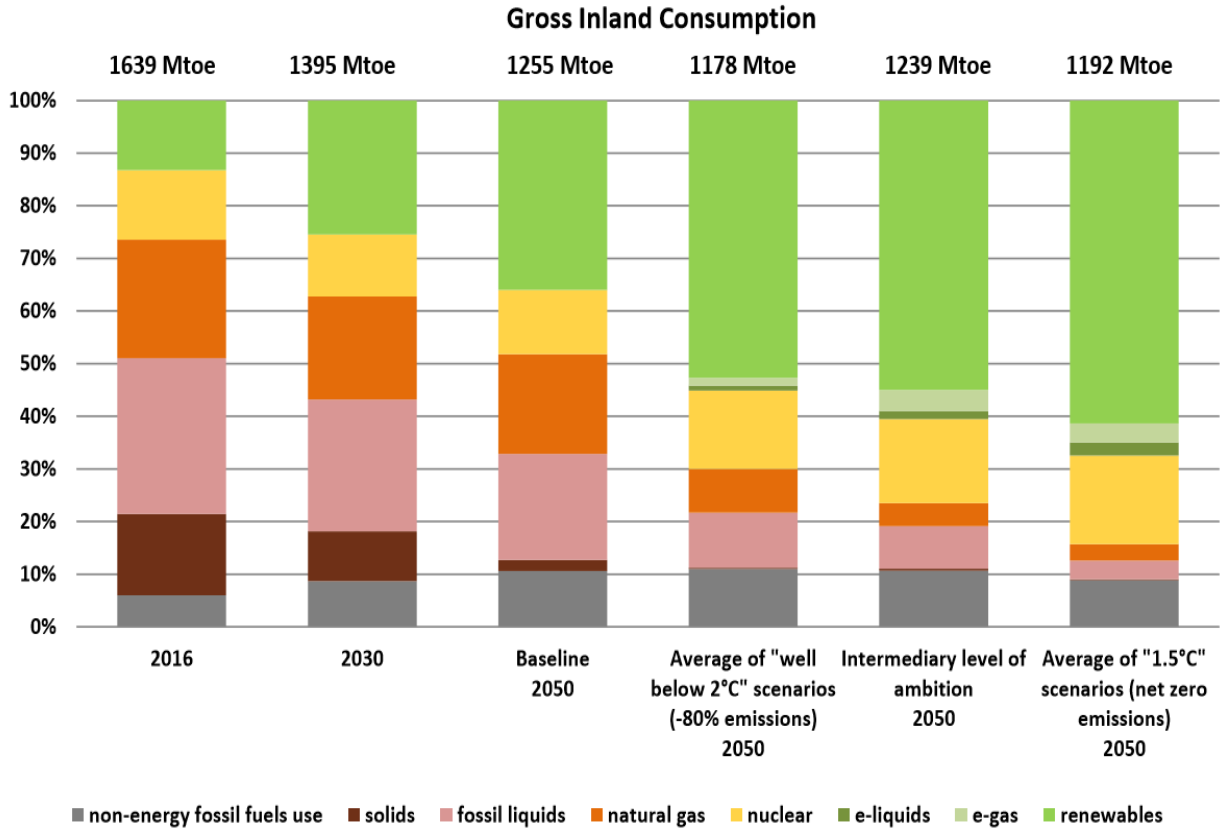
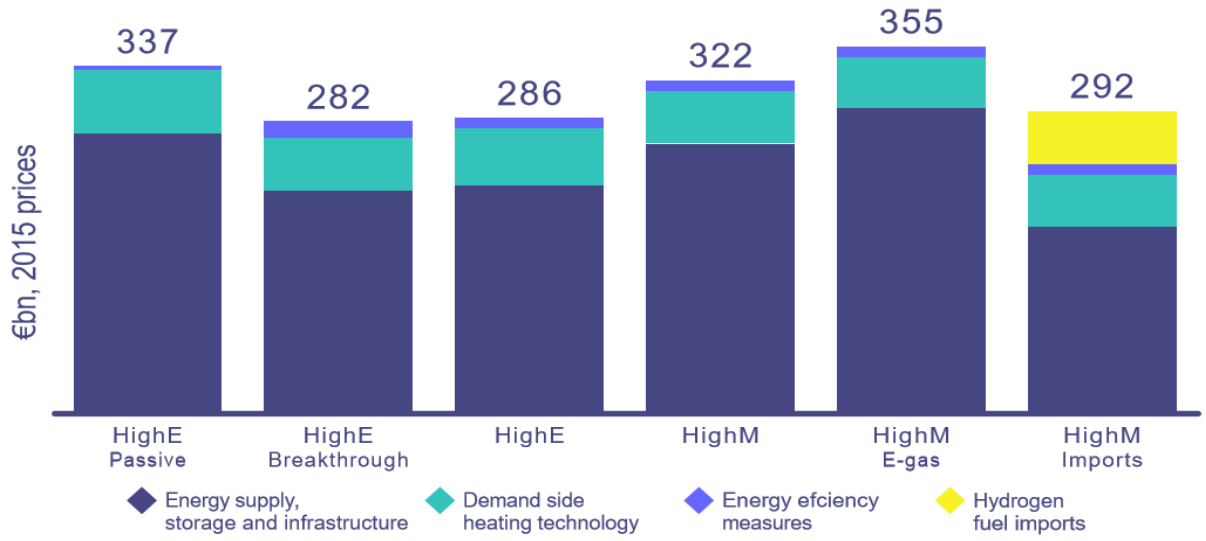


Figure 2. Fuel mix in Gross Inland Consumption

Comments on the forecasts

- The European Commission has called for a carbon neutral economy in 2050, net zero carbon emissions
- Massive reduction in gaseous fuels
- Have been told ‘You must decarbonise to stay in the game’
- However, Member States are less enthusiastic to embrace this pathway to 2050
- Willl be decided throughout the course of this year

Cost is the battle ground – European Climate Foundation Forecasts

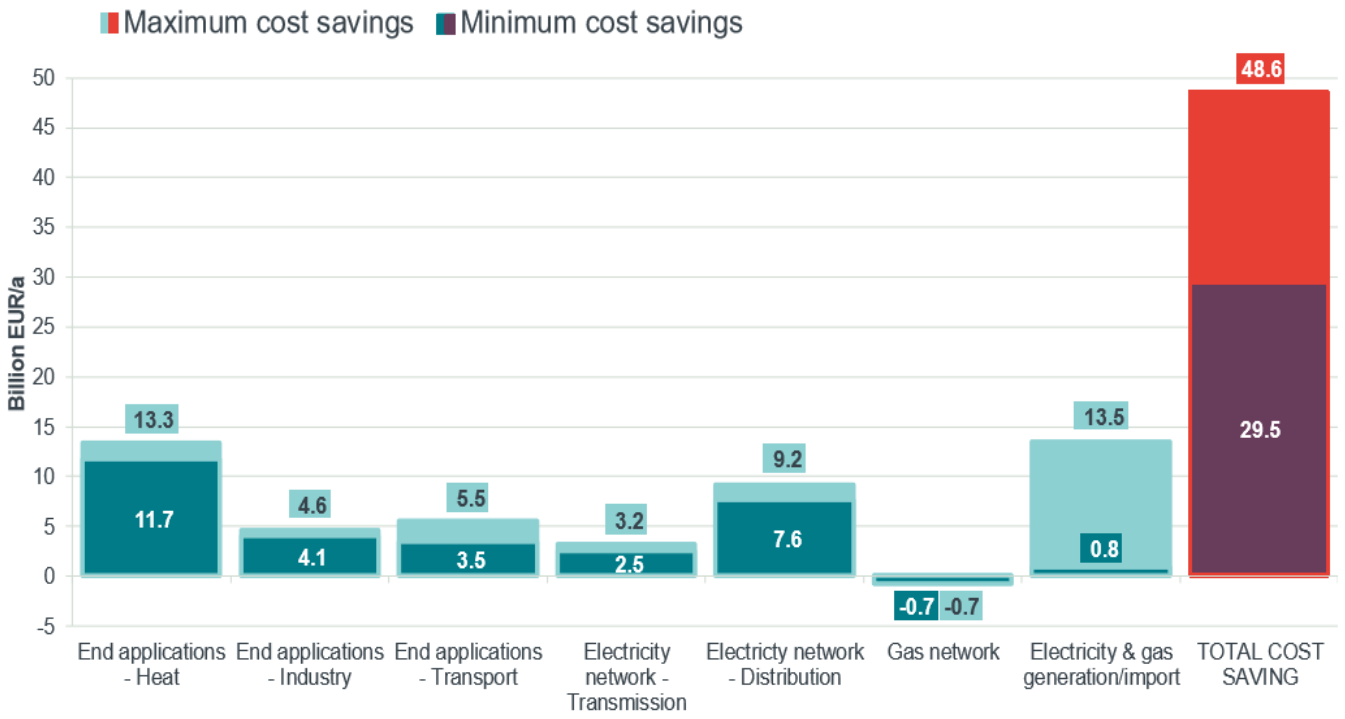


Source: Element Energy and Cambridge Econometrics

FIGURE 14: *Annualised costs in 2050 of key elements of alternative decarbonisation scenarios (total for six 'archetype' countries)*

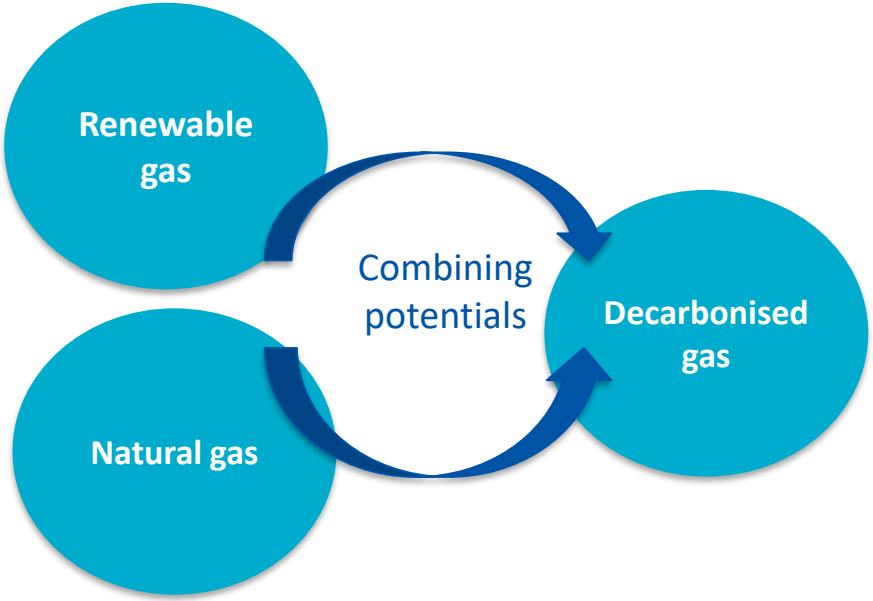
Frontier Economics – Cost Saving of Gas Use

Figure 26 **Min and max cost savings of a continued use of gas per year in 2050 along the supply chain for the countries analysed**



Source: Frontier Economics/IAEW

The Gas Package and the potential for decarbonisation utilising natural gas



The 2050 decarbonisation targets can be reached cost effectively by utilising renewable gas (r-gas) & decarbonised gas (d-gas).

Gas infrastructure already in place is largely amortised and covers over 2.2 million Kms at the DSO level.

With biomethane we could decarbonize heating - for individuals and district heating - with an easy product switch in a click. Without any investment on site. Very fast decarbonisation.

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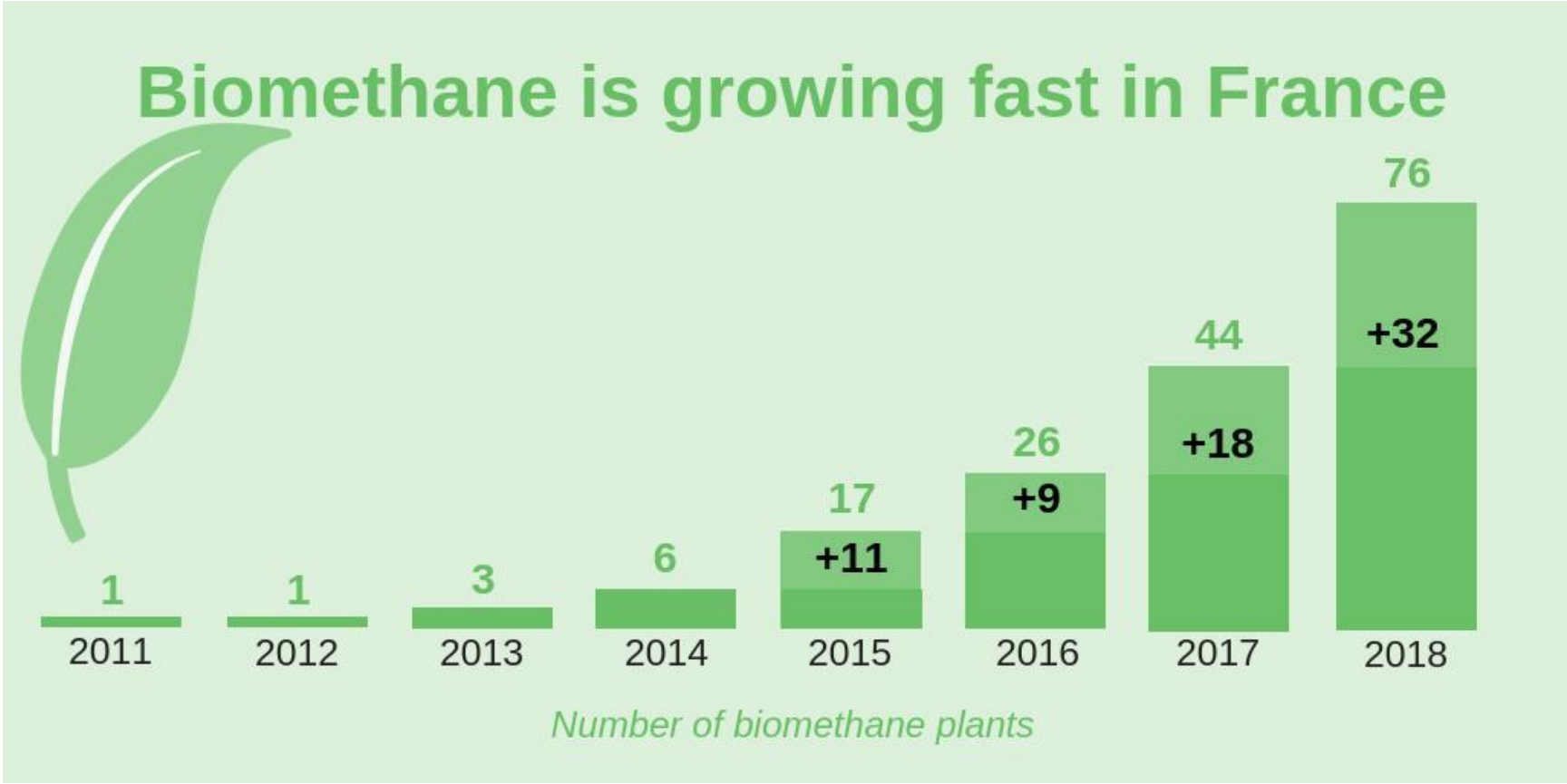
The context for decarbonised gas today

- 17 National Climate and Energy Plans recognise value of natural gas to 2030
- A further 19 mention biogas/biomethane for different uses – heat, transport, power
- 21 mention Hydrogen but many on transport side – need wider consideration

Renewable Gas Market Picking Up - GRDF



Challenges to Solve

- Hydrogen production – cost needs to be brought down through scale, what are best pathways to scale?
- Need to address:
  - Blending strengths i.e. how much hydrogen, biomethane and natural gas can you blend?
  - At what point do biogas and hydrogen become competitive?
- Eurogas Study underway – results in October

Eurogas recommendations for a Gas Package

- Introduce an EU target for renewable and decarbonised gases
- Develop a European blueprint for Guarantees of Origin (GOs) for hydrogen
- Obligation for joint gas/electricity infrastructure planning to take an integrated system view
- Favour gasification and digestion over the incineration of waste
- Enable the development of technologies to decarbonize the gas supply e.g. pyrolysis, CCS/U and SMR

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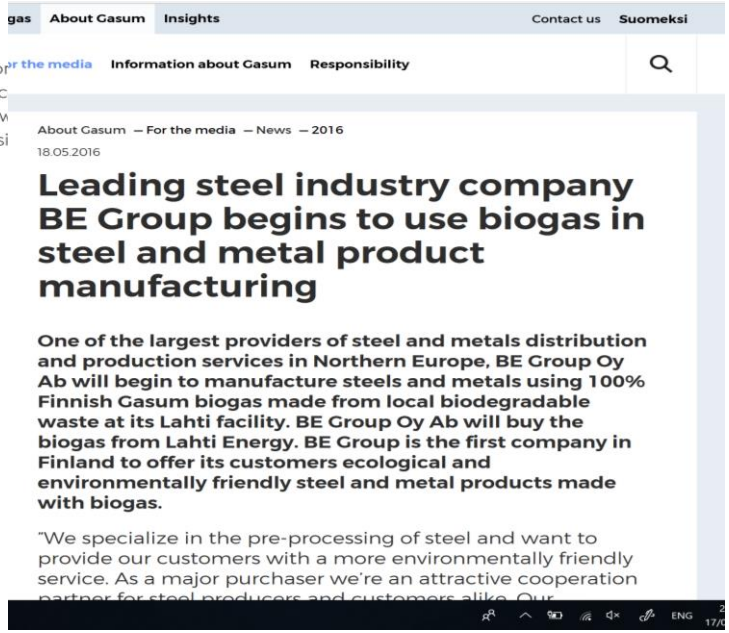
Fuelling the future

Renewable and decarbonized gases – available now!



Solutions are being examined now:

- Cadent gas and H21 projects in the UK
- Standardisation work in CEN
- Technical conclusions from Marcogaz on H2 injection

The industrial opportunity of Renewable and Decarbonised Gas

- Europe leads on the industrial production of:
  - Anaerobic digestors
  - Electrolysers
  - LNG Engines for ships
- Gas industry in itself offers industrial opportunities for Europe to lead on low carbon technologies
- This implies the creation of jobs and wealth in Europe through the energy transition

Contact details

Av. de Cortenbergh 172
1000 Brussels
BELGIUM

Phone:
+32 2 894 48 48

eurogas@eurogas.org
www.eurogas.org