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FSR ENERGY

Florence School of Regulation

3rd AIEE Energy Symposium Session 6: Decarbonizing the gas sector

“Decarbonising the Gas Sector: is Renewable Gas a Serious Option?”

Andris Piebalgs, Maria Olczak (presenter)

Florence School of Regulation

Decarbonising the Gas Sector: is Renewable Gas a Serious Option?

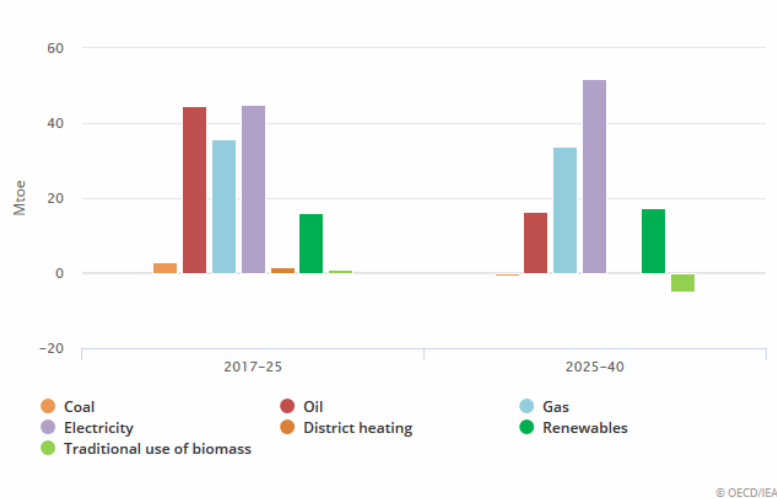
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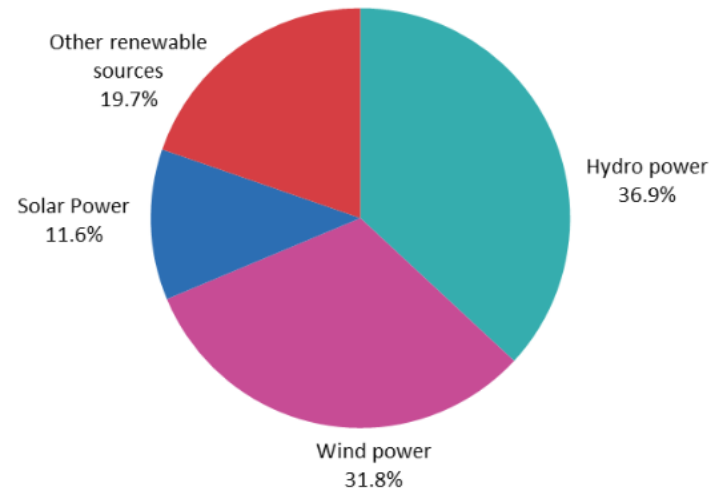
Results

Recommendations

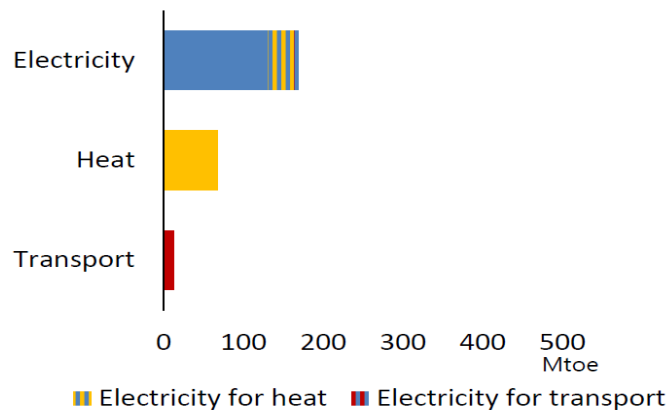
The pace of greening the EU gas sector is much slower than power generation



Gross electricity generation from renewable sources, EU 2016



Renewable energy consumption growth by sector, 2018-23



EU Biomethane Map, 2016:

- 17,662 biogas plants (EU28+Iceland, Norway, Serbia and Switzerland)
- H2020 Store&GO, 2017:
 - RG = 4% of EU annual 400-450bcm
 - = 11% of it is injected into the gas grid

This trend is expected to continue in the future, despite constant gas demand

Figure 11: Percentage share of electricity demand covered by renewable generation by scenario

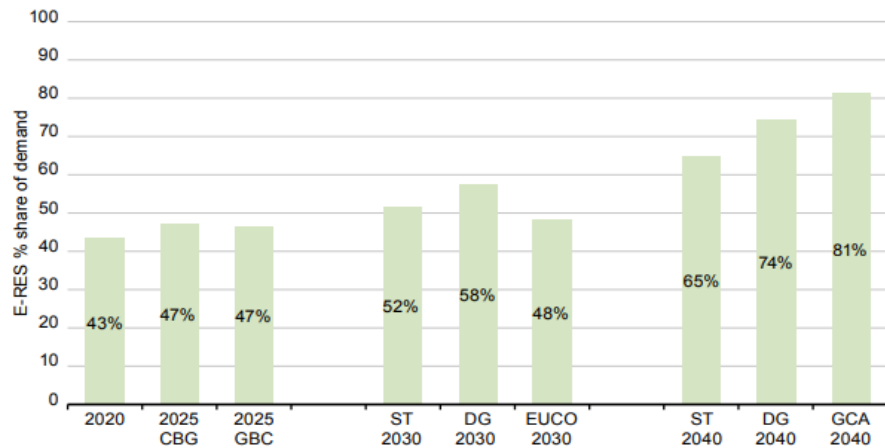


Figure 6: Total annual gas demand by scenario

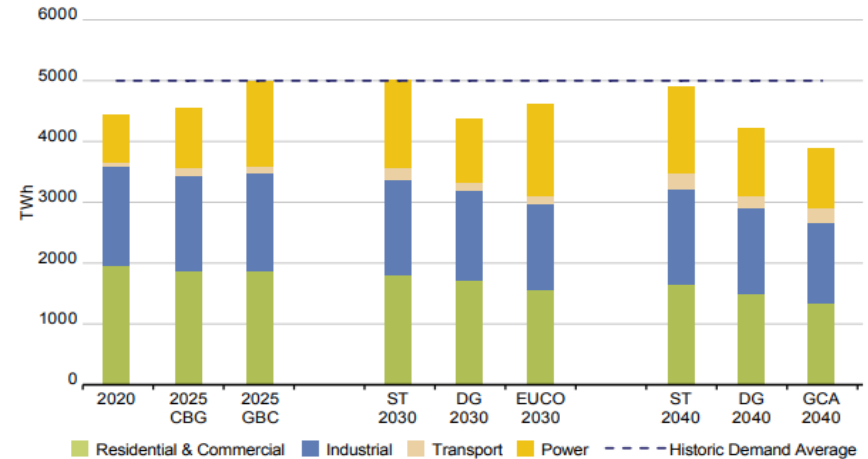
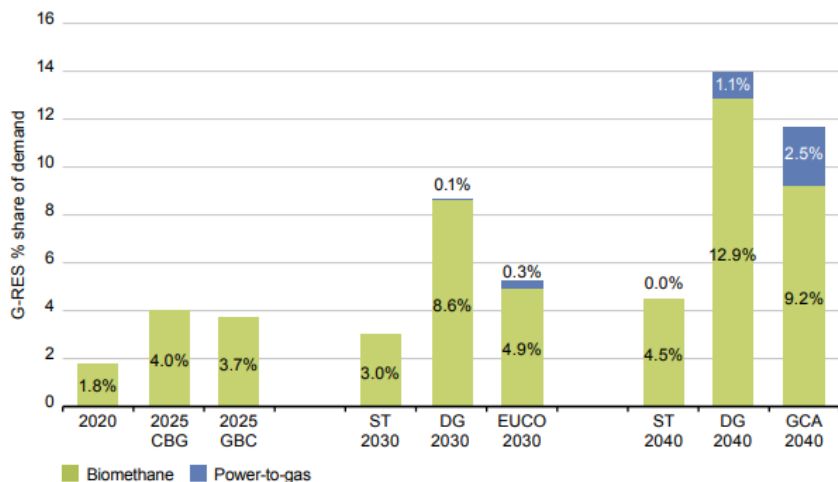


Figure 12: Percentage share of green gas supplying total gas demand by scenario

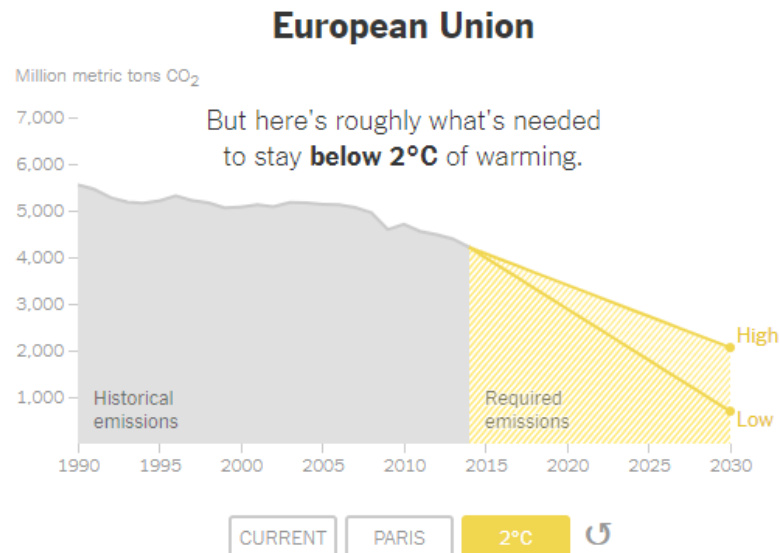
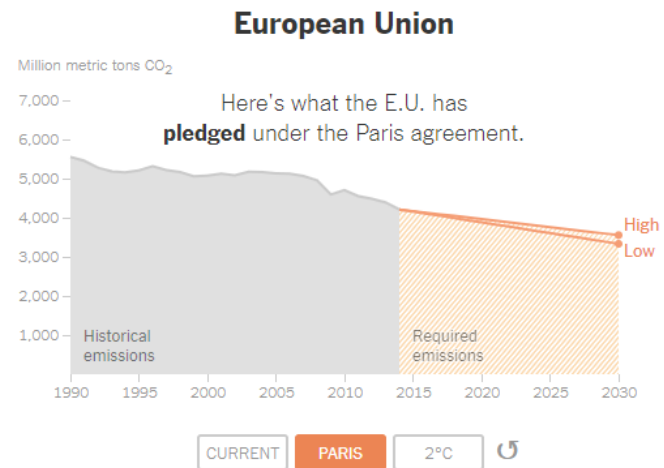
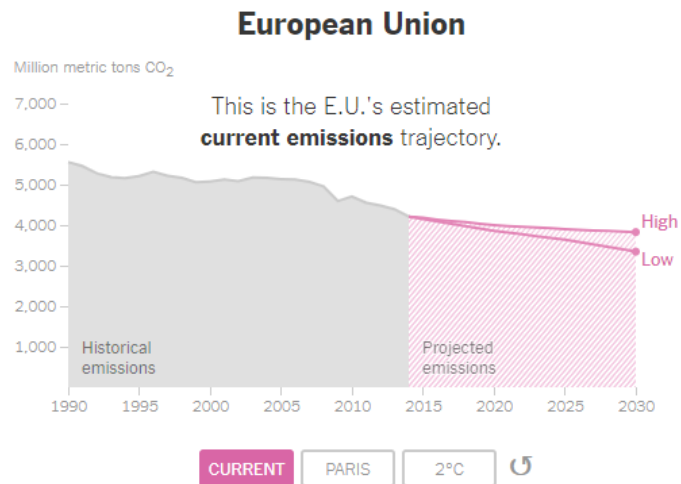


Life cycle GHG emissions for natural gas equal ca. **66 gCO₂eq/MJ**

GHG emission footprint of the EU-28 gas sector ca. **1161 Mt CO₂eq**

Source: Spijker, E., 2018

In BAU scenario one cannot expect the EU to meet Paris Agreement target(s)



Source: data from Climate Action Tracker, 2017

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Methodology:

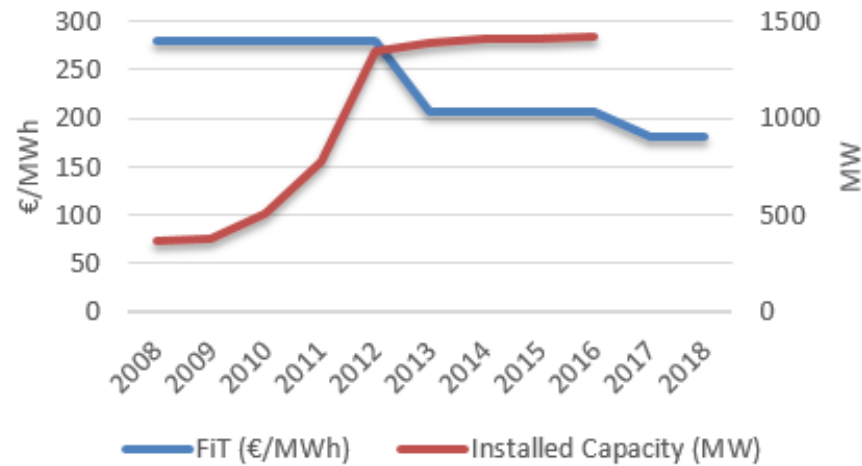
- Literature review
 - EU projects: Store&Go, BIOSURF, GreenGasGrids, etc.
- REDII analysis
- [FSR Policy Workshop](#): ‘The Renewable Gas Complex and the European Path to Decarbonisation’ on 9 April 2018
- FutureGas project with DTU (18 international partners)

Why renewable gas?

- There are other alternatives: Carbon Capture Use and Storage (CCUS), carbon offsets (e.g. reforestation).
- Our objective: to identify the barriers preventing higher penetration of RG and to propose the ways how can we use this potential
- EU experience with RG: the potential reasons why penetration of renewable gas was low so far?
 - RG perceived as a marginal renewable energy source
 - Technology challenges not fundamental (expect P2G)
 - Feedstock cost
 - Low carbon price
 - Inconsistent support policies

Inconsistent support policies – the case of Italy

Figure 11: Biogas plants: basic FIT⁶⁴ and installed capacity 2008-2017



Source: M.D. 18.12.08, M.D. 06.07.2012, M.D. 23.06.2016 and Gestore dei Servizi Energetici S.p.A. (GSE), Annual statistical reports on renewable energy, www.gse.it

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Policy issues: Recast Renewable Energy Directive (2009/28/EC) on renewable gas

Positive developments:

- New renewable energy targets: at least 32%; indicative targets for heating and cooling, and 14% target in transport
- Taxonomy: introduced definition of biogas as ‘gaseous fuels produced from biomass’ (Art. 2qq)
- Guarantees of Origin extended to cover renewable gas (Art. 19)
- Extended scope of application of sustainability criteria to include, inter alia, biomass fuels which are gaseous (Art. 26 and 27)
- Access to and operation of the grids (Art. 20)

Issues not answered:

- definition of biomethane and hydrogen
- incentives stimulating the growth of renewable gas production
- cross-border trade issues are not fully addressed

Cross-border issues

- Cross-border trade restrictions due to gas quality differences (cf. cross-border trade between Germany and Denmark)
- Cross-border trade restrictions due to the implementation of REDI with regards to sustainability criteria (Case C-549/15, E.ON. Biofor Sverige AB) tracking and avoiding double incentives (national support schemes)

Network Code on Interoperability and Data Exchange rules seem satisfactory (Art. 15), at least for the time being, we cannot exclude the need to establish the renewable gas quality standard

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Recommendations

1) Soft target for renewable gas with indicative trajectory

- Integrated National Energy and Climate Plans (Governance Regulation) used for corrective actions
- National targets supporting production and injection of biomethane into the gas grids
- Regulation to incentivise innovation

2) To establish EU benchmark for the odorization and control processes

3) To monitor challenges to cross-border trade

4) Harmonisation of the Guarantees of Origin (ERGaR – European Renewable Gas Registry)

Thank you for your attention

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References:

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<<https://www.iea.org/weo2018/electricity/>>

Eurostat, 2018 <https://ec.europa.eu/eurostat/statistics-explained/index.php/Electricity_production,_consumption_and_market_overview#Electricity_generation>

EU Biomethane Map, 2018 <http://european-biogas.eu/wp-content/uploads/2018/01/2018.01.09.GIE_BIO_2018_A0_1189x841_FULL_415_clean_final.pdf>
Published in 2018, but data come from 2016.

ENTSO-E&ENTSOG Scenario report 2018

<https://docstore.entsoe.eu/Documents/TYNDP%20documents/TYNDP2018/Scenario_Report_2018_Final.pdf>

E. Spijker, 2018, The Future Role of Gas in a Decarbonising Europe, JIQ Magazine vol. 24, no. 2 (October 2018)

<https://www.nytimes.com/interactive/2017/11/06/climate/world-emissions-goals-far-off-course.html>