



The Role of Gases Towards Low Carbon Economy

Richard Kvasňovský, Slovak Gas and Oil Association (SGOA)

Joint Statement of SGOA and CGOA

- We support the European Commission Long-Term Strategy for carbon neutrality in 2050 and are committed to achieving the objectives of the Paris Agreement to limit global warming to 1.5 °C
- The gas sector will play a crucial role in the energy transition, if we are to achieve the EU climate and energy ambitions
- Natural gas is low-emission fuel and partner of renewables
- The role of the gas infrastructure in the energy transition is vital if we are to meet our climate targets
- Natural gas in for of (bio)CNG and bio (LNG) can contribute to cleaner mobility mainly/in different types of transports of people and goods

Where can Gas industry helps

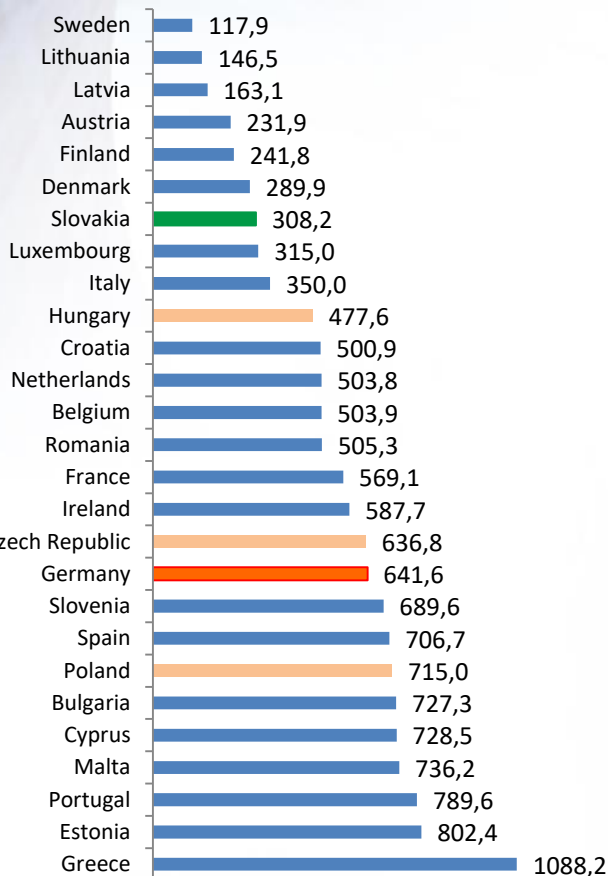
- Lowering emissions of GHG
- Improvement of air quality
- Saving financial resources

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Emissions of GHG- Slovakia

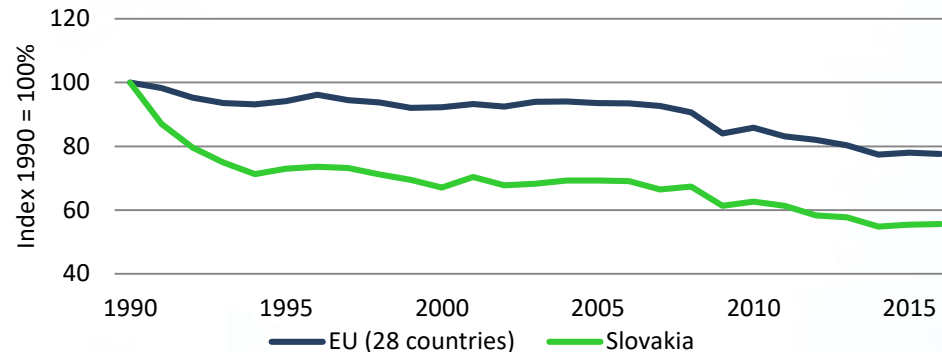


Carbon profile of the heat and energy production in Slovakia after replacing of coal by natural gas



g CO₂/kWh, zdroj EEA

Emissions of GHG since 1990

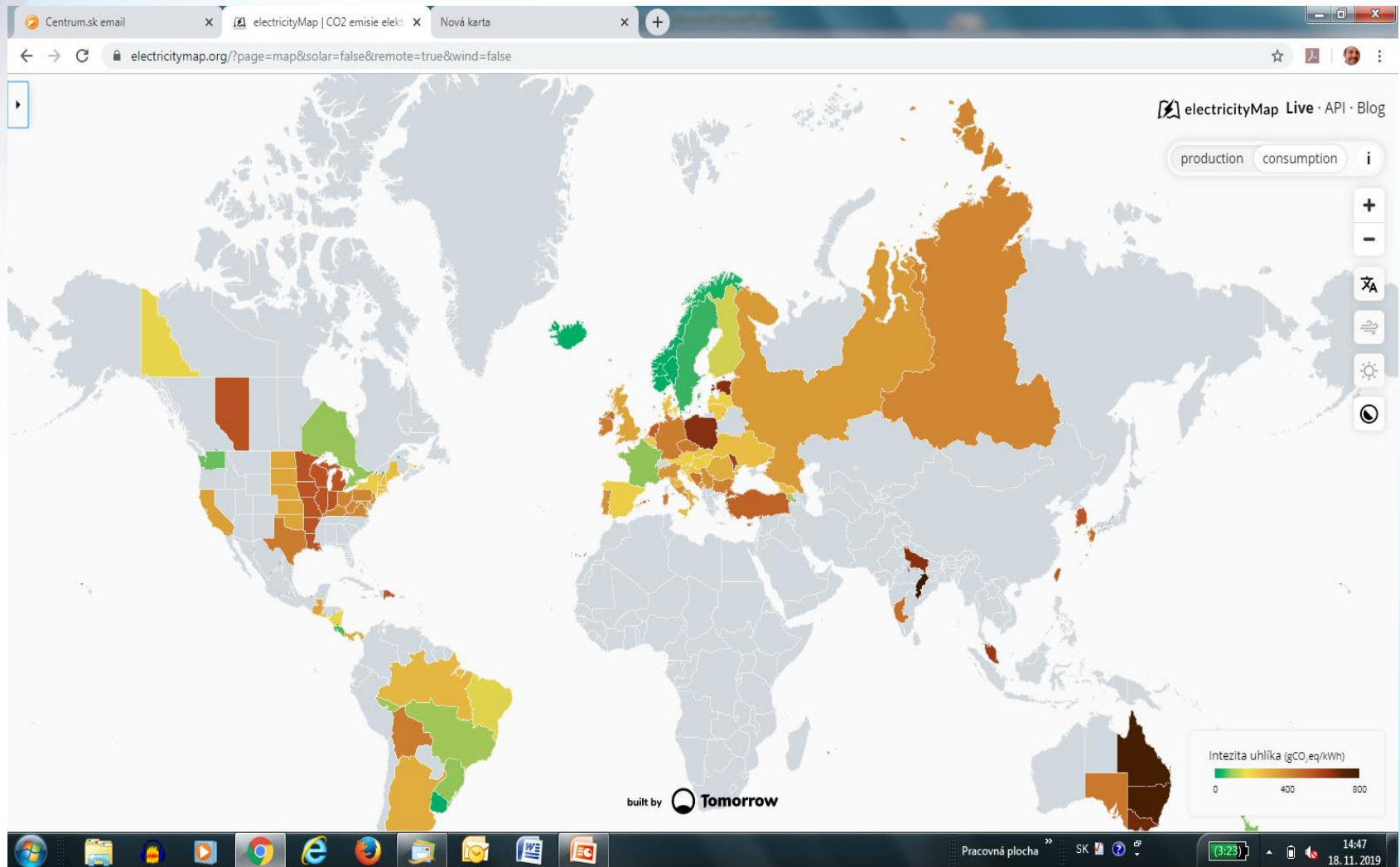


Zdroje: eurostat, PORDATA

The bilance of Slovakia:

- Since 1990 Slovakia has lowered GHG emissions by 40%
- Mostly in energy sector, nearly 60%
- Slovakia has one of the least emission economies within the EU
- We need significant decrease of the GHG emissions in transport and industry sectors, energy efficiency

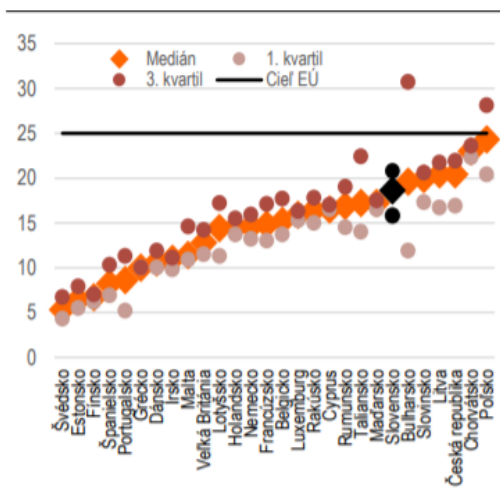
GHG Emissions on electricity consumption



Air quality problem

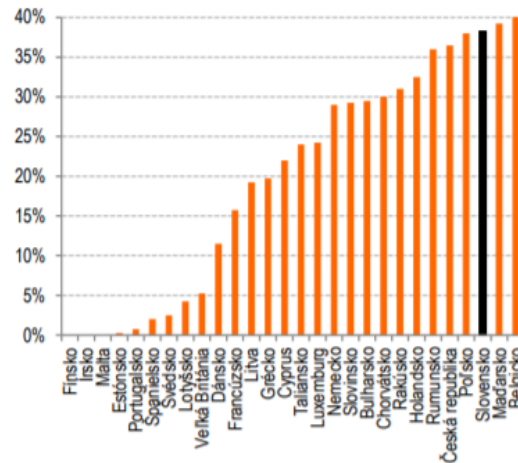
- IEA: Slovakia along with Bulgaria and Poland has one of the worst polluted air in Europe with particular matters (PM10, PM2,5).
- **According to IEA almost 5000 Slovaks die per year due to this air pollution!**
- MoE/SHMÚ: 350 000 households are using solid fuels for heating; 120 000 heat boilers are older than 30 years.
- Replacement of the worst heat boilers for heat pumps would be almost 3 times more costly than for low emission condens gas boilers (9,6 vs 3.6 bln €).

Graf 27: Ročná priemerná koncentrácia PM_{2,5}



Zdroj: EEA

Graf 28: Priemerný podiel obyvateľstva vystaveného nadmernej koncentrácii častíc PM_{2,5} (WHO limit)



Zdroj: EPI podľa satelitných dát z Dalhousie University, odhad vystavenej populácie podľa Global Rural Urban Mapping Project, NASA

Gas Industry can save money in the road towards low carbon economy

Using the Gas Infrastructure will result in significant system cost saving to 2050 and increase social acceptance:

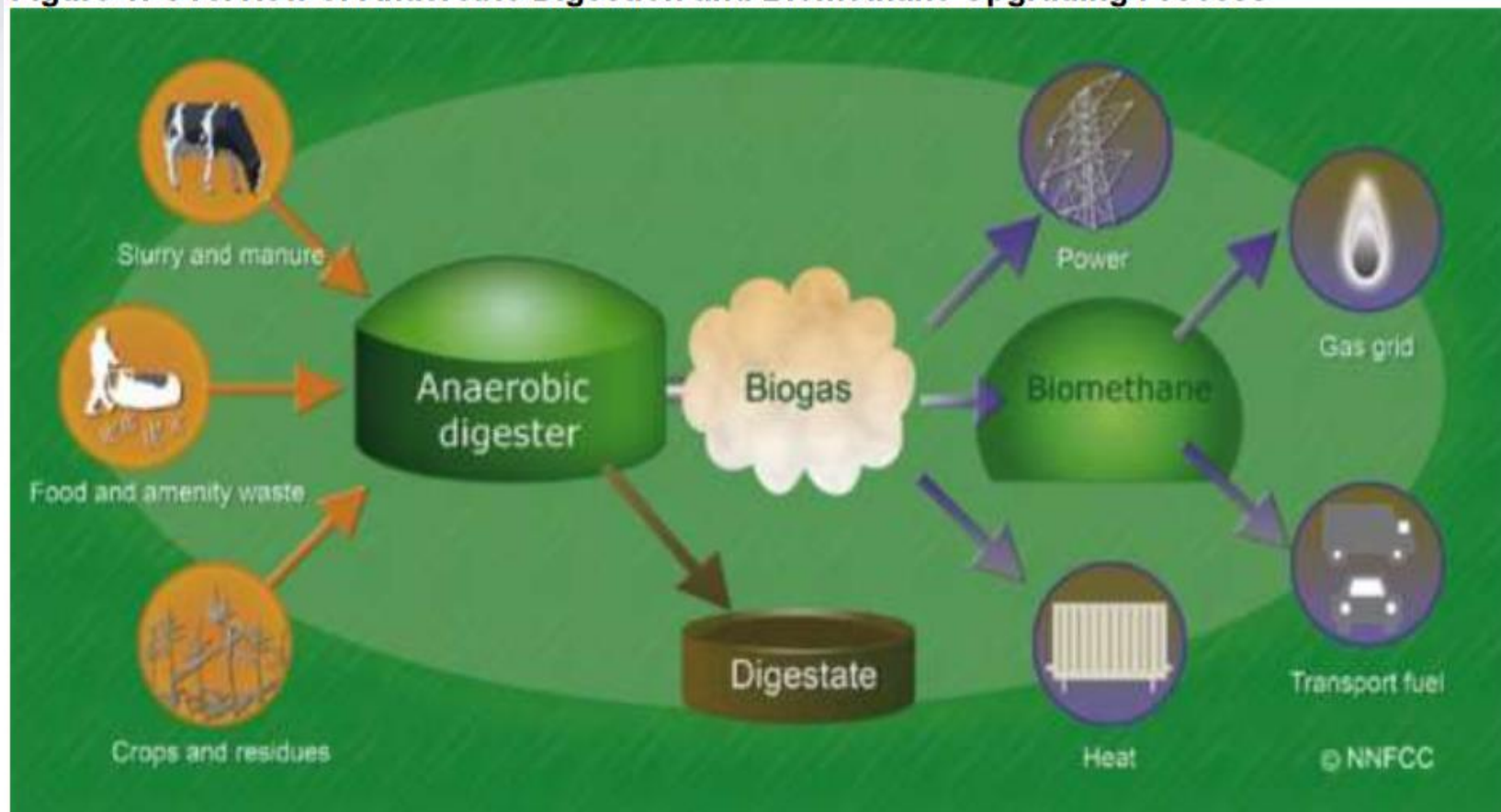
“Renewable methane and hydrogen used optimally in the energy system can save society €217 billion annually compared to an energy system with a minimal amount of gas”

Source: NAVIGANT (2019) Gas for climate

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Biogas- Biomethane

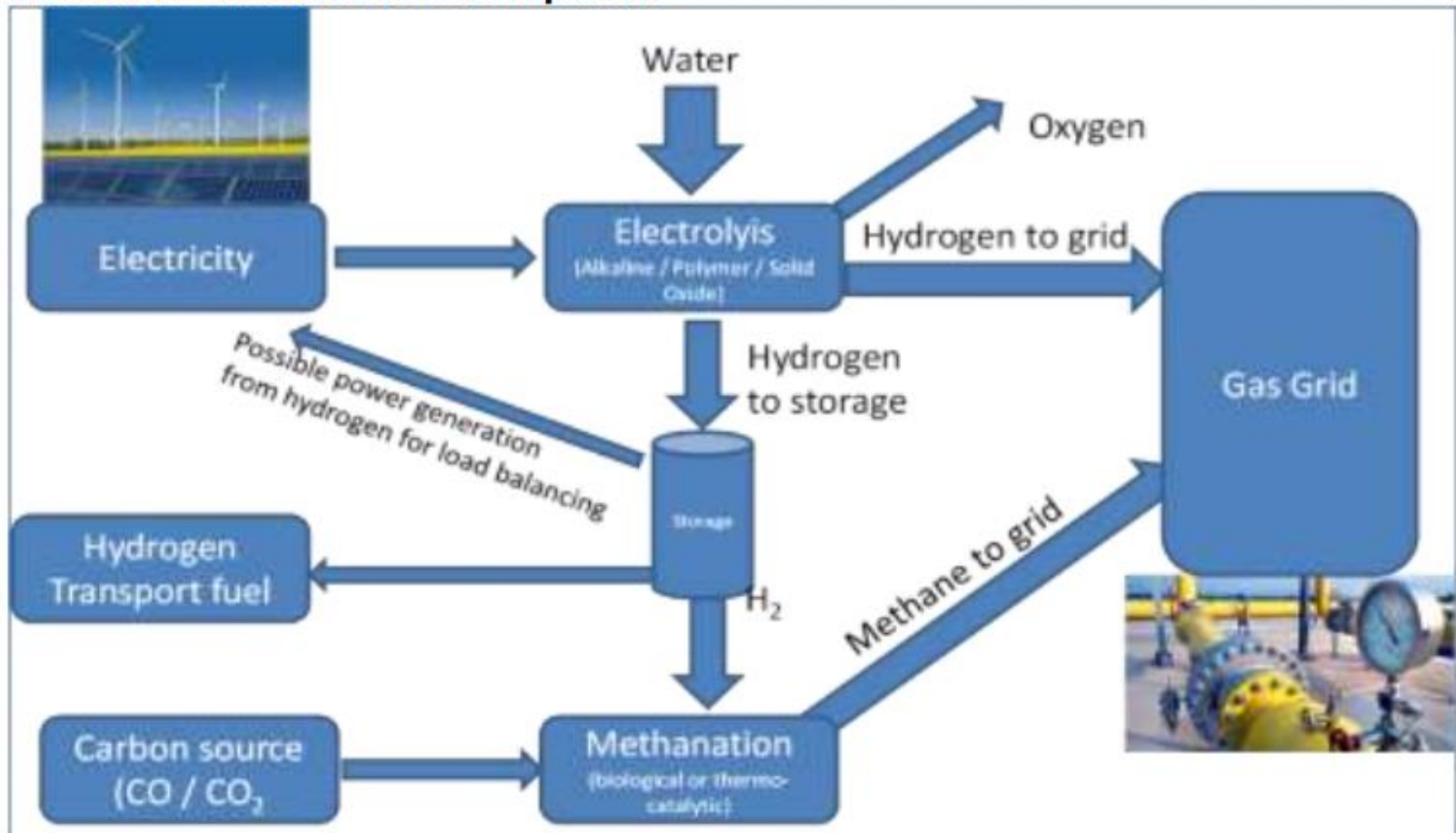
Figure 1: Overview of Anaerobic Digestion and Biomethane Upgrading Process



Source: Lambert (2017), p. 3. From the UK Anaerobic Digestion Portal.

Power to Gas technologies

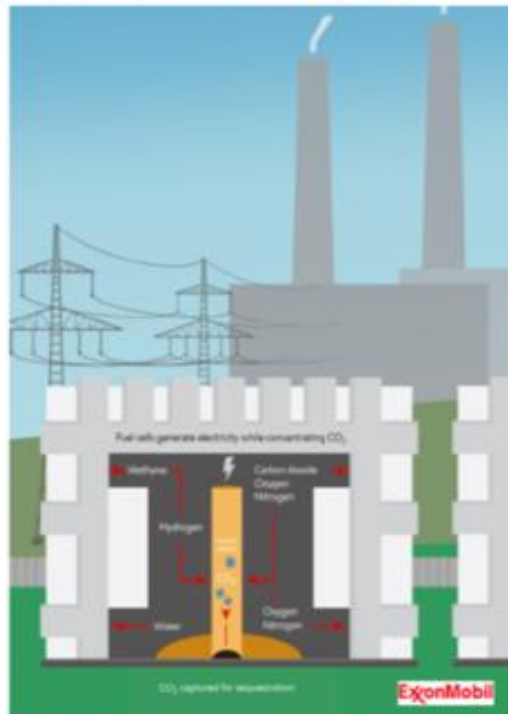
Figure 3: Overview of Power to Gas Options



Carbon Capture and Storage (CCS)








How it works



Benefits

- Fuel cells separate carbon dioxide from a power plant's exhaust stream, making the carbon dioxide easier to capture and sequester (90% CO₂ capture, 70% NOx elimination)
- This process could vastly reduce carbon dioxide emissions by dramatically reducing carbon capture costs
- A breakthrough in commercialization would lead to a global marketplace

<p>Concentrates CO₂</p>  <p>Carbonate fuel cells can concentrate up to 90% of carbon emissions that come out of power plants – emissions can be captured and utilized or sequestered</p>	<p>Cleaner air</p>  <p>Removing carbon dioxide from the power plant exhaust eliminates a majority of smog-producing emissions</p> 	<p>Generates power</p>  <p>Carbon capture using fuel cells generates power from natural gas, critical to the commercialization of carbon capture</p>	<p>Customizable</p>  <p>Modular solutions, allowing for gradual investments that help utilities meet carbon-capture targets over time</p>
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Natural gas fuel cells can be used to capture CO₂ from gas or coal power plants and industrial thermal sources

Future of Gases in the EU



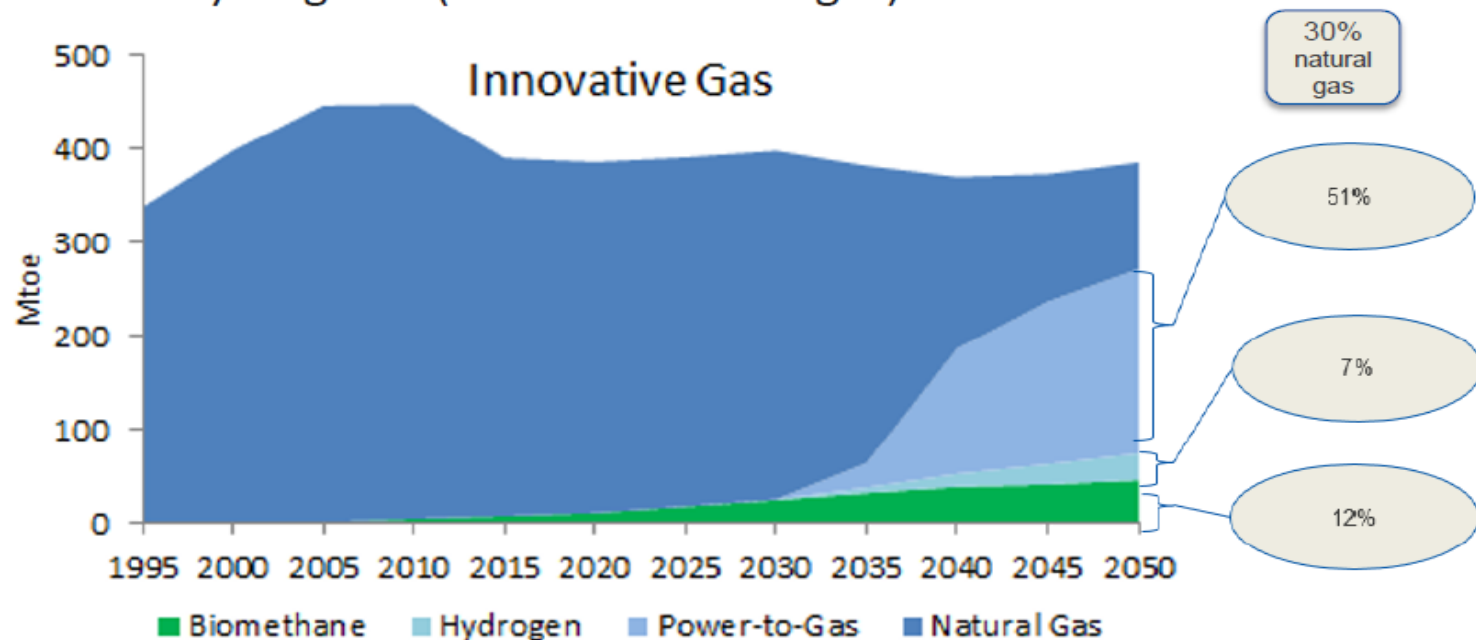
Gaseous fuels – the question of potential

1. Ecofys in 2018 for 2050:

98 bcm of methane + 24 bcm of renewable hydrogen by 2050 + 20 bcm from UA + BY + 132 bcm of natural gas /Sustainable Development Scenario/ **or**
+ 279 bcm /Beyond 2 Degrees Scenario/

2. PRIMES scenario in 2016 for 2050:

220 bcm synthetic gas + 45 bcm biomethane + 35 bcm hydrogen + (120 bcm natural gas)



What Gas industry needs in order to be more greener

- Introduce an EU target for renewable and decarbonised gases based on specific position of each member state
- 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. anaerobic digestors, electrolysers, pyrolysis, CCS/U
- Financial support for the development of technologies to decarbonize the gas supply
- Zero tax for renewable and decarbonised gases

Conclusions

- Gas industry saves financial resources by decarbonisation-value for money
- Gas industry helps by improving of the air quality
- Natural gas could assist by transition towards low carbon economy
- Green ~~g~~ases have equal position as renewables like wind or sun by decarbonisation

Decarbonisation

means

not farewell for Gas industry, but it could be
its future perspective.

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Thank you for attention!

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