



E3G



Renewable gases and sustainability

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What is the challenge?



- Unabated gas use cannot continue beyond 2050
- EU indigenous gas supply is declining
- Coal-to-gas switch benefits limited beyond 2030
- Decarbonisation of heat more difficult than power
- Fundamental redesign of the energy system...



How do we define renewable gas?



Interchangeable and widespread use of

- ✓ Renewable
- ✓ Green
- ✓ Decarbonised
- ✓ Sustainable
- ✓ Low-carbon

.... but how do we define these terms and understand their usage?



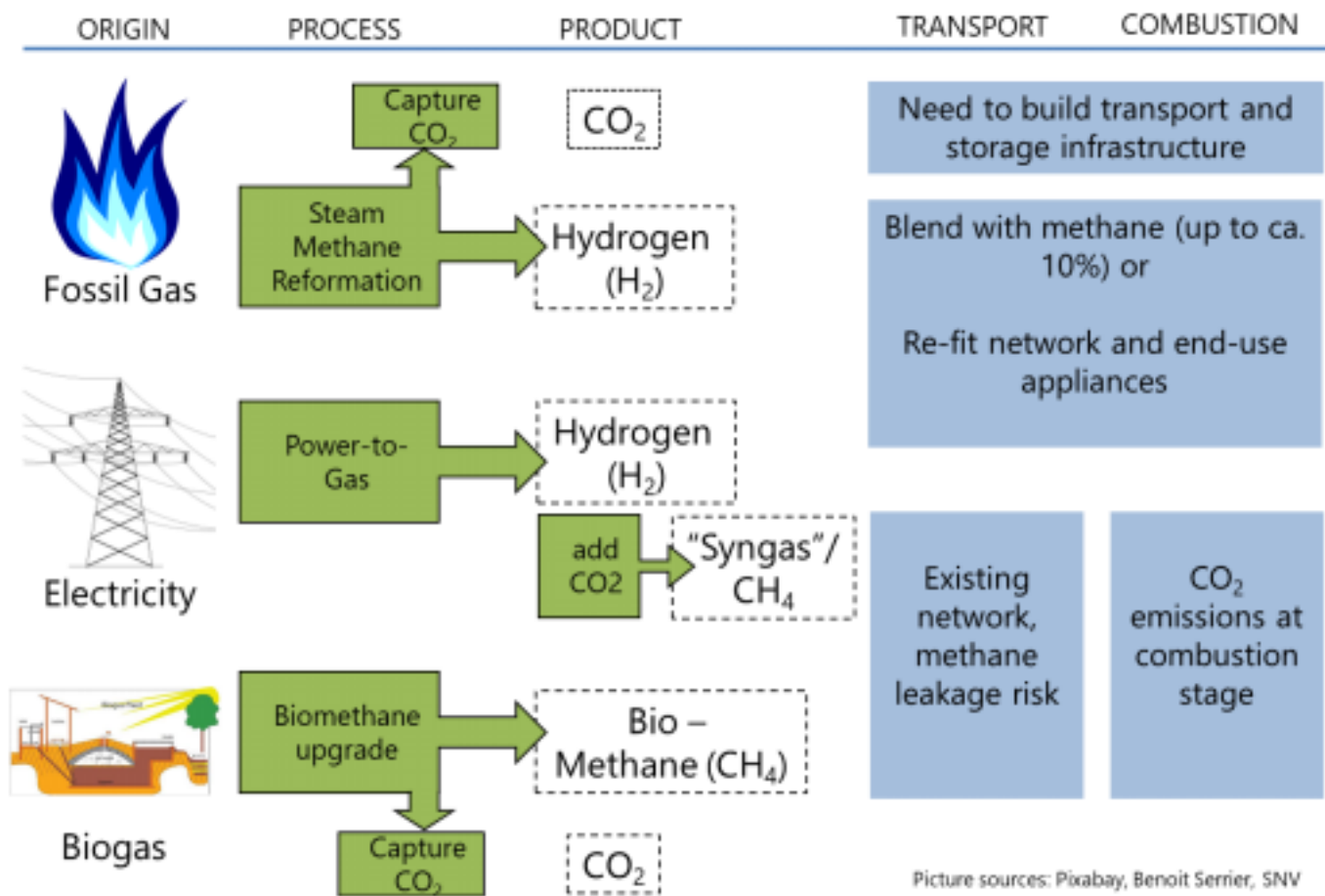
Not all renewable gas is created equal



- We should not frame them as the same, or assume the same/similar levels of sustainability
- Gas is (generally) all the same in a pipeline; but it is not produced in the same way
- The burden of proof must be on the industry and producers to show climate credentials
- Taxonomy of types to demonstrate compatibility
- Is the “Fossil Gas vs. renewable gas” separation... helpful?



Not all renewable gas is created equal



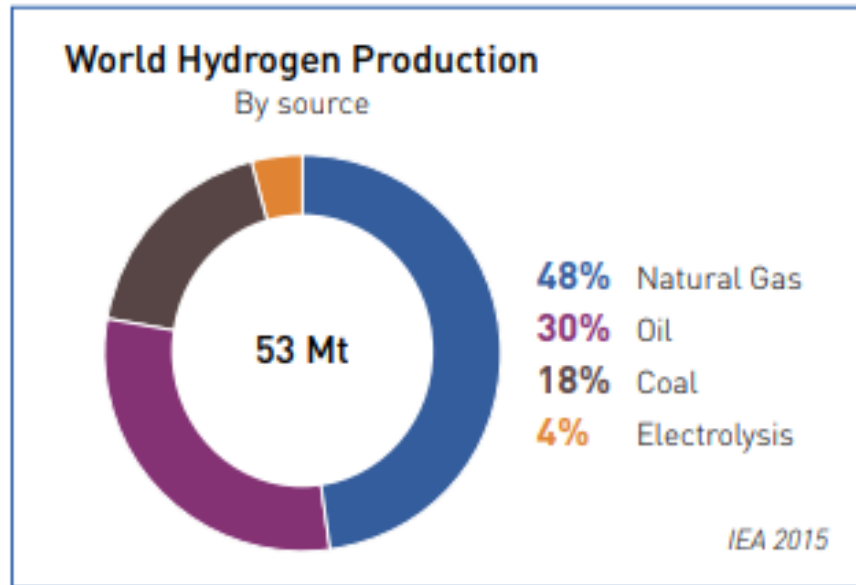
Picture sources: Pixabay, Benoit Serrier, SNV

Source: E3G (2018) Renewable and decarbonised gas: options for a zero-emissions society



In focus: Hydrogen

- How and where will hydrogen be made?
- Will we have CCS?
- Will electrolyser costs fall fast enough?
- What is the market and investment case?
- Should we build out renewables for H₂, rather than electricity supply?



Future infrastructure challenges



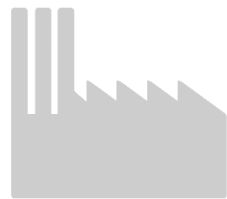
- The gas grid will work differently in the future
- Load shift: transmission system > distribution system
- Grids will need to be upgraded for new gases
- National scale-up or clustered/regional approach?
- Conversion of home appliances for hydrogen



Renewable gas must not threaten net-zero



- Renewable gas and its production must be net zero compatible – decarbonisation is not enough
- Gas alone cannot deliver sufficient reductions to be Paris Agreement compliant
- Renewable gas may replace parts of ‘fossil’ gas, but not add to it
- ‘Renewable gas vs electrification’ framing is unhelpful on this context
- Given small quantities, it should not distract from energy efficiency and electrification



EU gas demand

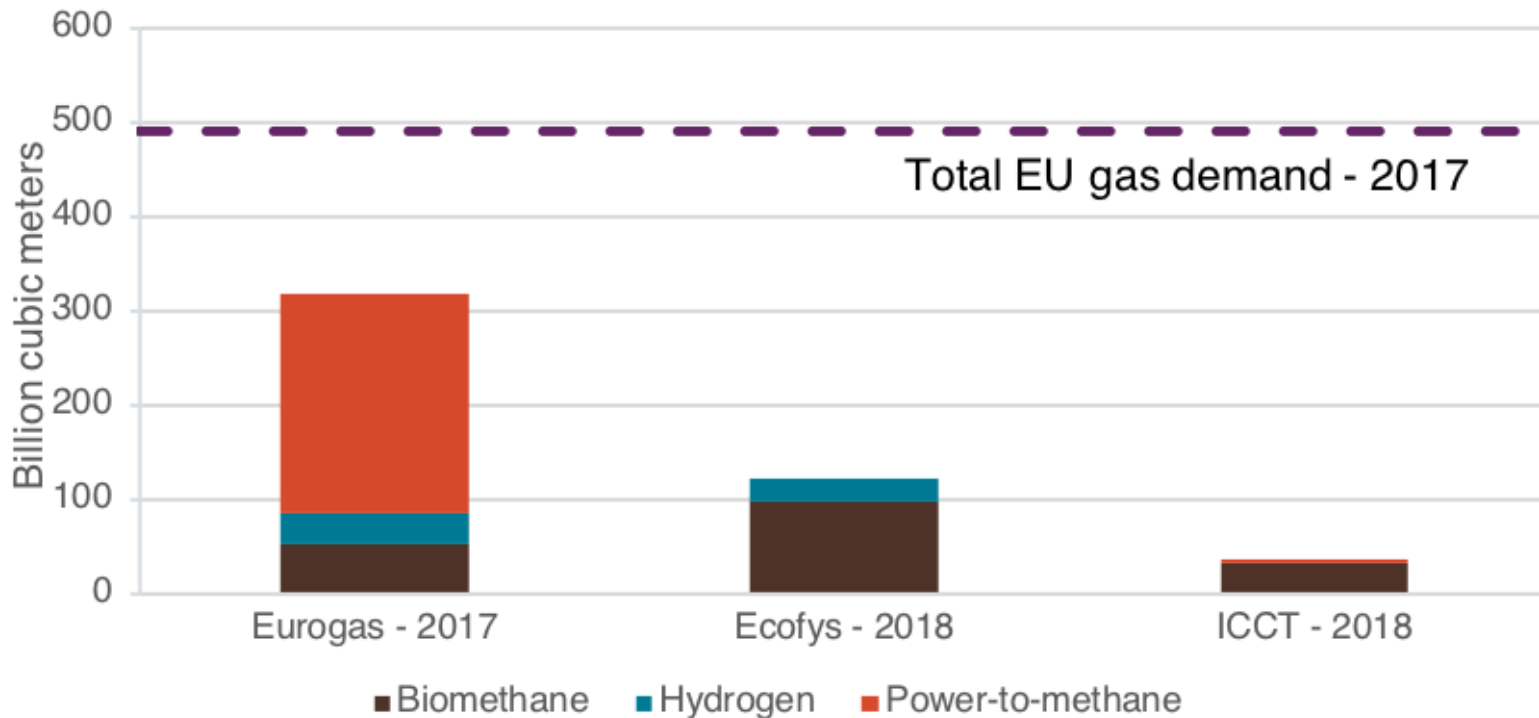


- EU gas demand has risen but only holding a share is a good outcome for the industry
- Short term recovery vs. long term structural change
- The coal-to-gas switch potential is not enough for power sector demand to rebound long term
- The heating sector is difficult to decarbonise, but efficiency is already reducing demand
- Industrial demand to be flat, with electrification likely to challenge gas demand



Renewable gas supply potential

EU Green Gas Potential - 2050



Source: ICCT(2018) What is the role for renewable methane in European decarbonization



Is renewable gas the future?



- Renewable gases should not have a free pass to the future energy system
- Limited potential and – currently – unfavourable economics require defining where its use would be of highest societal value
- It can help in certain sectors, but it is not a silver bullet for decarbonisation
- Not all forms of renewable or decarbonised gas are compatible with net-zero emissions
- The ‘fossil gas > renewable gas’ transition is not a linear or seamless process





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About E3G

E3G is an independent climate change think tank operating to accelerate the global transition to a low carbon economy. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere. In 2016, E3G was ranked the number one environmental think tank in the UK.

More information is available at www.e3g.org