A Pathway to a Carbon Neutral 2050: The role of gas

European Biogas Conference 2020

What we have set out to achieve

To assess a pathway where gas contributes to a carbon neutral future, comparing it to the European Commission's 1.5TECH

To provide estimates of cost savings associated with a transition utilising a multi-vector approach

To outline at what point, and under which conditions, renewable and decarbonised gases will be available in Europe

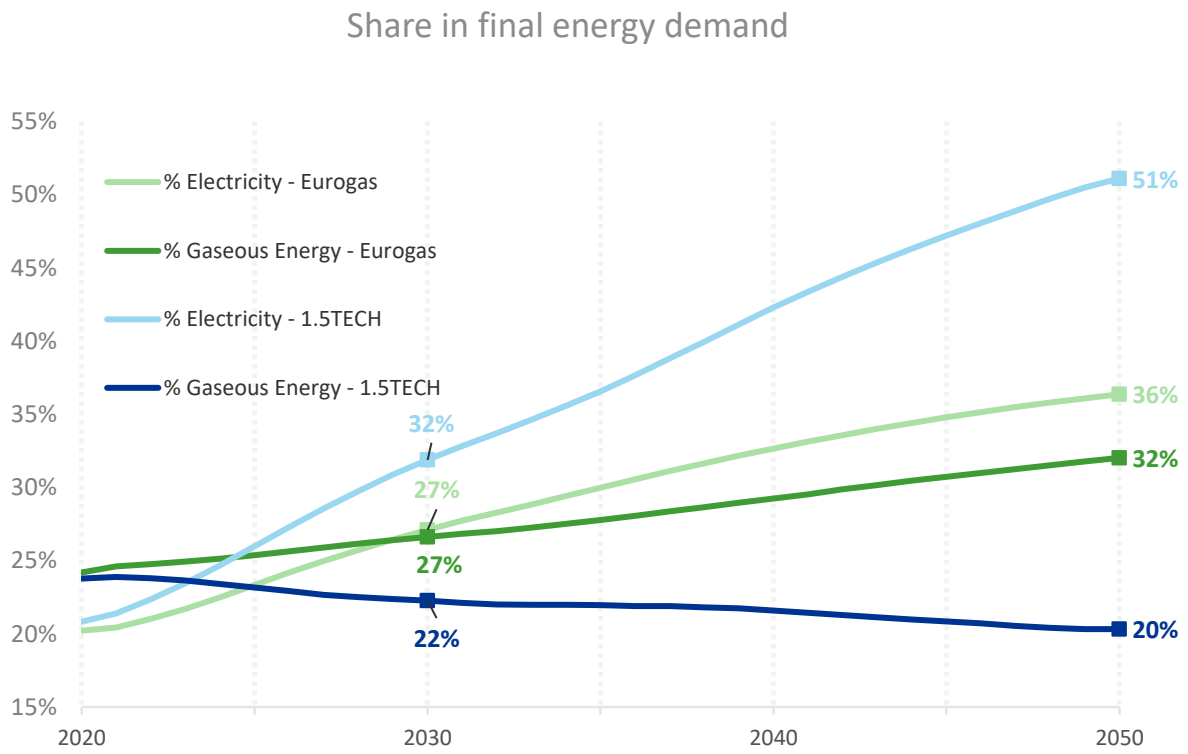
Key Finding: A multi-vector transition is more realistic and more cost-effective

Primary energy use declines in both scenarios, 29% under Eurogas, 34% under 1.5TECH

Electrification makes sense, but only up to a point – and provided the power sector decarbonises

Economy wide savings under the more balanced Eurogas scenario reach €4.1 trillion until 2050 compared to 1.5TECH

Gas enables cost-efficient decarbonisation of the building sector



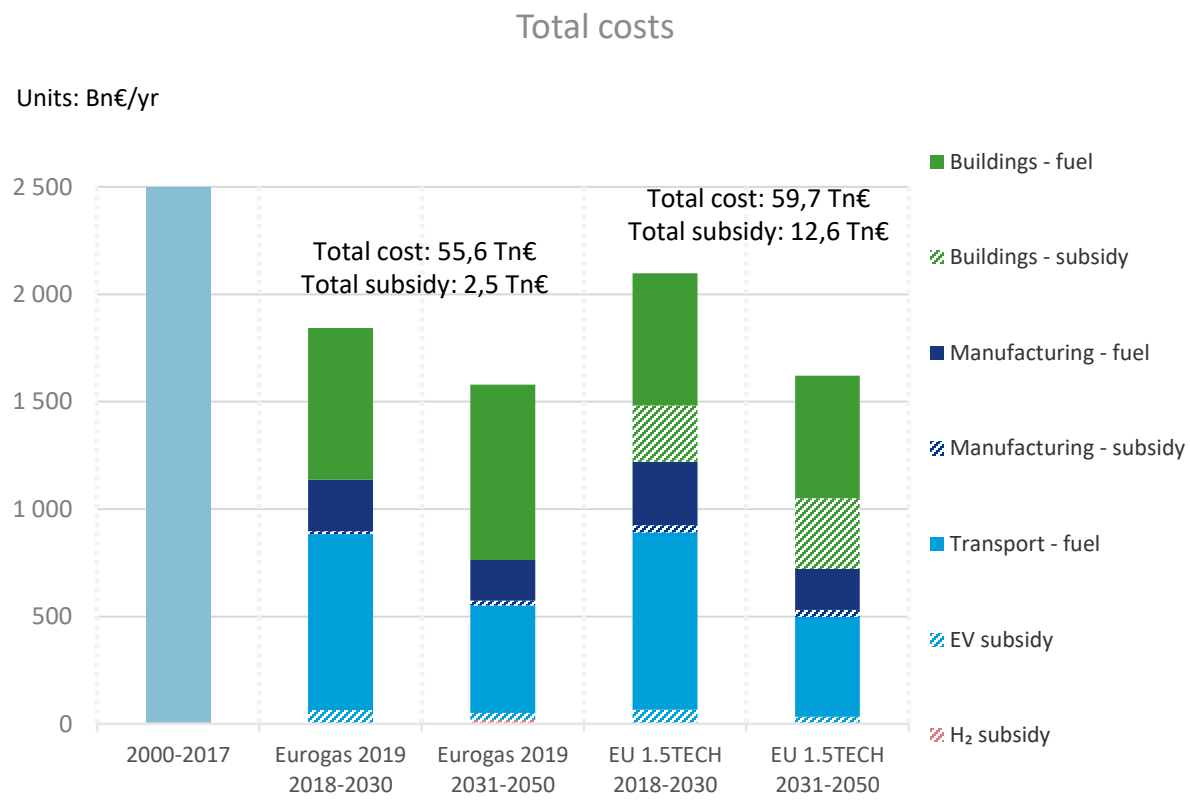
Eurogas scenario delivers carbon neutrality at considerably lower cost

A holistic energy system approach to the transition is more cost-effective

Rolling out gaseous solutions across all sectors, using existing infrastructure, saves €130 billion per year until 2050

Main cost driver of the 1.5TECH scenario is the electrification of heating

- Over €10 trillion in subsidies needed to retrofit buildings
- Over €1 trillion needed to match electricity infrastructure to meet peak demand



Fuel costs are after taxes and subsidies

How we will decarbonise the gas sector

The gaseous energy supply chain can fully decarbonize…

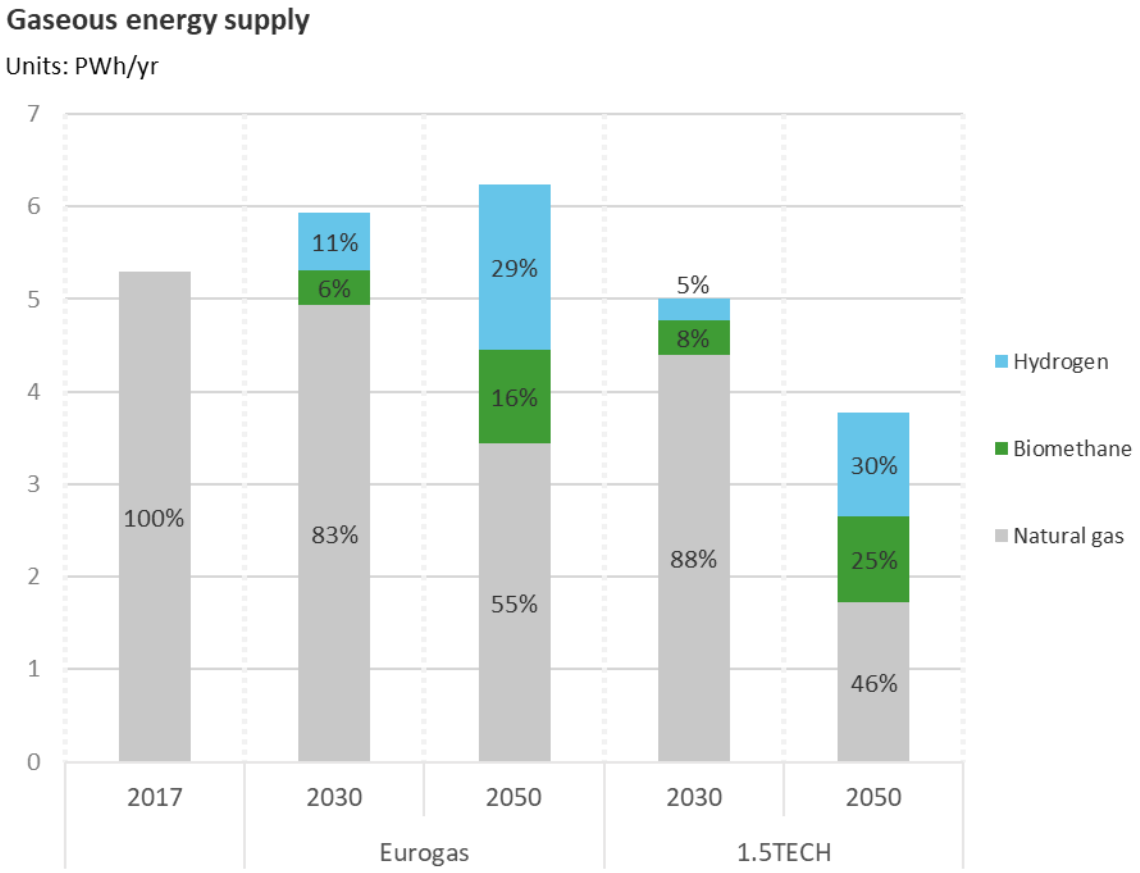
By 2050…

…gaseous energy supply in the Eurogas scenario increases by 18% over 2017 levels

…natural gas supply reduces by 35%

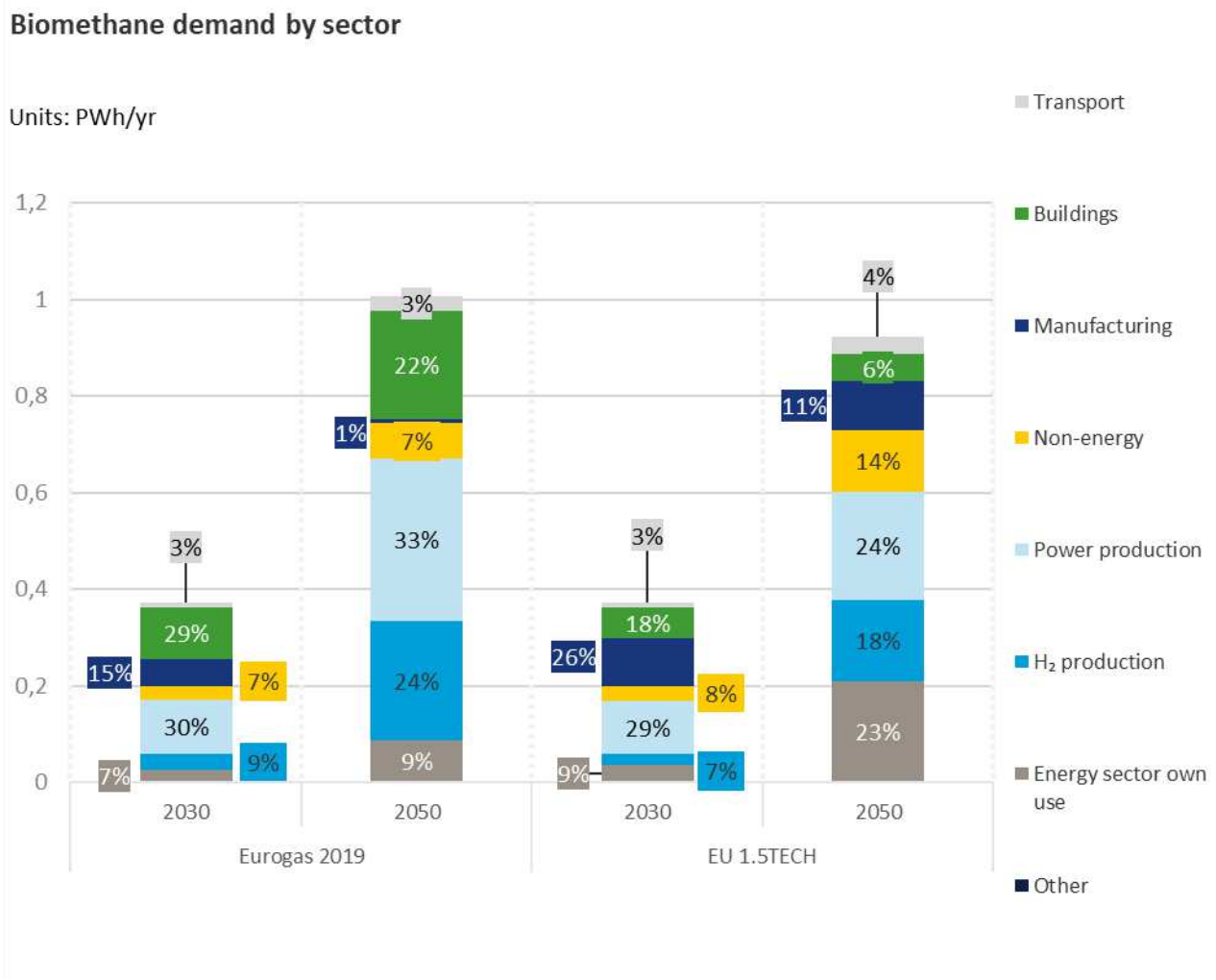
…gaseous energy is 89% decarbonized including CCS

…gaseous energy is fully decarbonised if net negative emissions from biomethane in power generation are accounted



Biomethane is a no-regret option that enables substantial negative emissions

- Biomethane is used in all sectors in the EU as it is delivered through gas networks
- Biomethane demand in Eurogas and 1.5TECH are similar for 2030 and diverge slightly in 2050 (~900/1000 TWh)
- Largest sector in terms of biomethane demand is power generation in both Eurogas (33%) and 1.5TECH (24%) in 2050
- Enables net negative CO2-emissions in power and manufacturing

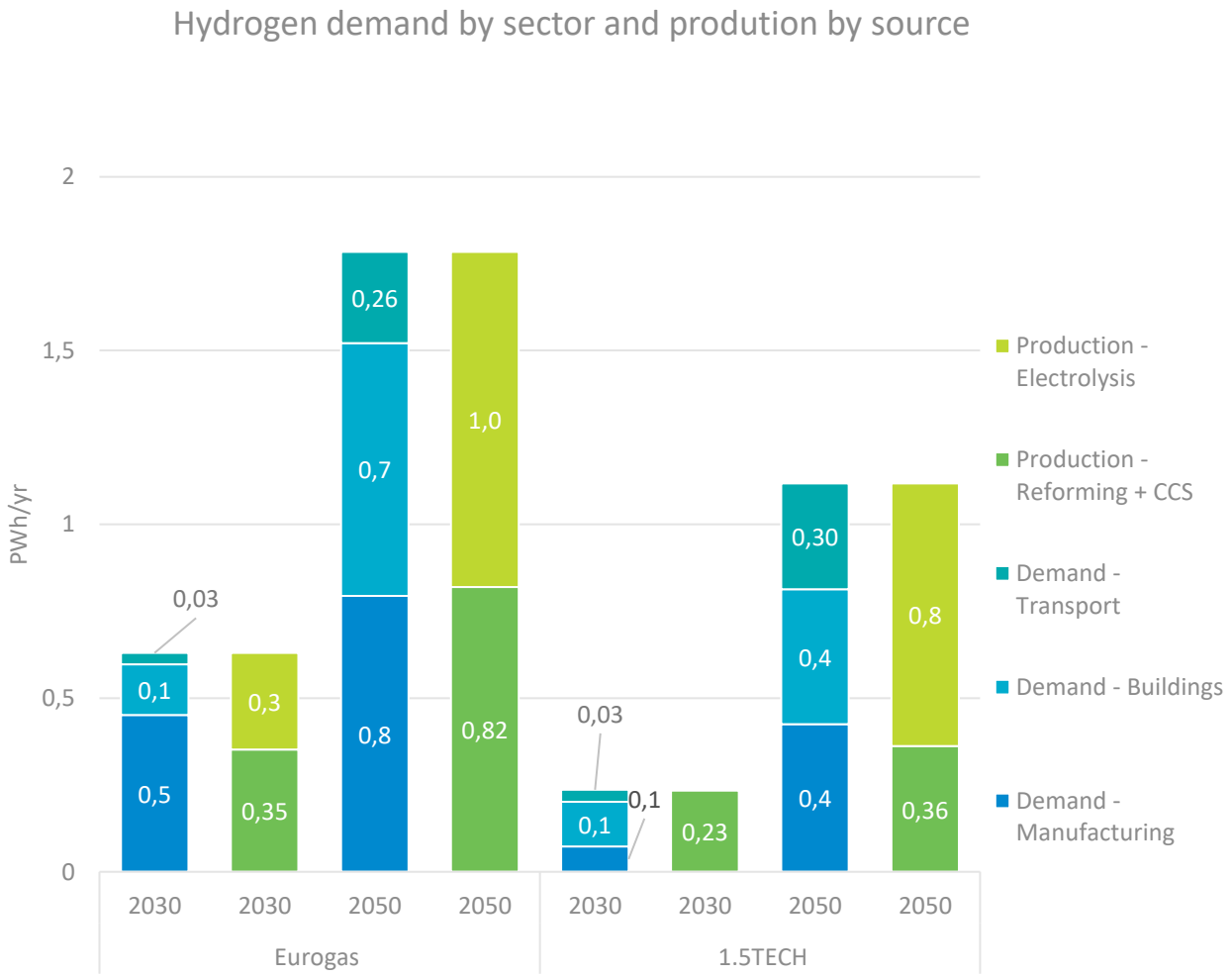


Demand for hydrogen *as an energy carrier* increases in both scenarios

Eurogas scenario sees manufacturing lead hydrogen uptake until 2030

Hydrogen *(together with biomethane)* displaces natural gas in heating after 2030 towards 2050 – in the beginning blending will be especially important for this sector

The share of hydrogen from electrolysis overtakes hydrogen from reformed natural gas by 2050



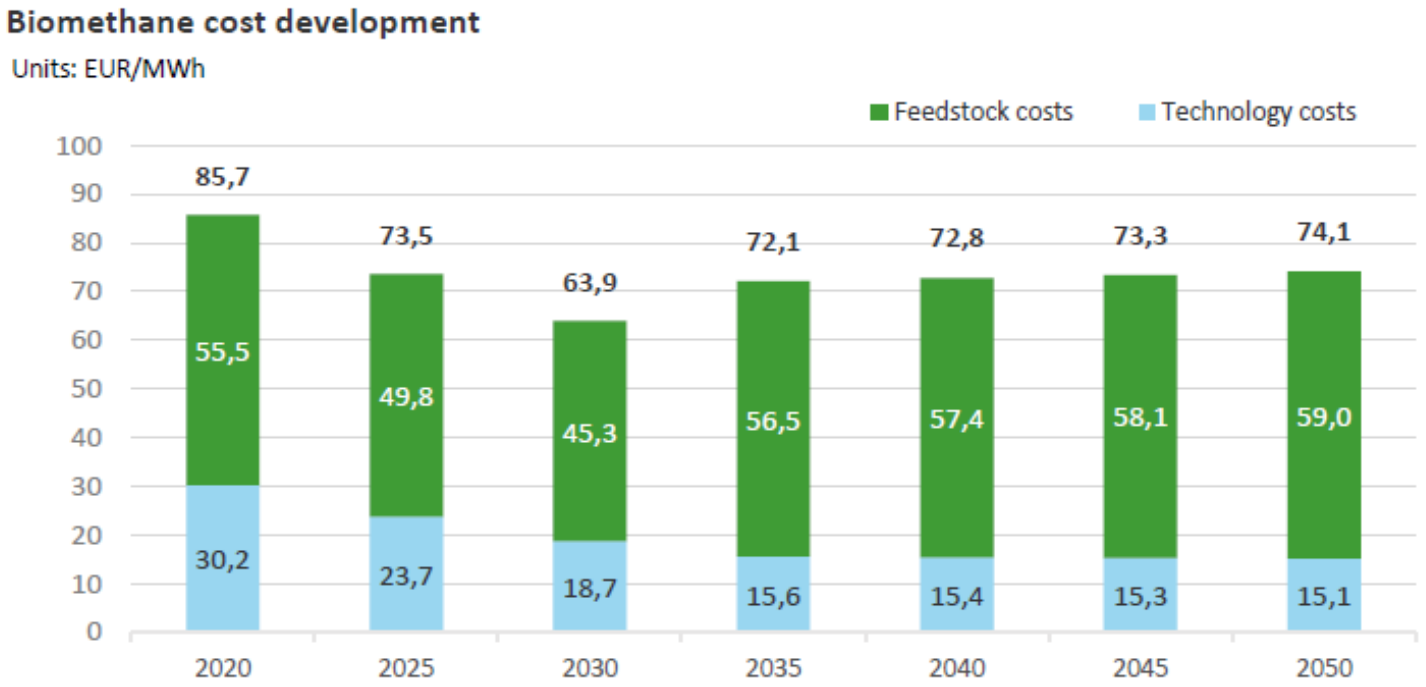
The cost of renewable and decarbonised gas declines towards 2050

The cost of renewable and decarbonised gas declines towards 2050 compared to 2017

However, biomethane costs increase after 2030, as we approach 2050 when production pushes towards the limits of available sustainable feedstock

2nd gen. feedstock prices increase by 30% over 2030-2050

However, biomethane prices rise by only 16% over the same period as learning effects cut technology costs in half



Which pathway should we chose?

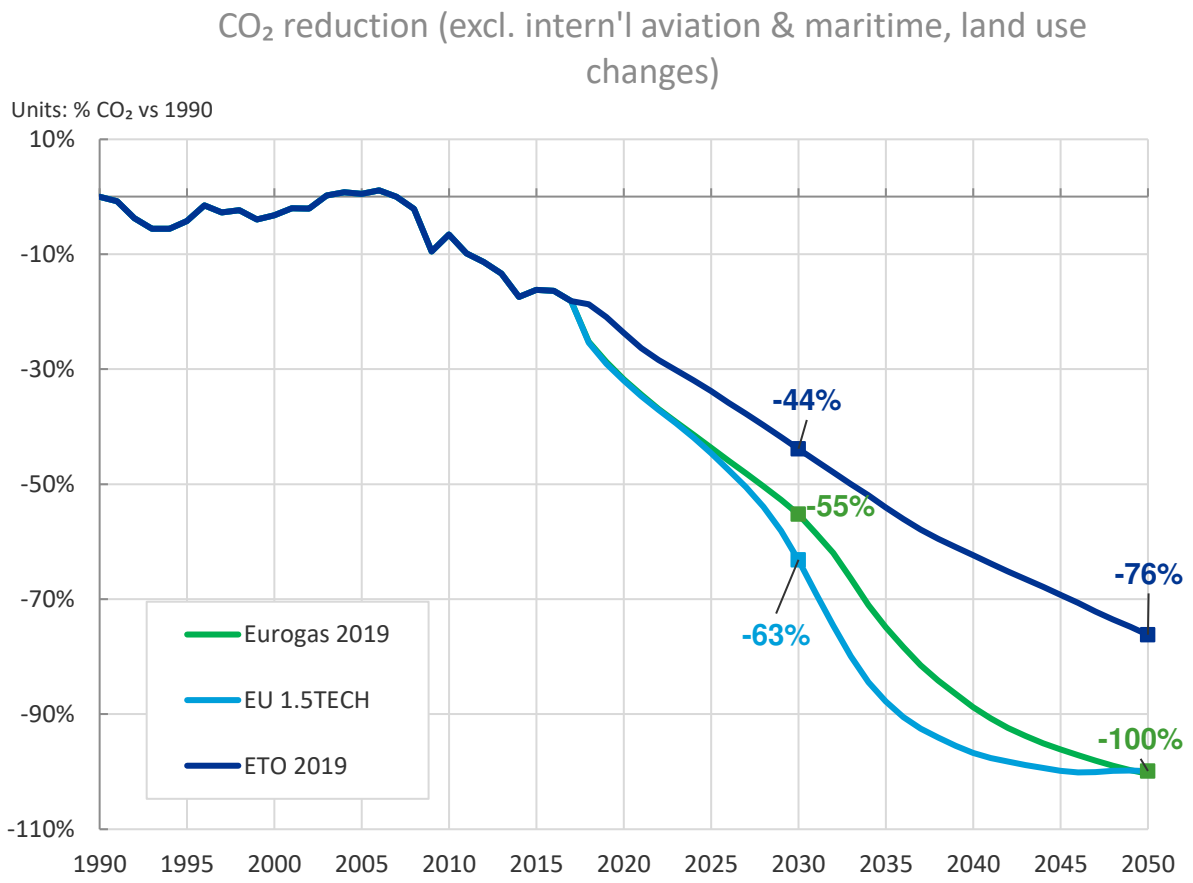
Eurogas is the more cost-effective 2050 pathway and inline with the Green Deal objective to 2030

Total costs for the Eurogas scenario are 4.1 trillion euro lower - equivalent to saving 130 billion euro per year

Subsidies to incentivise consumers to opt for decarbonised energy solutions are 80% lower

1.5TECH has a steeper emissions reduction curve due to a sharper increase in carbon price and faster uptake of CCS already by 2030

Eurogas shows that climate objectives can be met more cost-effectively, using existing assets, limiting subsidy schemes and leaving market fundamentals in place



Contact details

Av. de Cortenbergh 172
1000 Brussels - BELGIUM

+32 2 894 48 48

www.eurogas.org

Eurogas