

# Changing course or changing pace?

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REPowerEU and the gas package

James Watson, Eurogas

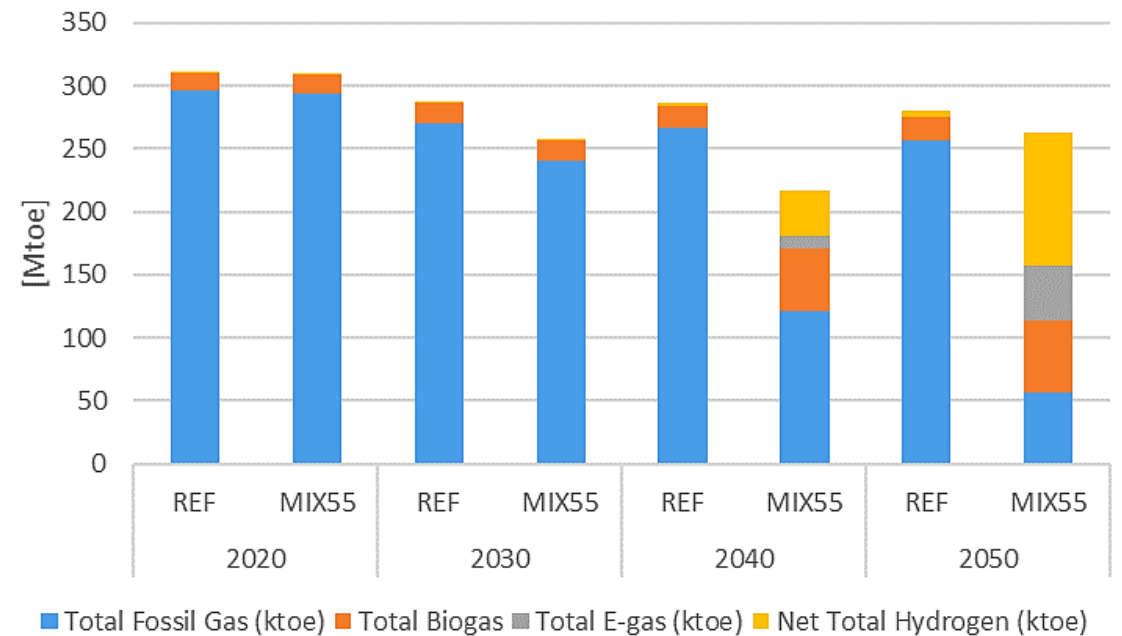


# How the European Commission sees the evolution of the consumption of gases

## Commission gas package scenario confirms the strong role of gas in the energy transition

- › Biogas and biomethane, renewable and low-carbon hydrogen and synthetic fuels will gradually replace fossil gases and represent very significant shares of the gaseous fuels in the energy mix towards 2050.
- › Conversely, the share of natural gas is projected to be significantly reduced and coupled with carbon capture usage and storage ('CCUS') technologies.
- › The projections show that the energy carried by gaseous fuels would, after slightly decreasing between 2020 and 2030, stay in 2050 at about 85% of the current level.

## Total consumption of gaseous fuels (Mtoe)

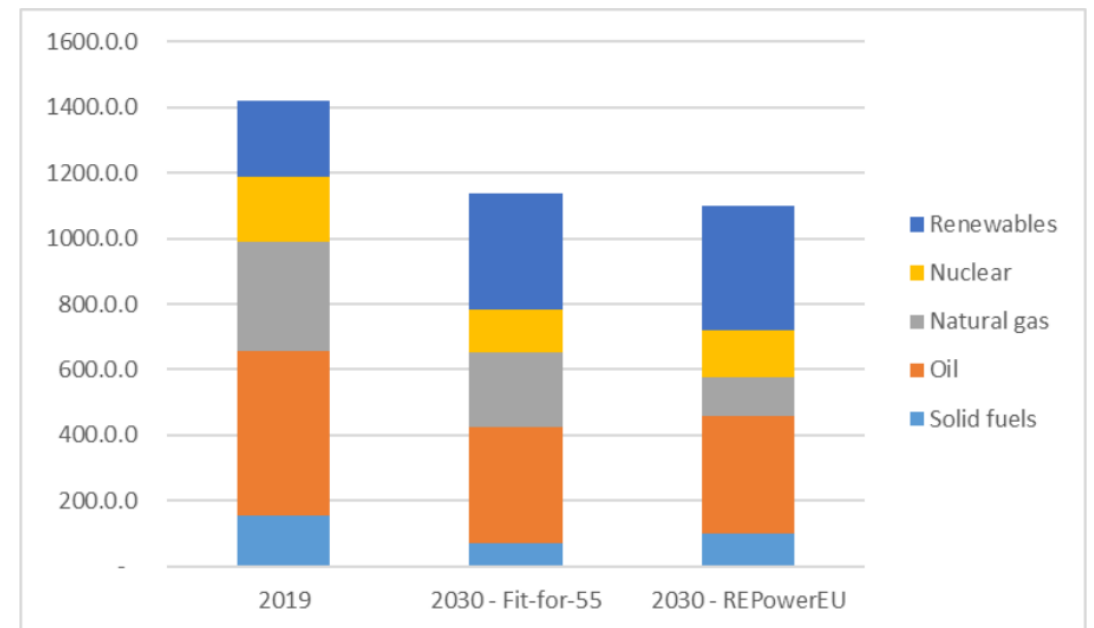


# REPowerEU aims to accelerate the transition from natural gas to renewable gases

**REPowerEU objective: Reduce the level of natural gas consumption to match Russian imports**

- › Fit-for-55: -116 bcm, equivalent to -30% gas consumption in 2030
- › REPowerEU: -194 bcm
  - Diversification (-60 bcm)
  - REPowerEU measures (-94 bcm)
  - Reduction due to higher long term gas and oil prices (-40 bcm)
- › Combined reduction in EU natural gas consumption: -250 bcm (i.e. not including diversification)

**Gross inland consumption by fuel in 2019 and in 2030 in the Fit-for-55 and REPowerEU scenarios (Mtoe)**



# Overall cost implications of REPowerEU

- › Higher fuel costs and the additional efforts to reduce gas consumption increase the cost of the energy system by almost 10% to about €1'900 Bn per year
- › System costs increase from 11.3% of GDP to 13.4%
- › Reduce fossil fuels dependence from Russia to zero would require €300 Bn cumulative investment from now until 2030 – beyond the FF55 proposals
- › Saving on import expenditures: FF55 and REPowerEU measures combined can save €80 Bn on annual natural gas, €12 Bn on oil and €1.7 Bn on coal import expenditures

# Biomethane: infrastructure needs

- › 35 bcm of biomethane by 2030 requiring investments of 37 bn euro by 2030
- › Grid connection
  - ± 5'000 facilities need to be connected by 2030 across Europe
  - Provide incentives for biogas upgrading into biomethane: Reduce the costs for economic operators, which currently prevent biogas upgrading into biomethane
- › Local grid reinforcement wherever it is needed (not limited to cross-border areas)
  - Carry out regional assessment of network development and matching it with the potential of sustainable biomethane production
  - Assess challenges, bottlenecks and other possible measures from the infrastructure perspective for cost-efficient deployment of biomethane, including connection and injection costs
  - Address gas quality standardisation issues
- › Carbon capture utilisation and storage
  - Potentially large volume of CO<sub>2</sub> available for storage and utilization contributing to carbon removals (net negative emissions) requires CO<sub>2</sub> infrastructure and planning

# Renewable hydrogen: projected volumes and use

## > 20 Mt of renewable hydrogen:

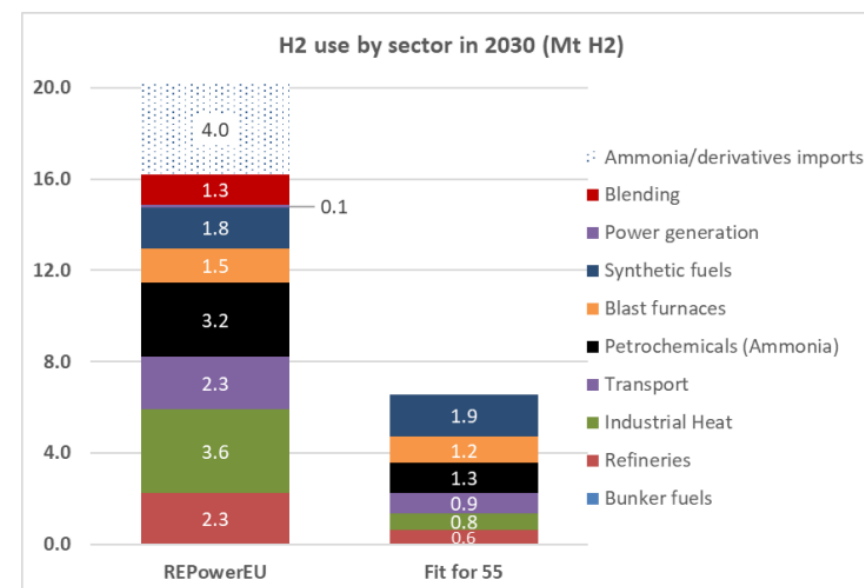
- Reduce the EU's dependence on natural gas (by  $\approx 27$  bcm), oil (by  $\approx 3.9$  Mtoe) and coking coal imports ( $\approx 156$  Kt) from Russia, notably through use in transport and industry
- Disaggregation: 20 Mt = 10 Mt EU production, 6Mt import, 4Mt import as ammonia and potentially other carriers and alternatives

*Table 8: Hydrogen use by sector in 2030 (kt hydrogen)*

Sector	RePowerEU	Fit-for-55	Difference	Diff. due to high prices
Bunker fuels	0	0	0	0
Refineries	2273	613	1660	-32
Industrial Heat	3629	756	2873	146
Transport	2319	882	1437	90
Petrochemicals (Ammonia)	3232	1306	1925	-116
Blast furnaces	1520	1152	368	-92
Synthetic fuels	1788	1870	-82	-63
Power generation	105	0	105	0
Blending	1335	0	1335	0
<b>Total</b>	<b>16200</b>	<b>6579</b>	<b>9621</b>	<b>-67</b>

Note: conversion from ktoe to kt H2 uses a 2.87 factor.

*Figure 4: Hydrogen use by sector in 2030*



Source: Modelling using PRIMES.

# Renewable hydrogen: supply requirements, infrastructure and costs

## › Supply requirements in 2030:

- Requires around 500 TWh additional power generation
- EU hydrogen industry estimates a need of around 120 GW of electrolyser capacity in the EU by 2030, which would suffice to meet the objective of producing 10 mt of renewable hydrogen.

## › Costs:

- Total costs related to power generation between 335-471 Bn, out of which 200-300 Bn for additional renewable electricity production itself.
- Upscaling the electrolysers manufacturing capacities requires 2 Bn
- Electrolysers 50-75 Bn
- EU internal pipelines 28-38 bn
- Storage 6-11 bn
- Cross border infrastructure 2 bn

## › Repurposed infrastructure: Upscaling of the hydrogen transport infrastructure will mainly rely on repurposed pipelines, complemented by newly built ones.

# Gas(es) will continue to play a crucial role in the energy transition

01

Needed to balance variable renewable power generation

02

Needed for long-term seasonal storage

03

Needed for a cost-effective energy transition