

Accelerating the Fossil Gas Transition to Net Zero Summary

The IPCC has made it clear that if we are to avoid catastrophic climate change and limit global warming to 1.5°C, global carbon emissions must be cut 50% by 2030.

Investment in fossil gas is a threat to achieving the goals of the Paris Agreement. The scientific consensus from the Intergovernmental Panel on Climate Change (IPCC) and International Energy Agency (IEA) is that the global carbon budget to 1.5°C has **no room for new unabated fossil gas infrastructure or assets**. Existing fossil fuel infrastructure will emit more greenhouse gases (GHGs) than this budget without early retirement or reductions in utilisation.¹

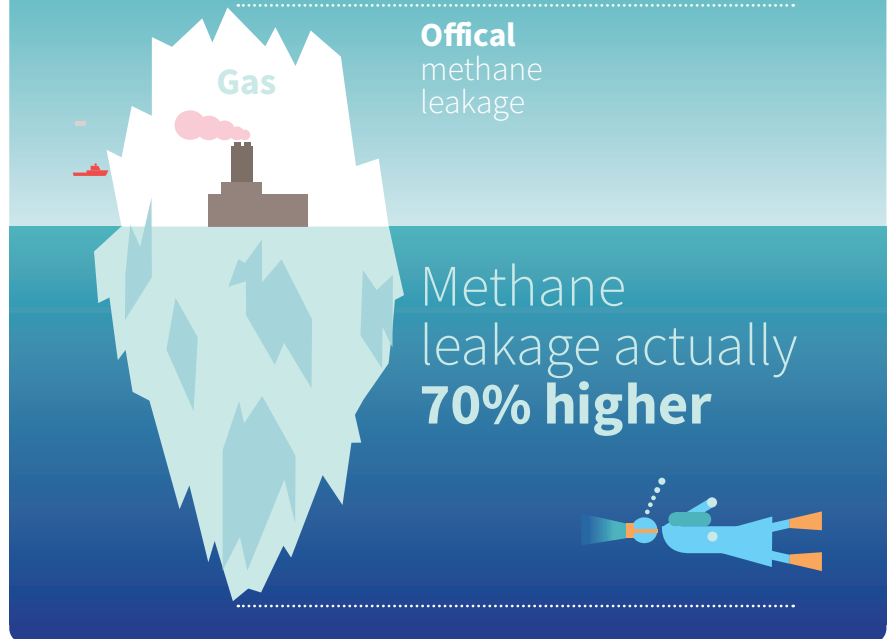
Fossil gas currently accounts for 22% of the EU energy mix, 90% of which is imported, and 50% from Russia.²



Fossil gas is mostly methane, a potent greenhouse gas with a global warming potential over 80 times that of carbon dioxide (CO₂) on a 20-year time scale.³ Just 3% of methane leakage can **increase the carbon intensity of fossil gas-fired power to reach that of a coal-fired power plant**.⁴

Gas has in the past been thought of as a transition fuel. The IPCC and IEA reports and the leakage factors make it clear that it cannot be defined as such. Energy security issues arising from Russia's invasion of Ukraine make the transition away from fossil gas more important than ever.

Fossil gas's blind spot

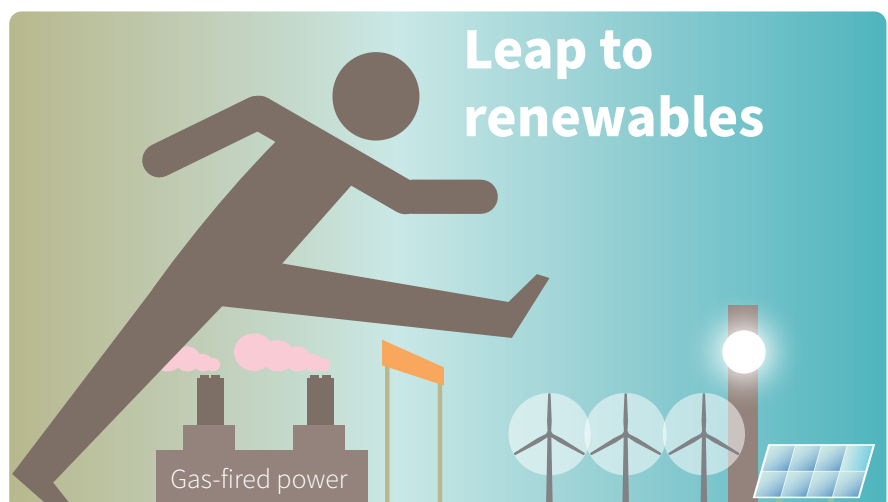


Fossil gas will never be a transition fuel: gas-fired power needs to be removed from the list of transition activities.

Methane emissions from the energy sector are 70% higher than official figures⁵ – all fossil gas operations urgently require leakage mitigation. The extent to which this underestimation threatens the energy transition and climate goals calls for a precautionary approach – that **fossil gas operations cannot occur without certainty on leakage**. Full value chain leak detection and reduction technology, alongside full lifecycle assessments of carbon intensity, are critical.

Incremental change will not prevent catastrophic climate change.

The world needs to leapfrog from fossil fuels to renewable energy. The energy transition will be met not with incremental change but with the rapid expansion of renewable energy (RE), energy efficiency gains, and low-carbon hydrogen. This report outlines the opportunity for transformational change in fossil gas power distribution and generation.



Policy tools need to **accelerate** urgent action on methane leakage, alongside efforts to reduce overall demand. Policy will need to guide transition pathways, addressing key risks such as gas blending. These policies can also incorporate social development considerations to help ensure a Just Transition.

Incremental change is not aligned with the need for rapid decarbonisation by 2030. The transition is threatened by the inefficient and regressive strategy of gas blending, from which **a 5% by volume hydrogen blend only displaces 1.6% of fossil gas**. Blending has limited emissions reduction potential, and creates stranded asset risk and cost with the incremental retrofits/ technology replacements required for increasing blending volumes. This can be addressed by policies incentivising transformational rather than incremental change.

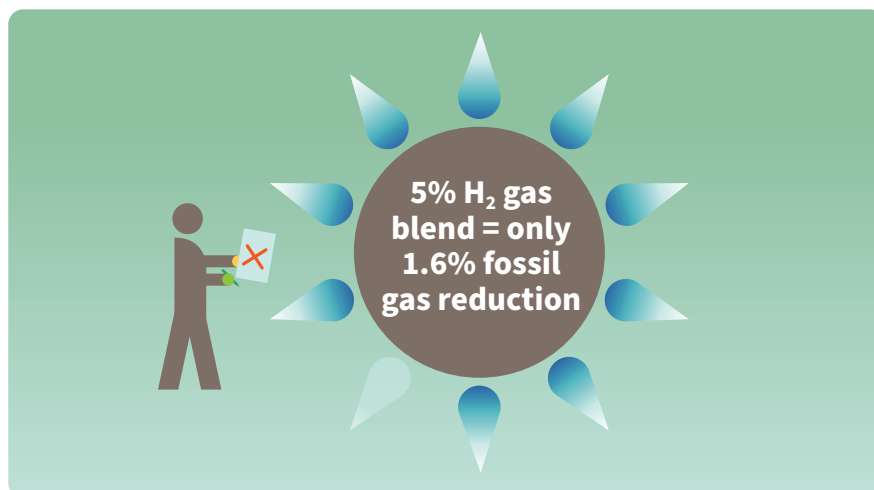
Retrofitting gas infrastructure is a **false transition pathway**. As blending is not a viable decarbonisation strategy, the only valid retrofit pathway is repurposing infrastructure for 100% hydrogen distribution. Given the smaller role of hydrogen in the future than fossil gas today and the differing distribution needs retrofit potential is extremely limited.

Low-carbon hydrogen provides a transition away from fossil gas in many hard-to-abate sectors.

Even conservative estimates expect hydrogen to grow from 2% to 13-14% of the EU energy mix. This will need rapid scaling of low-carbon hydrogen. Global hydrogen investment 2020-50 could total USD15tn.⁶

The scale of hydrogen project announcements and these projects' predictions of USD1-2/tH₂ prices in 2022 show hydrogen poses a greater opportunity than expected. Policy assistance to hydrogen clusters can further accelerate the growth of the low-carbon hydrogen economy.

Immediate emissions benefits of hydrogen vary significantly from sector to sector. To ensure rapid emissions reductions by 2030, hydrogen use will need to be **prioritised for sectors with the highest emissions reduction potential**. For example, the use of hydrogen in steel production results in 98% emissions reductions,⁷ whereas in cement production, hydrogen could only address 1/3 of emissions.⁸



Given the expected scarcity of the resource, hydrogen deployment should be **prioritised** according to both impact and availability of other decarbonisation technologies.

Large-scale installation of grid-connected electrolyzers will need to be linked to new renewable energy generation; otherwise they will increase fossil-powered electricity demand, hindering grid decarbonisation – planned electrolyzers in the EU RED II would consume 50% of RED II planned renewable electricity supply growth and so **hinder grid decarbonisation**, unless accompanied by new dedicated renewables installations.

The energy sector needs increased investment and large-scale realignment.

The EU energy transition is estimated to increase investment needs by EUR390bn per year over the next ten years.⁹ While the transition investment needs are high so are fossil fuel investment flows, accounting for 45% of global energy investment.

Policymaking can guide the transition, **defining credible technologies** with taxonomies and standards and setting out **pathways** with strategic energy and infrastructure policy. The European Commission's Fit for 55 policy package provides an overview framework for this. This report outlines how to deliver this, accelerate the transition and avoid locking in investments in further fossil gas infrastructure.

Gas-fired power, thanks to dangerous leakage across the system, is no longer a transition fuel and is also an energy security risk for Europe. REPowerEU is a critically important opportunity for the EU to transition away from all fossil fuels.



Endnotes

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