

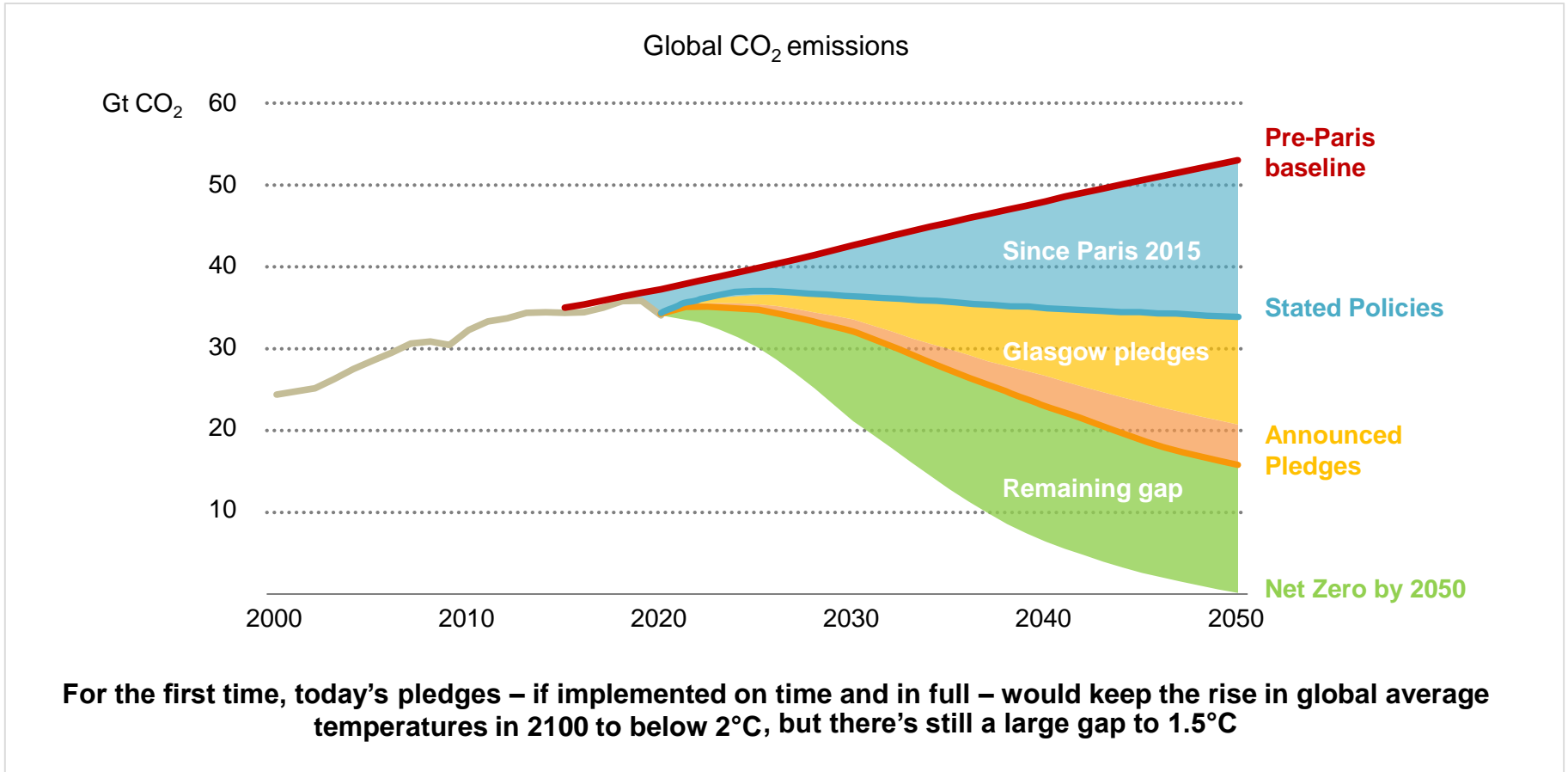


# The role of low-carbon gases in the IEA's Net Zero by 2050 Roadmap

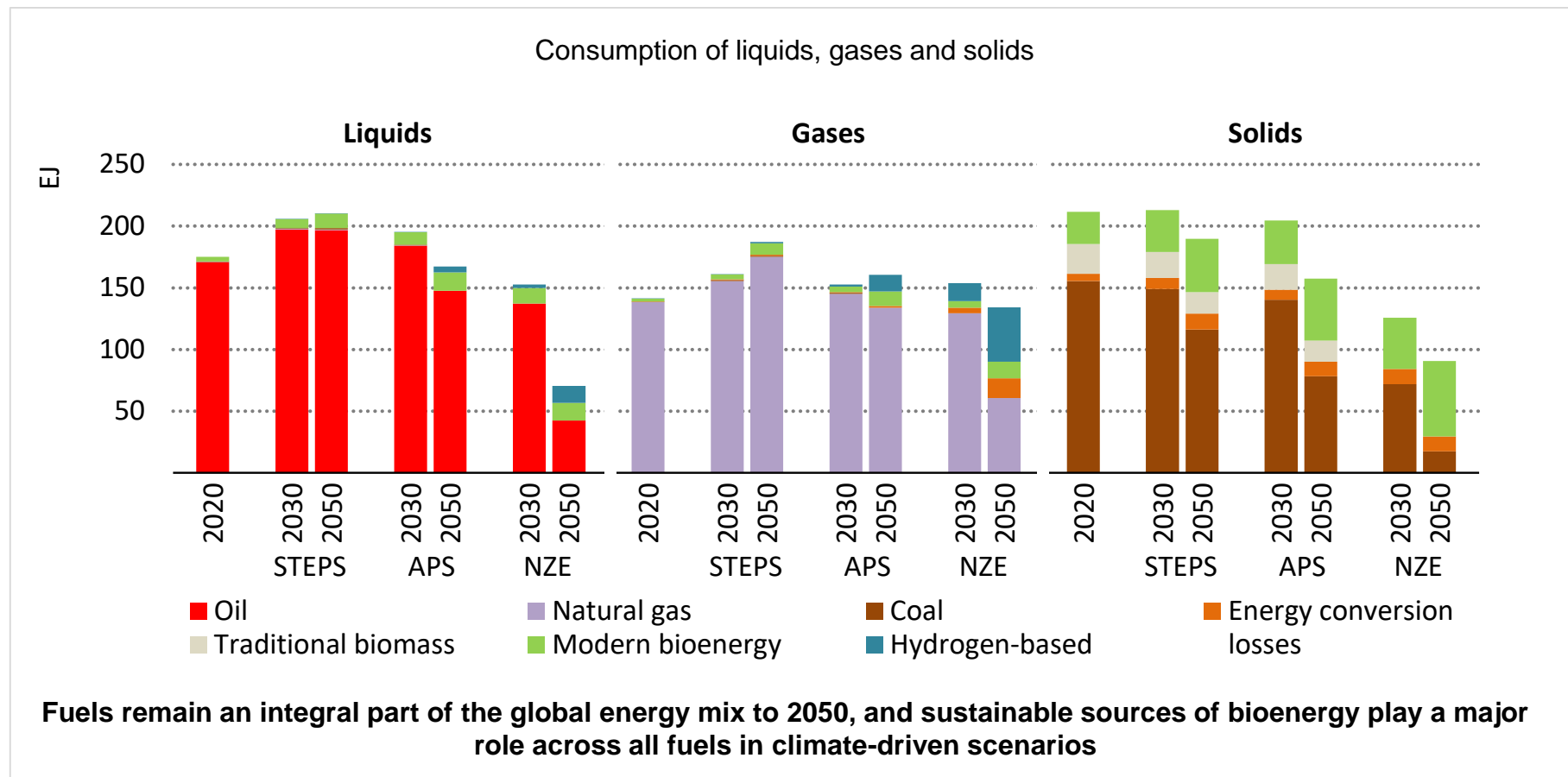
Tim Gould, IEA Chief Energy Economist

IEA Low-carbon Gas Day, 25 March 2022

# Where are we along the road to Net Zero?

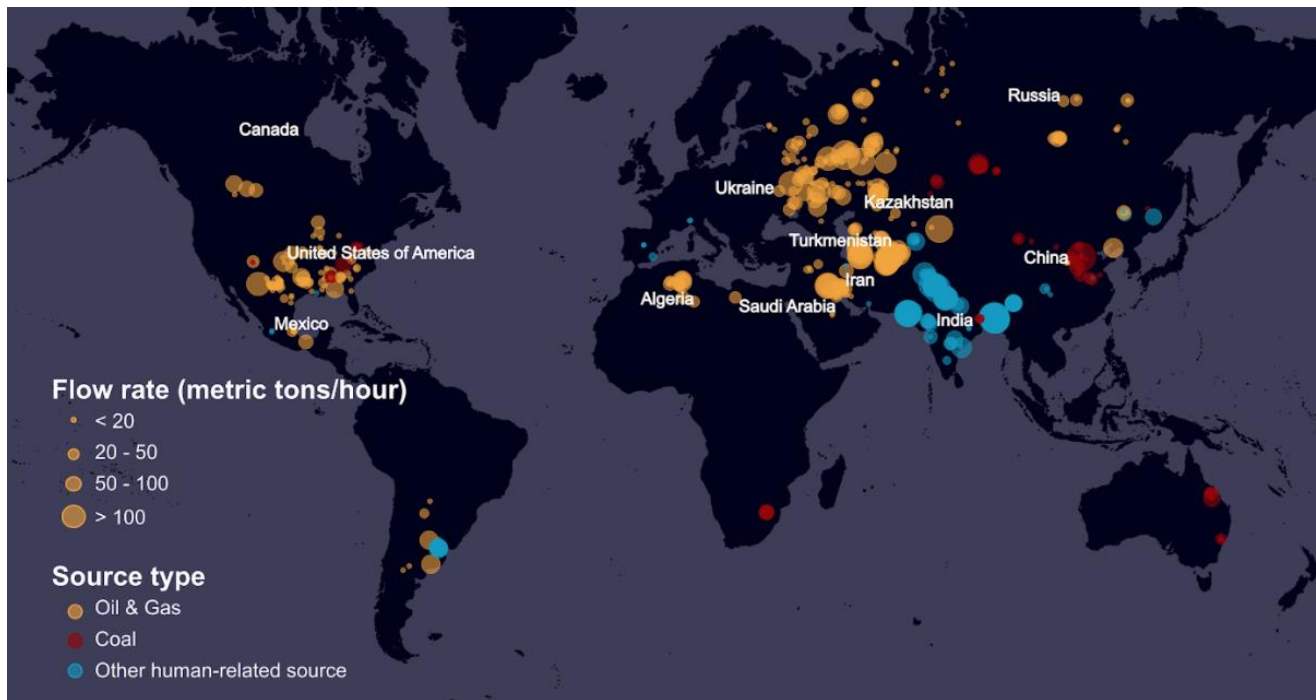


# Gaseous fuels play key roles in energy transitions



# Tackling methane leaks is a first-order task

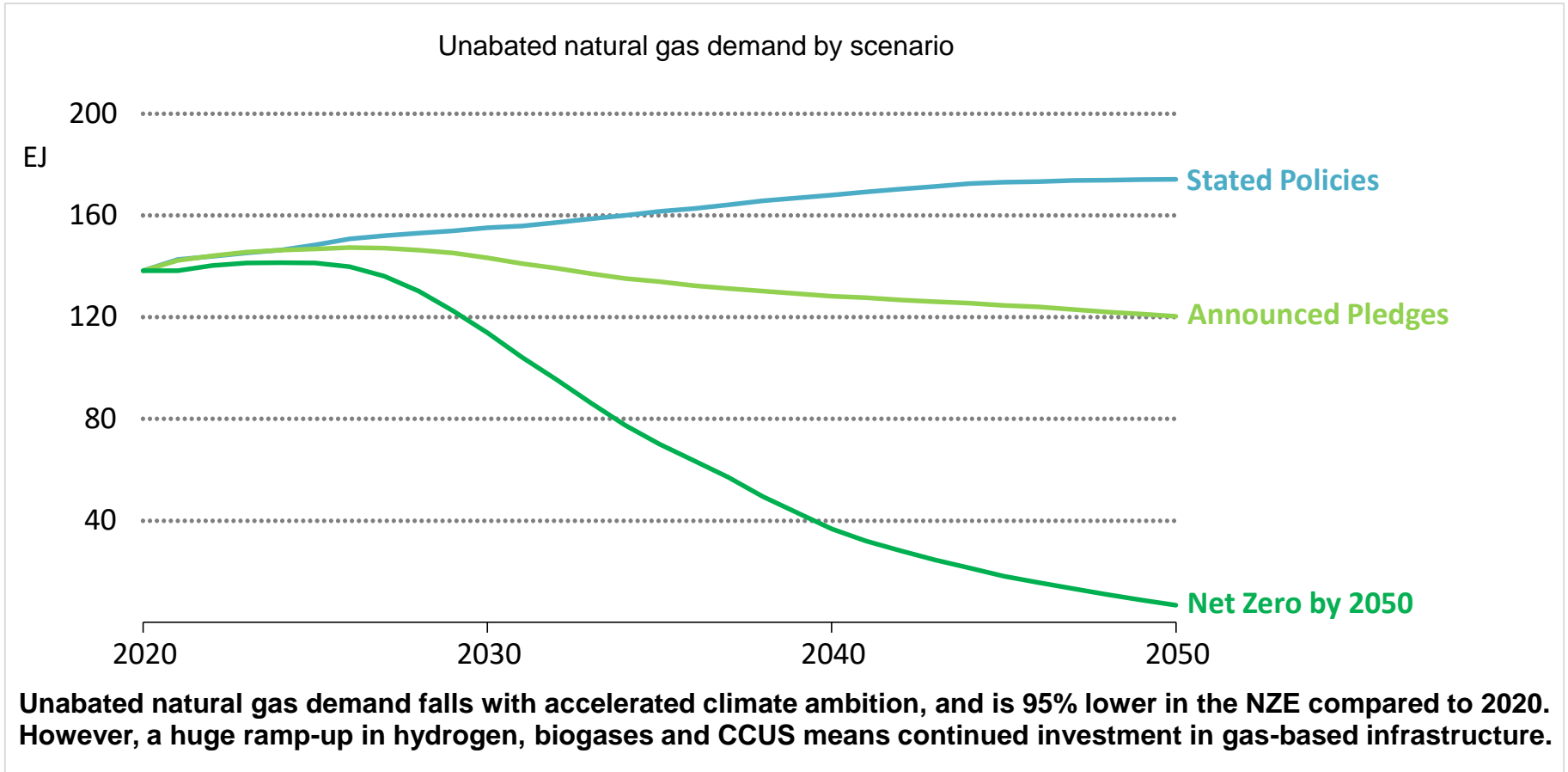
Satellite-detected methane leaks from human activities, 2021



Source: [Kayrros](#), 2022

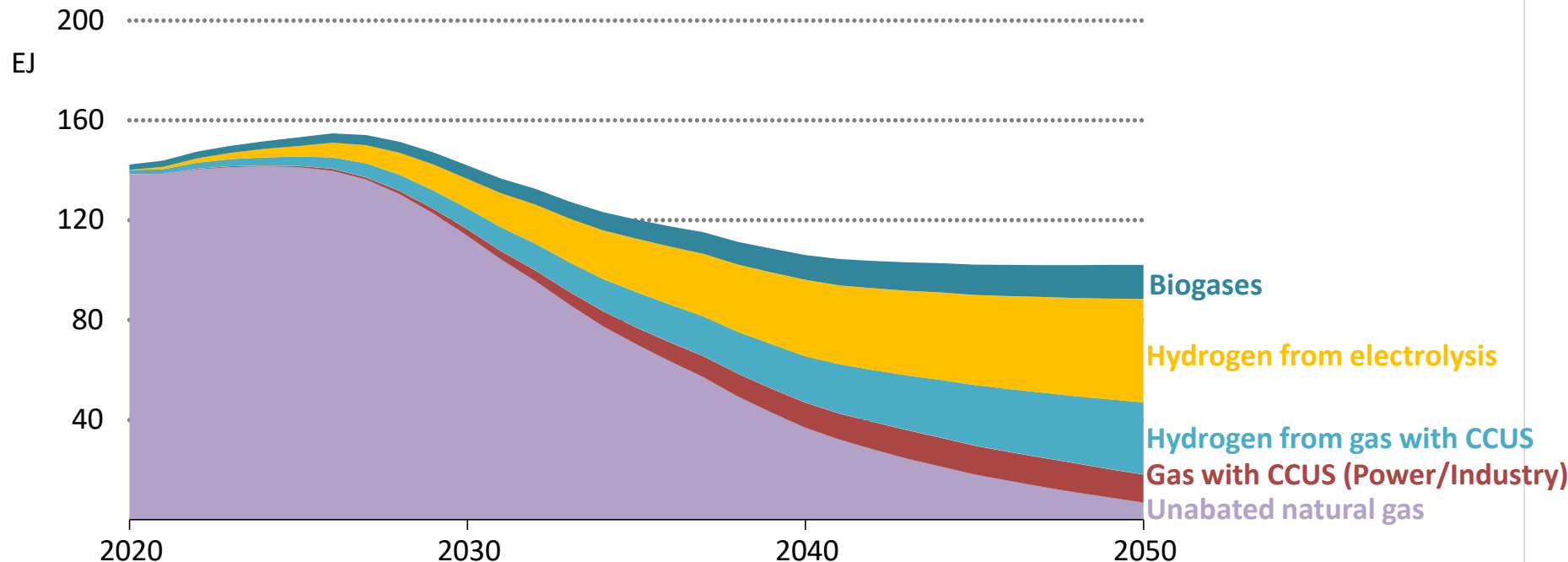
**Very large leaks from oil and gas operations were detected by satellite across 15 countries in 2021. The areas open to observation by satellite are increasing, although the coverage they provide today is still far from complete**

# Gaseous fuels on the pathway to net zero



# Gaseous fuels on the pathway to net zero

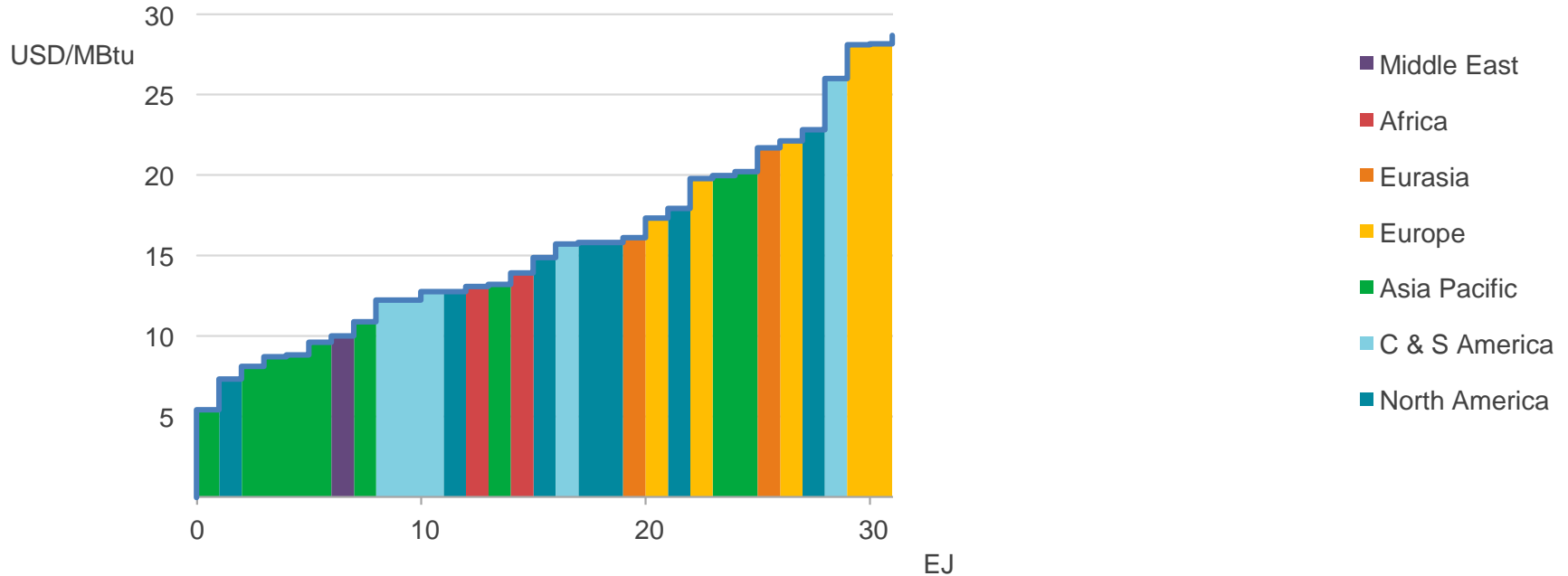
Total gaseous fuel demand in the Net Zero by 2050 scenario



Unabated natural gas demand falls with accelerated climate ambition, and is 95% lower in the NZE compared to 2020. However, a huge ramp-up in hydrogen, biogases and CCUS means continued investment in gas-based infrastructure.

# A global assessment of the costs and potential of biomethane

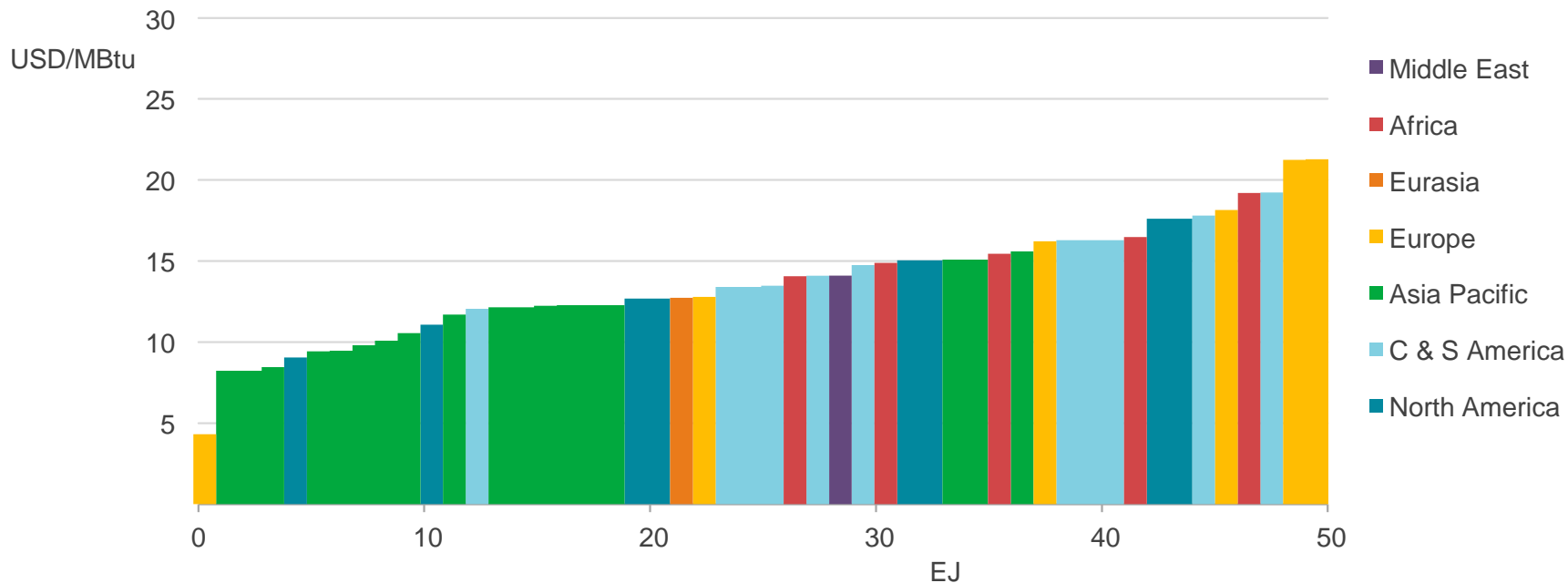
Global sustainable technical potential of biomethane in 2020



**A bottom up assessment of sustainable feedstocks globally shows huge potential to develop biomethane at scale. This potential has a wide geographic spread, grows by 60% to 2050 and becomes more cost-competitive.**

# A global assessment of the costs and potential of biomethane

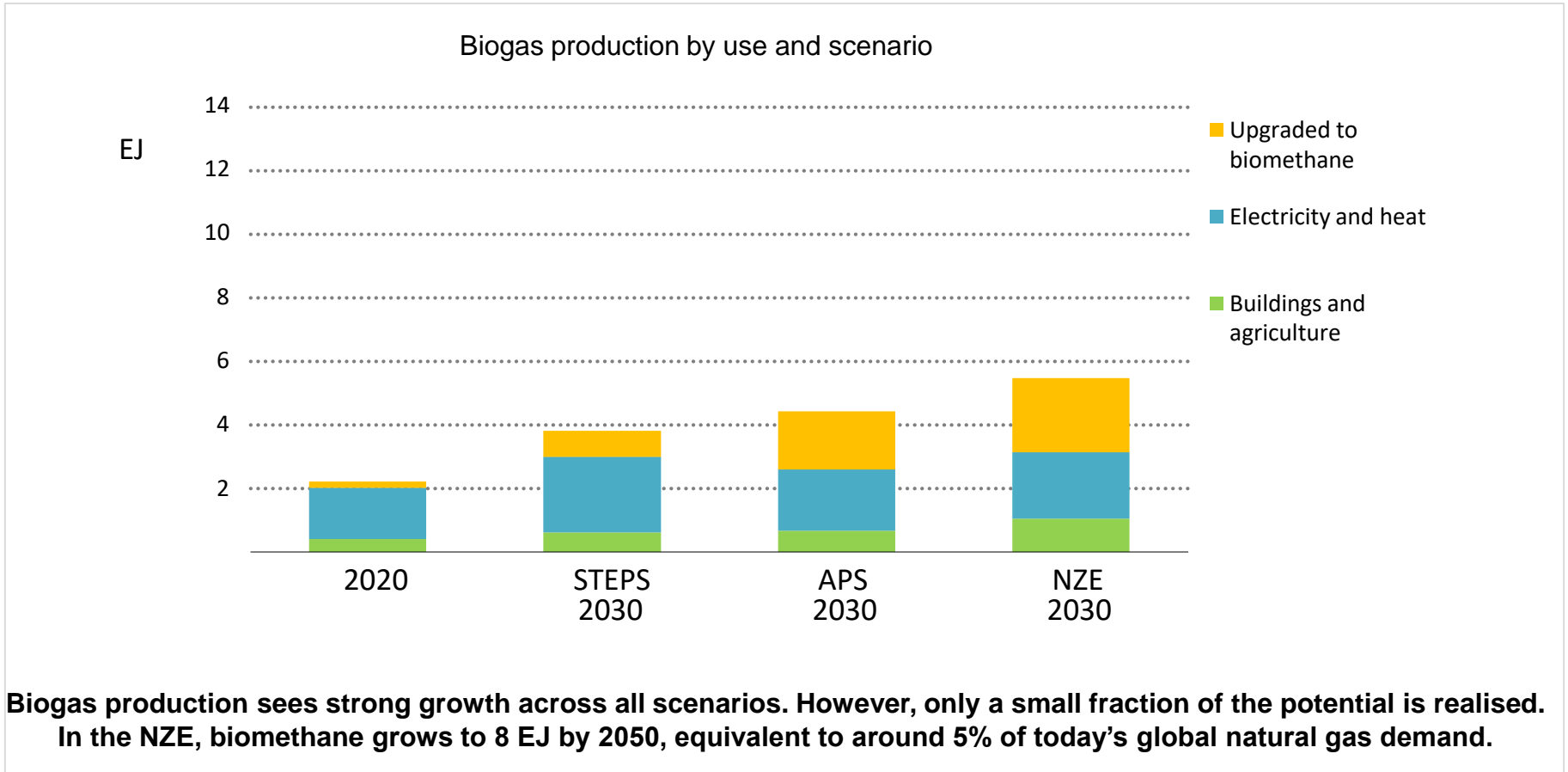
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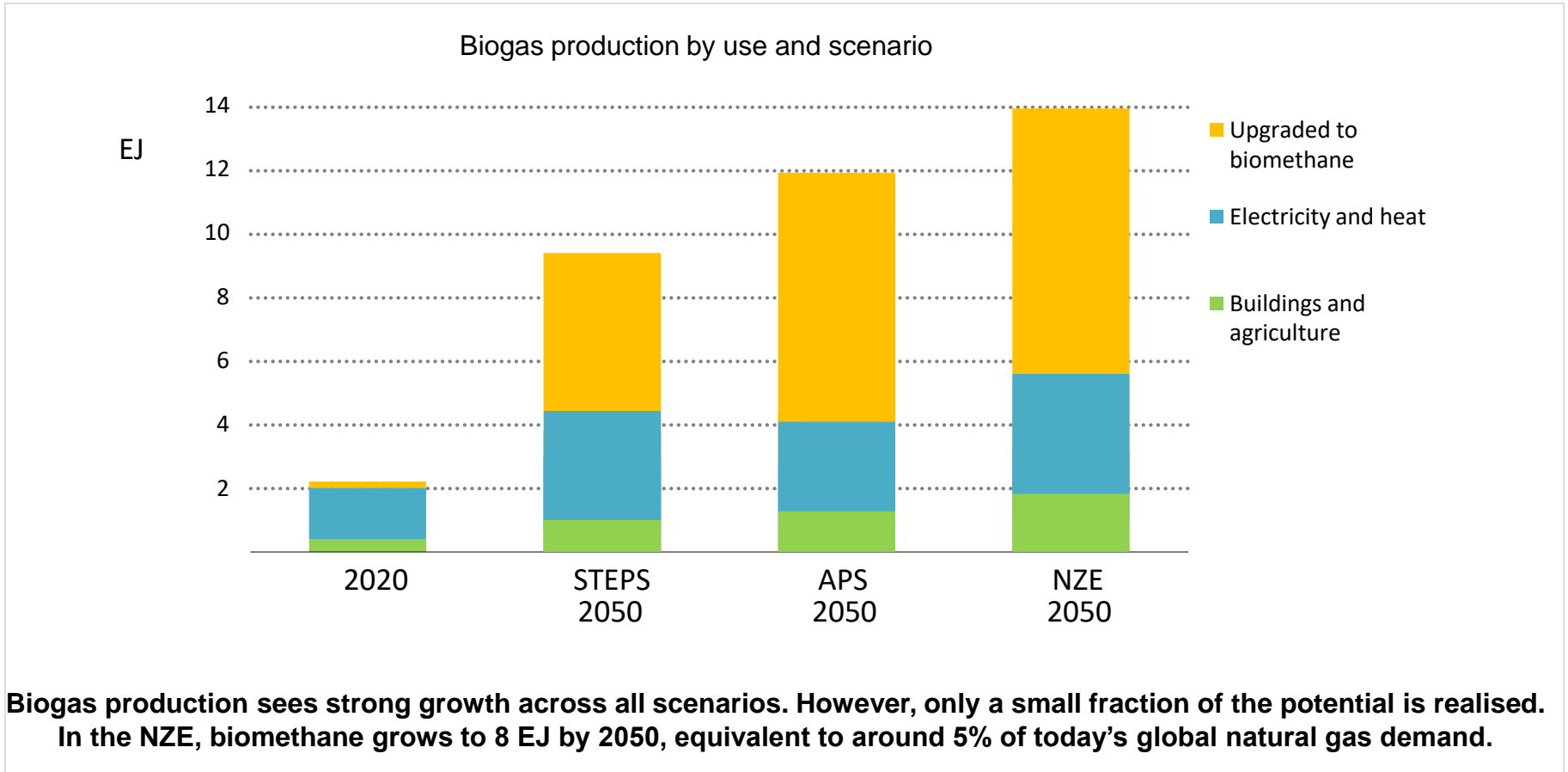


# Upgrading biogas to biomethane underpins growth in all scenarios



**Biogas production sees strong growth across all scenarios. However, only a small fraction of the potential is realised. In the NZE, biomethane grows to 8 EJ by 2050, equivalent to around 5% of today's global natural gas demand.**

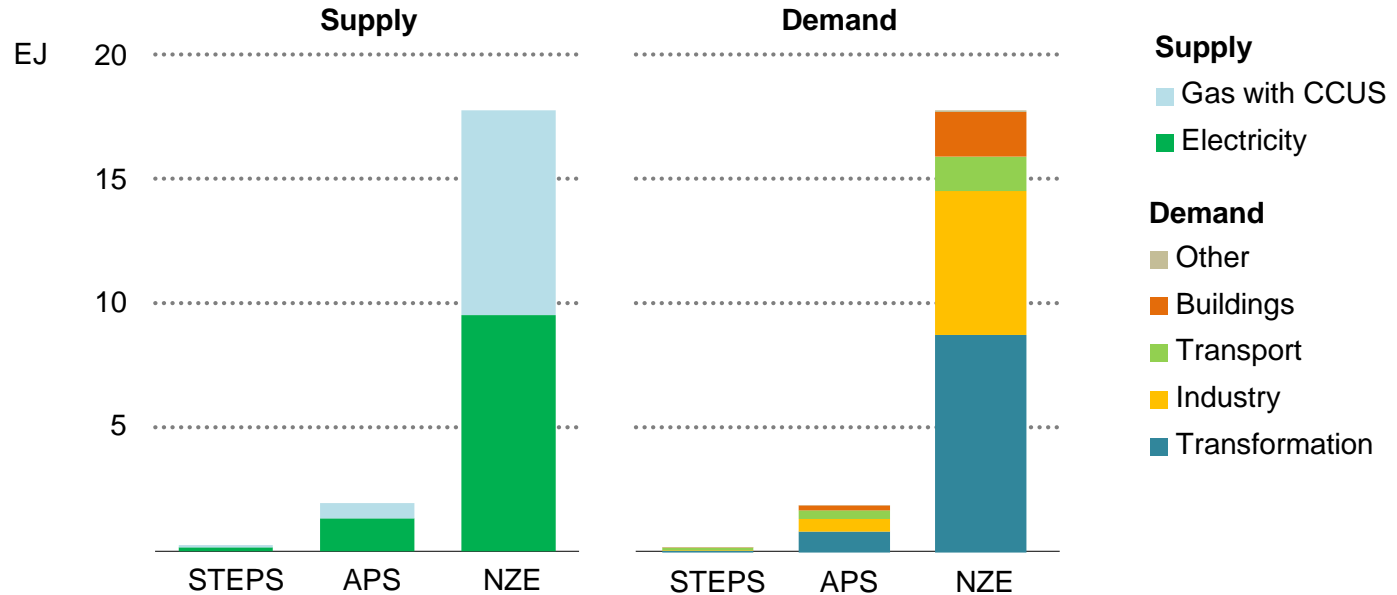
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# How fast can hydrogen rise to 2030?

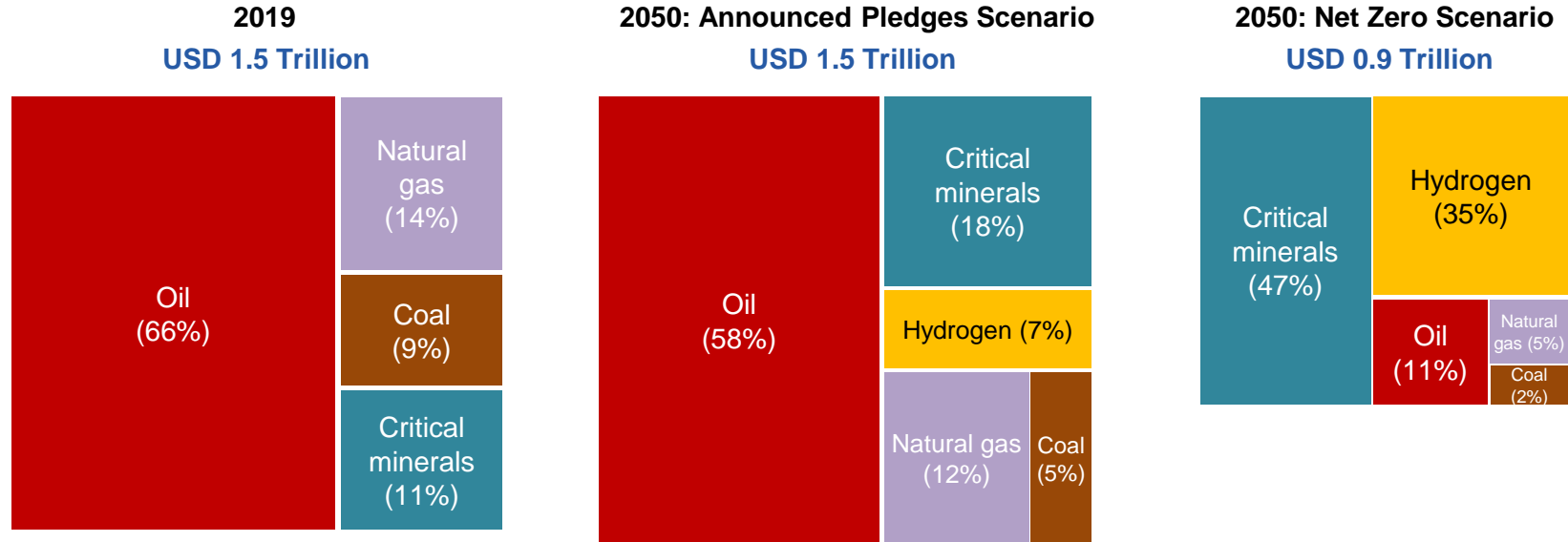
Low-carbon hydrogen and hydrogen-based fuel demand and supply by scenario in 2030



**A key barrier for low-carbon hydrogen has been the cost gap with hydrogen from unabated fossil fuels, but these constraints start to look different in a context of expensive natural gas and gas security concerns**

# The growth of new energy-related commodities

Value of international energy-related resource trade



**Under announced pledges, a growing share of oil and gas trade flows towards developing economies in Asia. In all scenarios, but especially in the net zero pathway, critical minerals and hydrogen-based fuels are on the rise**

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