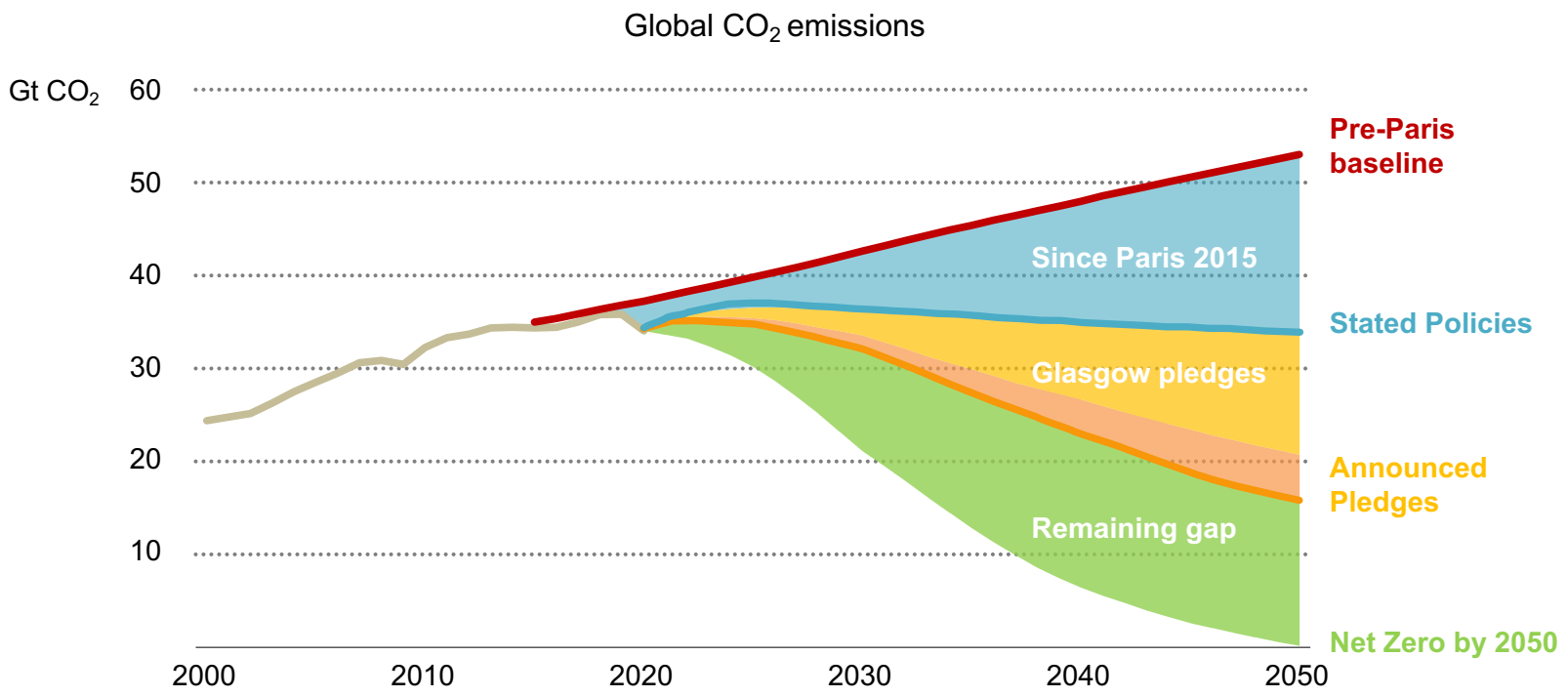
World Energy Outlook 2021 and the role of biogas and biomethane

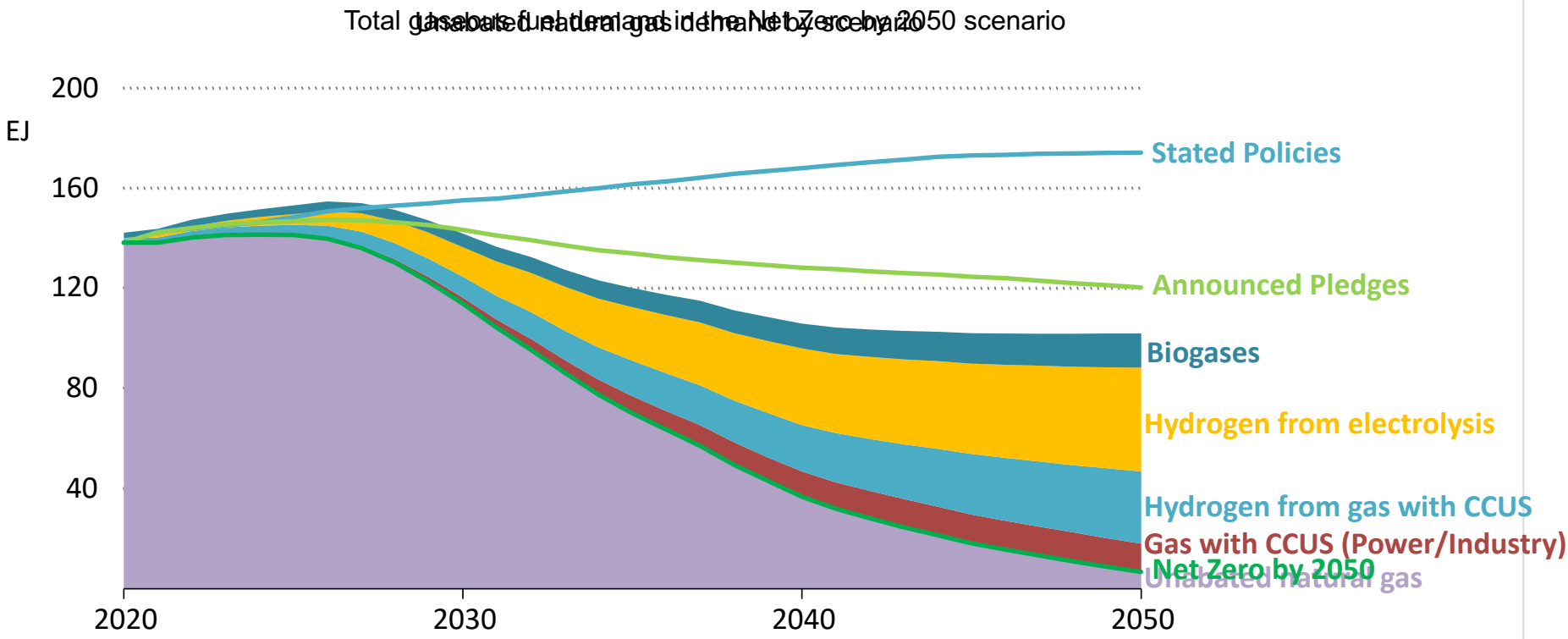
International Energy Agency

Where are we along the road to Net Zero?



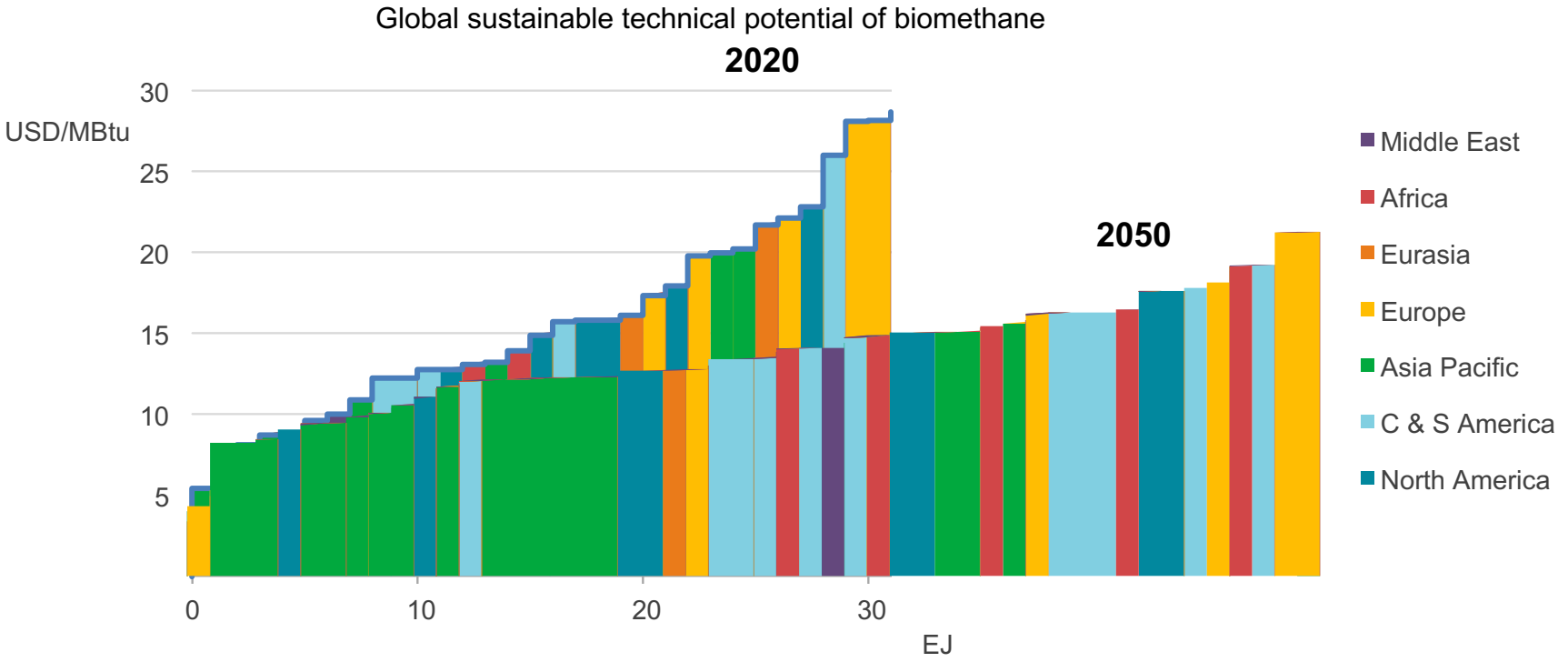
For the first time, today's pledges – if implemented on time and in full – would keep the rise in global average temperatures in 2100 to below 2°C, but there's still a large gap to 1.5°C

Gaseous fuels on the pathway to net zero



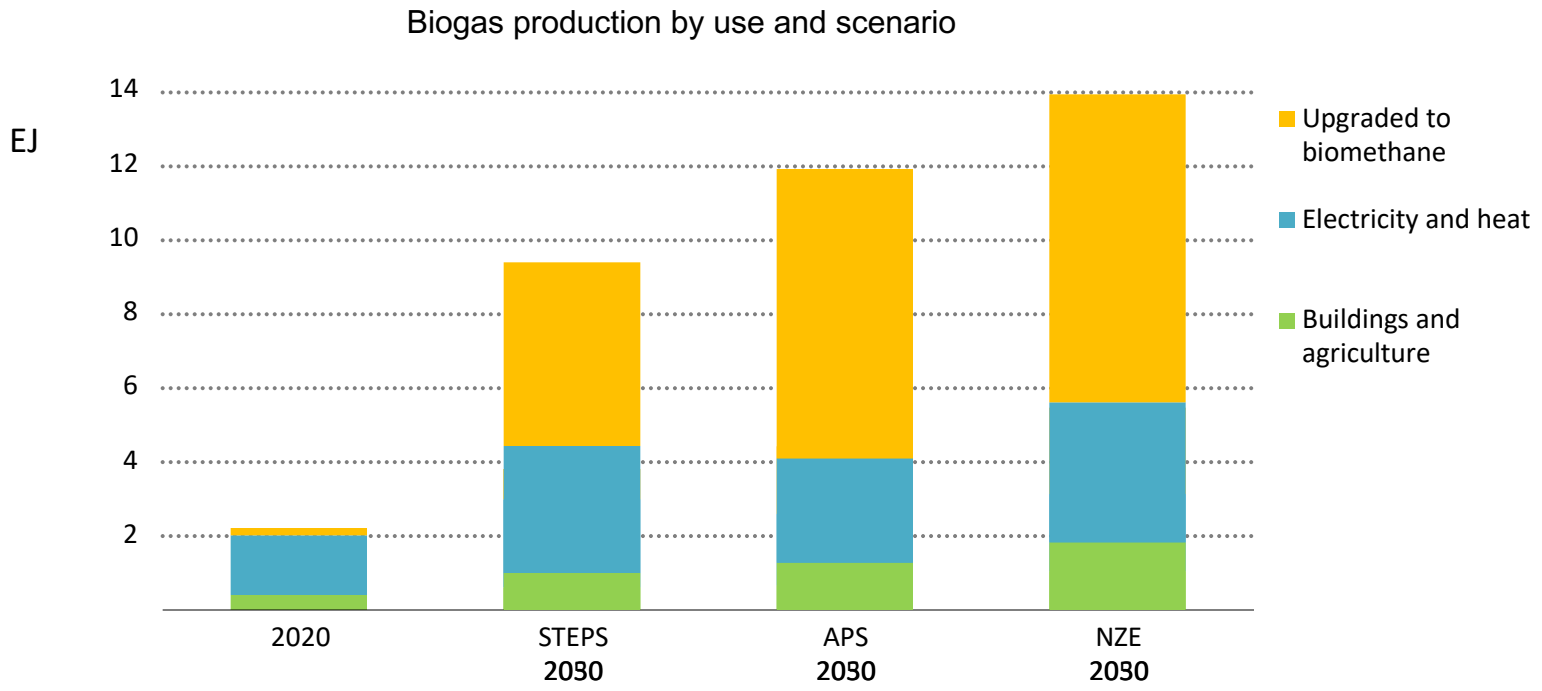
Unabated natural gas demand falls with accelerated climate ambition, and is 95% lower in the NZE compared to 2020. However, a huge ramp-up in hydrogen, biogases and CCUS means continued investment in gas-based infrastructure.

A global assessment of the costs and potential of biomethane



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.

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.

Conclusions

- The longer today's mismatch in energy investment persists, the greater the risks to energy security & price volatility. A massive policy-driven surge in clean energy transitions is the way forward
- Unabated natural gas is on the way out if the world is to meet its ambitious decarbonisation targets; however there is a role for low-carbon gaseous fuels which can leverage today's infrastructure and markets
- Biomethane has a key role in a low carbon energy transition, especially in sectors where emissions are hard to abate, while biogas has potential as a means of providing baseload renewable electricity and clean cooking, especially in developing economies.
- There is huge untapped resource potential to scale up biogas and biomethane production, and today's high gas prices provide a new context to assess its cost-competitiveness. However, it is not straightforward to assume that either of these factors will lead to wide-scale deployment.