

29 October 2019

Climate emergency, 2030 targets and the role of buildings

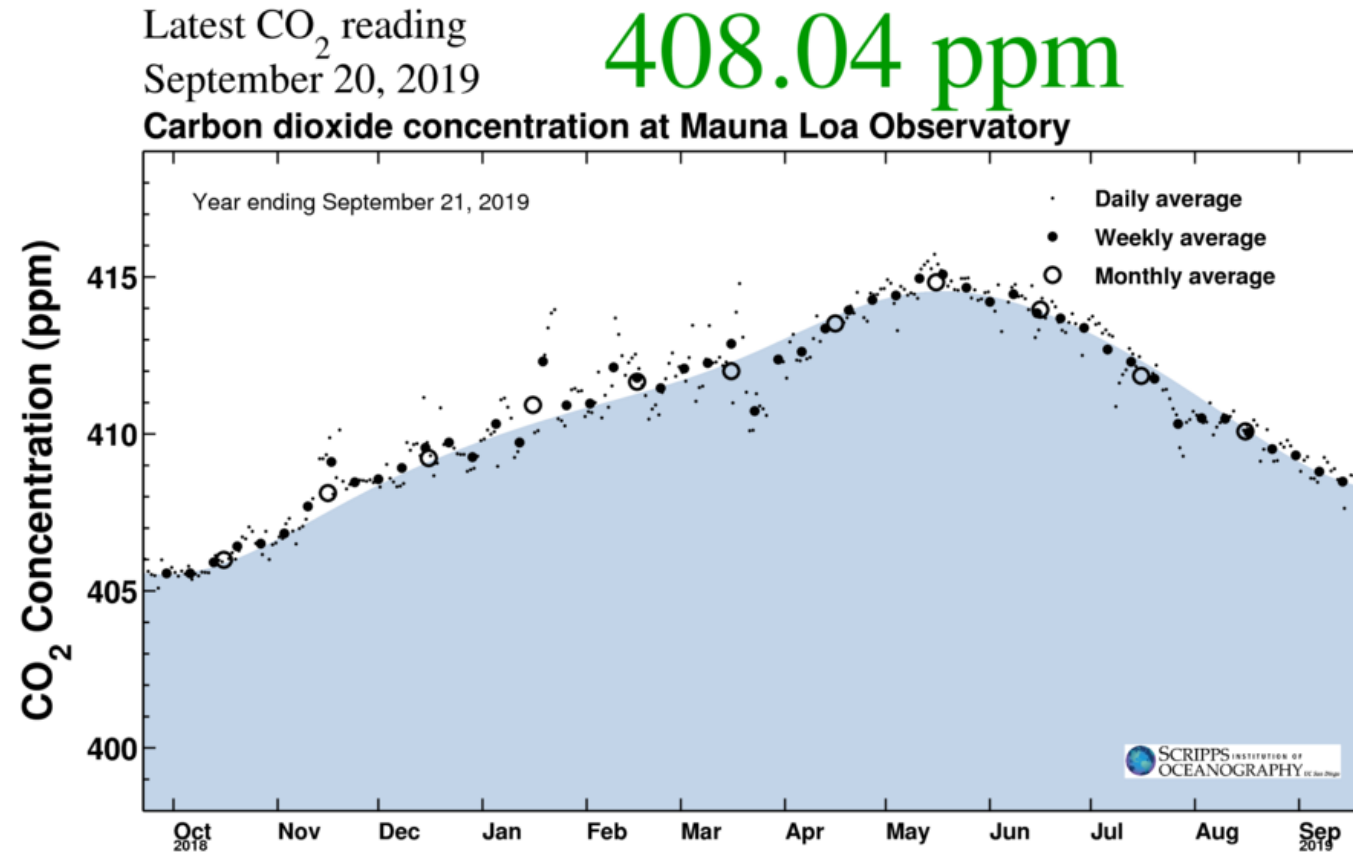
Jenny Hill

Team leader – Buildings & International

Where do we stand?

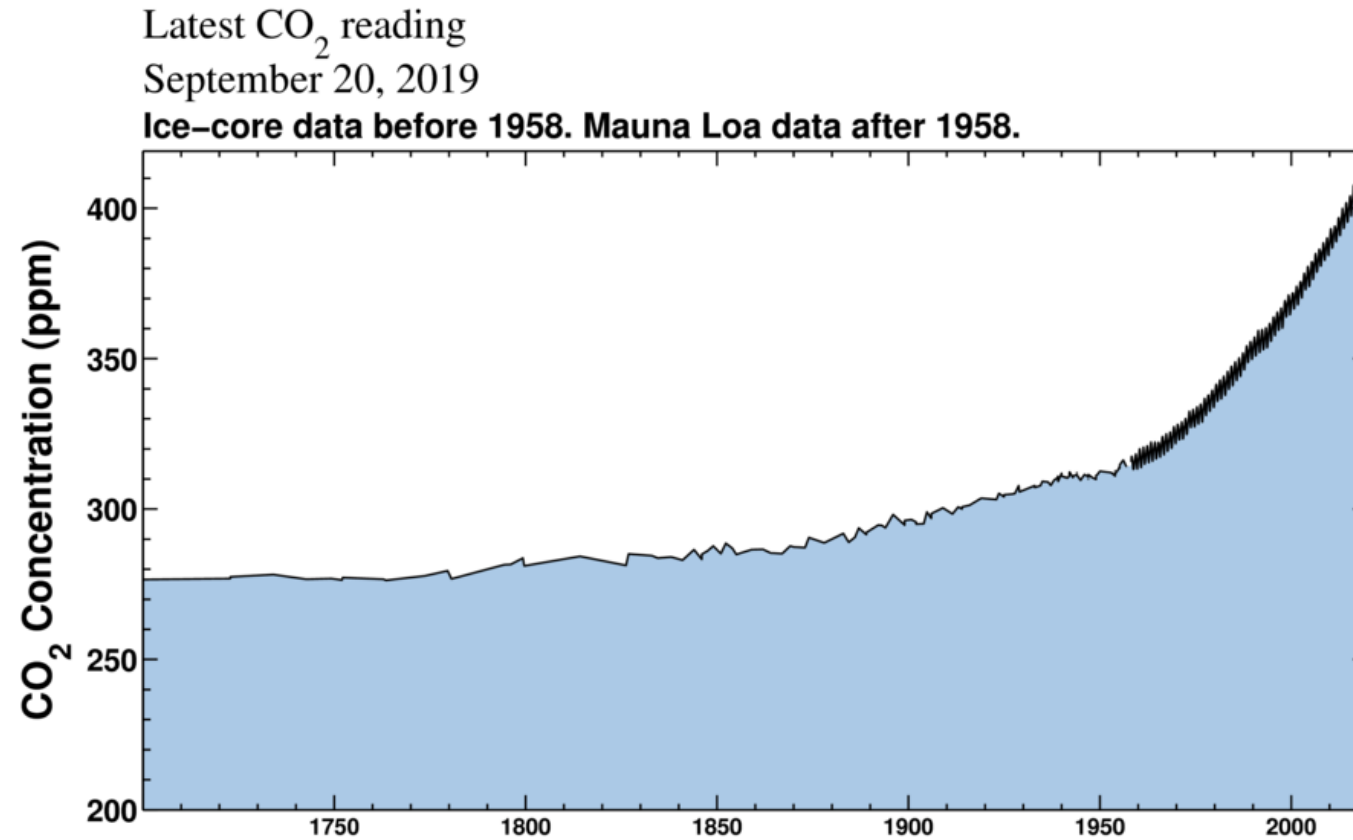


CO₂ Concentration – 12 months



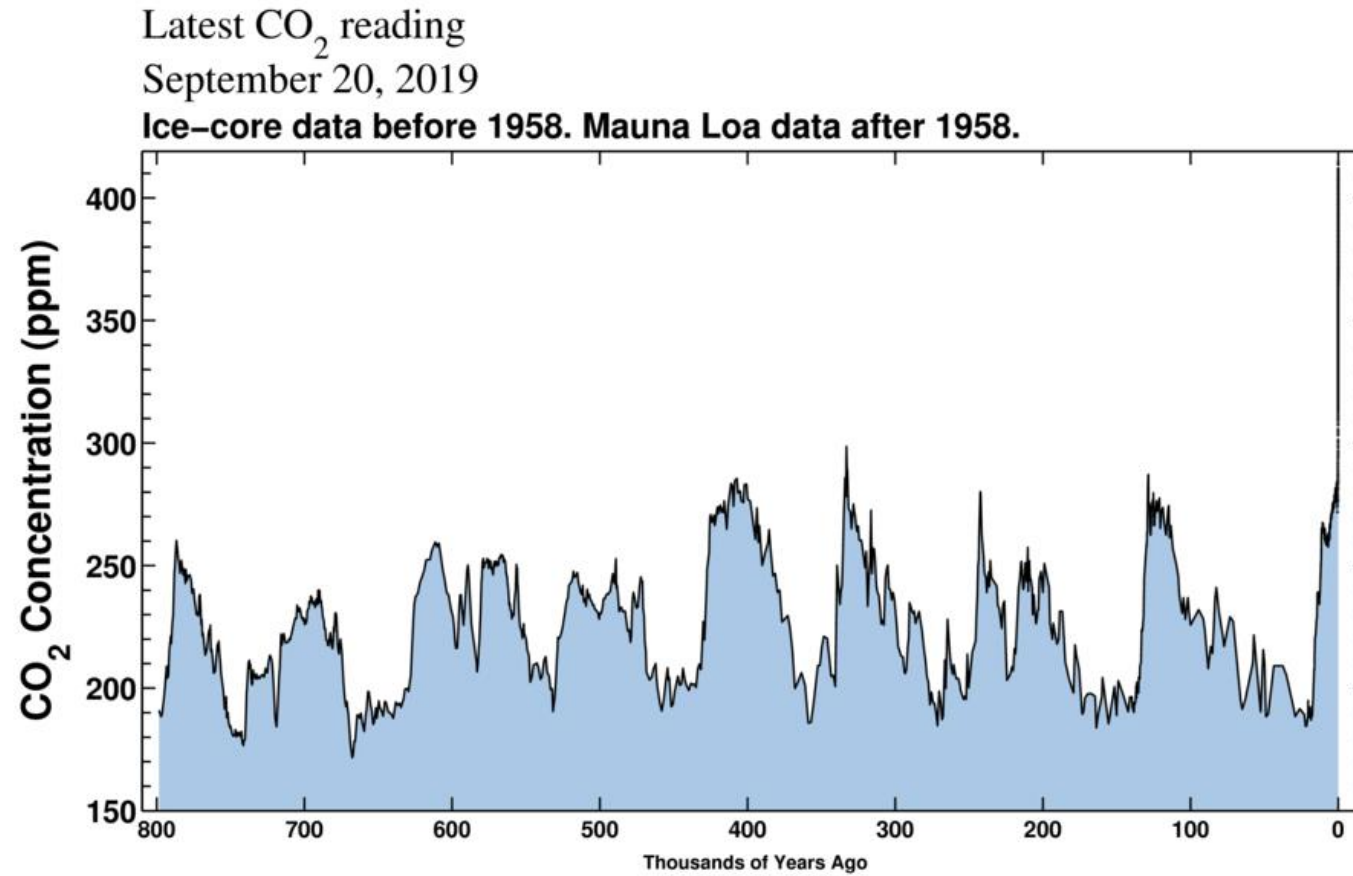
Source: Scripps Institution of Oceanography

CO₂ Concentration – 1700 to Present



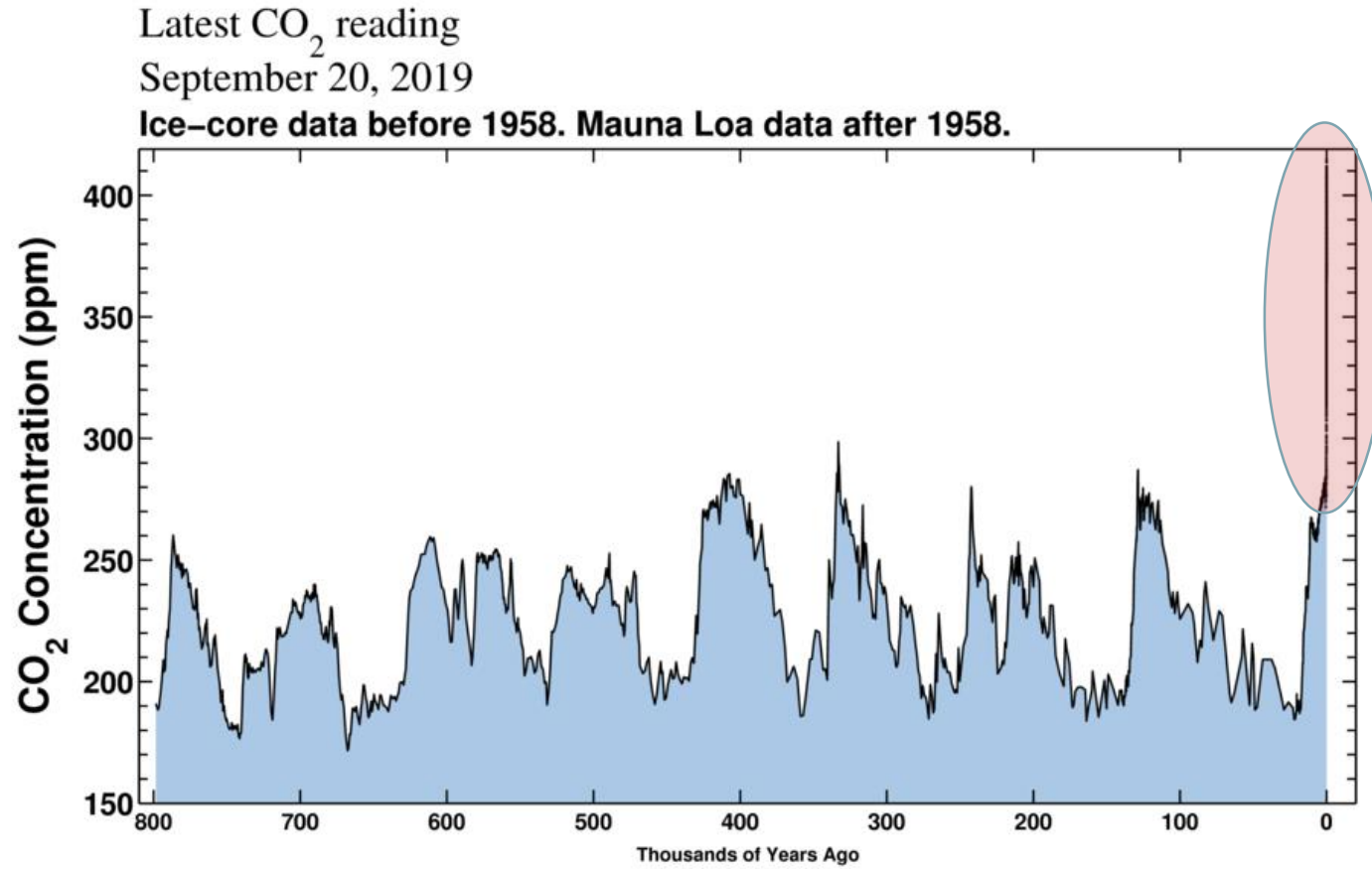
Source: Scripps Institution of Oceanography

CO₂ Concentration – 800,000 years



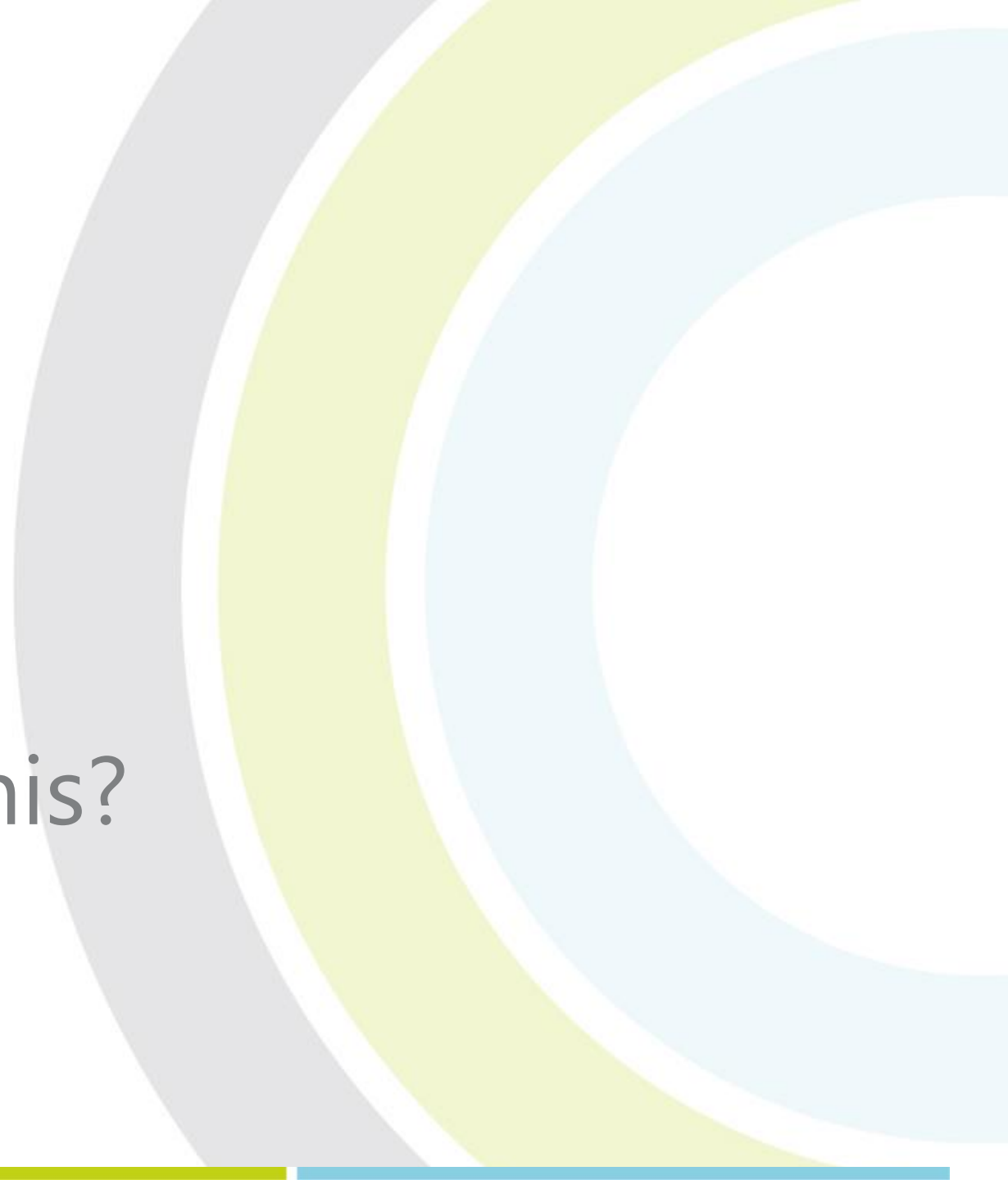
Source: Scripps Institution of Oceanography

CO₂ Concentration – 800,000 years



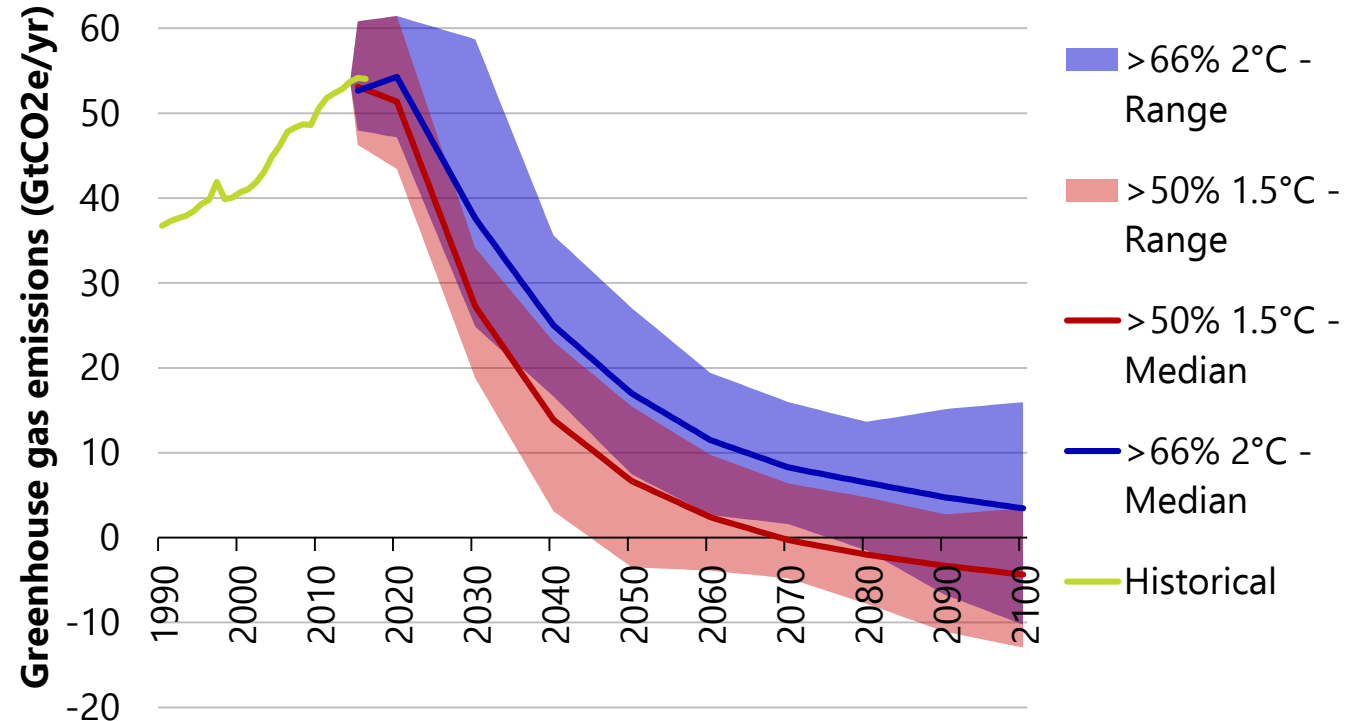
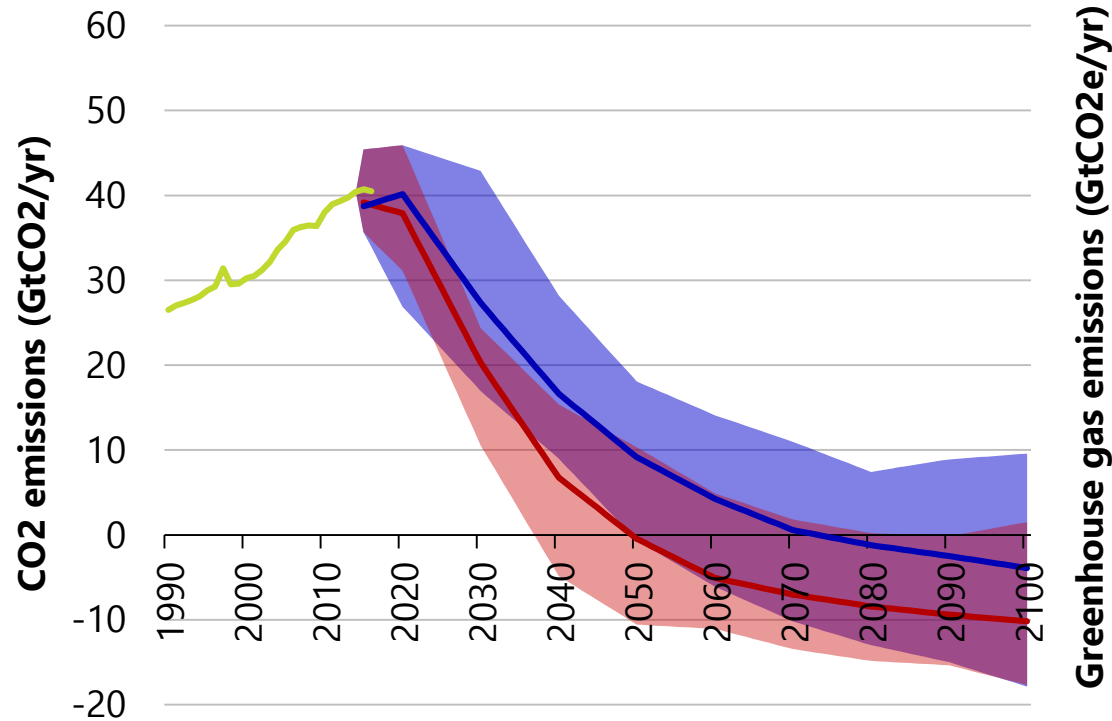
Source: Scripps Institution of Oceanography

What do we do about this?



Global emissions pathways consistent with Paris show declining CO₂ emissions rapidly to net-zero

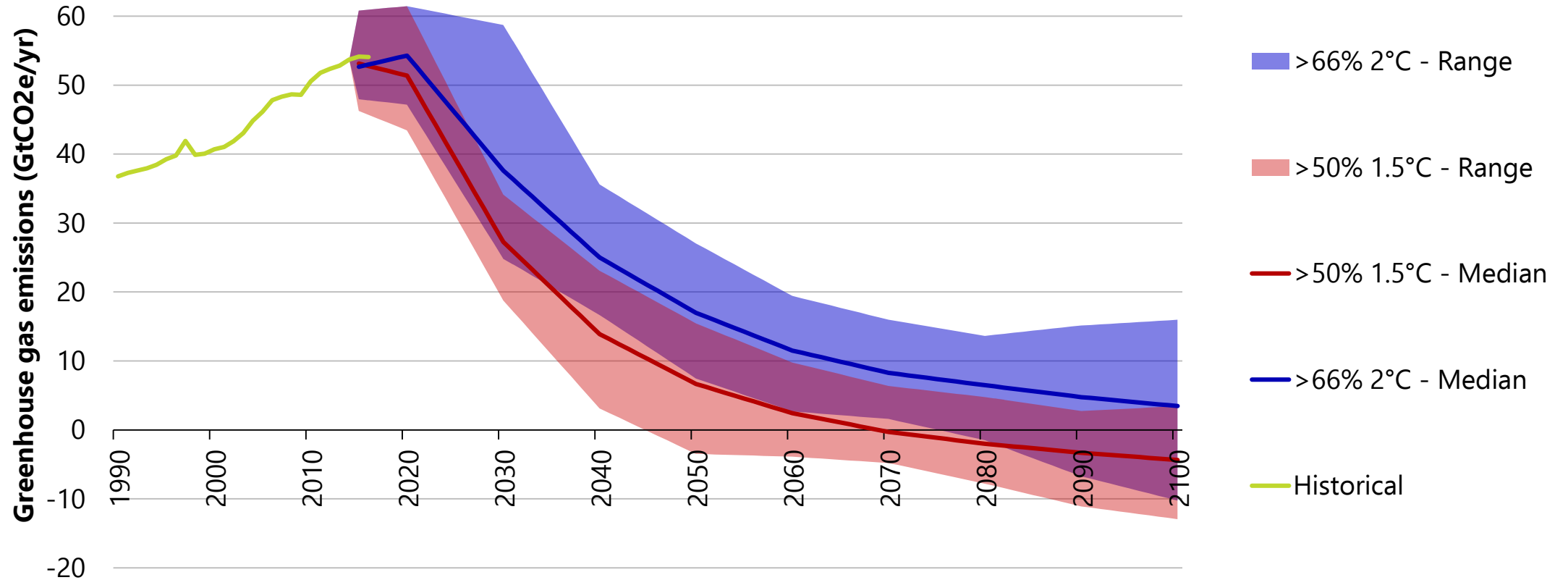
Global emissions pathways consistent with Paris CO₂ (left) Aggregated GHGs (right)



Source: Huppmann, D. et al. (2018) A new scenario resource for integrated 1.5°C research.

Cutting emissions - Science and international context

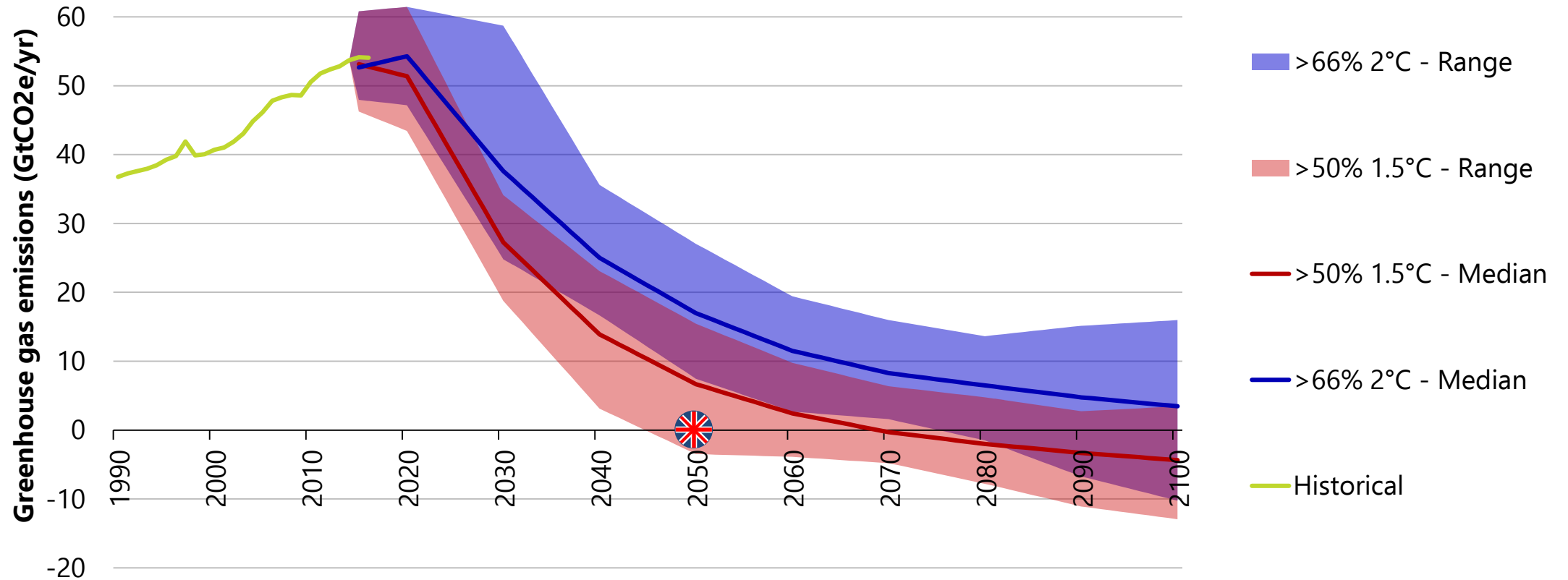
Global emissions pathways – the need for net zero



Source: Huppmann, D. et al. (2018) A new scenario resource for integrated 1.5°C research.

Cutting emissions - Science and international context

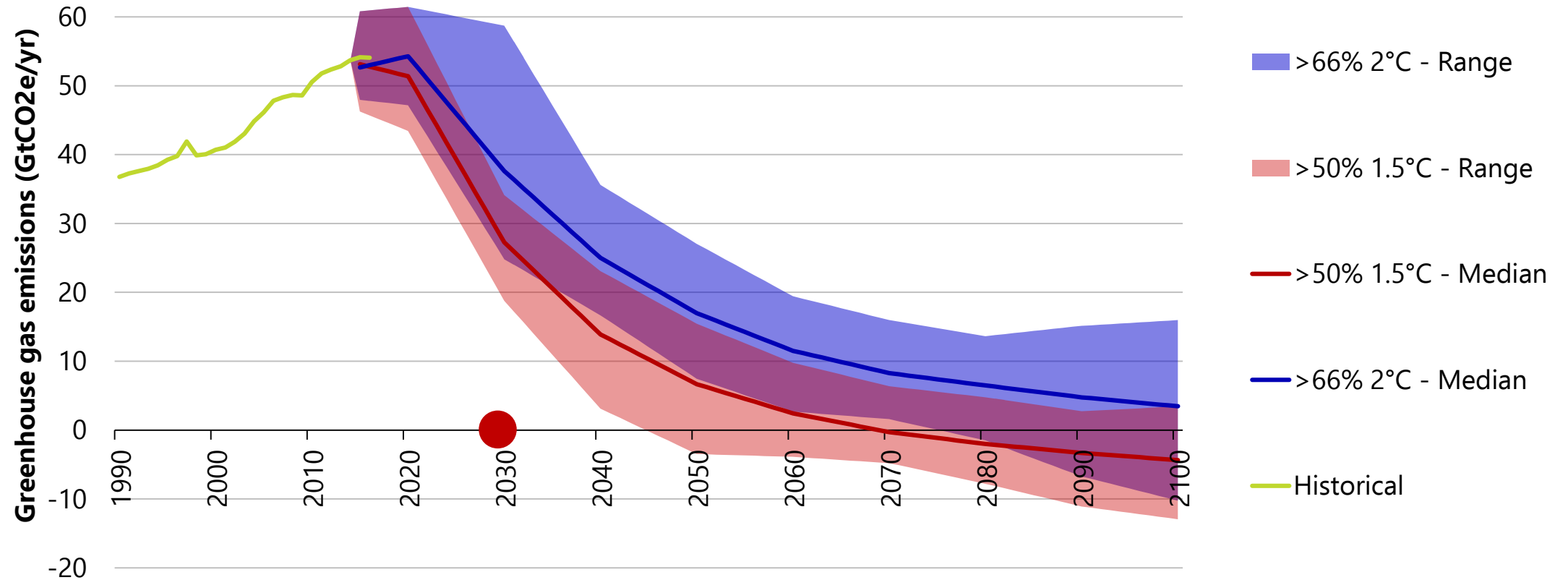
Global emissions pathways – the need for net zero



Source: Huppmann, D. et al. (2018) A new scenario resource for integrated 1.5°C research.

Cutting emissions - Science and international context

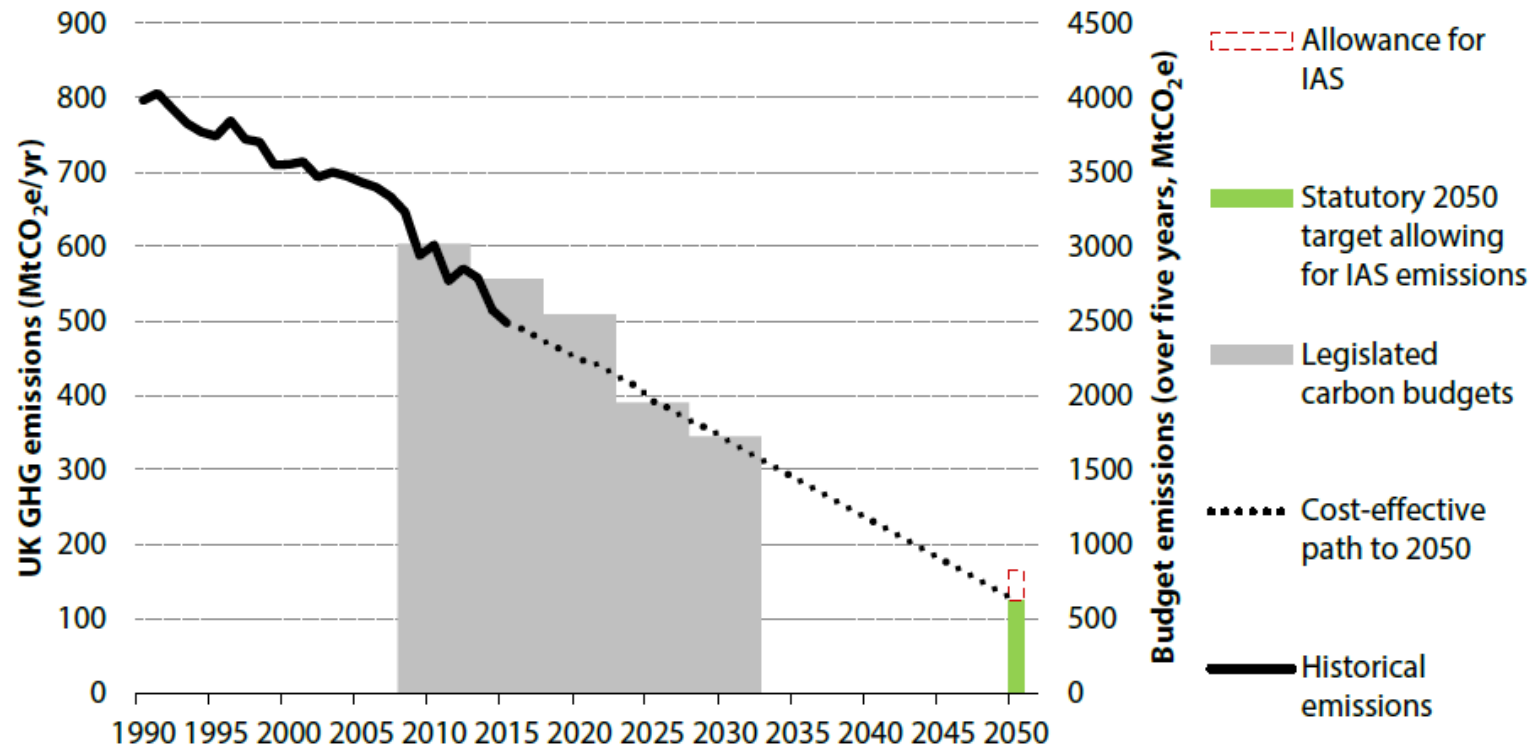
Global emissions pathways – the need for net zero



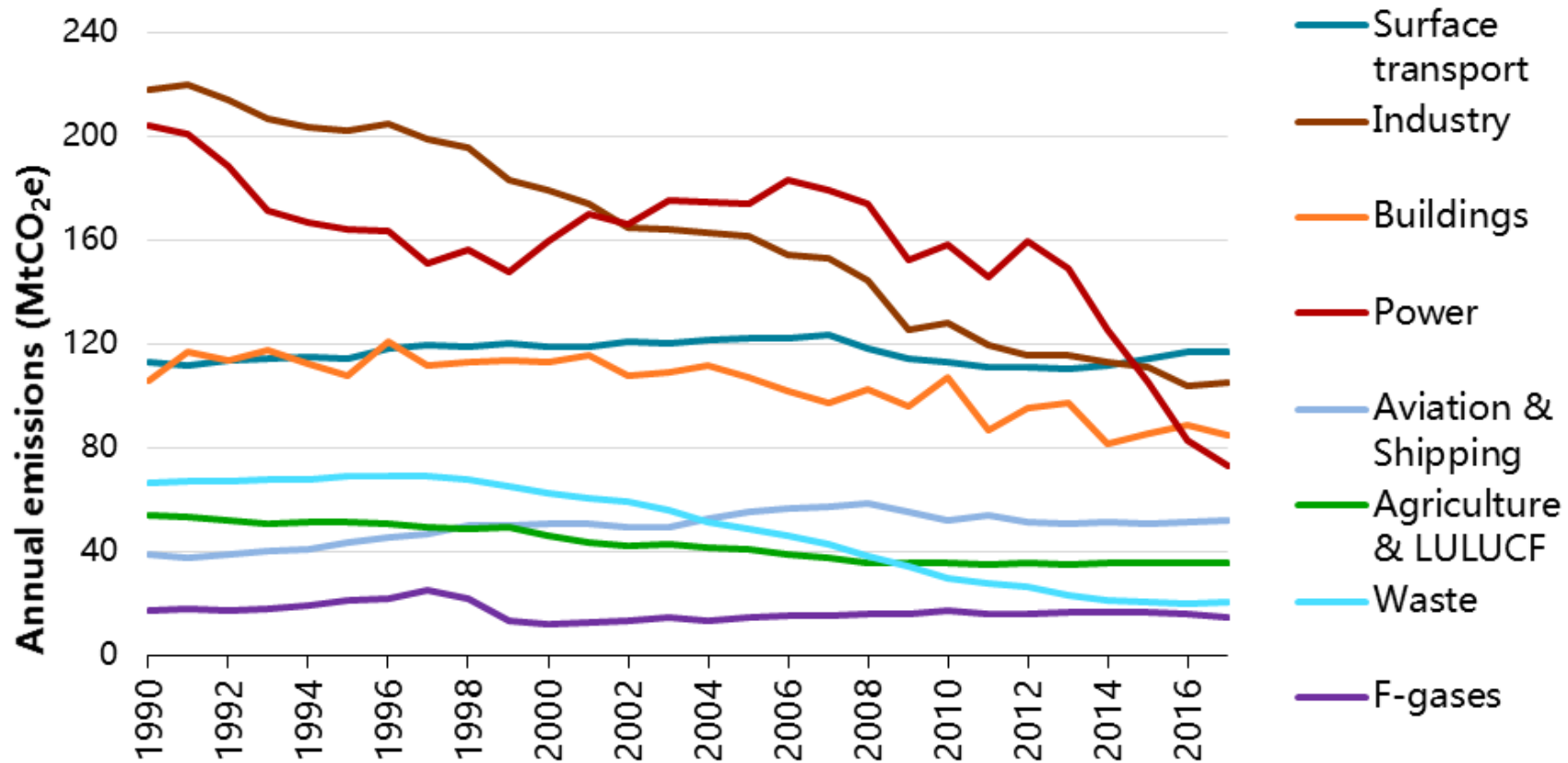
Source: Huppmann, D. et al. (2018) A new scenario resource for integrated 1.5°C research.

UK has 5 legislated carbon budgets that are stepping stones to a 2050 80% target

Carbon budgets and the cost-effective path to the 80% target



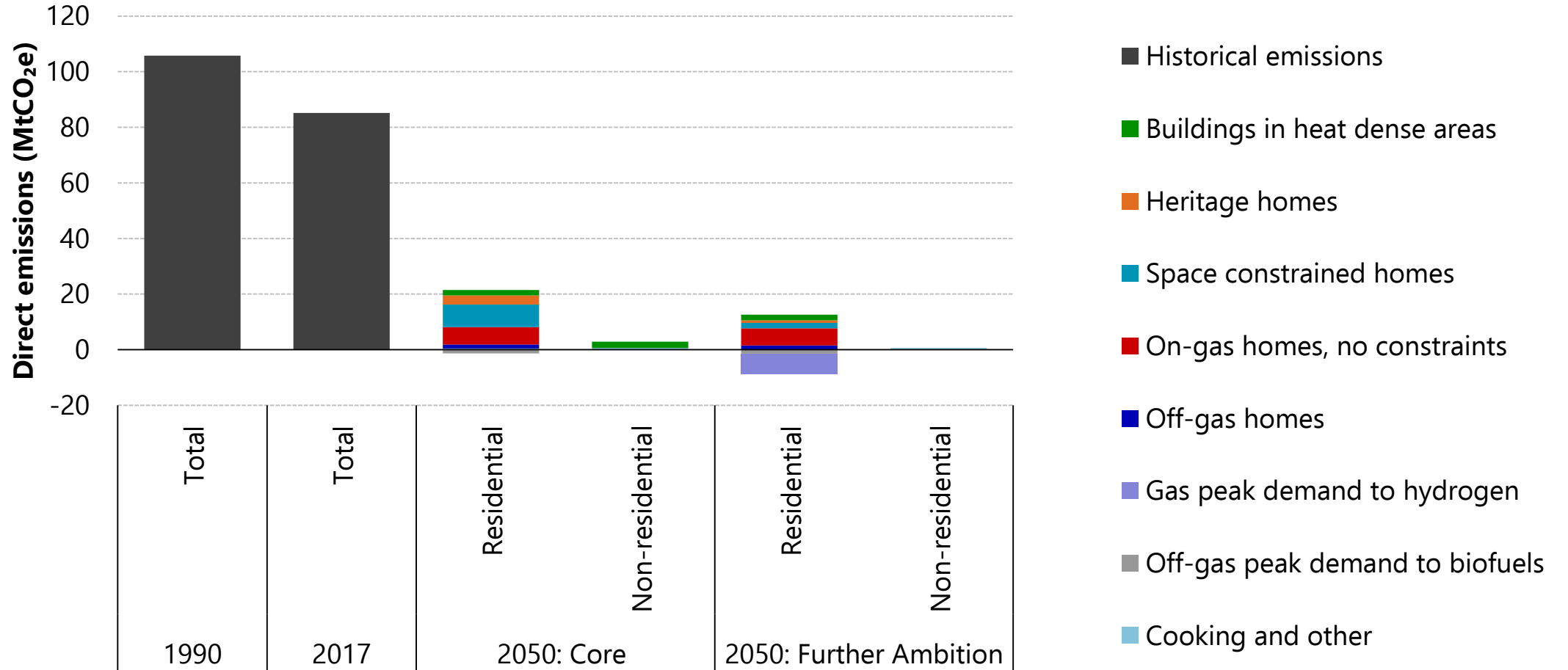
Progress across sectors is uneven with no significant falls in building emissions in recent years



Net zero buildings – how and when?

How UK net-zero scenarios can be delivered

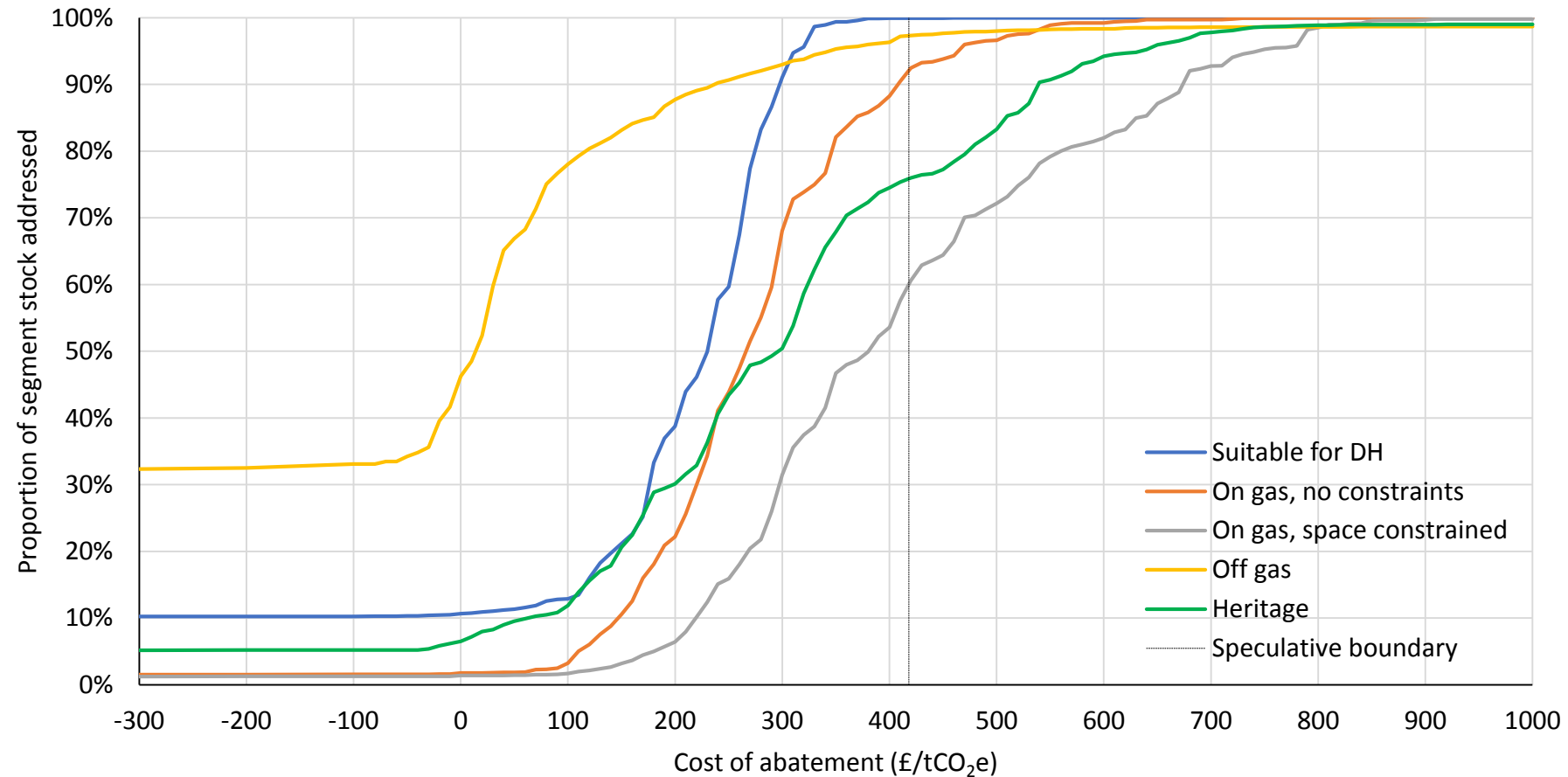
Buildings: Emissions in 2050



Source: CCC analysis

Net Zero 2050: 95% of direct emissions from existing buildings can be abated at a total annual net cost of around £15 billion in 2050

(Net zero technical report, 2019)



This is associated with a 25% reduction in heat demand, and deployment of 19m heat pumps, 5m district heat connections and 0.5m electric storage heaters in existing homes by 2050

Number deployed (millions)

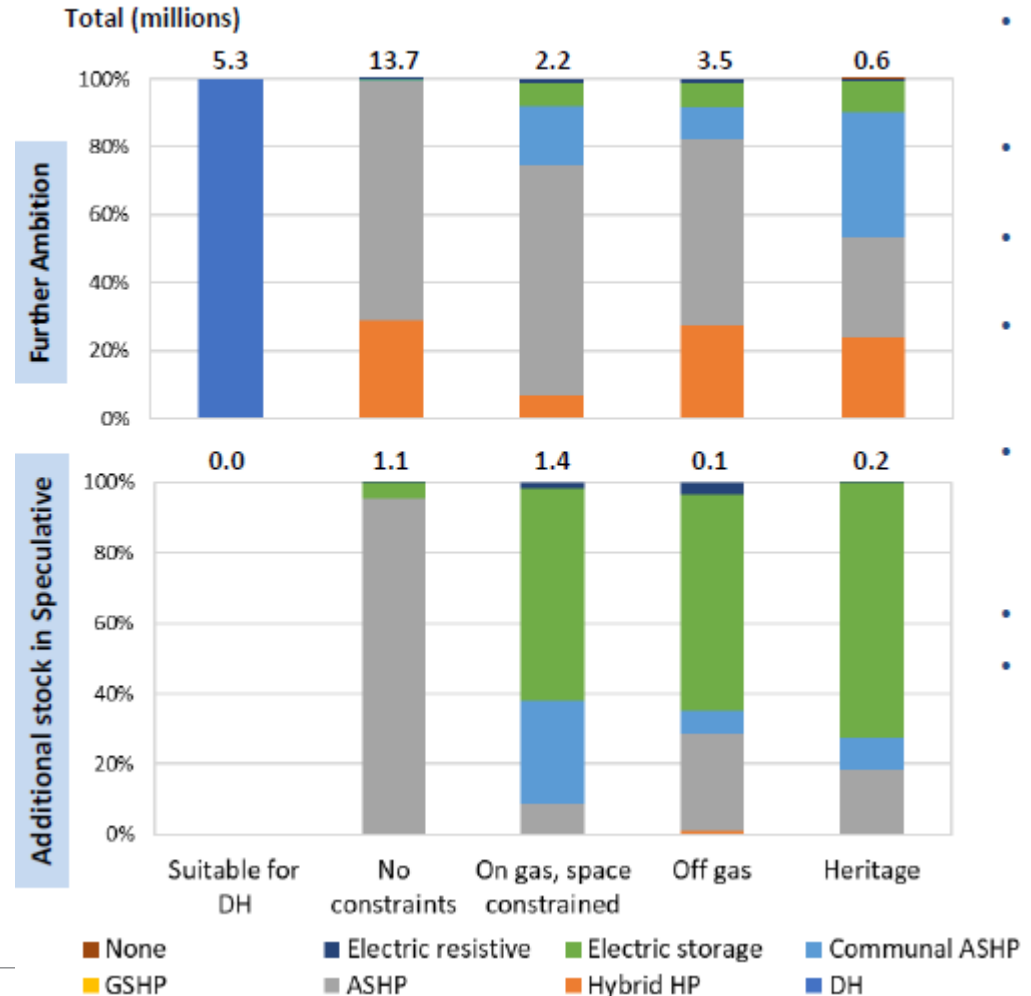
Measure

Loft	21
Cavity wall	6
Solid wall	6
Floor	3

Energy savings (TWh/y) 92

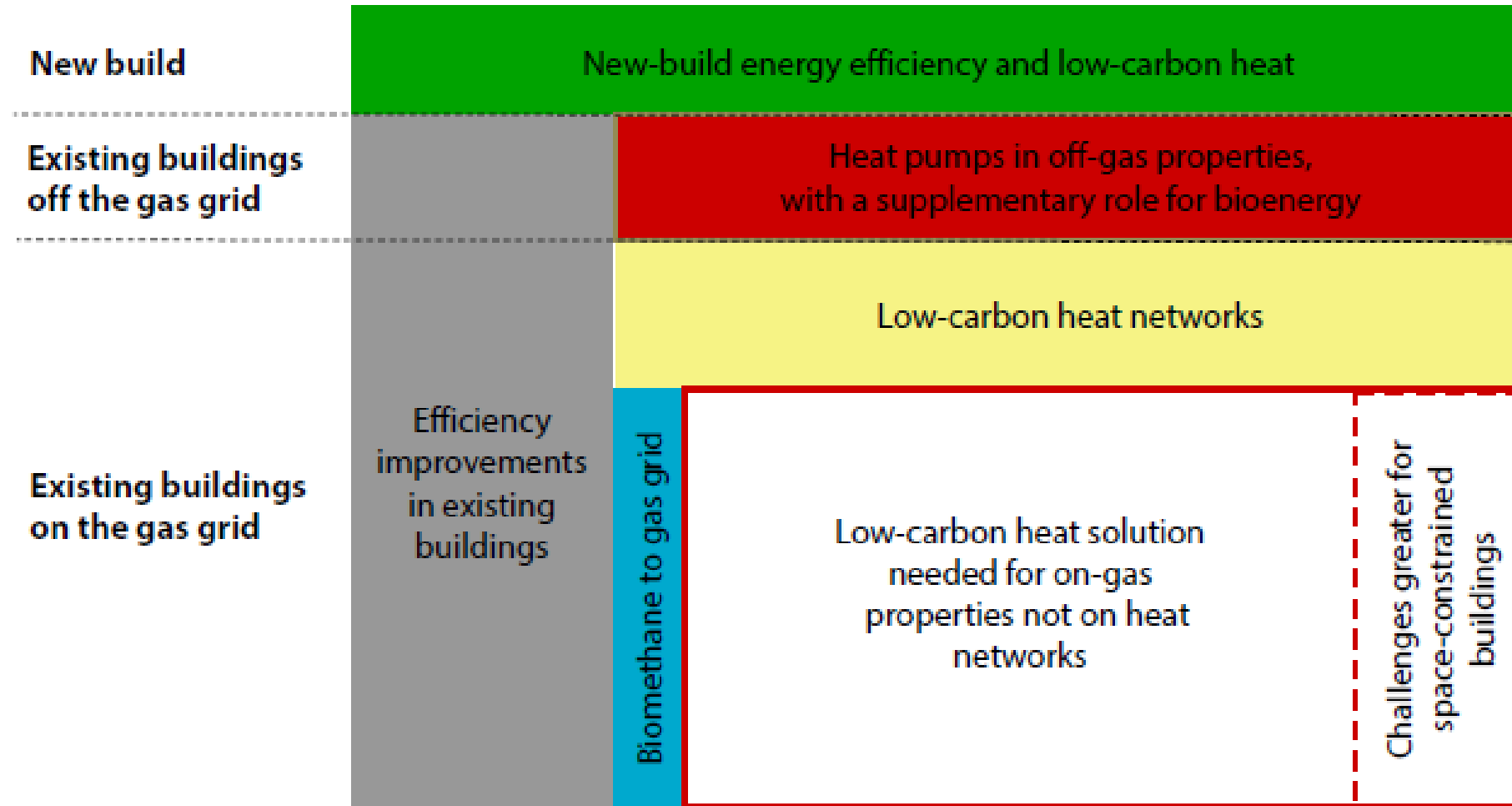
Reduction in heat demand 25%

Heating systems deployed by stock segment

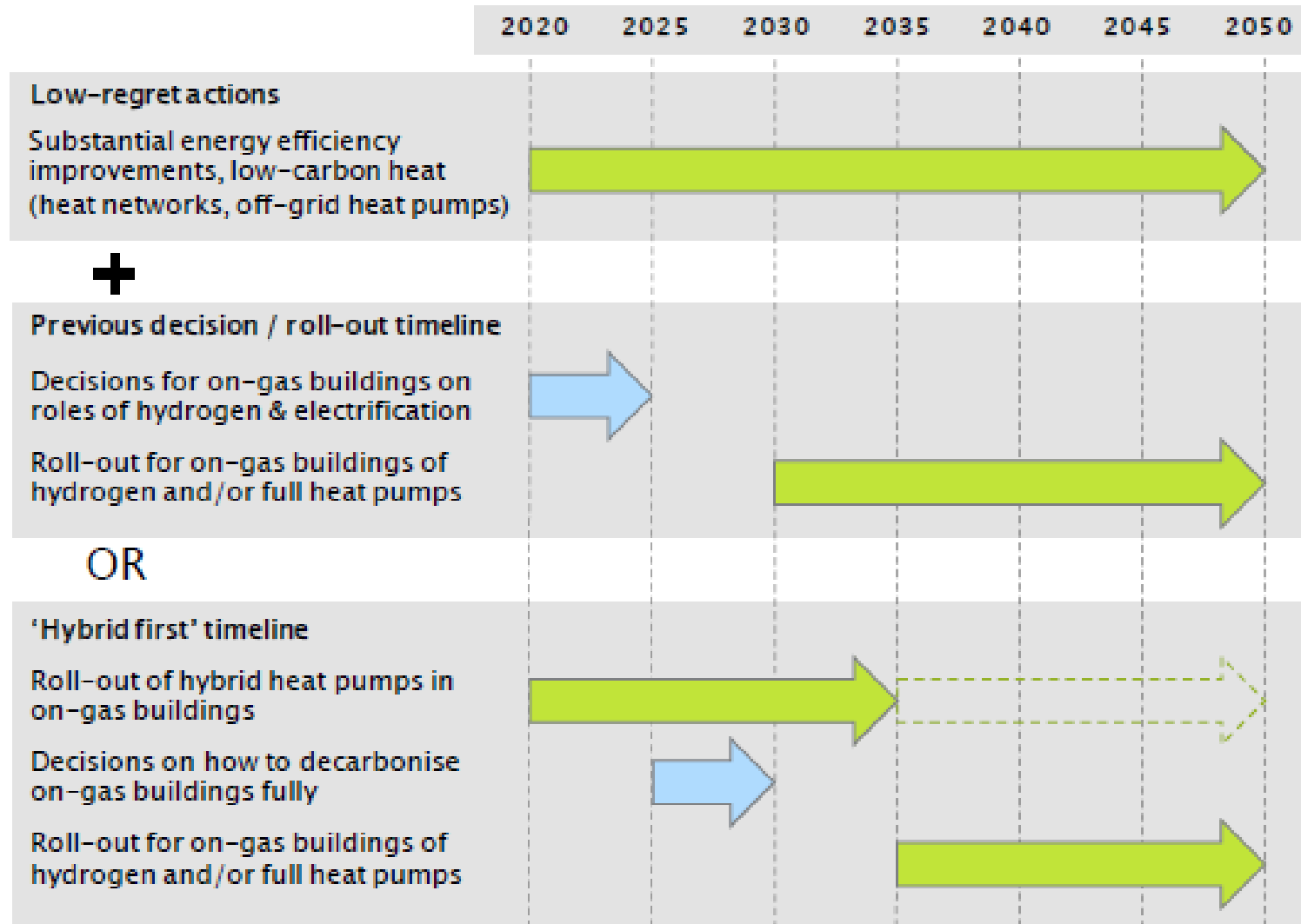


Low regret actions for buildings decarbonisation

(Next steps for UK heat policy, 2016)



A way forward on heat decarbonisation



Net zero buildings are one of the biggest challenges for achieving net zero by 2050. Policies will determine how costs are allocated.

- 2020 – Strategy for decarbonised heat
- 2020 – Strengthen new-build standards to ensure all new homes from 2025 at the latest are designed for a changing climate, ultra energy-efficient and use low-carbon heat.
- Mid 2020s – Strategic decisions on the future of the gas grid
- 2020-2035 – Clear trajectory of standards for energy efficiency, with all new heating systems from 2035 at the latest being low-carbon

All this must be underpinned by tackling performance and compliance issues, implementing a nationwide training programme to upskill and reforming monitoring metrics and certification

Thank you

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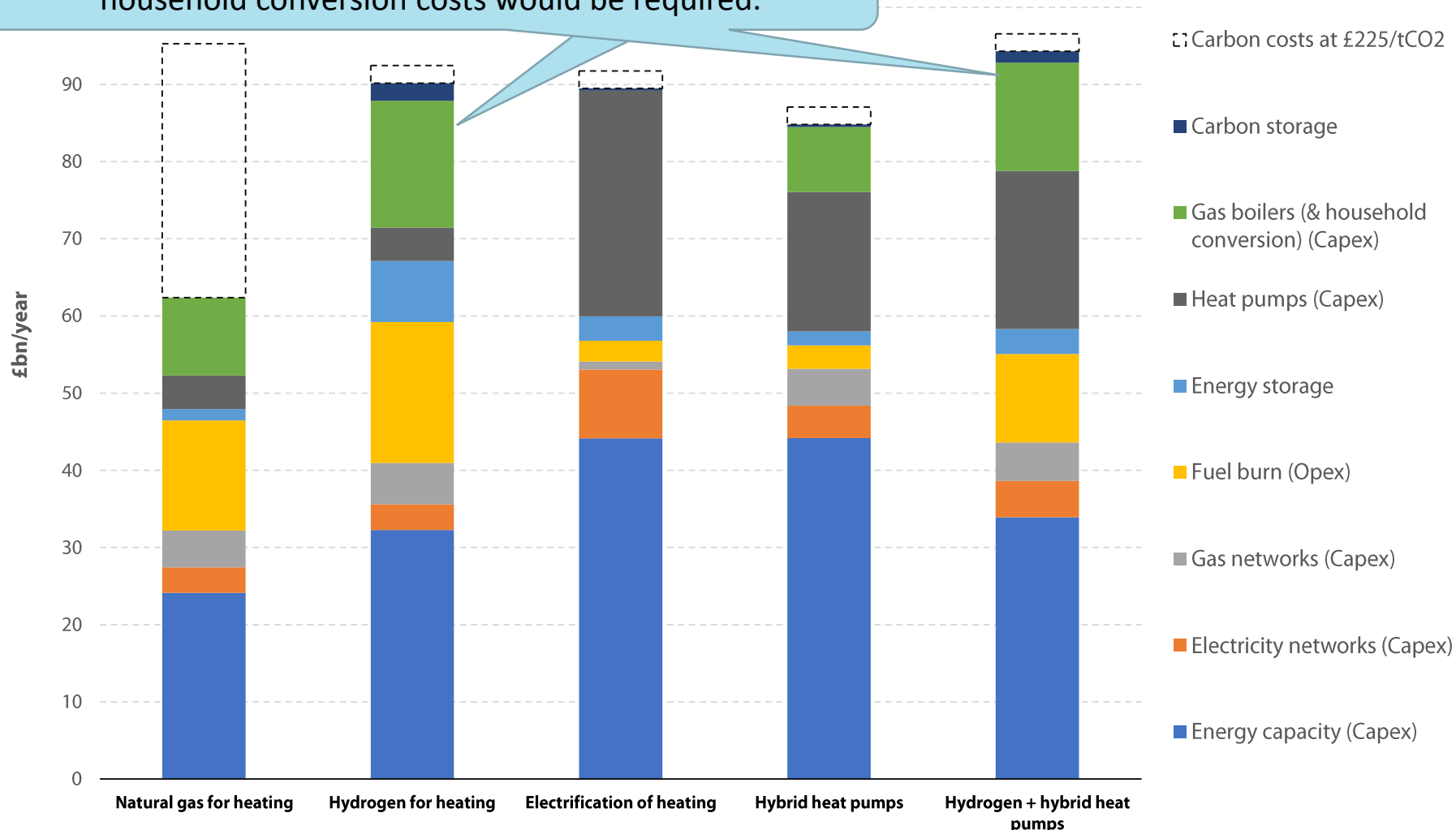


Annex slides

Costs of heat decarbonisation scenarios are within 10% of each other, across alternative heat pathways

(Hydrogen in a low-carbon economy, 2018)

Uncertainty remains over whether this level (£4bn/year) of household conversion costs would be required.



10 Mt Scenario

Biomass is a finite resource that should be used to maximise avoided and sequestered CO₂

