

Sustainable Energy Pathways for the UK

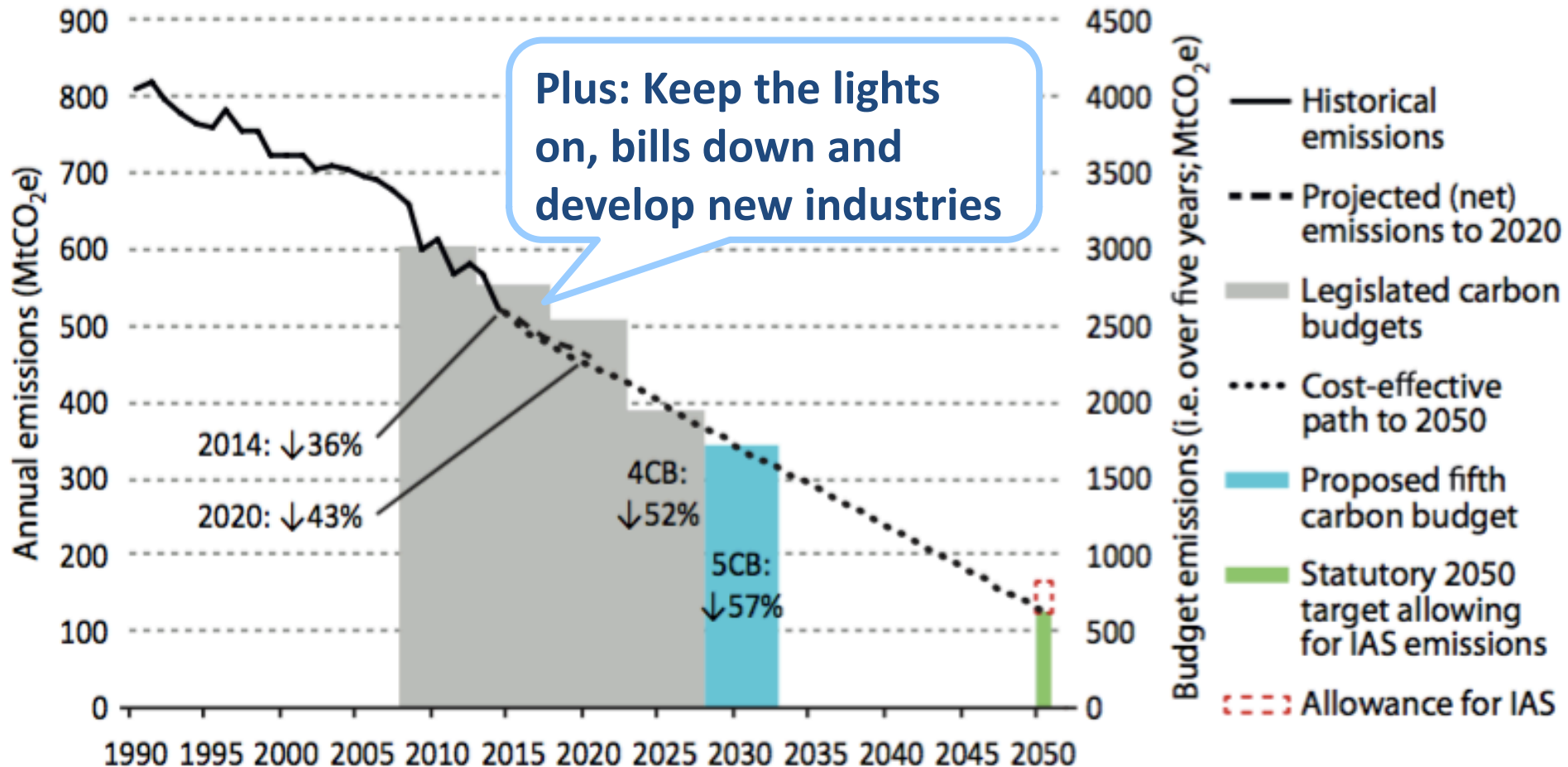
Jim Watson, UKERC

(with Mike Bradshaw, Paul Ekins, Christophe McGlade
and Steve Pye)

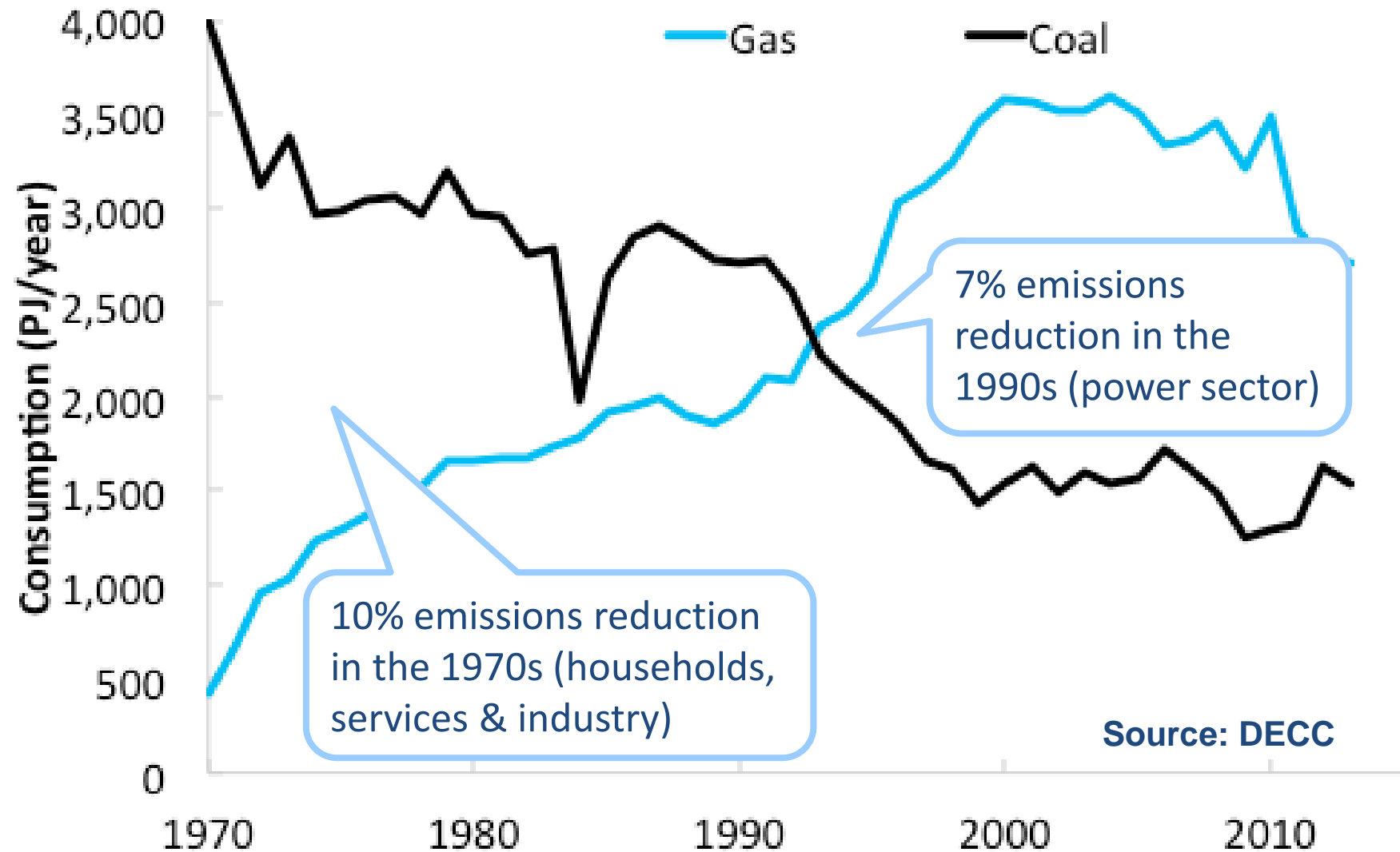
**IIASA / NERC Conference: Systems Analysis Applied to
Environment and Health, London, 2nd December 2016**



The UK's low carbon transition



The shift from coal to gas

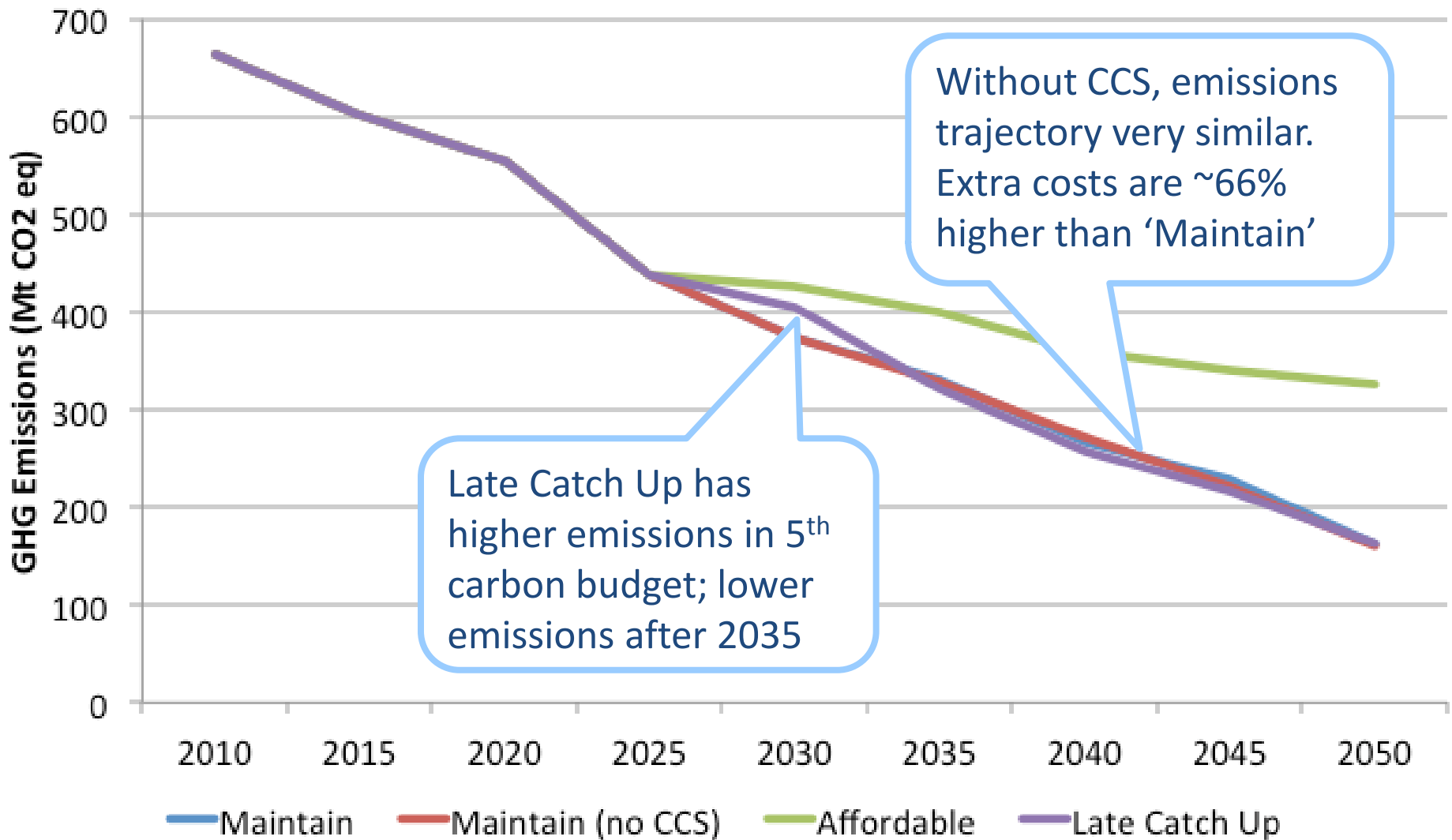


UKERC energy scenarios, 2016

Scenario	Emissions	Technology	Fossil fuel prices	Import dependency
Abandon	35% reduction by 2020	No new coal Nuclear delay	High	
Insular	35% reduction by 2020	Interconnector 4 GW max.	High	30% in 2020; 5% in 2030
Affordable	50% by 2025 60% by 2050	Slow renewables nuclear, CCS delay	Low	
Late Catch-up	50% by 2030; 80% by 2050	No new coal	Central	
Maintain	80% reduction by 2050	No new coal	Central	
Maintain (tech failure)	80% reduction by 2050	No new coal No CCS	Central	

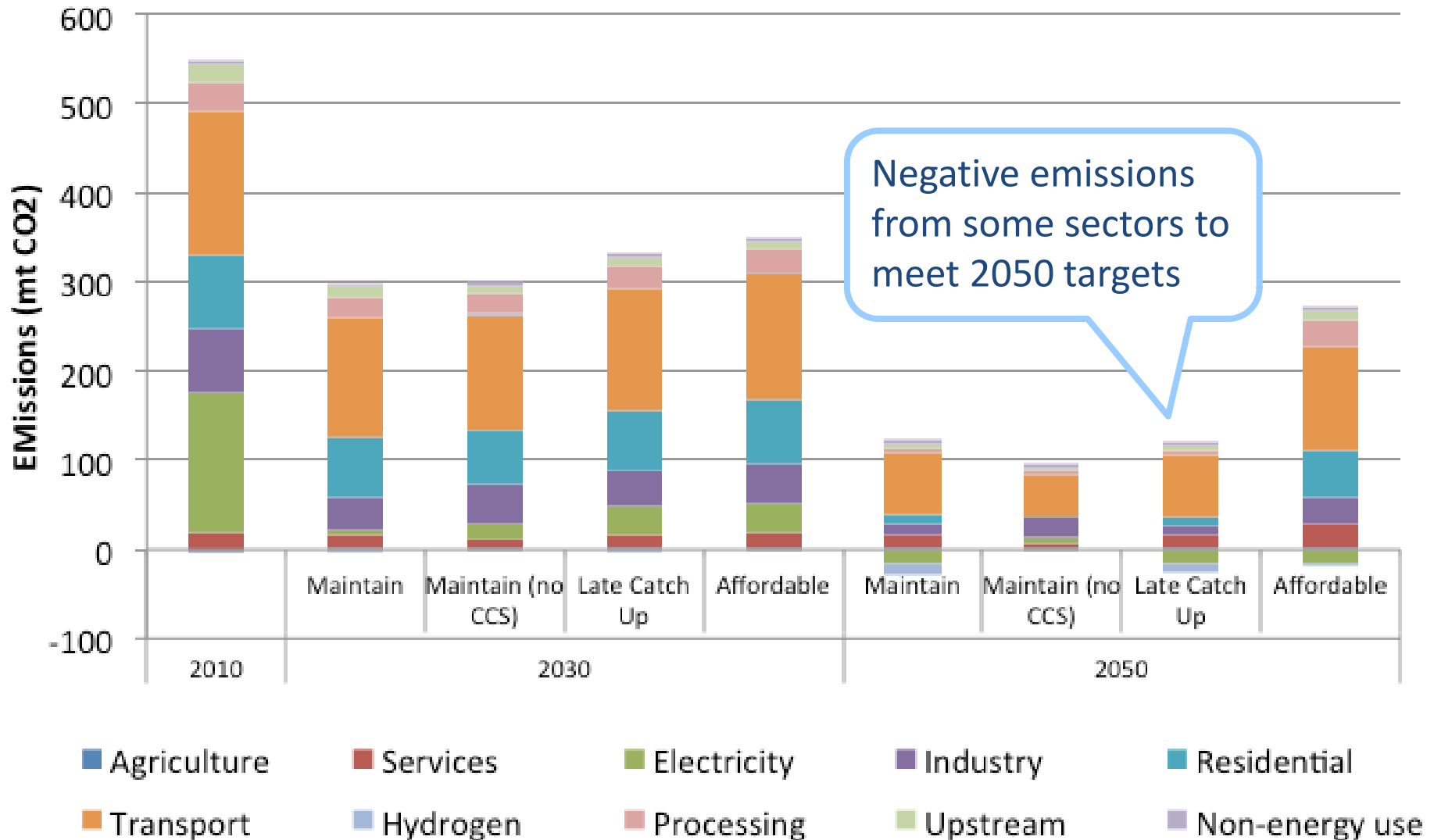
UKERC scenarios

Greenhouse gas emissions



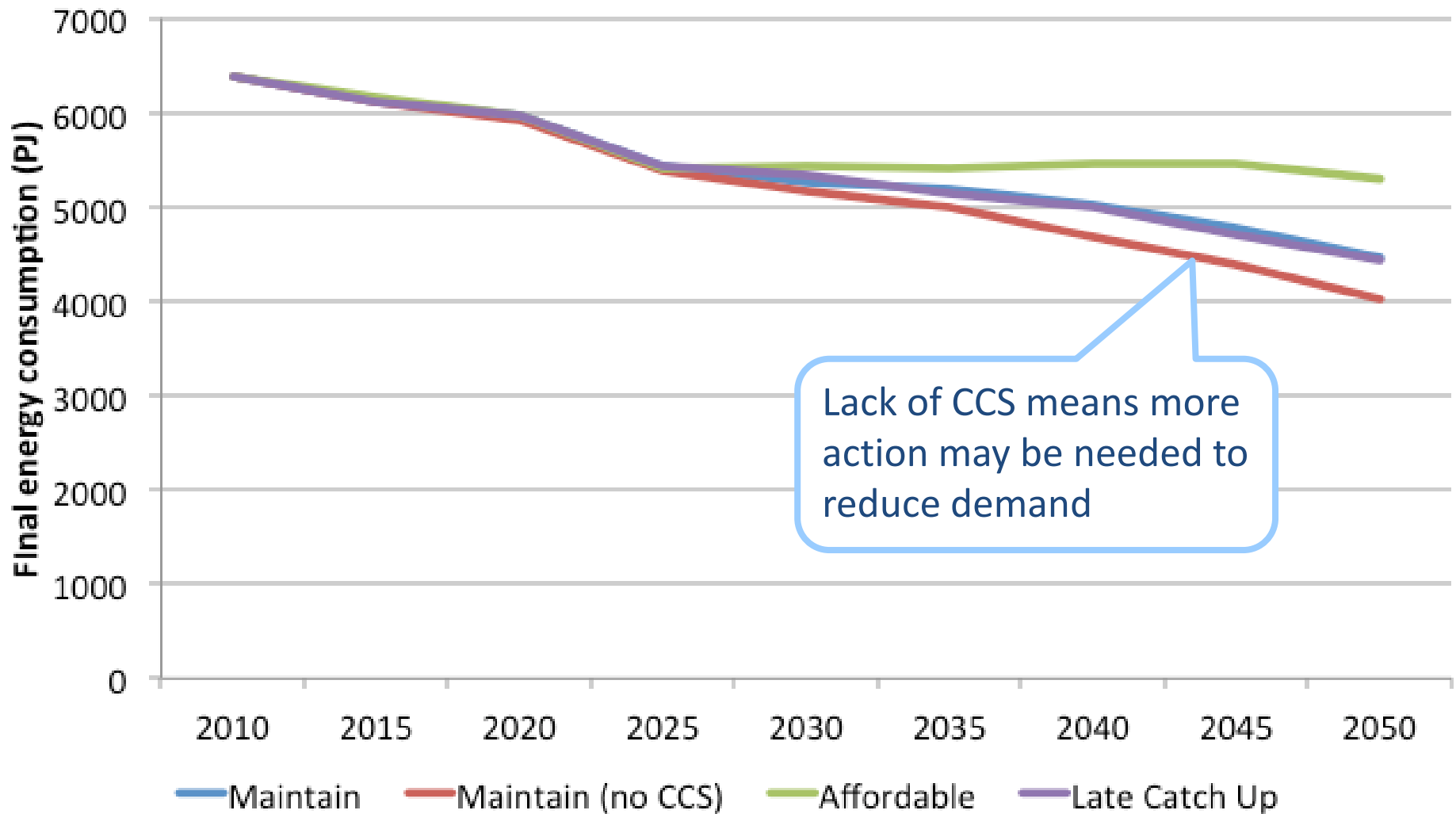
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CO₂ emissions by sector



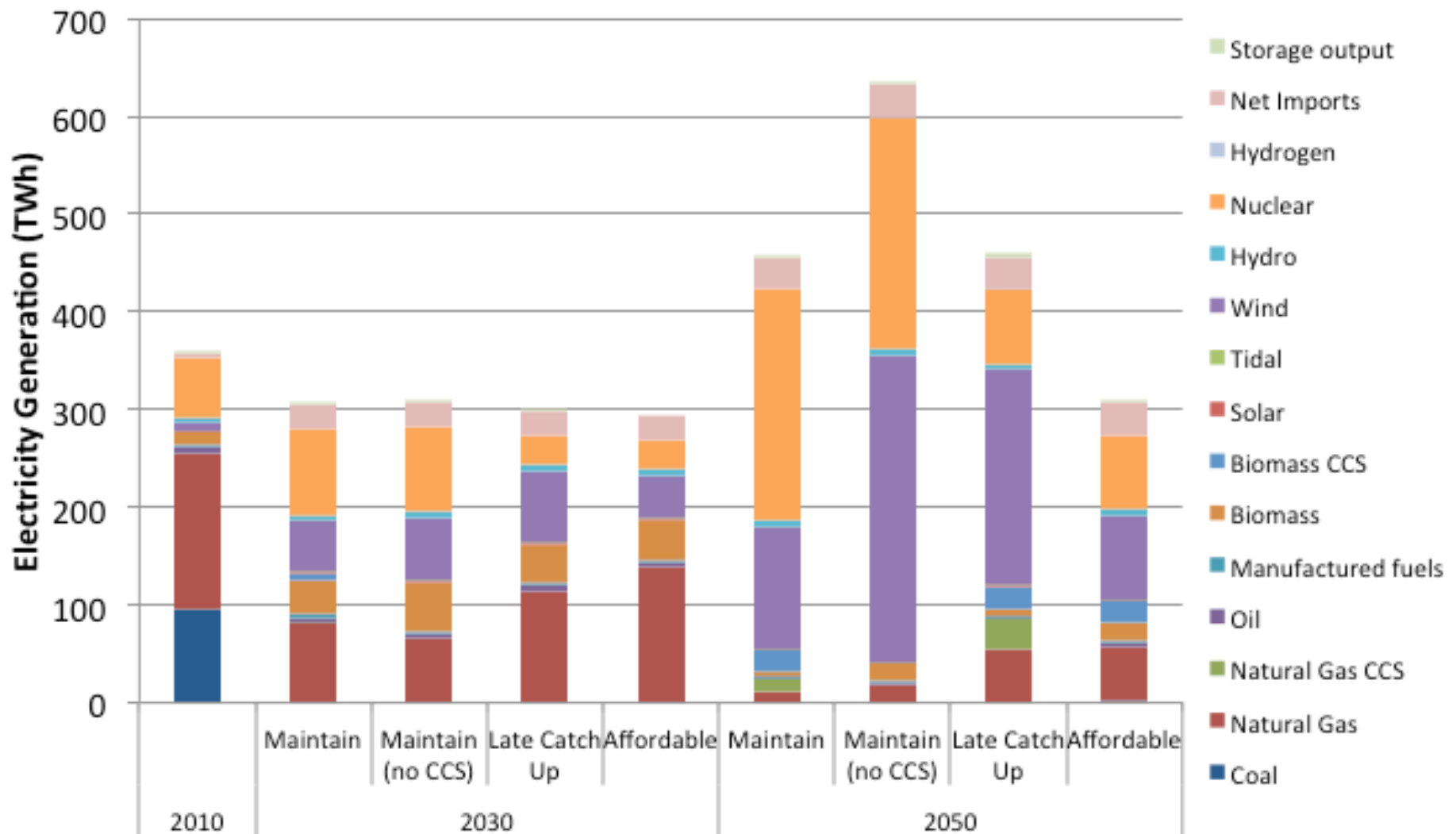
UKERC scenarios

Final energy demand



UKERC scenarios

Electricity generation



Electricity: 20th vs 21st Century approaches

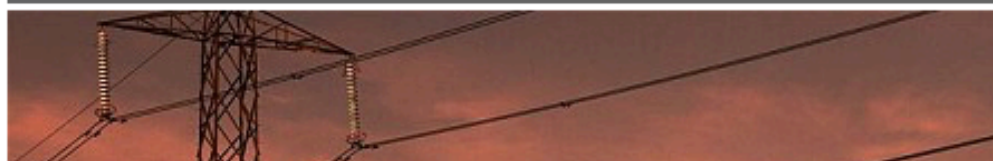
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Blow to UK energy plans as new gas plant

Exclusive: Developers of gas-fired plant that could power admit project is behind schedule and yet to secure invest



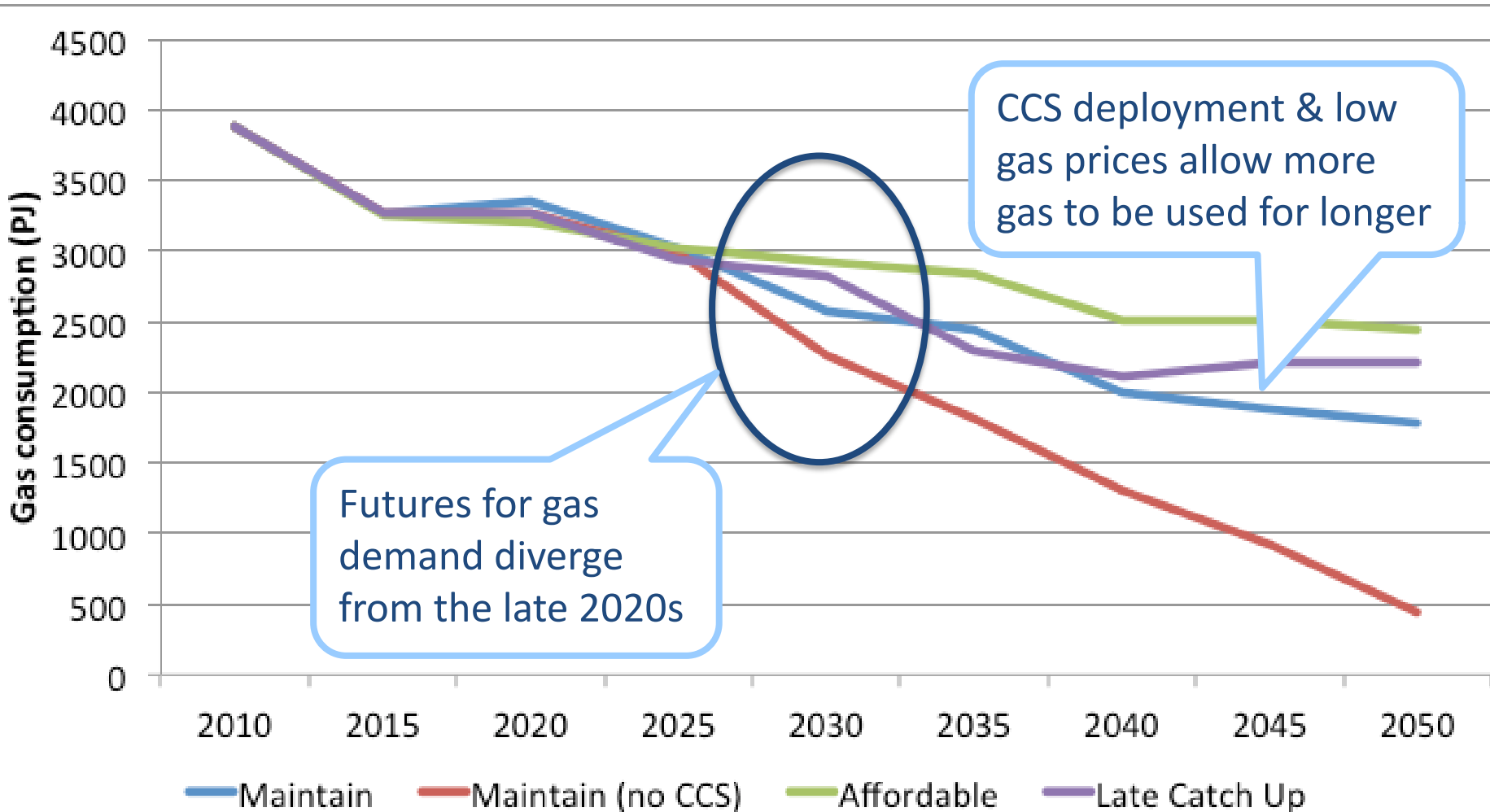
SMART POWER

‘The Commission’s central finding is that smart power – principally built around three innovations, interconnection, storage, and demand flexibility – could save consumers up to £8 billion a year by 2030’

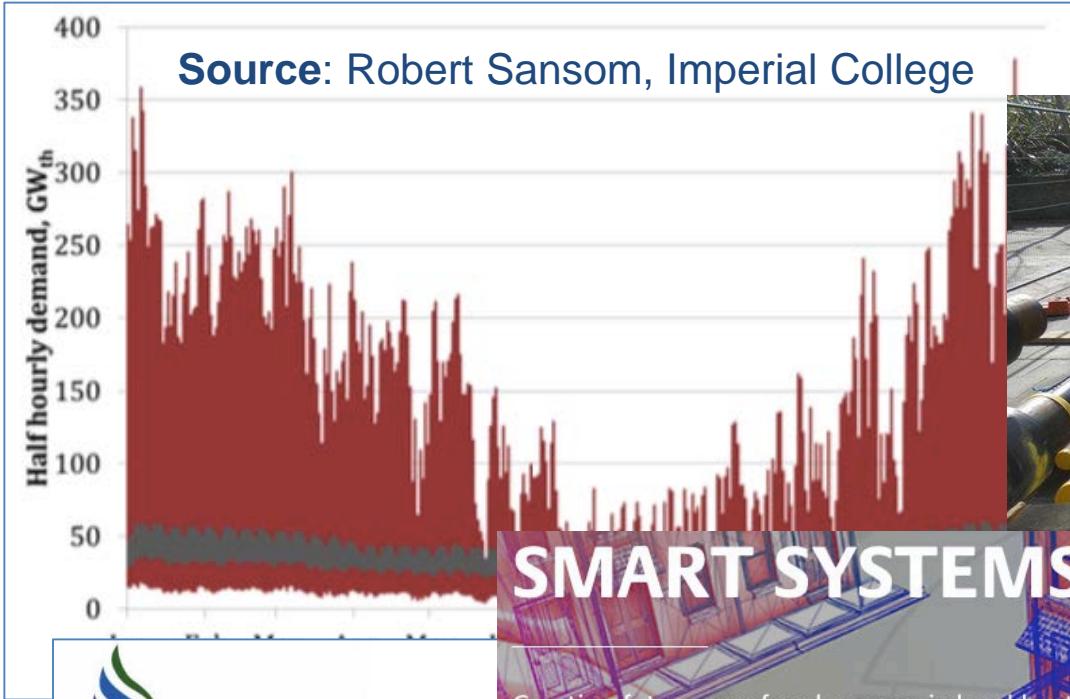
NATIONAL
INFRASTRUCTURE
COMMISSION

UKERC scenarios

Annual gas demand



Heat: uncertain low carbon pathway



SMART SYSTEMS AND HEAT

Creating future-proof and economic local heating solutions for the UK.



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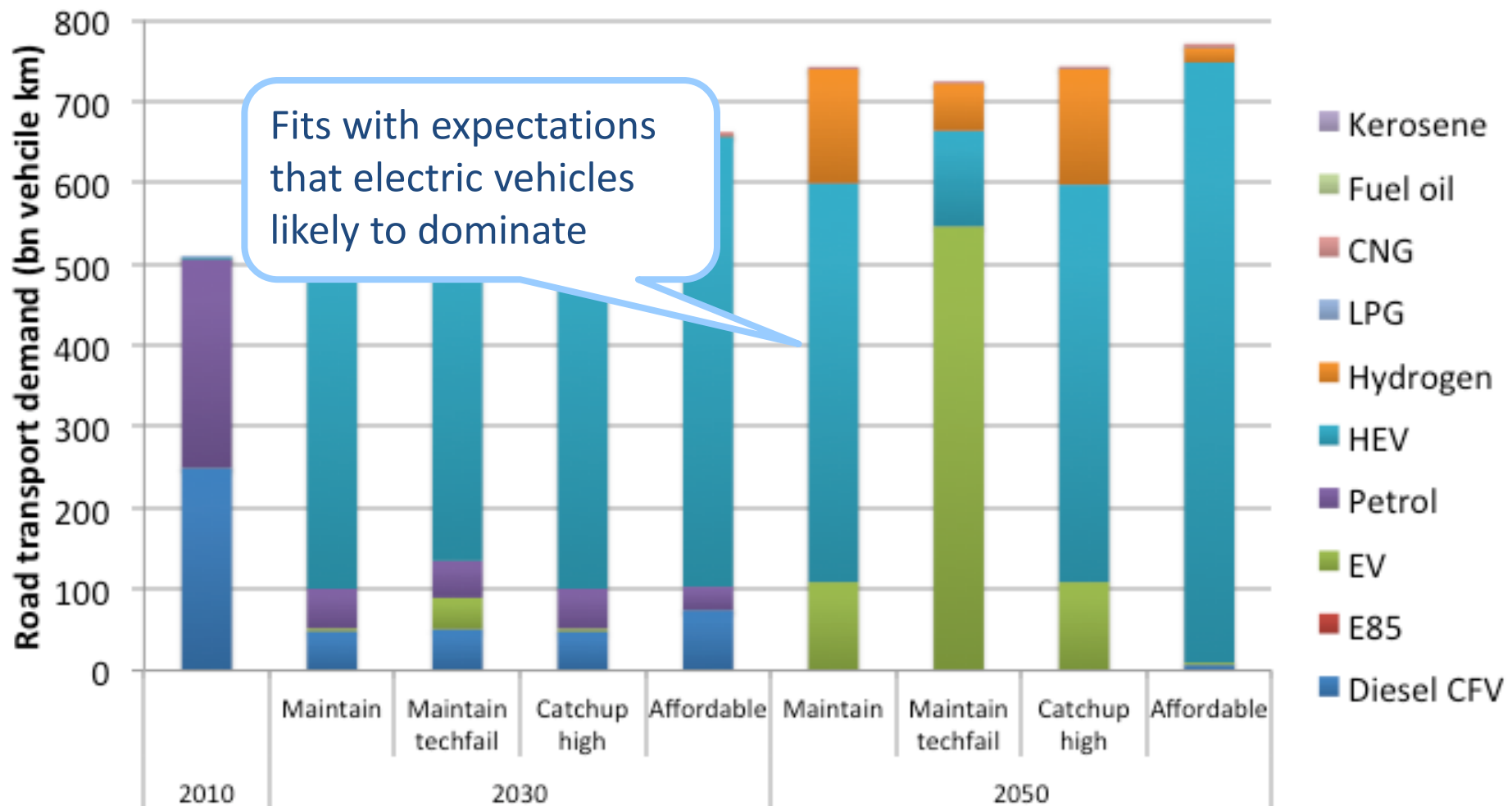
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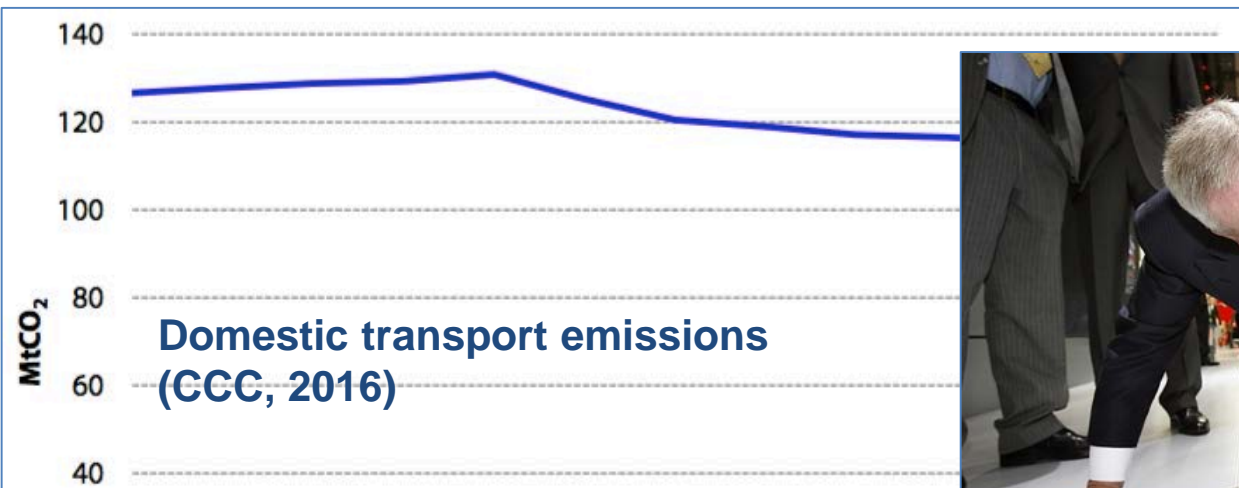
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Road transport demand



Transport: is change finally coming?



Thanks

<http://www.ukerc.ac.uk>

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