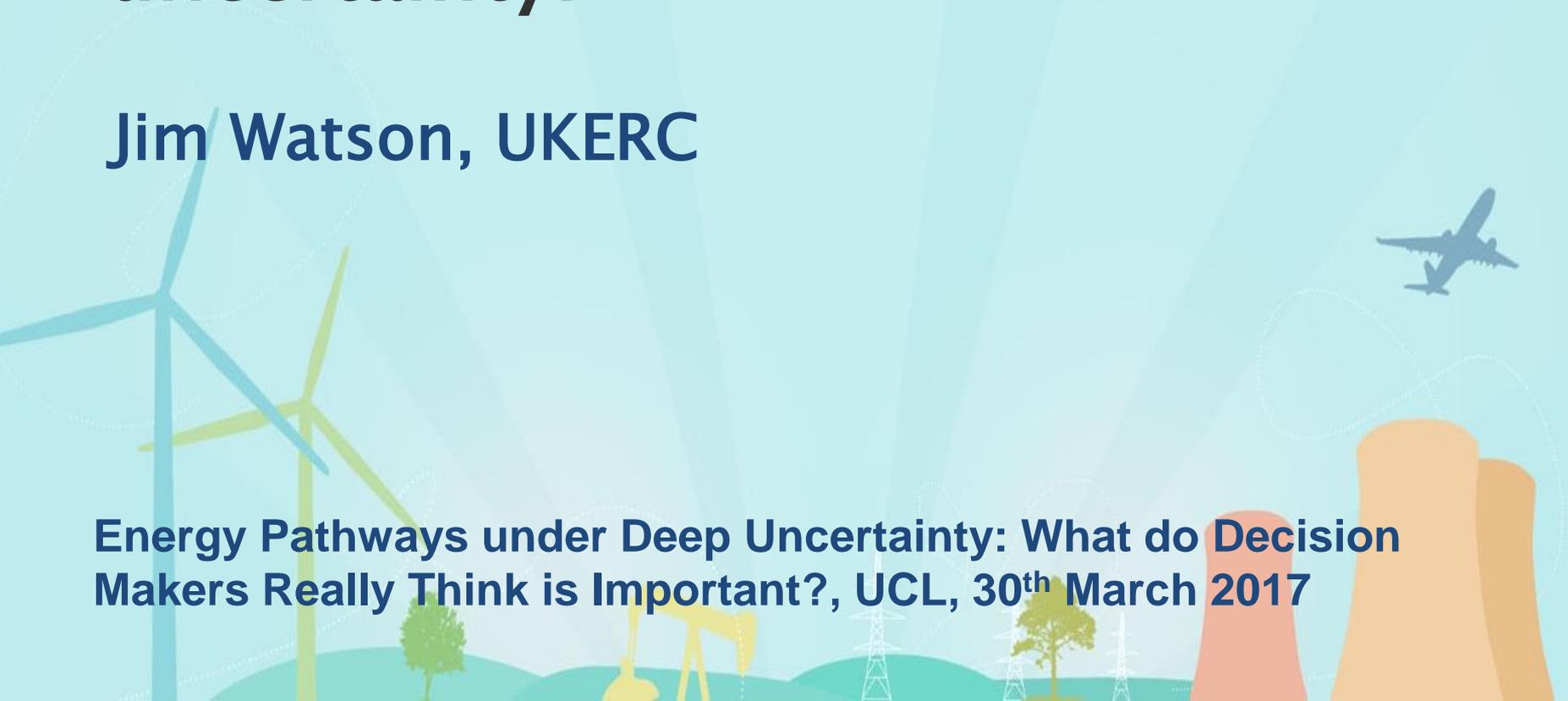


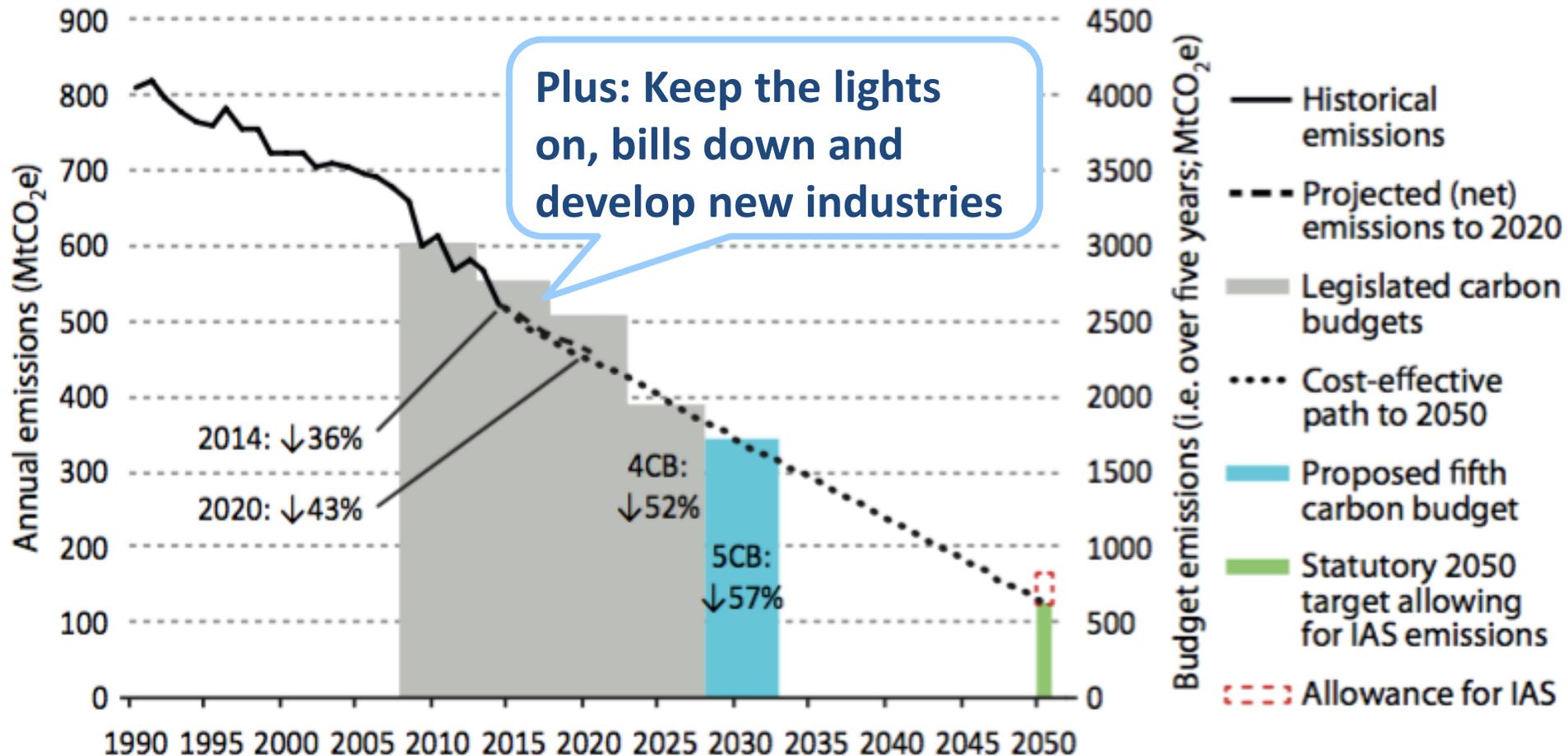
How can energy policy deal with uncertainty?

Jim Watson, UKERC

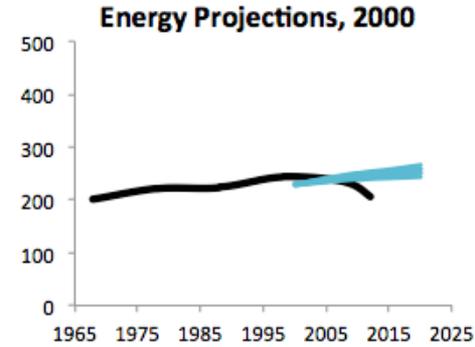
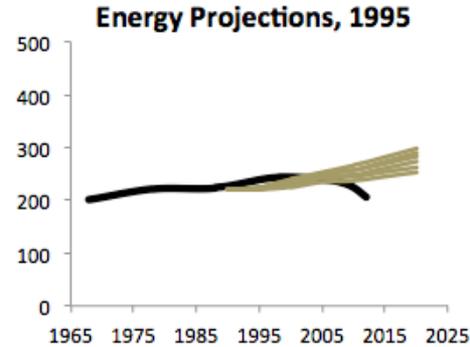
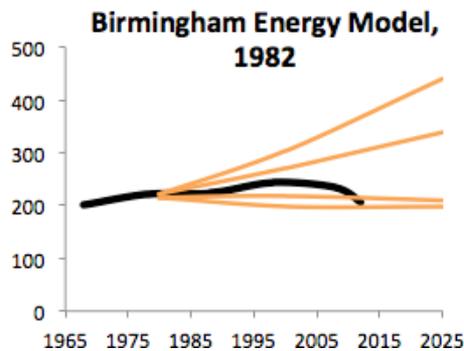
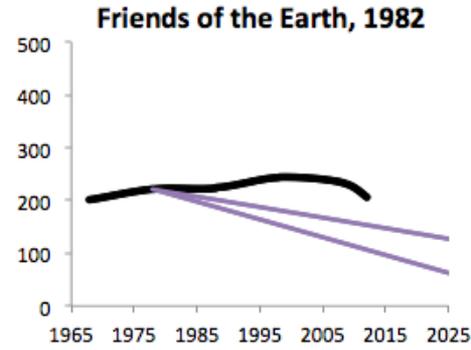
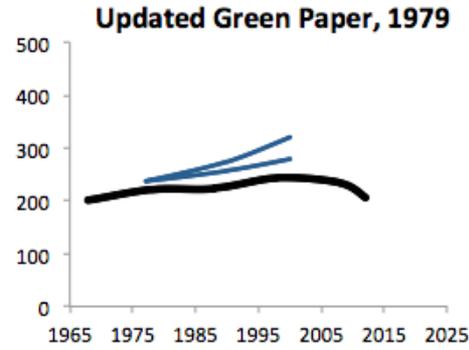
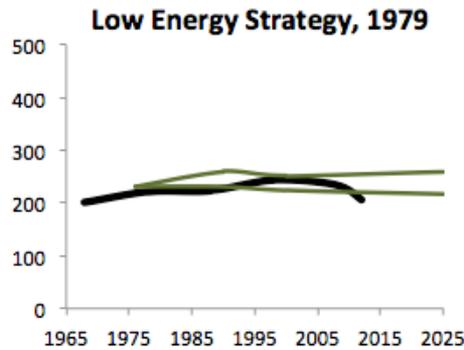
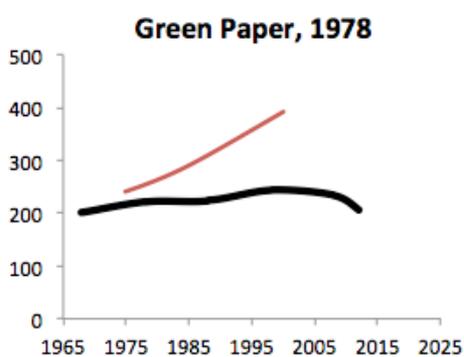
Energy Pathways under Deep Uncertainty: What do Decision Makers Really Think is Important?, UCL, 30th March 2017



The UK's energy transition



Future trends uncertain



Future trends uncertain



Energy industry

Westinghouse bankruptcy move casts shadow over world nuclear industry

Plight of US firm, which has technology in about half world's reactors, deals blow to building of new plants



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Wednesday 29 March 2017 09:20 BST



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Robots will take a third of British jobs by 2030, report says



8 Comments

Energy strategies under uncertainty

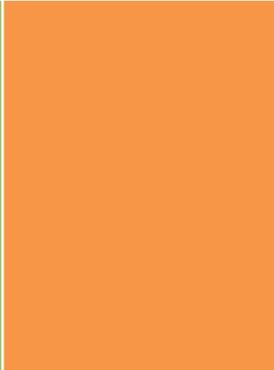


UKERC project (2012-14) to assess CCC's revised 4th carbon budget pathway to 2030:

- Methods for appraising uncertainty
- Instrumental uncertainties for CCC pathway in power, heat and transport
- Systemic uncertainties: natural resources, public attitudes and ecosystem services
- Includes engagement with 'alternative' higher carbon pathway

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Energy strategies under uncertainty

	Complexity	Impact	Actions	By who?
Heat pump performance			<ul style="list-style-type: none">• Demo & deployment incentives• Learning & engagement with consumers	<ul style="list-style-type: none">• Government & innovation funders• Citizens / businesses• Research community

Energy strategies under uncertainty

	Complexity	Impact	Actions	By who?
Heat pump performance			<ul style="list-style-type: none">• Demo & deployment incentives• Learning & engagement with consumers	<ul style="list-style-type: none">• Government & innovation funders• Citizens / businesses• Research community
Political commitment to a low carbon transition			<ul style="list-style-type: none">• Reinforce long-term policy framework with specifics• Confirm the fourth carbon budget	<ul style="list-style-type: none">• Government & Parliament• Businesses• Citizens

Do our conclusions still stand?

Power sector decarbonisation by 2030 is critically important:

- No shortage of capital, but policy frameworks, market structures & business models may need to change
- Limited options to 2030, but will be tough to keep them all 'in the low carbon race'. Evidence based decisions needed
- Is a more 'neutral' policy approach to the electricity market required? If so, the roadmap to this is unclear
- Smarter systems may have a profound impact, and reduce costs (see National Infrastructure Commission report)

Electricity: 20th vs 21st Century approaches

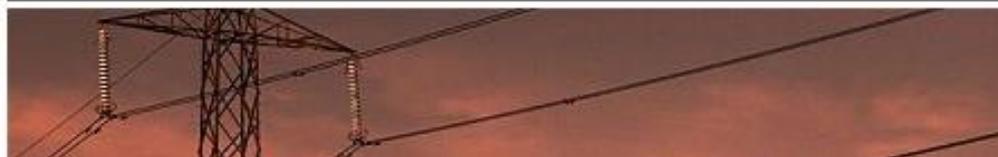
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Blow to UK energy plans as new gas plant

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’

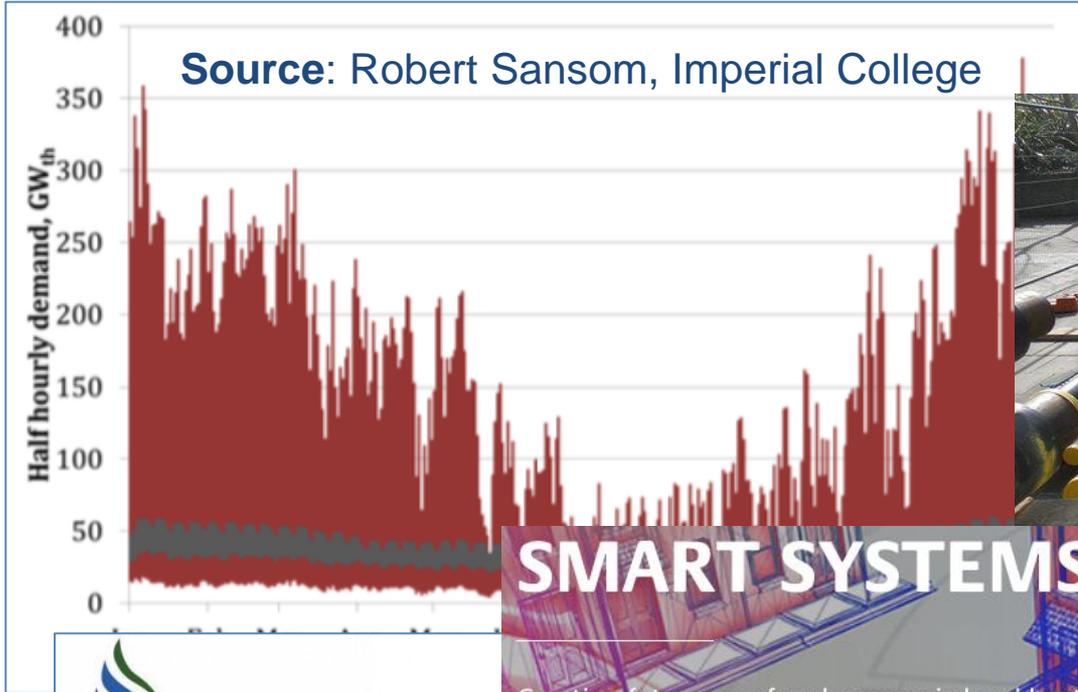
NATIONAL
INFRASTRUCTURE
COMMISSION

Do our conclusions still stand?

More flexibility with heat and transport decarbonisation:

- Delayed electricity decarbonisation not a show stopper for reducing emissions from heating
- But more action needed on energy efficiency to provide more flexibility about timing
- Support for demonstration & early deployment of heat and transport options (e.g. district heating; EVs) to ‘open up’ & test options
- There may be more of a role than we thought for ‘hybrid’ solutions (e.g. hybrid vehicles; hybrid heat pumps; repurposing the gas grid)
- Still unclear how to decarbonise heat: could vary by location and context

Heat: uncertain low carbon pathway



SMART SYSTEMS AND HEAT

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



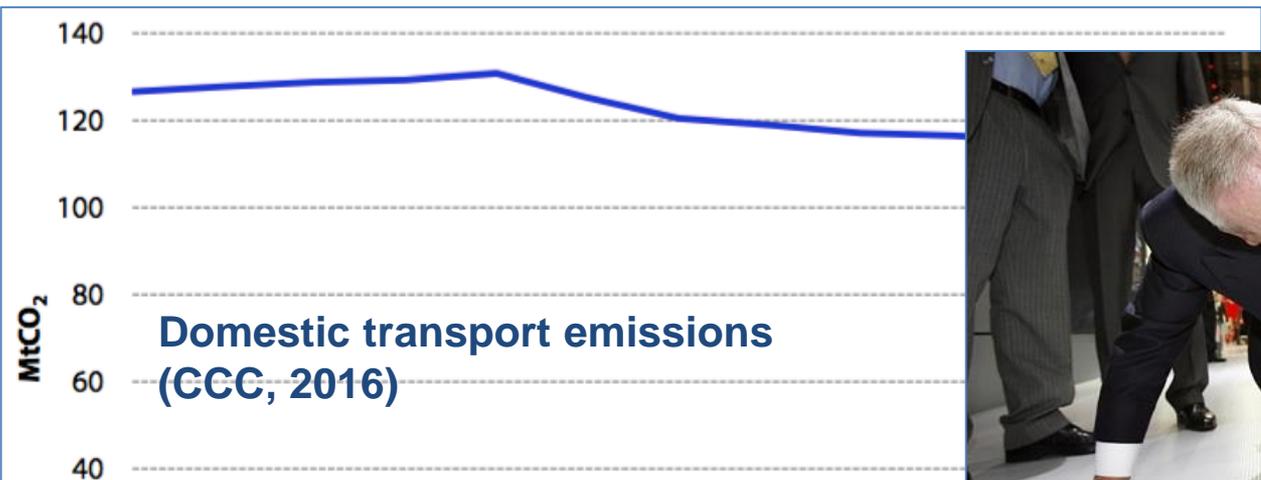
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Is the future of road transport more certain?

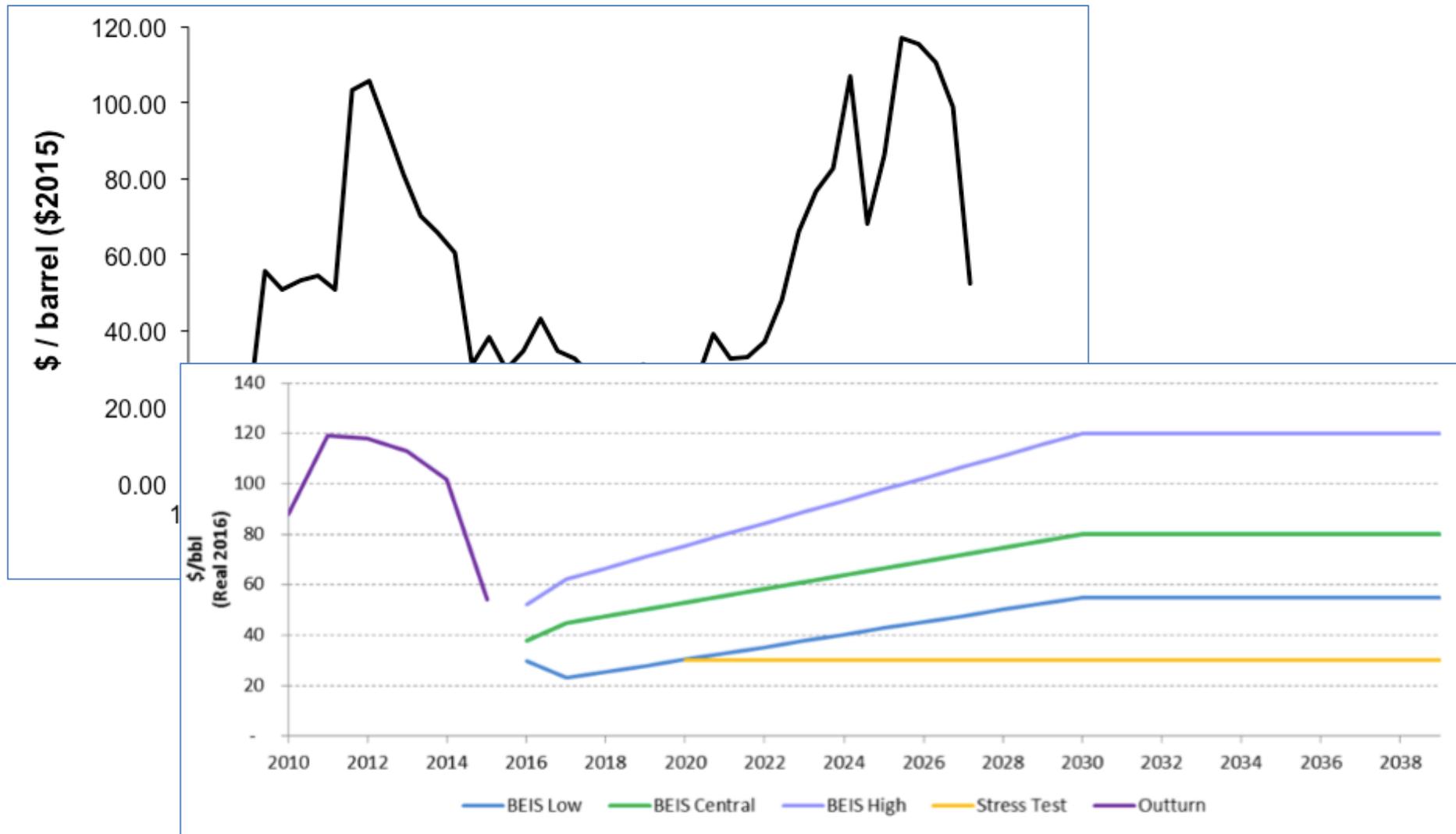


Do our conclusions still stand?

Systemic uncertainties should also be addressed:

- Need to move beyond narrow framing of public attitudes: transitions that align with values more likely to be successful
- Natural resources and ecosystem impacts may limit options and flexibility; driven partly by global trends
- Inconsistencies in approach to local decision-making may increase risks; reinforce need for engagement on systems
- More attention required to potential winners and losers
- Oil, gas and electricity price falls illustrate need to test policies against a wider range of future trends

Fossil fuel prices: challenging expectations



Winners and losers: political context has shifted



‘Our modern industrial strategy is a critical part of our plan for post-Brexit Britain. It will help to deliver a stronger economy and a fairer society – where wealth and opportunity are spread across every community in our United Kingdom, not just the most prosperous places in London and the South East’

Theresa May, Jan 2017

UKERC

Conclusions

- Pervasive uncertainty about future of energy systems: affected by broader context, not just sectoral trends
- But policy can do a lot to reduce uncertainty for other actors (e.g. investors, citizens)
- Some challenges for energy policy:
 - Politics and tensions between policy objectives
 - Identifying and acting on 'no regrets' measures, e.g. energy efficiency; CCS ?
 - Keeping options open (and resisting lobbying) if way forward is unclear or not robust
 - Facilitating more disruptive change in 'rules of the game', system operation, actors and business models

Thanks

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

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