Welcome

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Energy Demand Manager

20th November 2018

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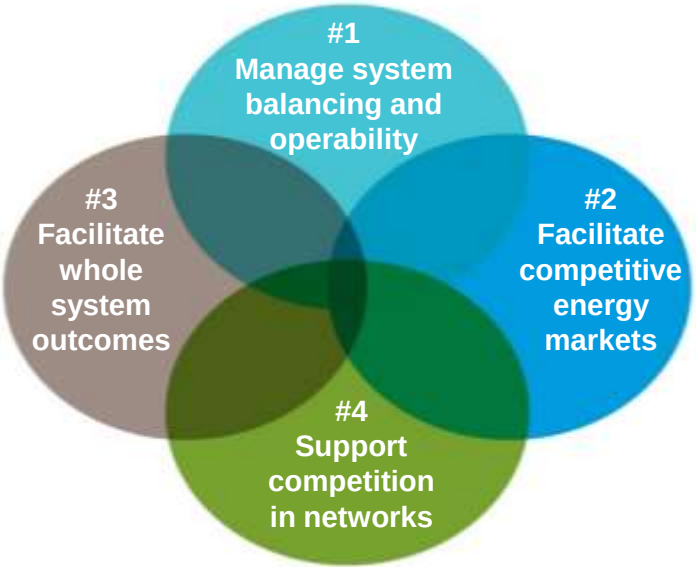
Welcome

- Thankyou!
- Fire safety
- Chatham House Rule
  - “Participants are free to use the information received but neither the identity, affiliation or source of the information may be revealed.”
- We will publish a summary after today

National Grid: The System Operator

Our mission

- Deliver value for customers
- Build and maintain trusted partnerships with our customers and stakeholders
- Influence the energy debate positively with our independent perspective
- Help GB move to a more reliable, affordable and sustainable energy world
- A regulated, incentivised model ensures we deliver the best long term outcomes for consumers, society and the GB economy



The Electricity System Operator will be a legally separate entity from 1st April 2019

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Why do we create the Future Energy Scenarios?

1	A broad, credible range of holistic energy futures, covering heat, transport and power
2	Show customers and stakeholders what future opportunities there may be in the energy market
3	Provide an ongoing platform for debate, and support further planning and analysis
4	Facilitate collection of energy industry views and support creation of business plans

When we engage

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Background and Aims of the day

- Clean Growth Strategy
  - *BEIS is gathering evidence to understand options for decarbonisation of heat at scale*
  - *Groundwork being laid this Parliament, to set up decisions in the first half of the next decade, on the long term future of heat*
  - *BEIS will work with industry, network operators, manufacturers, and consumers to achieve a clear and shared understanding of the potential as well as the costs and benefits and implications of different pathways*

- We want to gather your views on heat:
  - What are the policy and investment timelines for different decarbonisation routes
  - How do we encourage technology adoption and decarbonisation?
  - What do we do about insulation and when will it happen?

- Share views across the energy industry

Agenda

Introduction	9.30
Heat in FES	9.40
Table – Policy ***(Intro, Debate, playback)***	10.00
Break	11.15
Table – Technology Adoption	11.30
Lunch	12.30
Table – Insulation	1.15
Summary and Next Steps	2.15
Close	2.30

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Future Energy Scenarios 2018:

Future Heat

Usman Bagudu

Kein-Arn Ong

20th November 2018

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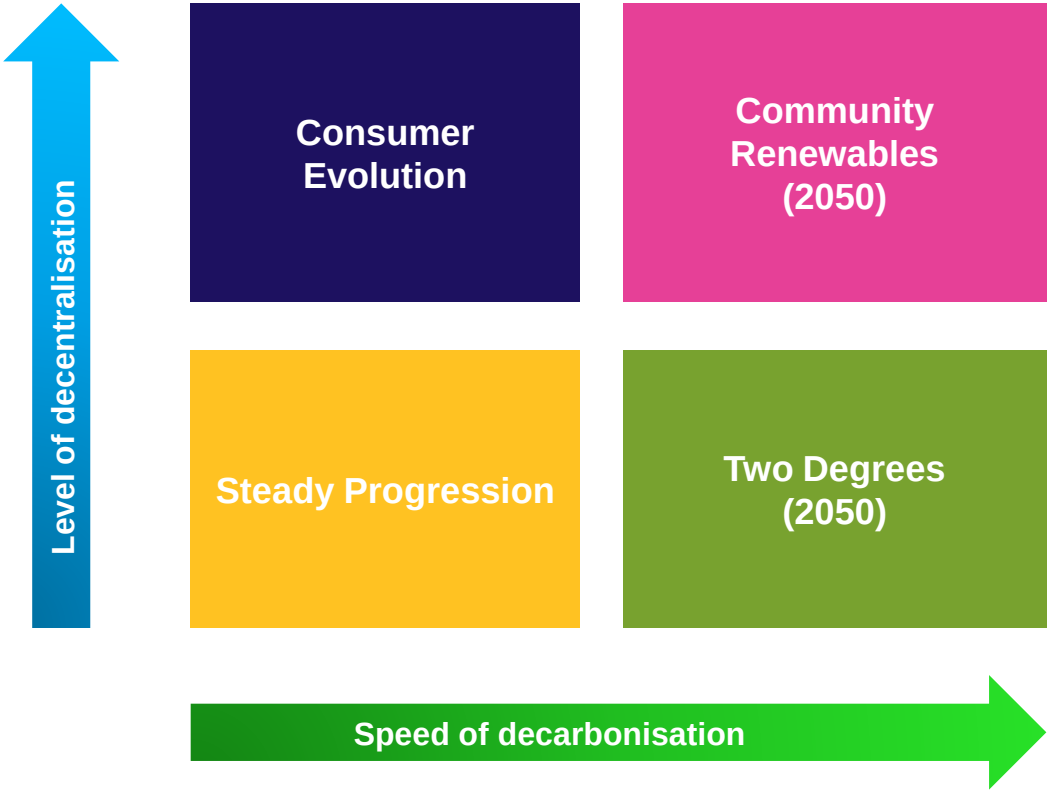
Future Energy Scenarios 2018



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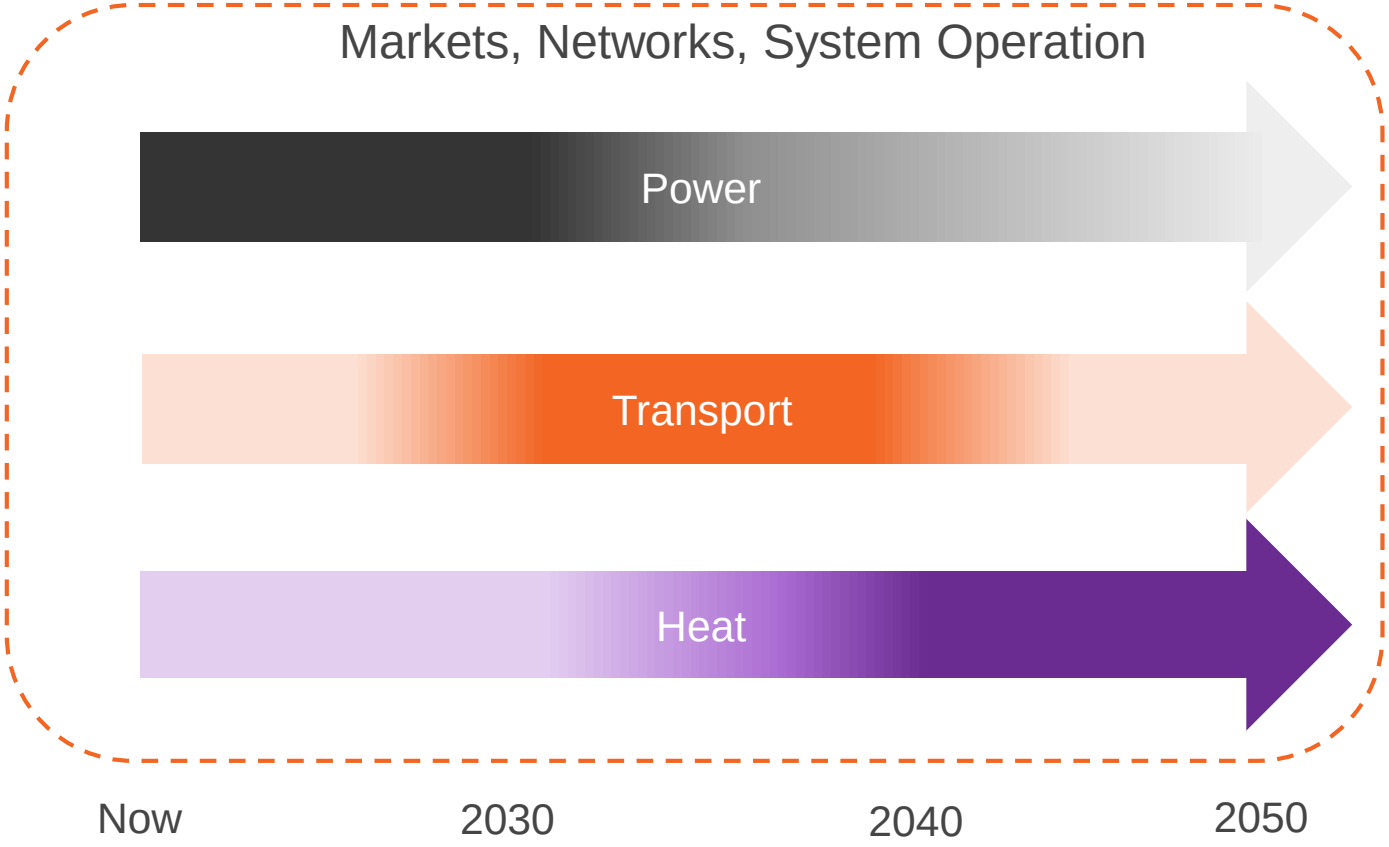
The Energy Transformation from now to 2050



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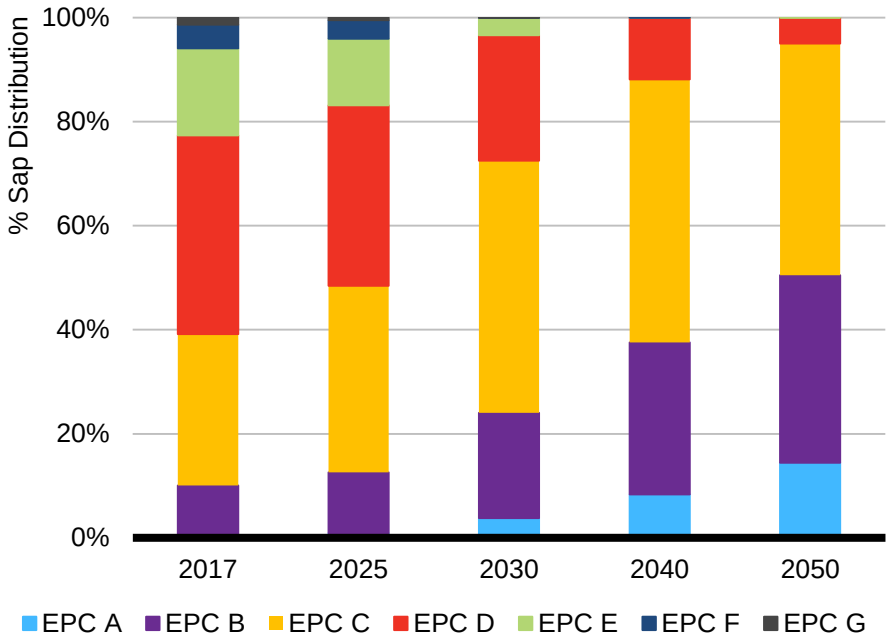
Thermal Efficiency in Community Renewables & Two Degrees scenarios

Source: FES Data 4.10



- Combined new build and existing stock energy efficiency gains
- Projected rate of gains slower than recent trends as it becomes increasingly difficult to improve
- What needs to happen to achieve these targets?
- Are there alternatives to insulation that are deliverable at scale?

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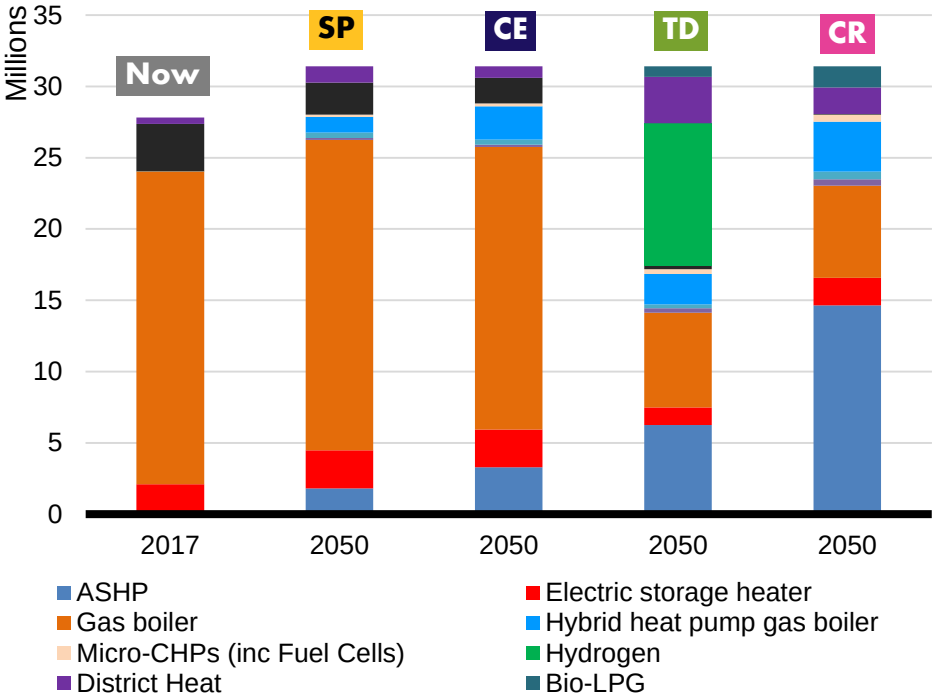
Domestic Heat Appliance installations in 2050

Source: FES Data 4.14



- Reflection of changes in Industrial and Commercial Heat
- Consumers choosing to switch to low-carbon heating
- Can the current industry structure support deployment at scale to meet projected targets?
- What should be the aim of policy in driving change?

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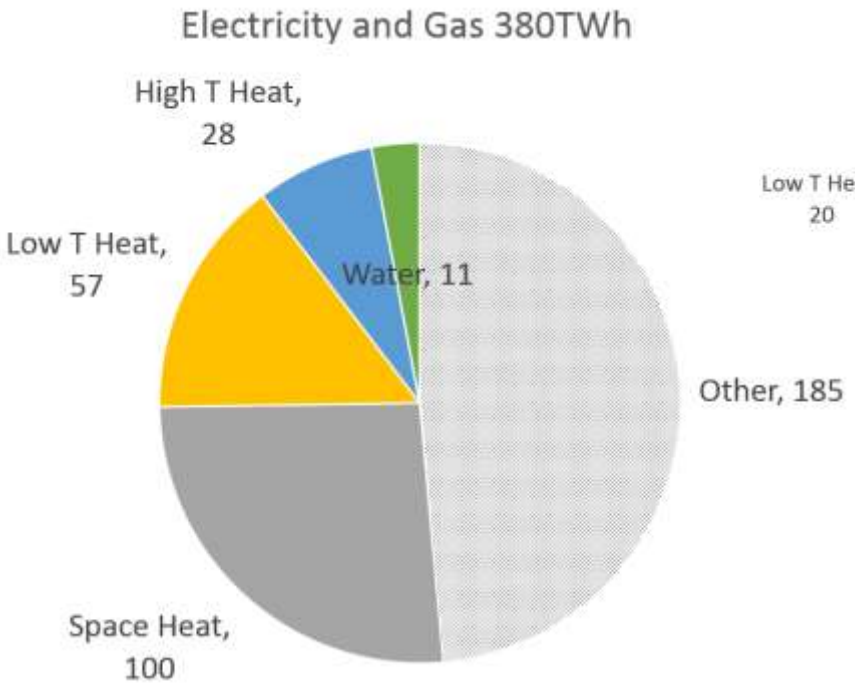
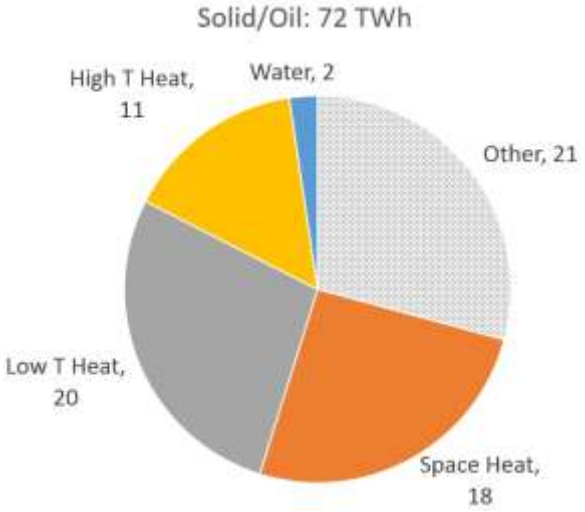
Industrial & Commercial Demand (2016)

Source: Energy Consumption in the UK

- What will change and when
- What technologies and techniques will fit?





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Smart Energy and Thermal Storage

Smart Technology

- All scenarios assume advances in mobile technology and data usage
- Higher and faster adoptions in the 2050 compliant scenarios
- Technology assumed to be integrated with wi-fi and customer mobile phones

Potential Response to market signals

- 25% of heat pumps assumed have additional thermal storage
- Hybrid heat pumps assumed run on alternate fuel
- Heat-pump design and operation assumed to be cost optimised
  - E.g. Historic economy 7 randomisation
- ***Smart electricity being discussed in detail in the "Power Responsive" workstream***

Session Briefings

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Round Table – Policy

	Electric	Decarbonised gas	Hybrid	*What do you think will happen?*
2018				
2025				
2030				
2035				
2040				

Round Table – Technology

Voluntary
(subsidies, grants, etc)

Heat pumps, storage
Decarbonised gas
Hybrids
Other (CHP, Solar thermal etc)

Strong mandate
(definite directives, taxes with some incentives)

Heat pumps, storage
Decarbonised gas
Hybrids
Other (CHP, Solar thermal etc)

Weak mandate
(incentives, taxes, targeted directives)

Heat pumps, storage
Decarbonised gas
Hybrids
Other (CHP, Solar thermal etc)

Supply-led
(minimise disruption for consumer)

Round Table –Building Insulation

		Residential	Non-Residential
Who?	Regulators? Local authorities? NGOs? Energy Suppliers? Developers?		
What?	Incentives? New technology? Taxes? Carbon Trading?		
When?	Year?		

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