Future Energy Scenarios 2018:

Future Heat

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7th November 2018

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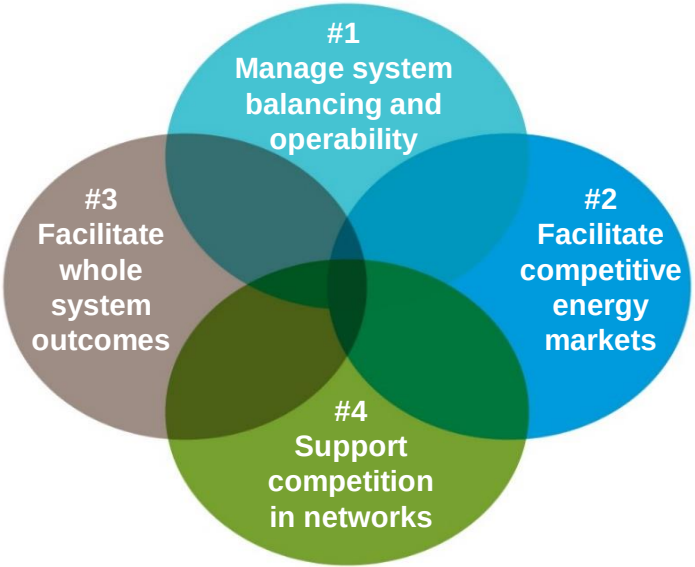
National Grid: The System Operator

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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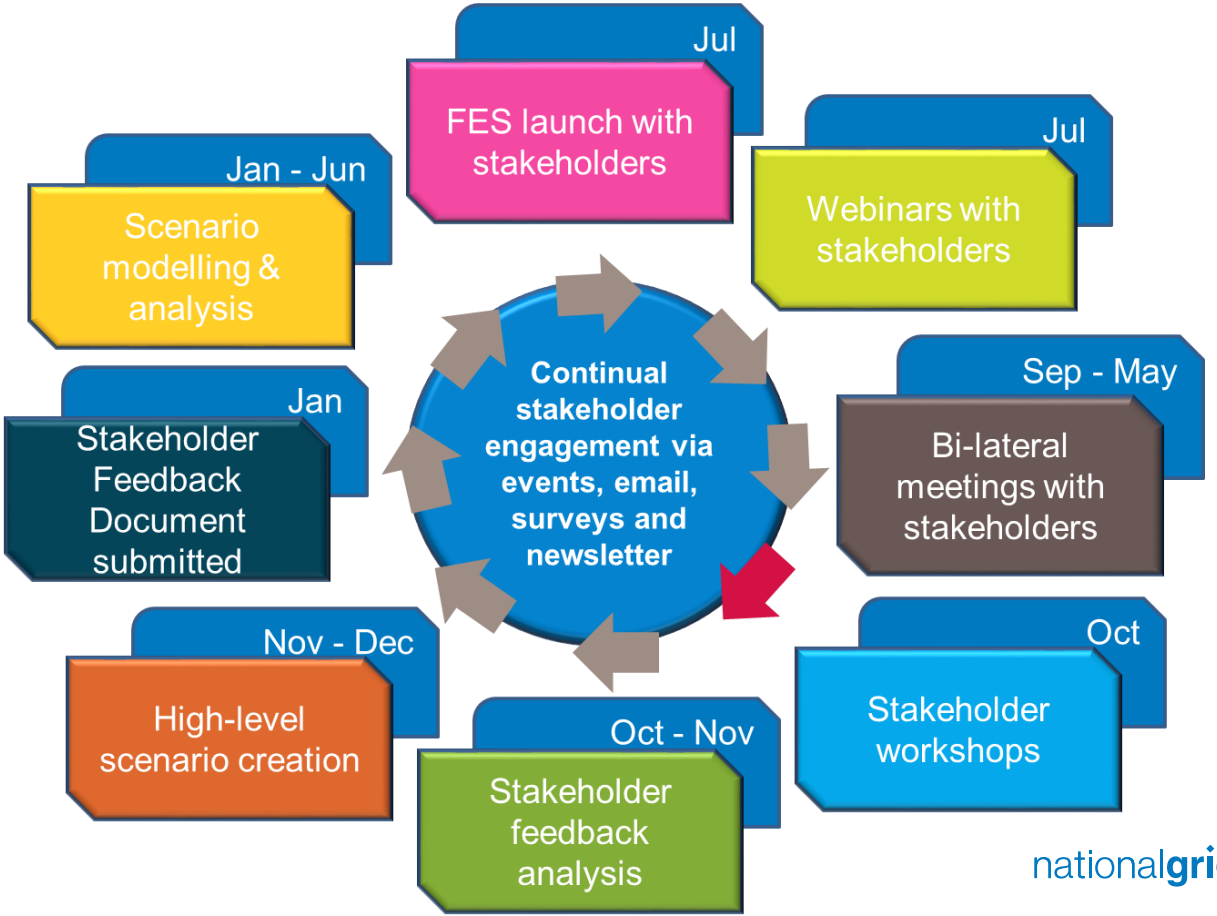
The Future Energy Scenarios

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 regulatory approval of business plans

When we engage



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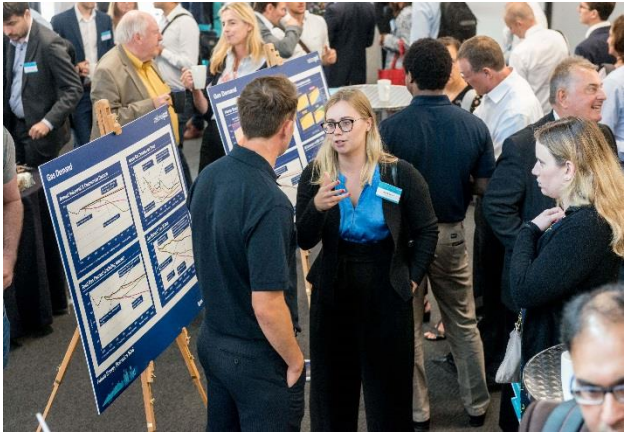
Our Engagement



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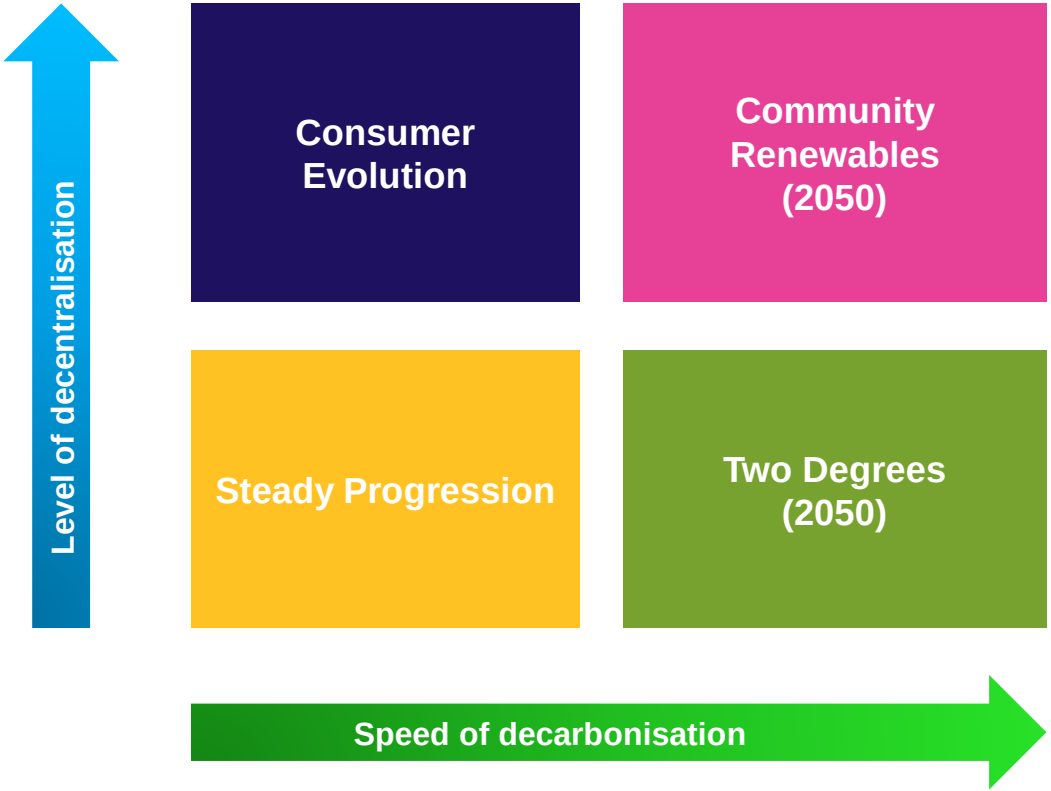
Future Energy Scenarios 2018



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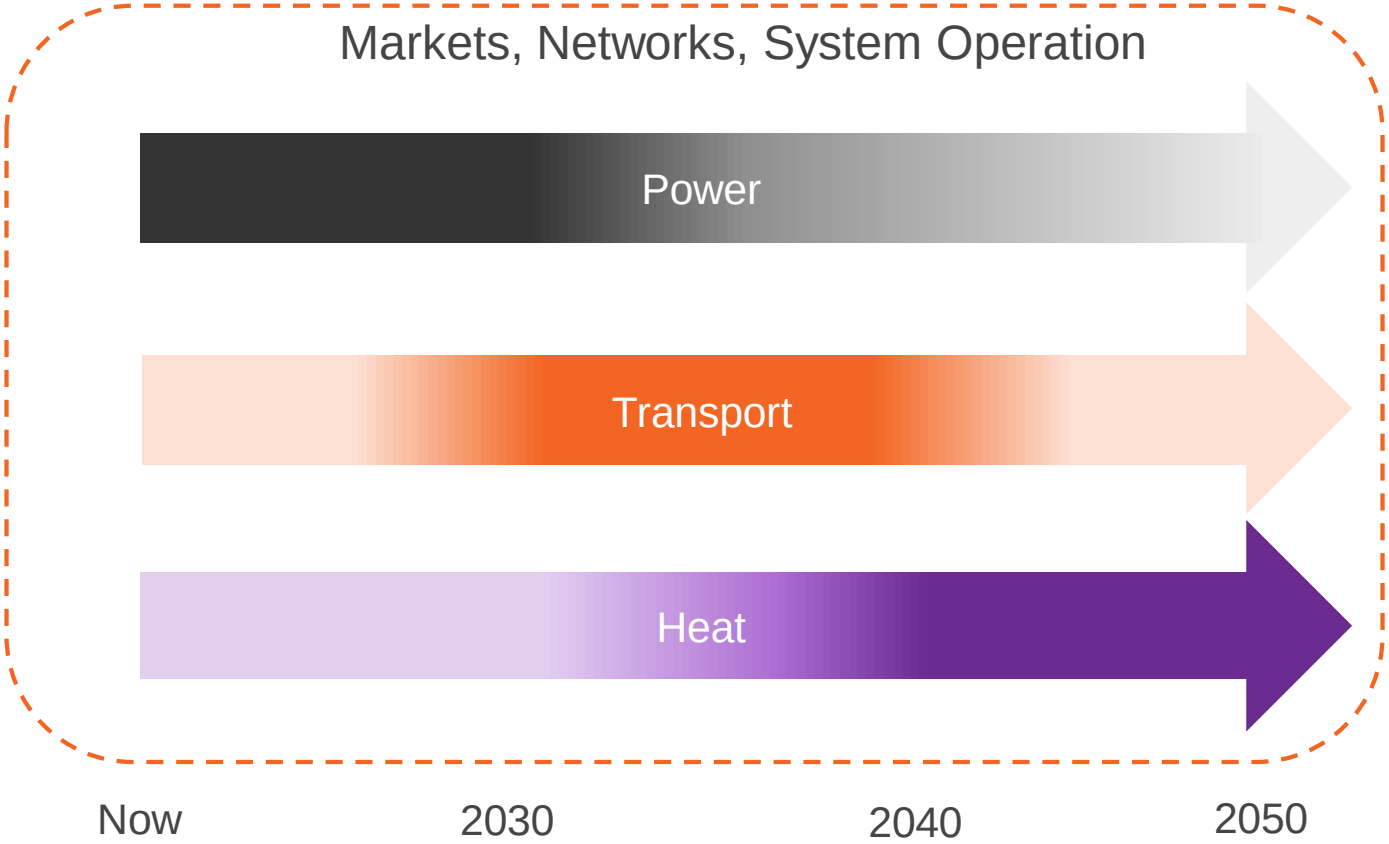
The Energy Transformation from now to 2050



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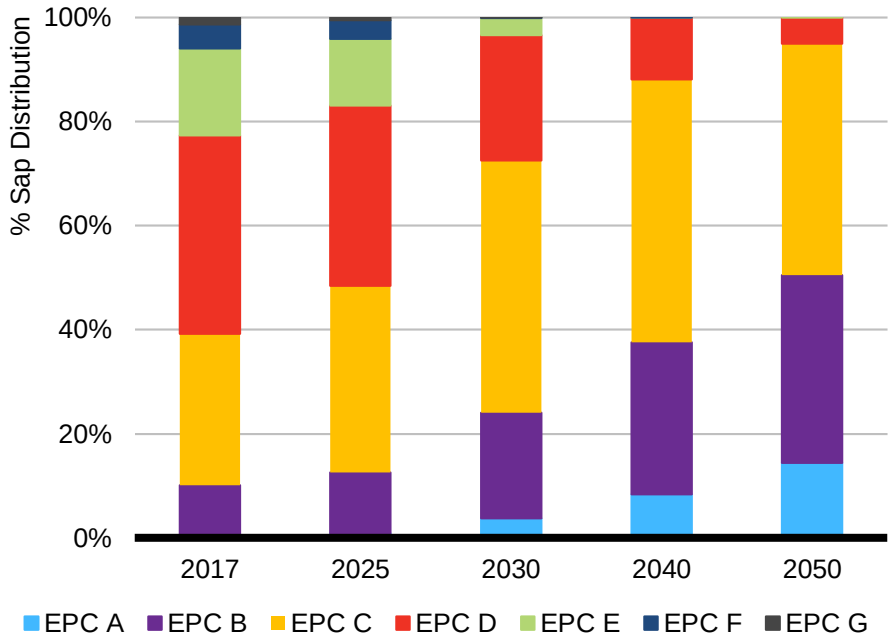
Domestic Thermal Efficiency in Community Renewables & Two Degrees scenarios

Source: FES Data 4.10



- Combined new build and existing stock energy efficiency gains
- Projected gains slower than recent trends as It becomes increasingly difficult to improve

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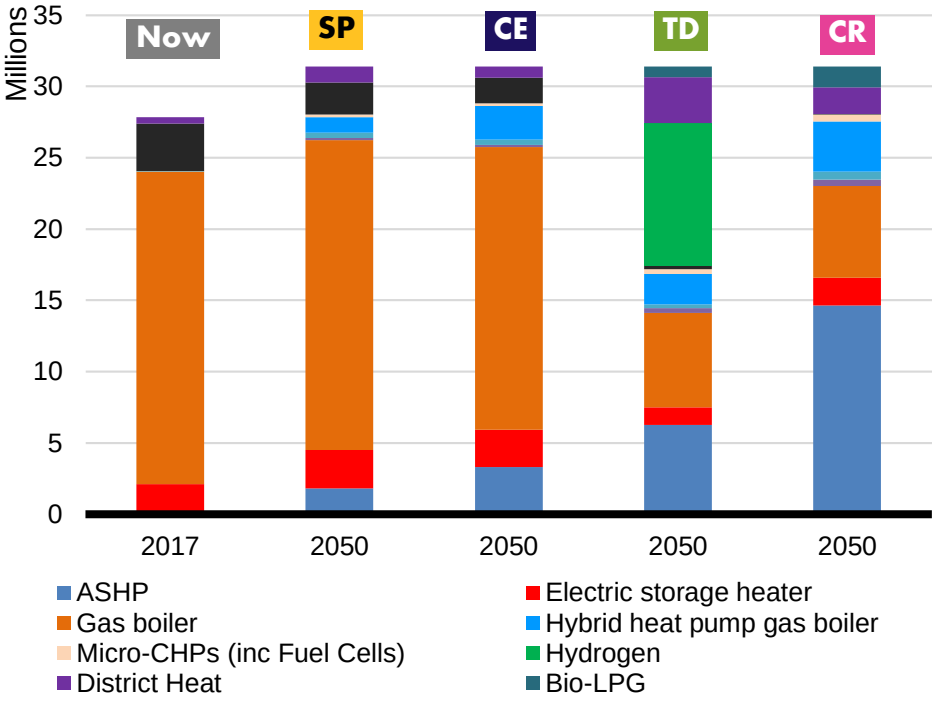
Domestic Heat Appliance installations in 2050

Source: FES Data 4.14



- A broad range of technologies exist in the scenarios
- Heat pumps of all types (ASHP, Hybrid, GSHP)
- Assumes consumer choice
- Reflection of changes in Industrial and Commercial Heat

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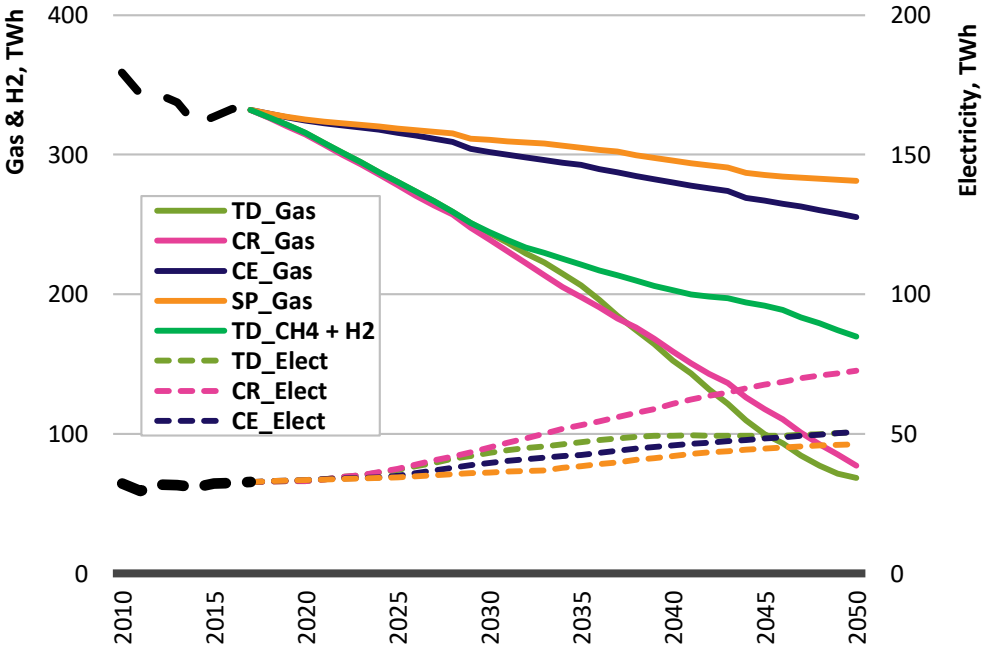
Gas, hydrogen and electricity demand for domestic heat

Source: FES Data 4.15



- Overall demand fall due to improving insulation
- Early widening of gas demand range due to energy efficiency assumption
- Gas and electricity showing opposite trends

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Smart Energy and Thermal Storage

Smart Technology

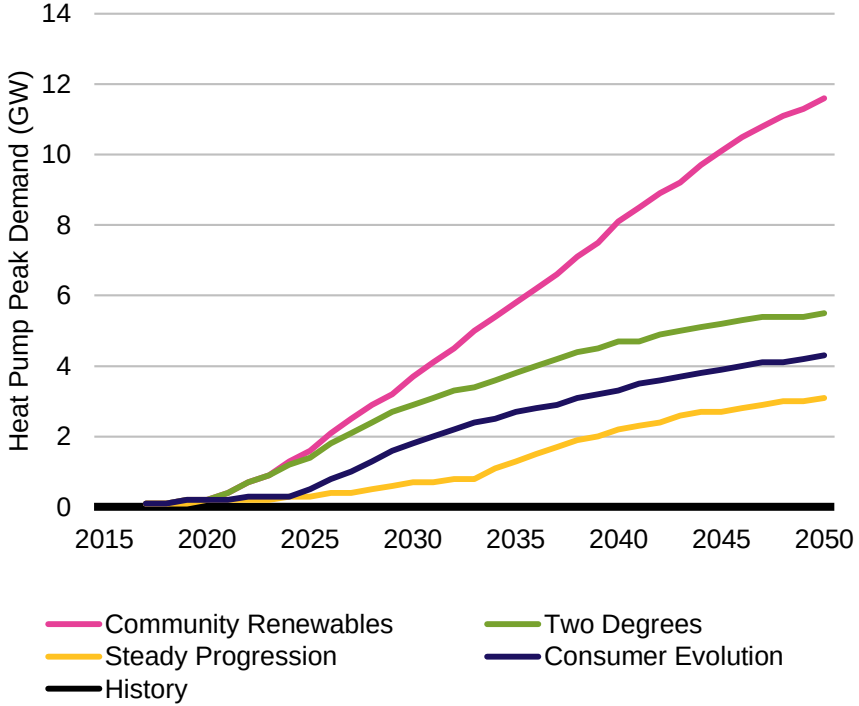
- All scenarios assume advances in mobile technology and data usage
- Higher and faster adoptions in the 2050 compliant scenarios
- Technology assumed to be integrated with wi-fi and customer mobile phones

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

FES18 : Heat Pump Peak Demands

Source: FES Data ED6



- Decarbonisation of heat will change demands
- Hybrids on alternative fuel at peak
- More heat pumps in Community Renewables
- Less in Two Degrees due to hydrogen

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Any questions

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Thank you

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