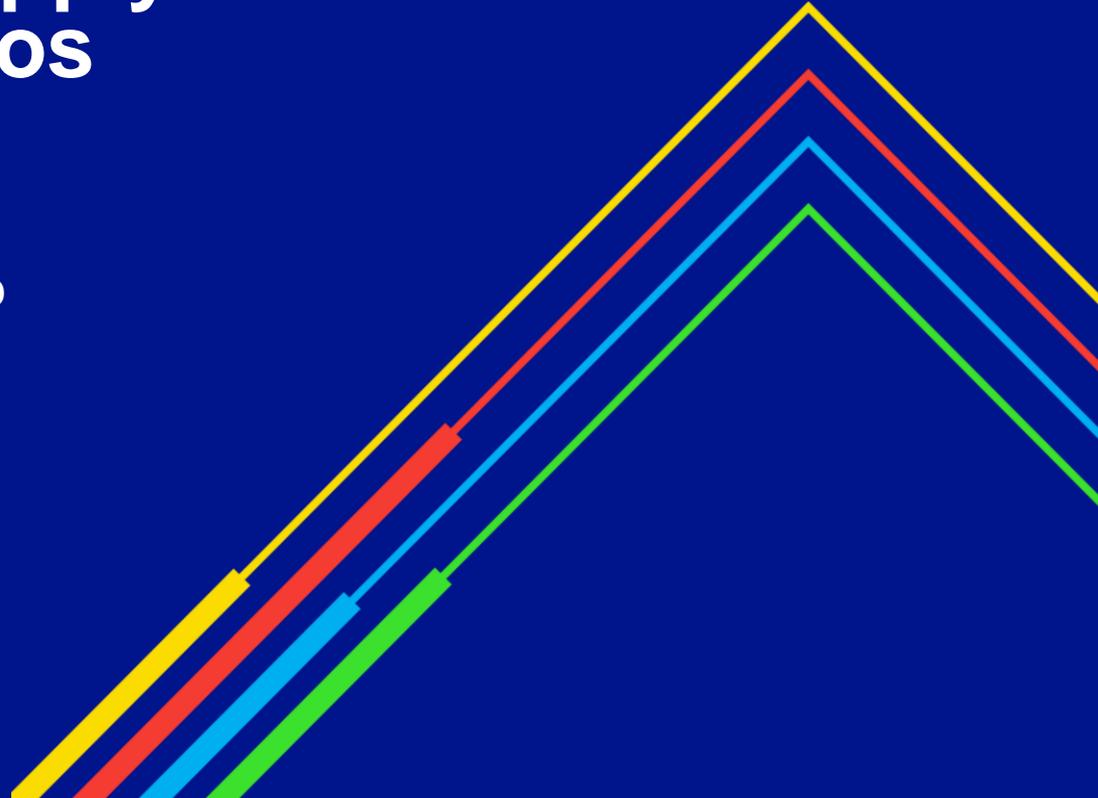


Long Term Gas Supply & Demand Scenarios

Warwick & Birmingham R Meetup
9th March 2022

national**grid**



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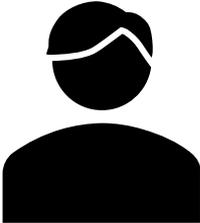
 - 04** From FES to supply & demand scenarios

 - 05** Questions

Introductions



Kasia Taylor



Ben Dickel

Who is National Grid Gas?

The UK National Transmission System (NTS)

- ~7000km of pipe.
- 24 Compressor stations.
- 6 Major terminals spread around the coast.
- 8 storage sites situated across the NTS.
- More than 200 Exit points.
- Operating pressure between 70 and 94 bar.

Where we operate
Our UK network



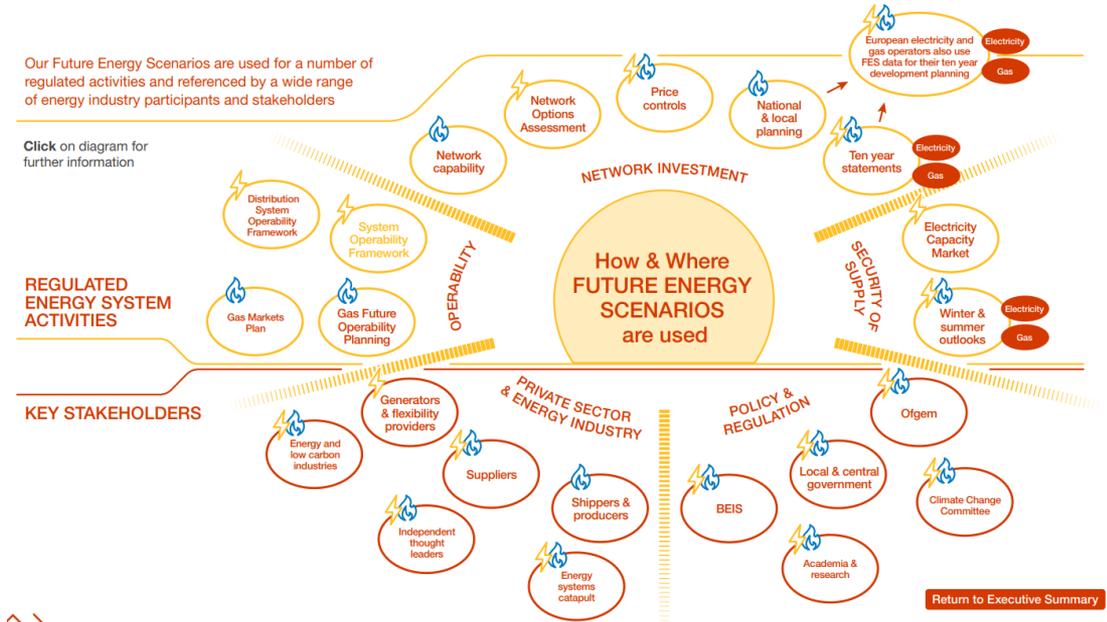
Who is National Grid Gas?

”The Gas Act 1986 requires us to develop, maintain, and operate economic and efficient networks and to facilitate competition in the supply of gas in Great Britain”

<https://www.nationalgrid.com/gas-transmission/about-us>

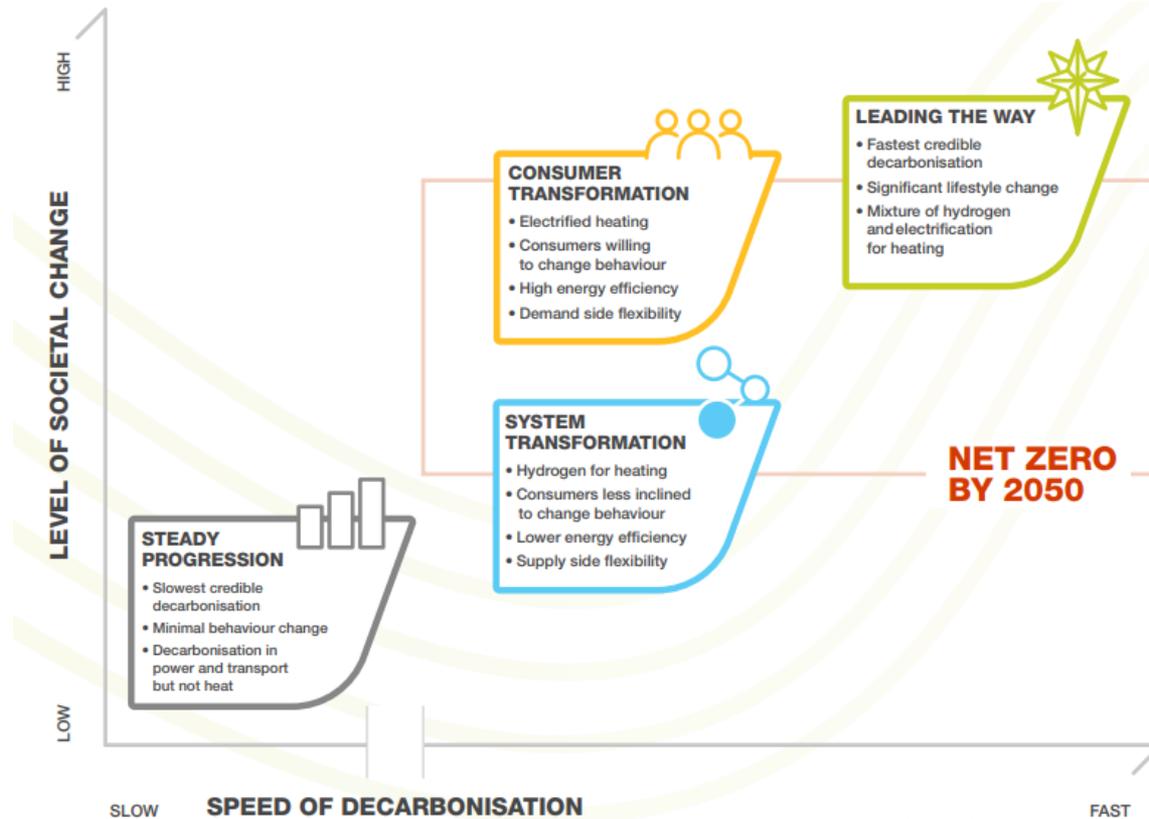
Future Energy Scenarios (FES)

The Future Energy Scenarios are put together by the Electricity System Operator (ESO) and are a suite of documents setting out a range of possible paths we could take to the 2050 net zero decarbonisation deadline.



<https://www.nationalgrideso.com/future-energy/future-energy-scenarios>

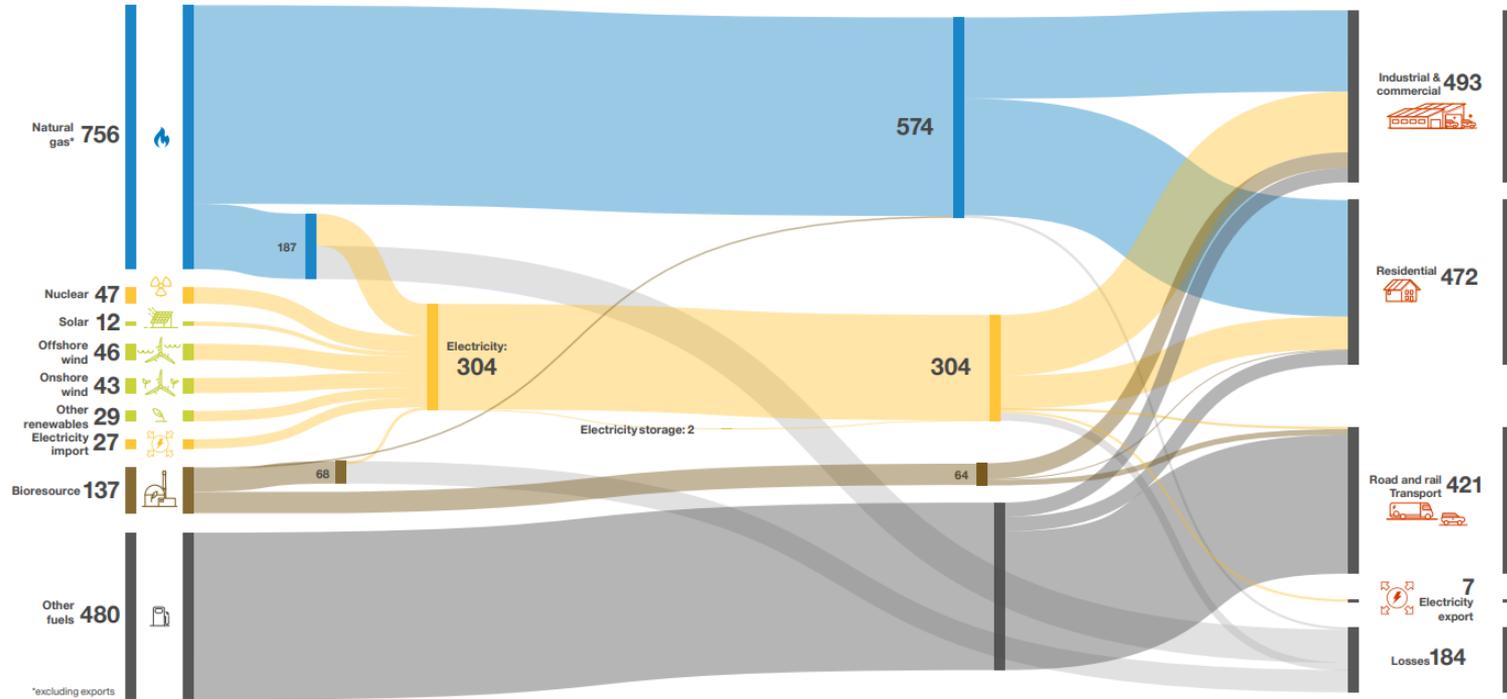
Future Energy Scenarios



<https://www.nationalgrideso.com/future-energy/future-energy-scenarios>

Future Energy Scenarios

2020 energy flows ⓘ



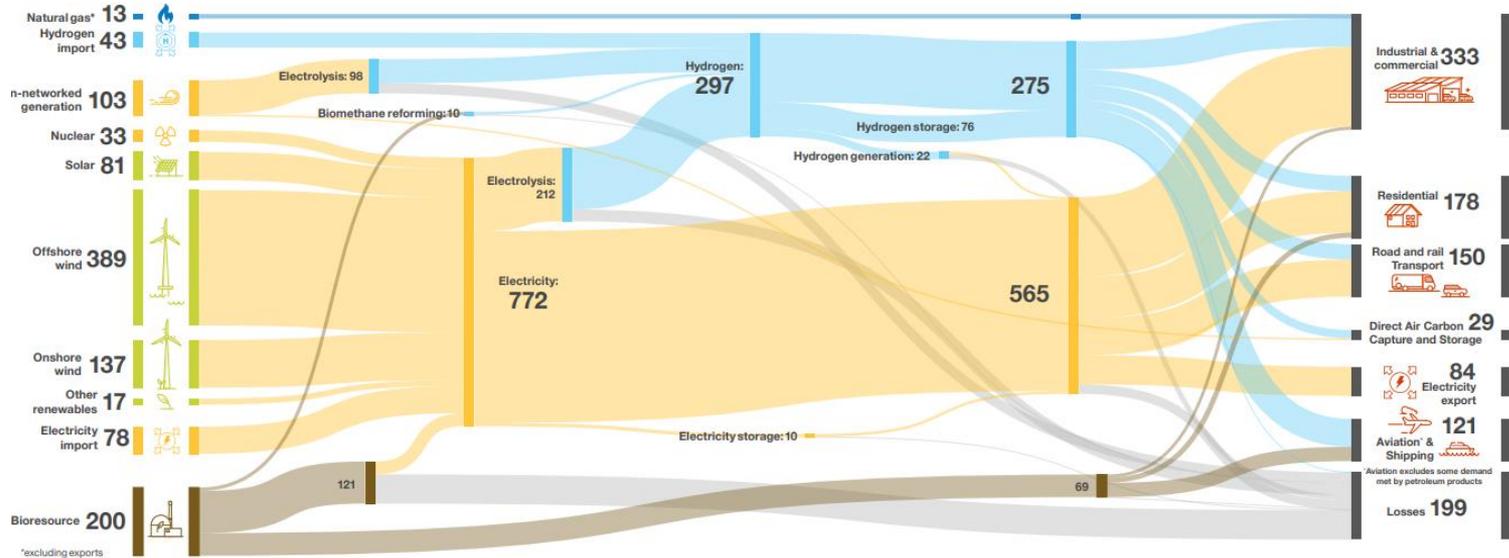
<https://www.nationalgrideso.com/future-energy/future-energy-scenarios>

Future Energy Scenarios

2050 energy flows

Leading the Way: energy demand and supply (TWh)

- Combination of hydrogen and electricity used in industry and to heat homes using hybrid heat pumps or hydrogen boilers
- No natural gas used to produce hydrogen
- Some use of direct air carbon capture and storage (DACCS) for negative emissions
- The only scenario to include non-networked electricity generation and hydrogen imports

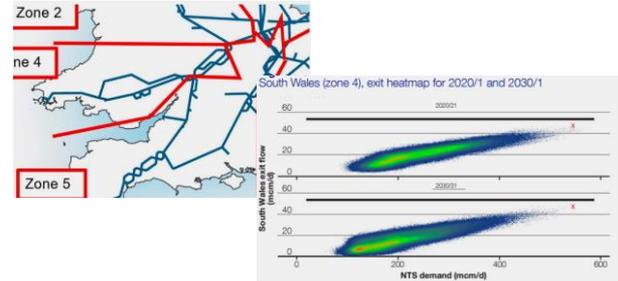


<https://www.nationalgrideso.com/future-energy/future-energy-scenarios>

What do we use it for?



Constraint Risk Management



Network Analysis



Department for
Business, Energy
& Industrial Strategy

ofgem

Regulatory Conversations



Cost Benefit Analysis

From FES to supply & demand scenarios

Supply



LNG



Storage



Offshore



Interconnectors

Demand



Consumer



Storage



Power
Station

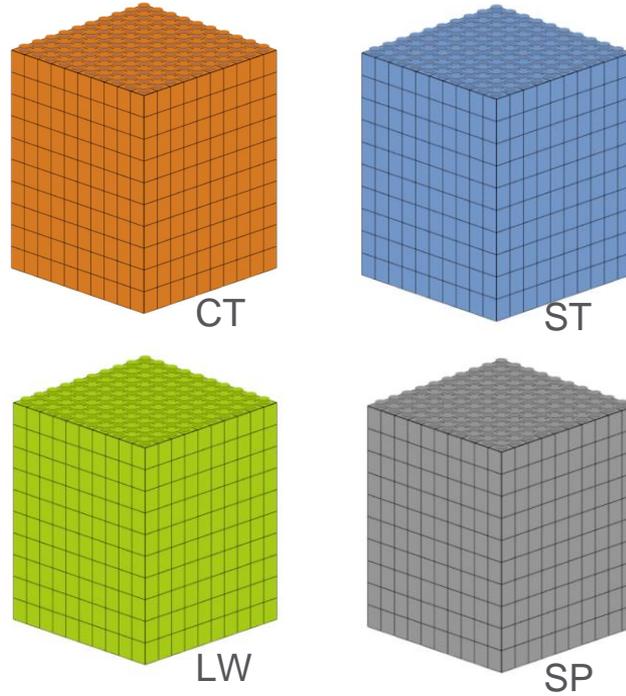


Industrial



Interconnectors

From FES to supply & demand scenarios



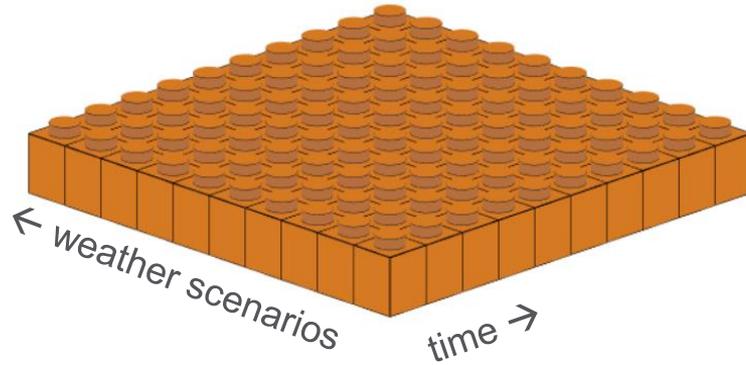
From FES to supply & demand scenarios

What does a single FES for **consumer demand** look like?

Scenario: Consumer Transformation (CT)

Geographical Region: West Midlands

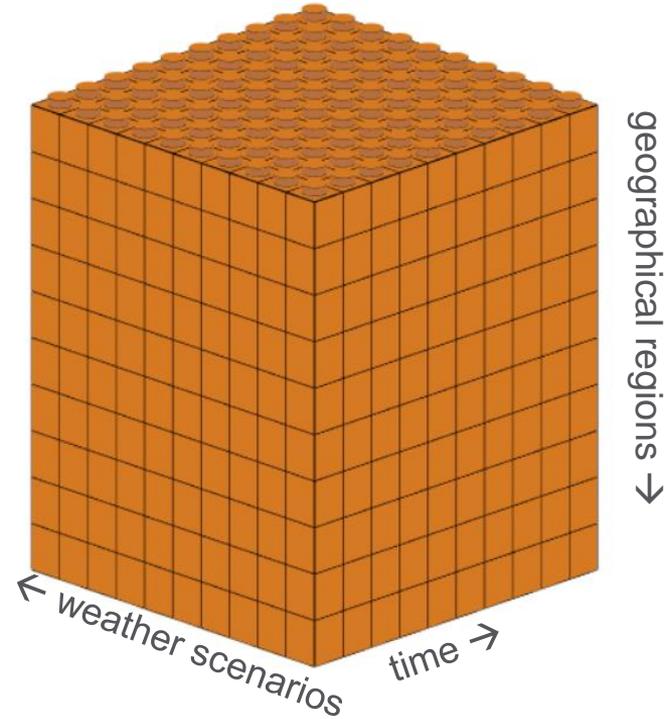
 = 1 data point



From FES to supply & demand scenarios

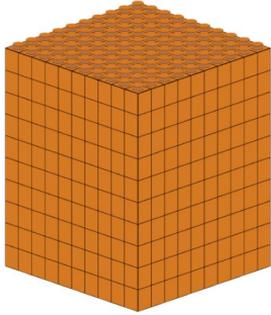
What does a single FES look like?

Scenario: Consumer Transformation (CT)



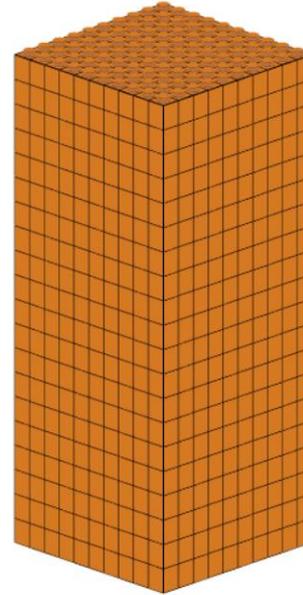
From FES to supply & demand scenarios

Geographical Regions/Points



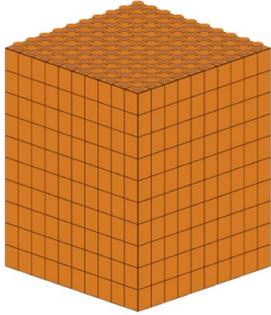
This is what
we do →

Sites / Offtakes



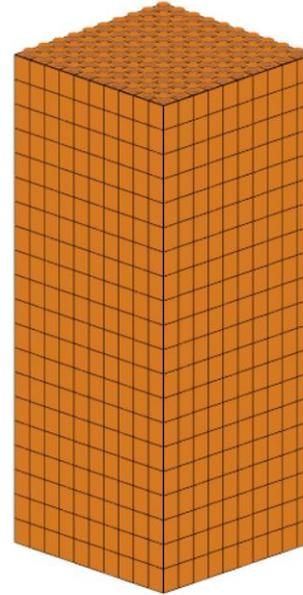
From FES to supply & demand scenarios

Consumer Demand by Region



Historical proportions
→

Sites / Offtakes

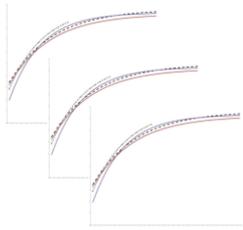


From FES to supply & demand scenarios

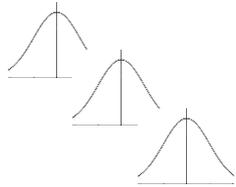
Assumption

Supply and Demand will always be in balance

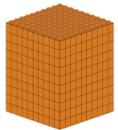
From FES to supply & demand scenarios



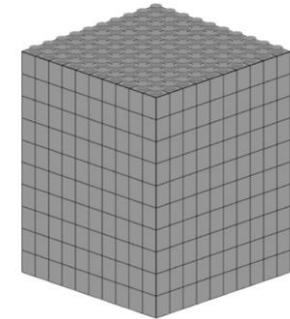
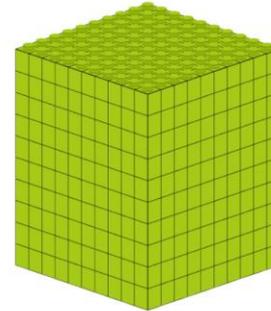
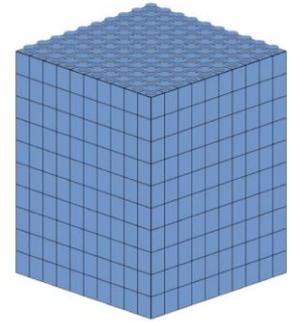
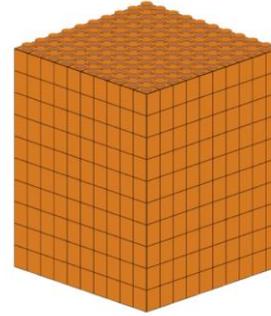
Supply
Lookup
Curves



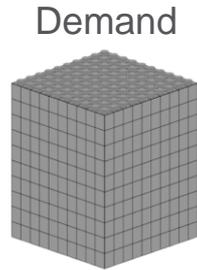
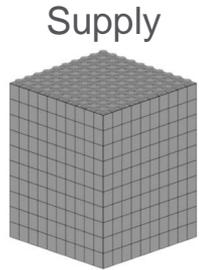
Historical
Supply
Distribution



National
Demand

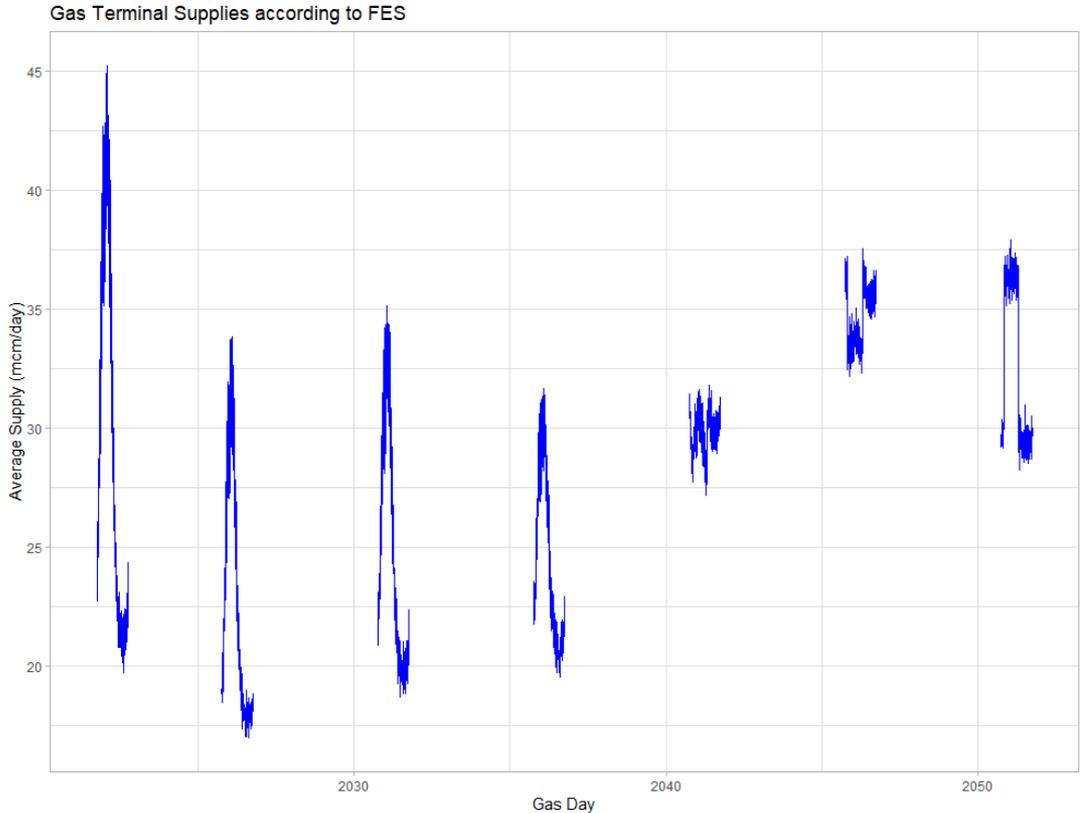


From FES to supply & demand scenarios

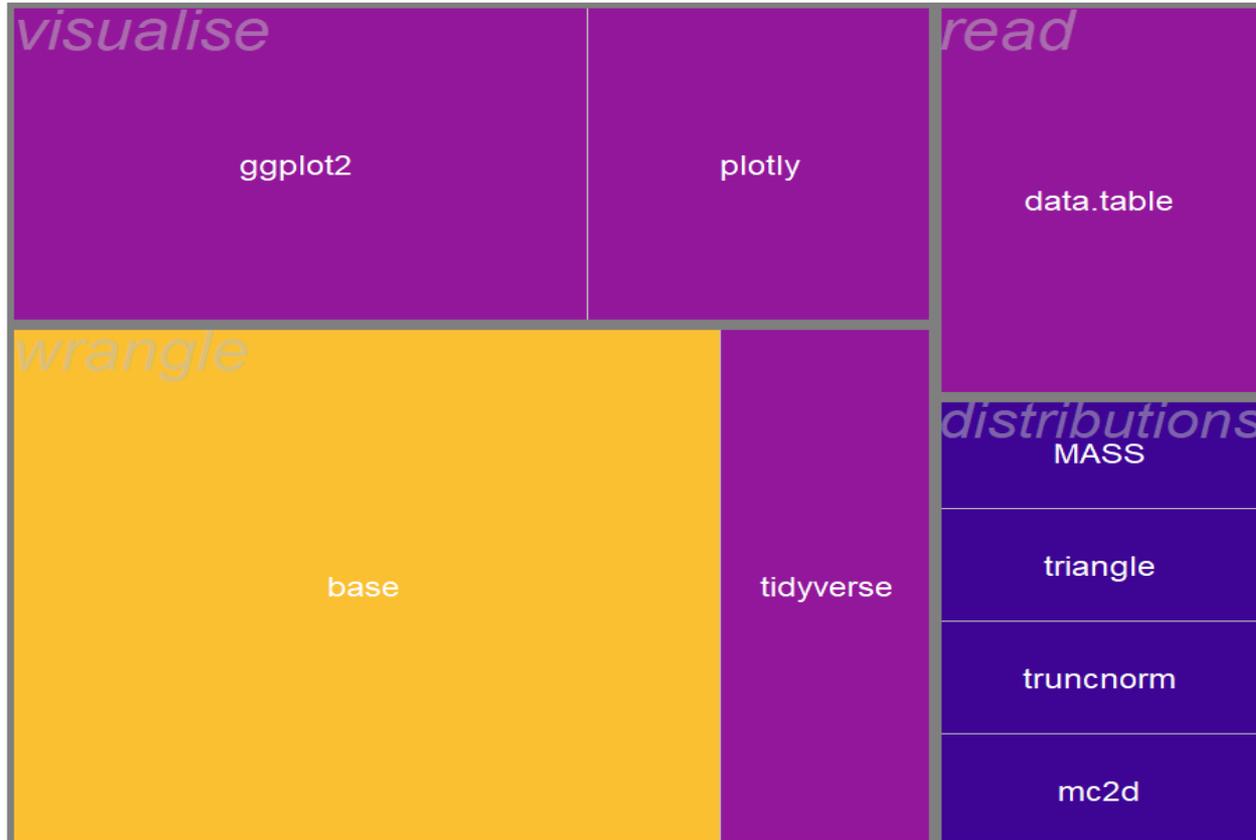


Balance the Network

From FES to supply & demand scenarios



R packages in our codebase



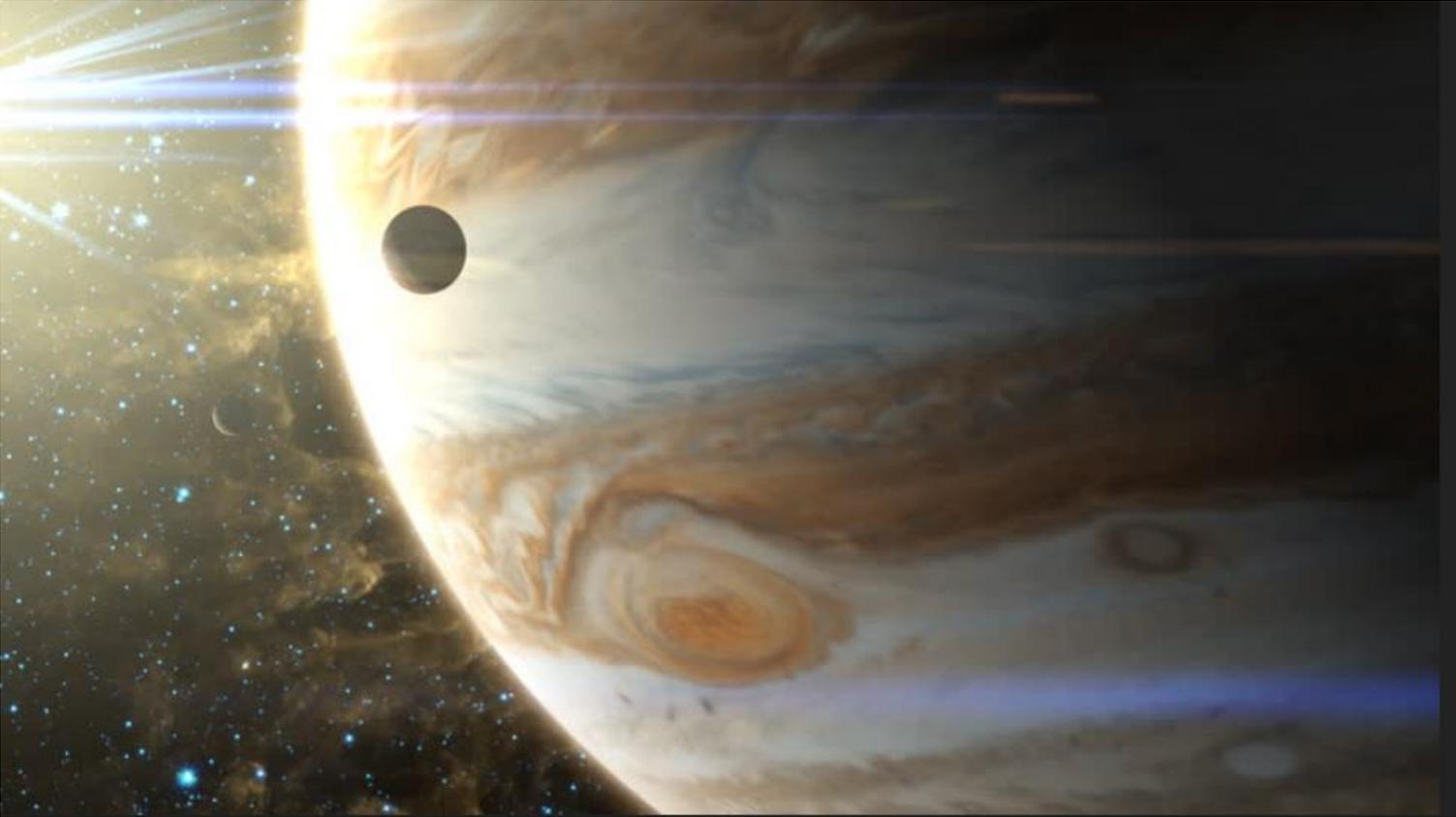
Work for/with us!



- Data Scientist, Data Analyst, Insights Consultant
- Graduate scheme
- Master/PhD Projects

<https://careers.nationalgrid.com/>

Questions



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