

# Operating the GB transmission system, carbon free, by 2025

Dr Richard Smith  
Head of Commercial

at 10th anniversary  
Cleanpower Smart Grids  
Conference 2019  
[www.cir-strategy.com/events](http://www.cir-strategy.com/events)



**nationalgrid**ESO

# Our mission:

to enable the transformation to a sustainable energy system and ensure the delivery of reliable, affordable energy for all consumers

Our priority focus areas:



**The engineering transformation**  
Ensuring reliable, secure system operation to deliver energy when consumers need it



**The market transformation**  
Unlocking consumer value through competition



**The sustainability transformation**  
Enabling and supporting the drive towards a sustainable whole energy future

Success in 2025 looks like:

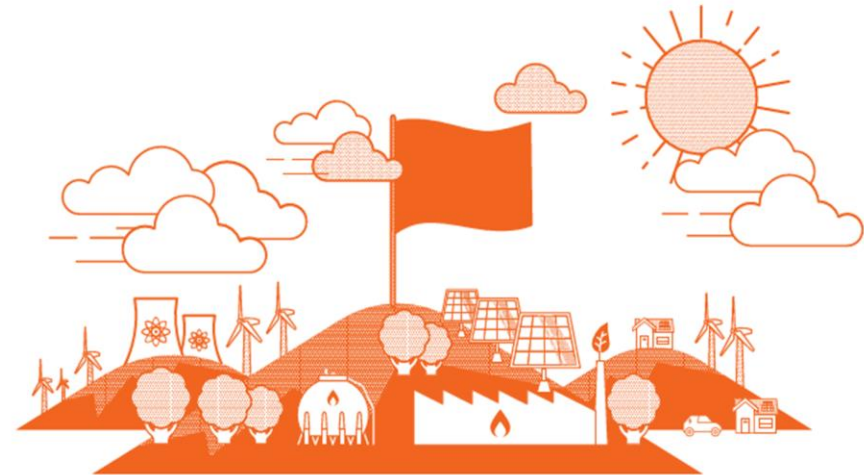
- An electricity system that can operate carbon free
- A strategy for clean heat, and progress against that plan
- Competition everywhere
- The system operator is a trusted partner



**The smart transformation**  
Driving innovation and increased participation across the energy landscape

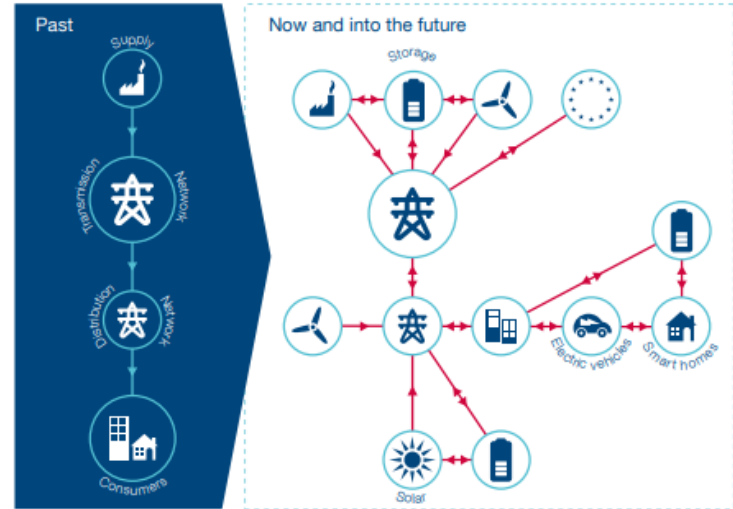


**The capability transformation**  
Developing the right people and systems to deliver the future



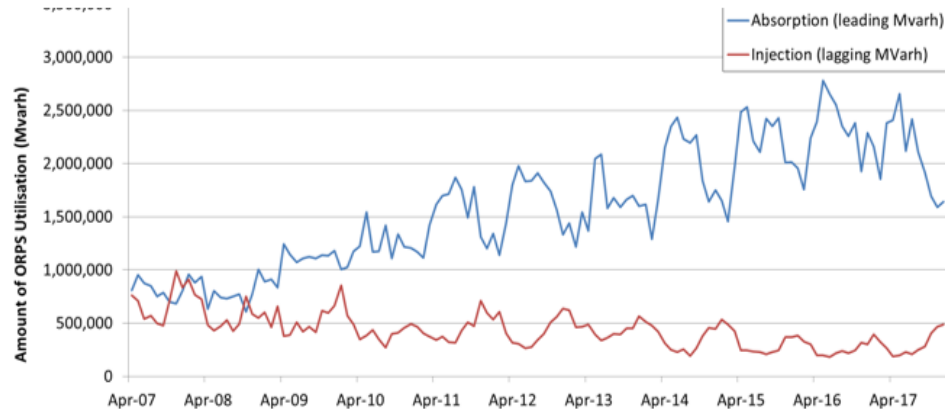
# System needs are changing

- The system is increasingly more complex to operate due to the growth in:
  - interconnectors,
  - solar panels,
  - electricity storage,
  - electric vehicles,
  - smart/micro grids etc.
- And these operability impacts all interact....



# Operability costs are increasing

- Ancillary service needs are increasing as a result. An example is below which shows the growth of voltage/reactive utilisation by year.



- This increases ancillary service costs. For example:
  - Costs to manage voltage are increasing with **£330m** spent over the last three years.
  - Costs to manage inertia are rising. 17/18 spend of **£60m**. 18/19 spend of **£150m**.

# There is lots of working going on to meet these challenges

- We are rising to the challenge and there is lots of work going on, some of which is below.
- To pull it all together we have just published an update to our Operability Strategy Report.



**Network Options Assessment**



**Capacity report**



**Wider Access to the Balancing Mechanism Roadmap**



**Network Development Roadmap**



**System Needs and Product Strategy**



**Product Roadmap for Restoration**



**Transmission Thermal Constraints Management**



**Product Roadmap for Reactive Power**



# Operability strategy report



We have just published an update to our first **Operability Strategy Report**.

It summarises our work to meet future operability challenges and our zero carbon 2025 ambition.

It sets out:

- what we are doing,
- where to look for more information and
- how to engage.

First place to look to understand our operability work and how to get involved in the various routes to market.

It is available on our website under the Insights/System Operability Framework (SOF) tab.

<https://www.nationalgrideso.com/insights/system-operability-framework-sof>

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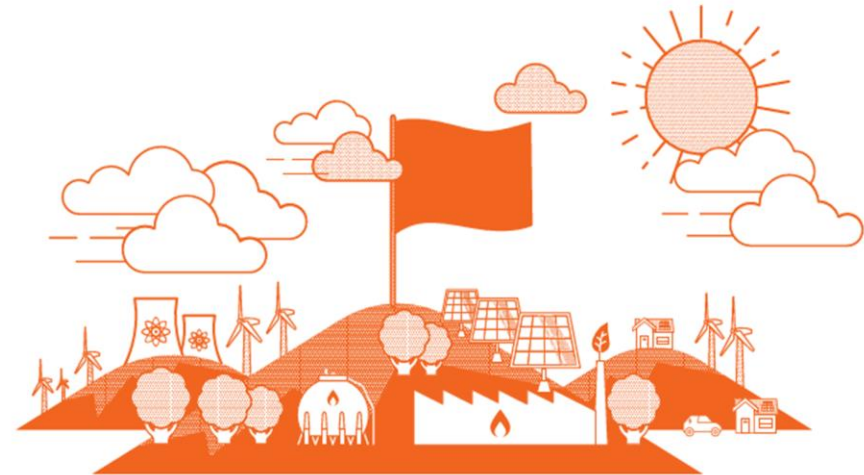
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