

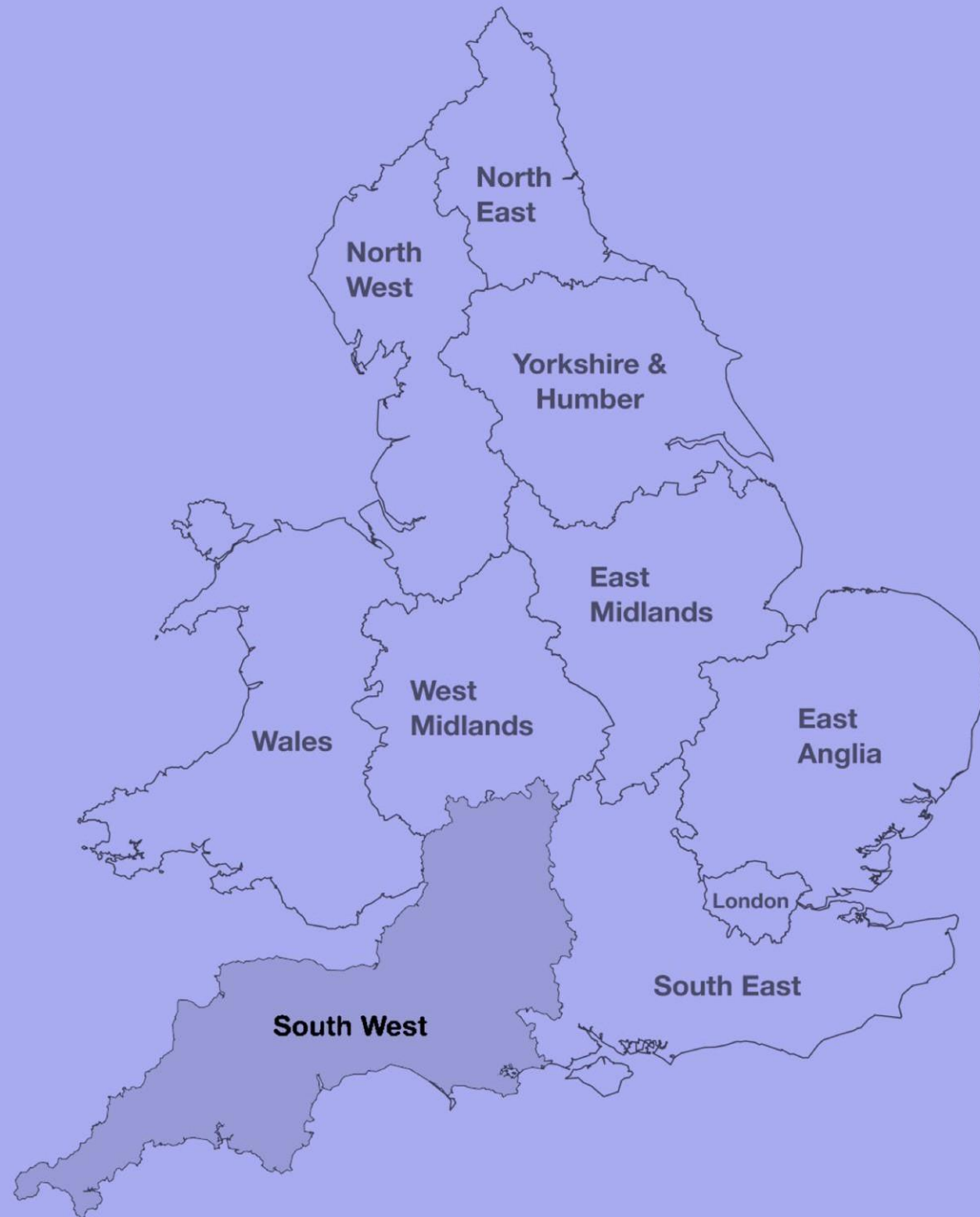
An aerial photograph of a high-voltage power line tower in a lush green field. The tower is a large, dark, T-shaped structure with multiple cross-arms supporting several high-voltage power lines. The field is divided into sections by low stone walls and hedges. In the background, there are rolling hills and a small stream. The sky is a clear blue with a bright sun low on the horizon, creating a warm glow. The text "Big Solar CoOp" is overlaid in the top right corner.

Big Solar CoOp

Grid Connections Workshop / Q&A

Pathway to Net Zero

**Stakeholder Workshop
Exeter - 12/10/23**



Networks in the electricity sector – who does what?

One Transmission Network Owner in England and Wales- National Grid Electricity Transmission

Transporting electricity from where it is generated to where it is needed.

Six Electricity Distribution Networks in England and Wales

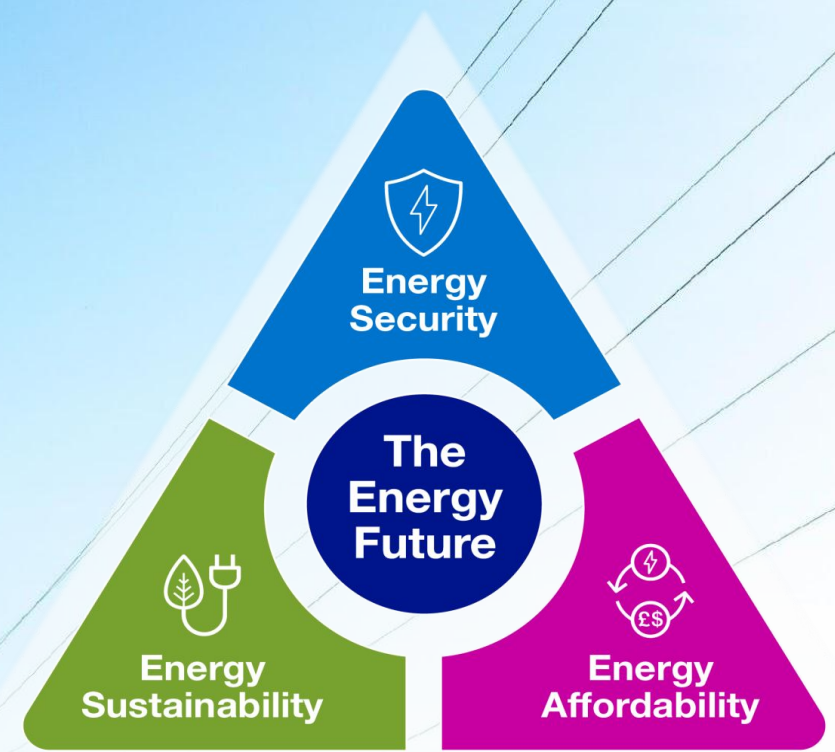
Taking electricity from the transmission network and generated from other regional sources, and delivering it to homes and businesses across their respective regions.



National Grid Electricity System Operator (NGESO) operates the Great Britain’s system to keep homes and businesses supplied with the energy they need 24/7, 365 days a year

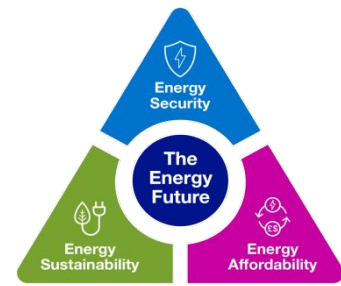


Delivering a **clean,
fair, and affordable**
energy future



National Context – Delivering for 2035

We must systematically upgrade the E&W Transmission network to provide a sustainable 'platform' to service future electricity needs



Offshore wind



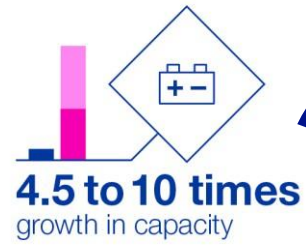
Solar



Interconnectors



Battery storage



At the same time cross sector electrification is expected to increase total electricity demand by around 50%.⁵

Building over
5 times
more



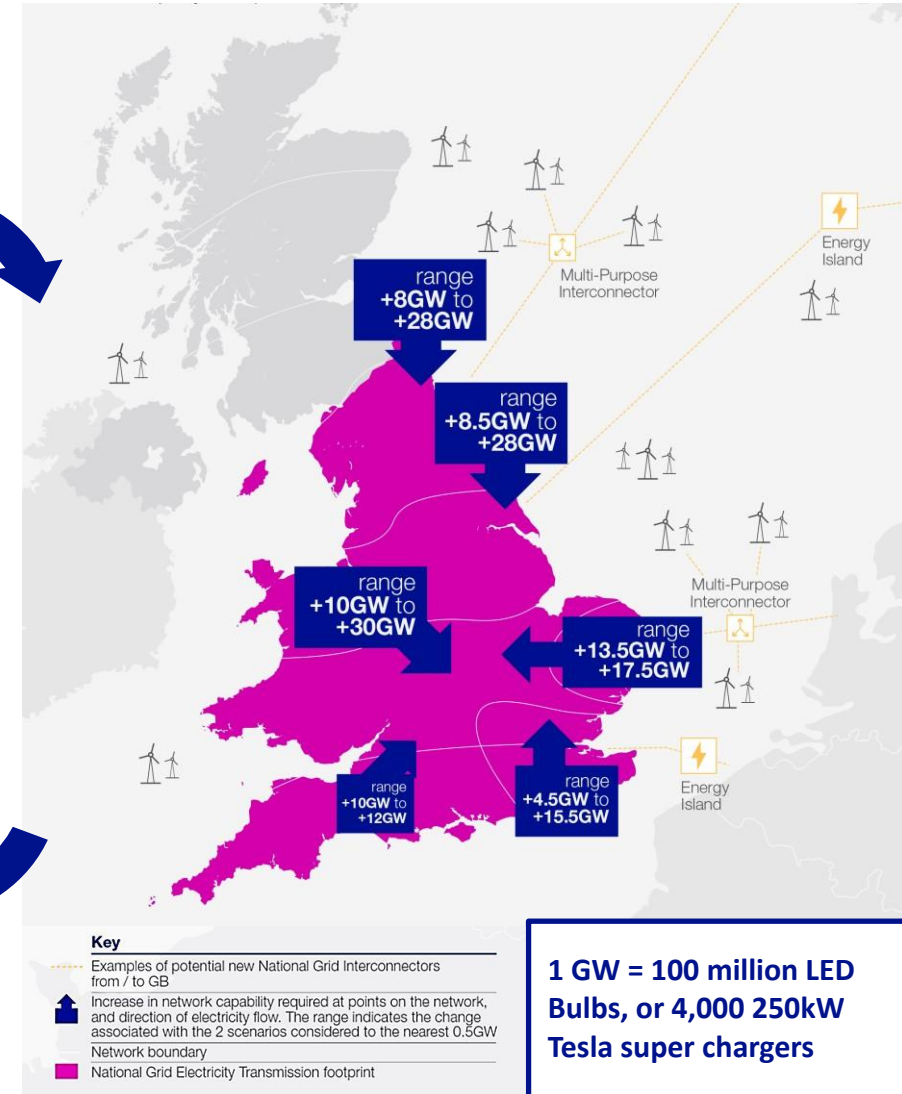
transmission overhead or
underground lines than we
have built in the last 30 years.

Building around
4 times
more



transmission marine
cables than our current
offshore network.

National Grid



Delivering the electricity network that enables Net

Our vision is to be at the heart of a clean, fair and affordable energy future.

Physical space at substations is becoming increasingly challenging.

Network development, the **characteristics of the power system and the challenges** it faces are becoming more complex (power quality & reactive power)

The **number and variety of customer connections** is significant, and driving a need to transform our approach

Distribution Network Owners (DNOs) are telling us **they need more capacity** in their networks in order to grow

In days gone by the network was powered by large fossil fuel power stations



The modern network is powered by multiple sources, including low carbon fuels such as solar, wind, hydro and hydrogen.

Energy evolution from large fossil fuelled power stations to a modern renewables network.

To realise this vision, we must therefore:

1. **Systematically upgrade** our electricity transmission network to ensure it remains fit for future, resilient, intelligent and efficient to deliver net zero.
2. **Make our network plans transparent,** easy to understand and engage with for our stakeholders.

About National Grid Electricity Distribution

Formerly *Western Power Distribution*, we are now part of the National Grid plc group.

National Grid Electricity Distribution are responsible for electricity distribution across the Midlands, South West and South Wales.

Our business serves over 8 million customers and we employ over 6,500 members of staff. National Grid employs 29,000 members of staff worldwide.

The distribution network includes voltages from 132 kV to low-voltage (415 V).





Development of strategic planning process

2016 - published our long-term scenario forecasts for the South West licence area

2016 to 2020 - published 'Shaping Subtransmission' analysis report for all licence areas

2021 - Published DNOA report to assess the use of flexibility versus conventional reinforcement

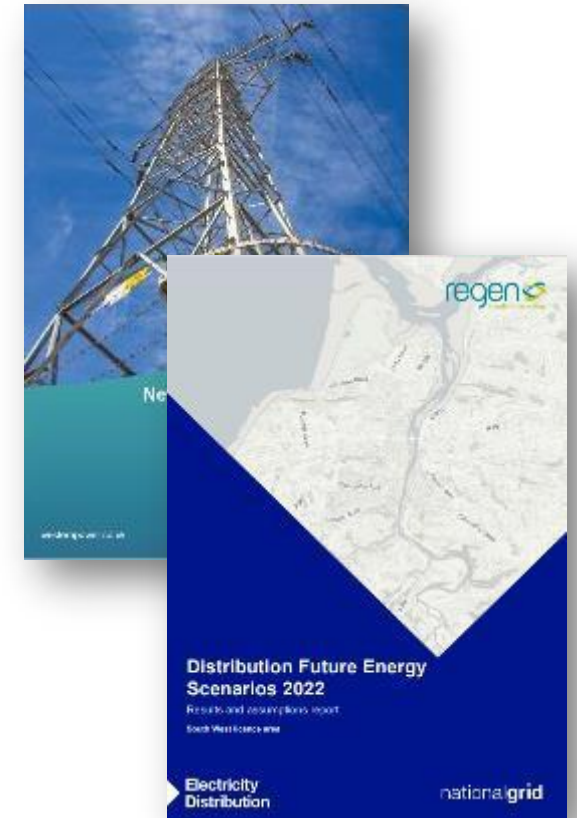
2022 - marked the first publication of the Network Development Plan as a Licence Condition

Examples of South West projects include:
South Devon, West Cornwall, Bridgwater, Iron Acton

2016/17



2022



Capacity mapping info from the DNO's

Grid Capacity Map

<https://www.nationalgrid.co.uk/our-network/network-capacity-map-application>

