



Electricity  
Distribution

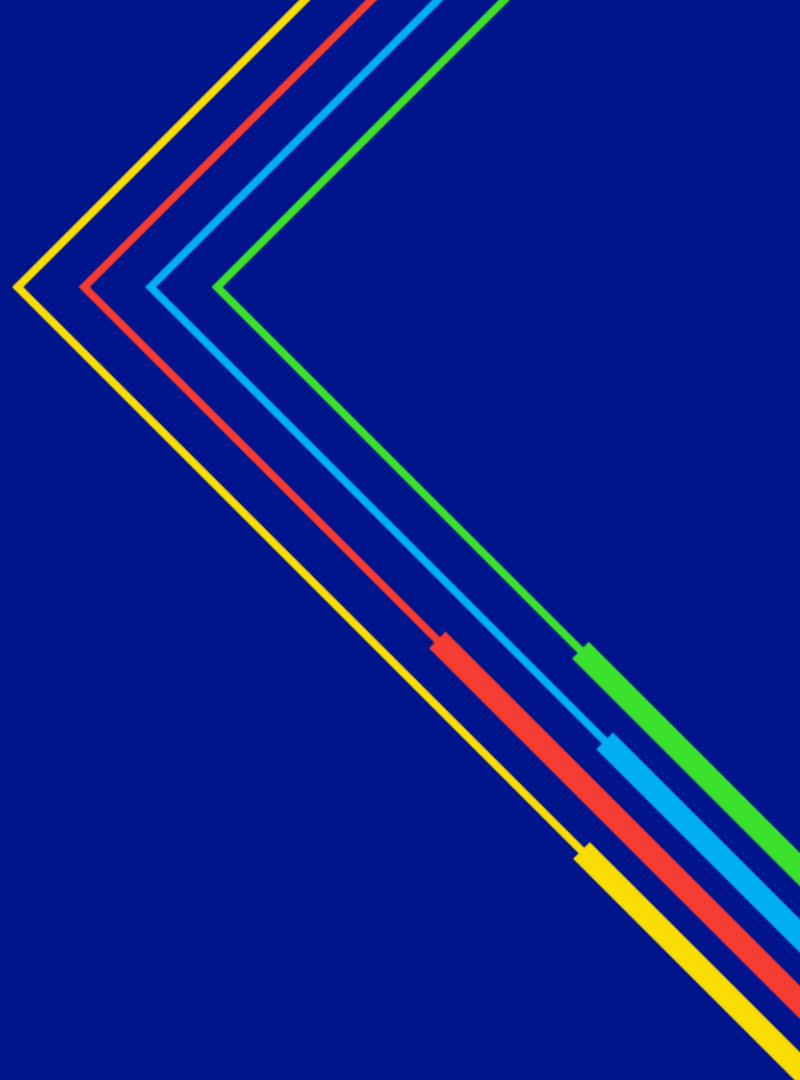
# Cornwall Great Green Energy Summit

Faithful Chanda

Development Engineer (Community Energy)

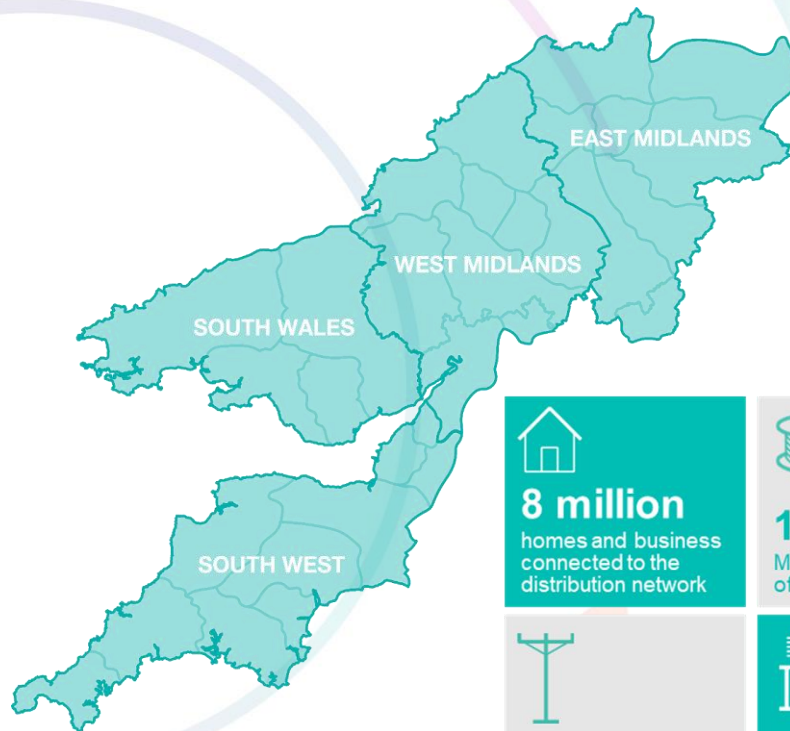
September 2024

nationalgrid



# Who we are

- We are part of the largest electricity transmission and distribution business in the UK
- Our vision is to enable net zero, while continuing to safely operate a reliable network and ensuring that this is affordable for our customers
- We will do this by delivering excellent customer service, by keeping the lights on and ensuring customers can have a connection when they want it
- Distribution Network Operator (here and now) and Distribution System Operator (the future network)



# Community Energy

- Local communities taking collective action to address climate change and increase the local ownership and economic benefits of energy
- Delivery of community-led renewable energy wholly/partly owned by communities
- Local communities must have sense of ownership
- Empower local communities
- Unite local organisations in one project



# Engaging and networking

## Support we provide....

- Provide direct support for community energy, to help new schemes connect to our network
- Ensure the network can accommodate new community owned generation at scale
- Build community energy groups' capabilities to participate in, and benefit from, flexibility markets to help unlock additional capacity
- Drive innovation projects and access to funding for community energy groups
- ~99 Community Energy Groups in our region



# The Energy Landscape

- Formation of NESO and introduction of Regional Energy Strategic Plans (RESP)
- Policy and regulation change to reflect increased connection requests and changes in the types of projects
- Target to fully decarbonize the power sector by 2035, with demand expected to double by 2050
- We have seen an exponential increase in generation and industry-scale demand, including renewable generation, data centres, electrification of manufacturing and low-carbon tech
- We have c.12GW of generation capacity already connected to our network.

# Investing in our network

## Strategic Investment Process




### Forecasting



The **Distribution Future Energy Scenarios (DFES)** identify how customers will use our network in future

### Network Impact Assessment



The **Network Development Plan (NDP)** uses forecasts to analyse and identify future network constraints

### Optioneering



The **Distribution Network Options Assessment (DNOA)** outlines how we plan to invest in our network to solve constraints

# Network Development Plans

## What is it?

- Condition of the Electricity Distribution Licence (25B), which we are required to publish every 2 years
- The latest plans were published on 1<sup>st</sup> May 2024 and are available on our website
- The Network Development Plan assesses the future suitability of the primary distribution network for continuing to deliver for customers under credible future energy scenarios across the next 10 years

# Cornwall

## What does the Network Development Plan account for in the next 10 years:

- 39,369 new domestic dwellings
- Nearly 65,000 more Heat Pumps
- Nearly 125,000 registered Electric Vehicles, with 440MW installed capacity for charging
- 35 hectares of new industrial and commercial floorspace
- Over 1300 MW of additional generation and energy storage projected to connect to our network

[National Grid – Distributed Future Energy Scenarios](#)

# Cornwall - Network Summary by main GSP and BSPs

## Indian Queens and Alverdiscott GSP:

- Indian Queens and Alverdiscott Grid Supply Point (GSP) group supplies a sparse area of 132 kV network, mostly in Cornwall and North Devon. It is supplied from six 400/132 kV (Super Grid Transformers) SGTs (two at Alverdiscott and four at Indian Queens), the two GSPs are interconnected at 132 kV via the double circuit K-route. Indian Queens GSP together with Alverdiscott GSP supplies approximately 400,000 customers.

## Fraddon BSP:

Fraddon Bulk Supply Point (BSP) supplies a partly urban and rural area of 33 kV network, with the bulk of the demand centred in Newquay town, as well as Probus village. It is supplied from four 132/33 kV (Grid Transformers) GTs at Fraddon BSP, fed via 132 kV circuits from Indian Queens Grid Supply Point (GSP). Fraddon BSP supplies approximately 50,000 customers.

## Hayle BSP:

Hayle Bulk Supply Point (BSP) supplies a sparse area of 33 kV network, in the most South Western part of Cornwall and the Isles of Scilly. It is supplied from two 132/33 kV Grid Transformers (GTs) at Hayle with two busbar sections at Hayle and another two at Penzance (which is a suitable location for a future BSP), where most of the circuits are fed from. Hayle BSP together supply approximately 43,000 customers.

## Rame BSP:

Rame Bulk Supply Point (BSP) supplies a mixture of rural and urban sections of 33 kV network in West Cornwall. It is supplied from three 132 kV circuits which are fed from Indian Queens (Grid Supply Point) GSP, with two 30/60 MVA and one 22.5/45 MVA 132/33 kV grid transformers supplying the group. Rame BSP supplies approximately 45,000 customers.

# Cornwall - Network Summary by main GSP and BSPs

## Truro BSP:

Truro Bulk Supply Point (BSP) supplies a mixture of rural and urban sections of 33 kV network, in West Cornwall. It is supplied from the BM-route 132 kV circuit which is fed from Indian Queens Grid Supply Point (GSP), with two 60/90 MVA 132/33 kV grid transformers supplying the group. Truro BSP supplies approximately 20,000 customers.

## Camborne BSP:

Camborne Bulk Supply Point (BSP) supplies a mixture of rural and urban sections of 33 kV network, in West Cornwall. It is supplied from the A-route 132 kV circuit which is fed from Indian Queens Grid Supply Point (GSP), with one 60/90 MVA and one 45/90 MVA 132/33 kV grid transformers supplying the group. Camborne BSP supplies approximately 28,000 customers.

## St Austell BSP:

St Austell Bulk Supply Point (BSP) supplies a mostly rural area of 33 kV network, with the bulk of the demand centred in St Austell town, as well as Fowey town and Bugle to the North of St Austell. It is supplied from two 132/33 kV (Grid Transformers) GTs at Bridgwater BSP, fed via 132 kV circuits from Indian Queens (Grid Supply Point) GSP. St Austell BSP supplies approximately 31,000 customers.

## St Tudy BSP:

St Tudy Bulk Supply Point (BSP) supplies a mix of rural and urban areas of 33 kV network, with the bulk of the demand centred in Bodmin town, Polzeath village and Wadebridge town to the North of Bodmin. It is supplied from two 132/33 kV (Grid Transformers) GTs at St Tudy BSP, fed via 132 kV circuits (K route) from Indian Queens GSP which runs in parallel with Alverdiscott (Grid Supply Point) GSP. St Tudy BSP supplies approximately 30,000 customers.

# Solar on schools and community buildings

In April 2023 we launched a partnership with Solar for Schools (SfS) to help deliver our Business Plan

**commitment:** *Build decarbonised communities and local energy schemes by providing £540,000 shareholder funded support per year to install solar PV on schools in areas of high economic deprivation*

## Delivery model

- ✓ Schools register their interest through an online page – SfS get in touch to request necessary data for an initial desktop assessment
- ✓ NG select schools to fund based on criteria (high economic deprivation indicators, location, carbon and energy savings, feasibility)
- ✓ NG provides grant funding directly to schools that meet the criteria to reduce the cost of the project or increase the size of the installation to optimise the school's roof space and energy consumption
- ✓ SfS report on project progress and provide a data dashboard to track the installations once delivered
- ✓ Each school receives an annual visit from the SfS education team and local delivery partners to provide engaging, hands on renewable energy education
- ✓ SfS owns, maintains and conducts any necessary maintenance on the panels for 25 years



# Routes of engagement

To discuss your queries with us in more detail, please book one of the following surgeries on our website.



## Connection Surgery Appointments

Undertaking a Connection project can be complex but we're here to help. If you would like to discuss your plans with one of our Engineers or Planners then you can request a Connections appointment.



## Community Energy Appointments

We are committed to working pro-actively with community energy groups and recognise that the volunteer led approach and complex nature of their projects means that community energy groups need more time and support to engage in the process of connecting to the network. If you would like to discuss your plans with one of our Planners you can request a community energy appointment.



## Net Zero Surgeries

We can assist in providing an understanding of process, timescales, technical considerations, consents/legal requirements and possible constraints involved with either making a single connection to the network in a particular area or a more strategic approach to decarbonisation across a region. If you would like to discuss your plans with one of our Engineers or Planners you can request a net zero surgery appointment.

# Get in touch



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## Q&A





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# **Cornwall Great Green Energy Summit**

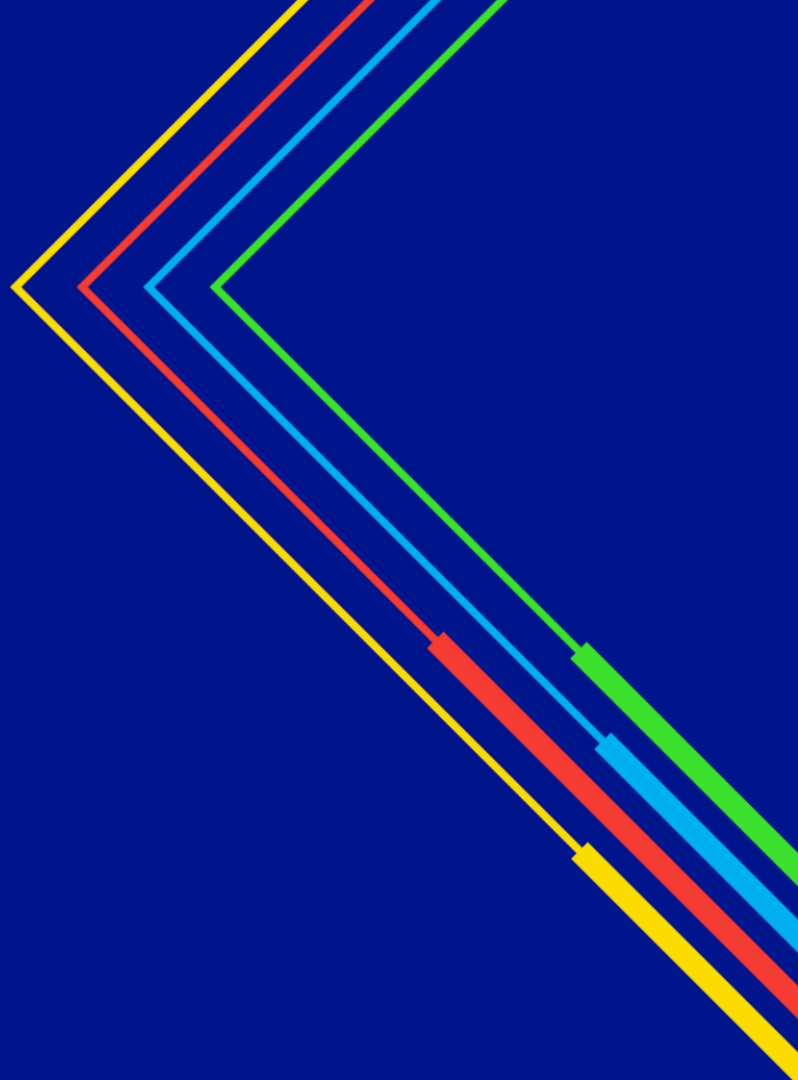
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September 2024

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# Connections Process – Rooftop Solar and Battery Storage

## G98 connection process:

Generation connections with a capacity of up to 3.68kW per phase at low voltage can be connected to NGED's network via a fit and inform process.

Commissioning forms must be sent to NGED within 28 days of install.

NGED will send a letter confirming the system has been installed which can be passed on to your energy supplier as evidence the system has been commissioned and connected to the network.

## G99 Fast Track connection process:

All systems compliant with G99 Fast Track must be applied for before install. This process allows for systems with a larger installed capacity to be connected under a simplified process.

There are four different routes available to connect a generation system under G99 Fast Track. The requested generation capacity will affect the process that the application follows.

Commissioning forms must be sent to NGED within 28 days of install.

## G99 connection process:

Applications with an installed capacity up to 17kW single phase and 50kW three phase use a simplified, short application form.

For connections with a capacity greater than 50kW at any voltage a larger more detailed form is used.

NGED must notify the Electricity System Operator (ESO) about connections with a capacity greater than 95kW. For larger connections the ESO may stipulate that the applicant must wait for reinforcement to be completed on the Transmission Network.

## Installed Capacity and Export Capacity:

In some instances customers may wish to install more generation or storage capacity than can be exported onto the network.

The export capacity is the capacity that you can export onto the network whilst the installed capacity is the overall capacity of the connected system.

# Connections Process – EV Chargers and Heat Pumps

## Domestic EV Chargers:

Most domestic EV chargers have a capacity of around 7kW and can be accommodated on a normal domestic supply. In some cases NGED may have to carry out work to the supply to facilitate the installation, these may be chargeable.

Applications can be submitted online or on paper.

Where the overall maximum demand of the dwelling is less than 60amps including the EV charger the charger can be installed and NGED notified. Where this is not the case an application must be submitted for the proposed installation.

## Commercial EV Chargers:

These are generally larger chargers and installed at public or commercial premises.

They may require the installation of entirely new supplies or upgraded supplies to provide the requested capacity.

Where physical works are required our locally based planners will be able to provide you with a budget estimate or formal quotation for the installation of the new or upgraded supply.

## Heat Pumps:

Some heat pumps can be installed on a fit and inform basis and others must be applied for before they can be connected.

Heat pumps have a range of capacities and comply with different standards. In some cases the heat pumps may trigger remedial or reinforcement works to the network before they can be connected and used. In some circumstances these works are funded by NGED and in others they are funded by the customer.



# Connection Applications and Contracts

## Connection Offers:

Where a connection cannot be made on a fit and inform process an application must be made. Applications for smaller connections and very large connections are dealt with centrally by teams that cover a whole license area.

The majority of connections are dealt with by one of our 33 locally based teams. There are three types of connection offer:

- Approval to connect
- A 'No Works Offer'
- Formal quotation

The connection offer will outline your requirements and the work that NGED needs to do to provide the requested capacity and any costs involved. It will also include contractual terms that you as the customer must meet. These are called 'Milestones'.

Milestones are used to measure the progress of a project. If a milestone is missed it is possible that the connection offer will be terminated depending upon the reason for the delay.

## Connection agreements:

The connection agreement is made between NGED and the end user.

The connection agreement is used to set out the enduring terms of connection between NGED and the customer, this includes:

- The import and export capacity of the supply
- Details of any installed generation
- A responsibility schedule outlining ownership of equipment
- In some cases access routes

Smaller connections use a simplified agreement or acknowledgement letter. Where a signature is required on the agreement this should be done before the generation is installed.

The connection agreement acknowledgement letter is sometimes requested by your energy supplier as evidence that your generation system or EV charger has been installed and commissioned on NGED's network.

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