

Thank you for joining

Housekeeping

- Please note that this session will be recorded.
- Please add your questions via Q&A function for our dedicated session at the end of the talk – 30 minutes Q&A.
- Questions and Answers supported by Environmental, Connections, Responsible Business and Whole System Planning leads.
- Alternative for raising questions pathwaytonz@nationalgrid.com

Introduction	5 mins
Forming Future Network Blueprints	10 mins
South West Future Network Blueprint	10 mins
Next Steps	5 mins
Environment commitments	5 mins
Update from SSEN and NGED	15 mins
Update from NESO	10 mins
Questions and Answers	30 mins

Introduction

Sara Habib Head of Future Price Controls Electricity Transmission





We own and operate the transmission network that is the backbone of electricity system in England and Wales The objective of today's webinar is to set out the South West view of the future network outlined in our business plan for 2026-2031.

Our £35bn business plan was submitted in December 2024 and will now be assessed by Ofgem.

Our plan will nearly double the amount of power we can transfer across England and Wales and more than double the rate of connecting our customers.

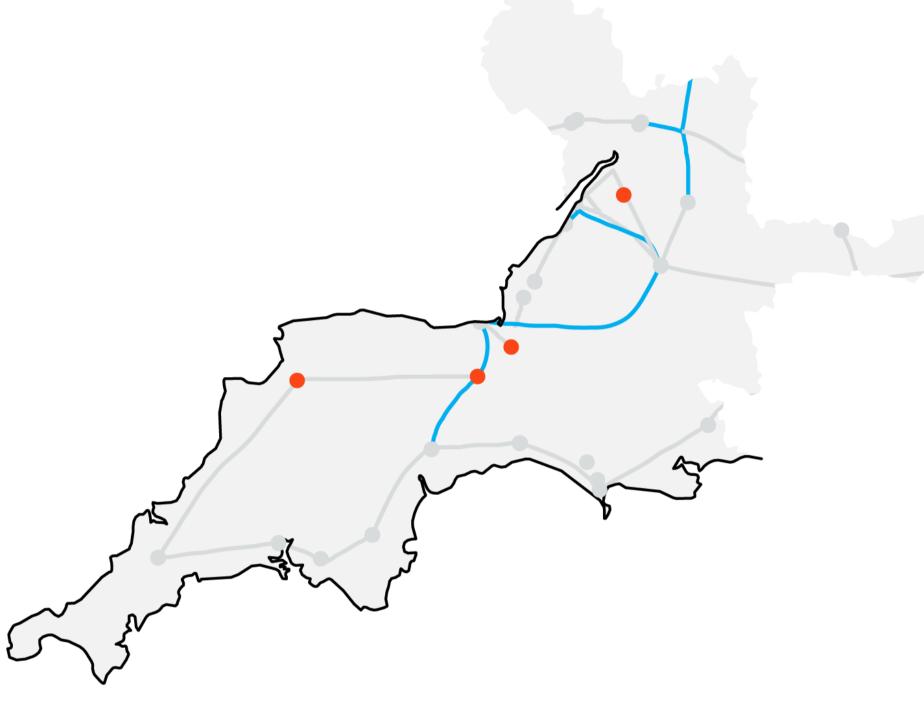
We want stakeholders to be involved in the 'call for evidence' that Ofgem has opened as part of the RIIO-T3 price control process and to feel well-informed on what is included in our plan and why.



Context on our regional plans

This regional view considers electrical factors such as power transfers and access for planned outages and, where possible, aligned to the distribution network operator and local authority boundaries.

This webinar is not about the detailed project development, precise location, or technology options under consideration for individual network upgrades. That comes through individual project consultations, in line with Planning Act requirements.



Please contact us for project details at Communityrelations@nationalgrid.com

This webinar is part of our ongoing engagement. For the past couple of years we held regionally focused workshops, bringing together local organisations, like local authority representatives, businesses, other network companies and the National Energy System Operator (NESO), to gather perspectives and co-create our network plans.

Forming the Future Network Blueprints

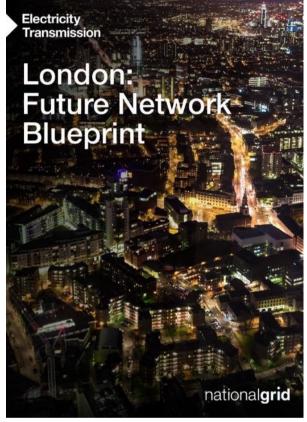
Jay Tailor Regional Strategy Manager

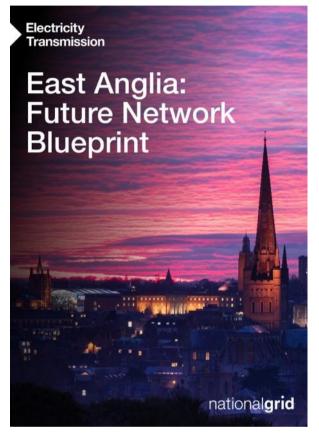
National Grid Electricity Transmission

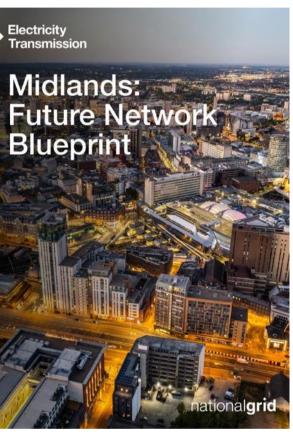


Future Network Blueprints



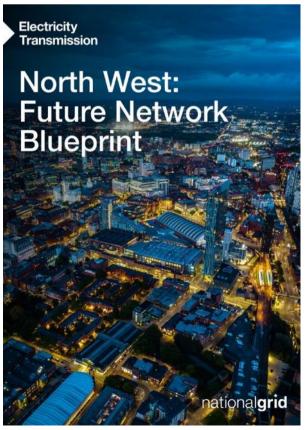














What are they?

A single and coordinated 'best view' of the work needed across different regions of our network across England and Wales to enable the overall transition to net zero.

What do they do?

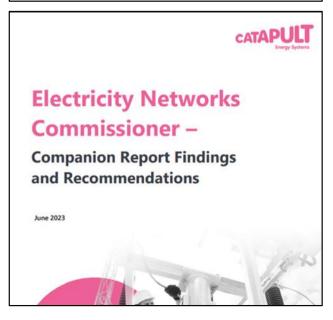
They help us to make coordinated decisions about where, when and how to upgrade the grid.

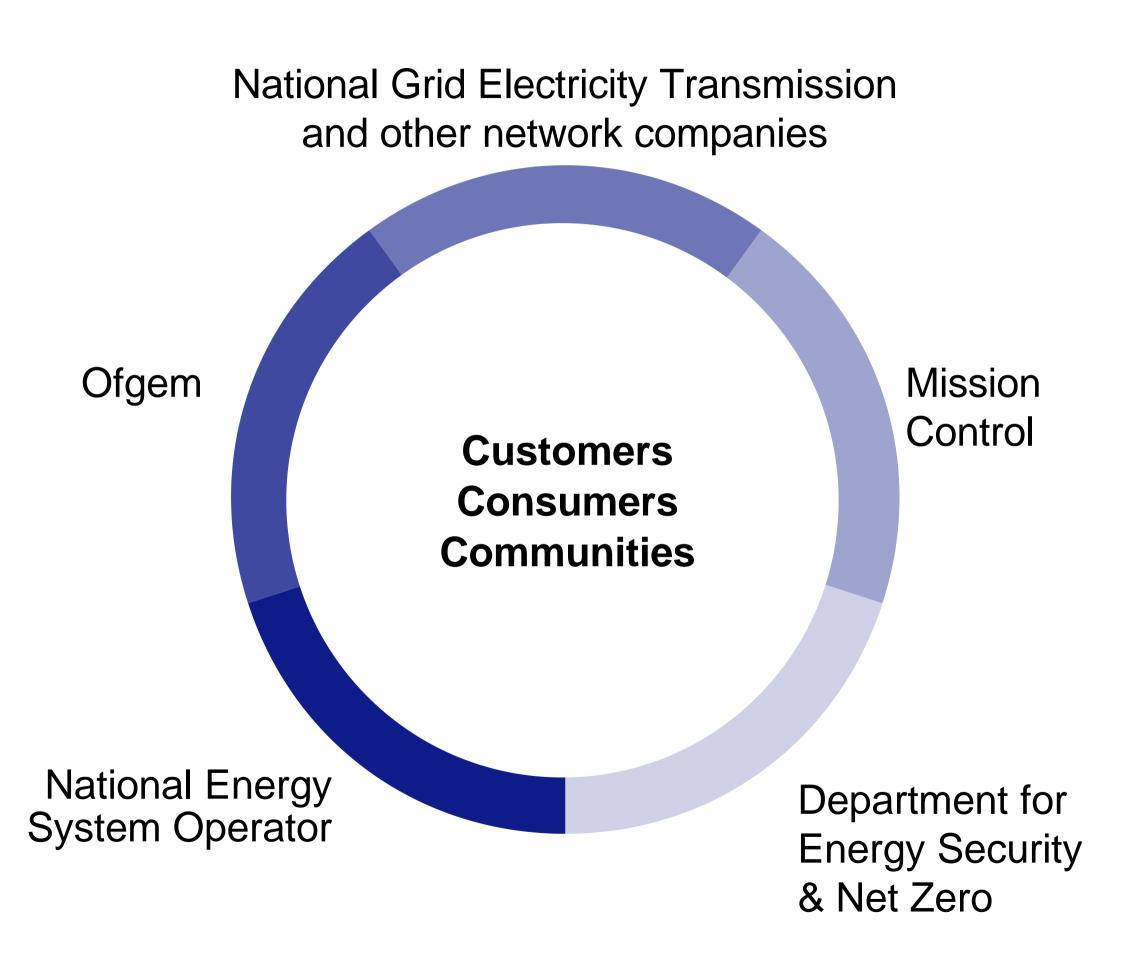
This forward- thinking, holistic planning approach allows all parties to enhance efficiency through collaboration and coordination — with an aim to do it once, do it right.

The energy landscape















Our overarching nationwide Stakeholder engagement approach

Since 2022 we have listened to and worked with those who are impacted by the design, timing, cost and delivery of the network upgrade...

Understanding the needs, priorities and perspectives of Listening a broad spectrum of involved and impacted stakeholders, including household and business consumers **Optioneering** Testing and challenging the emerging strategies during formation, including any trade-offs or and testing optioneering required Sharing the next iteration of the strategies and how Sharing they have built on the stakeholder input to that point with colleagues and the broader stakeholder network Continuing to Refine and Share, maintaining the Future Refining Network Blueprints and keeping them relevant through enhanced ongoing engagement

...And this approach continues beyond our December RIIO-T3 Business Plan submission to Ofgem, as we refine its details throughout delivery.



We listened to over 12,000 voices representing all stakeholder groups

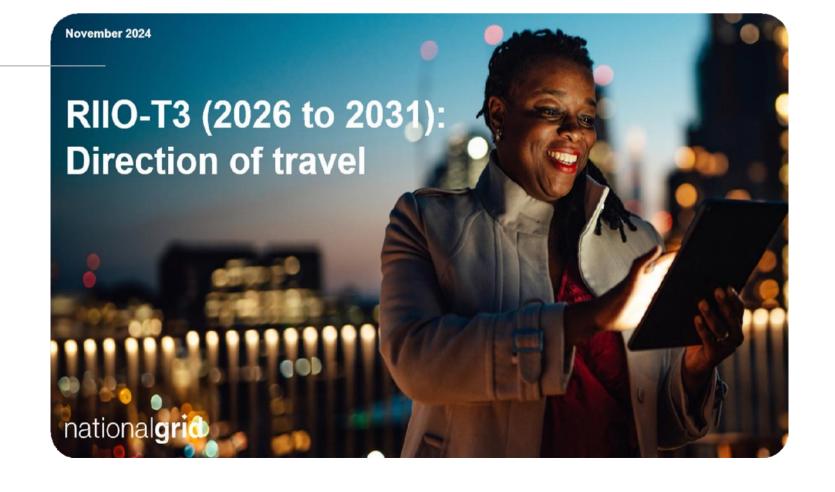


We consulted with over 23,000 residents in communities already impacted



We held 35 region focussed workshops with our industry partners and peers

We hosted a playback webinar on our T3 plan in November



What we learnt – forming our network planning approach

With an ever-evolving energy landscape, we needed a more comprehensive approach to our network planning



listening phase we got to understand the detail...



We need to work more closely than ever with all our stakeholder groups



Local network needs differ, requiring a more focused approach



By thinking differently, and working closely with stakeholders, we can help transform the electricity network to meet everyone's future energy needs.



Visibility of our investment planning is critical



We need to coordinate and collaborate on our plans



We need to be flexible to changes and not wait for 100% certainty













The process

Based on insights from our stakeholder engagement programme we set three ambitions which shape our plan

Ambition A

Deliver the grid of tomorrow, today

Deliver with urgency the Transmission Network needed for Great Britain's future growth and decarbonisation

Ambition B

Do the right thing for consumers, communities and the environment

How we deliver is as important as what we deliver

Ambition C

Transform the way we work

Transform our capabilities to deliver for consumers

We have developed a comprehensive framework to test and validate our investments against our new ambitions.

This encompasses whole system planning; focused on an integrated and collaborative approach.

Step 1
Information gathering

- Regional context
- Current network view
- Design the right network

Step 2
Insights and analysis



- Stakeholder engagement
- Connections
- Safe and reliable network
- Strategic infrastructure

We now go on to unpack Step 2

Step 3Develop strategic options

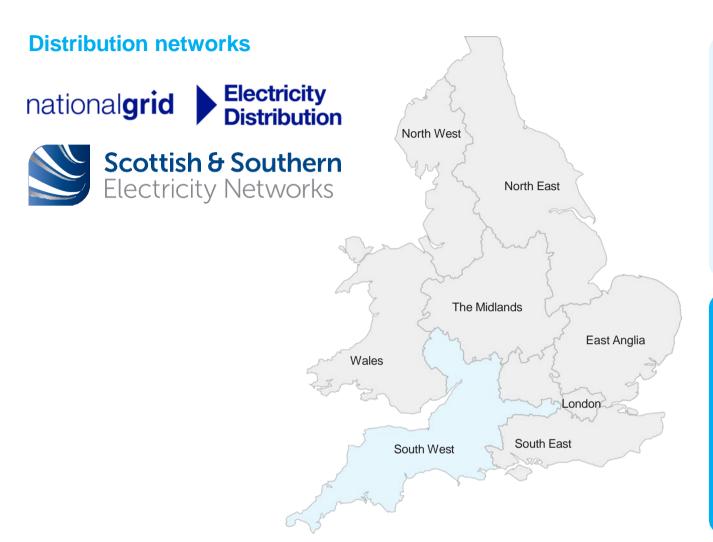


- 2050 backwards
- Network design principles
- Network compliance

South West Future Network Blueprint



South West | Stakeholder Engagement



We are working with local distribution networks (DNOs) to understand the impacts and requirements in that region and develop 'whole-system' solutions.

[4] 16

Indicates the number of whole system opportunities we have already identified in the South West





What did stakeholders in the South West initially tell us?

'(Connections queue impact) At input level it limits our net zero ambitions, and coming out the other end it's a planning issue because we can't bring forward housing or employment sites.'
(Local Authority)

'If we want to decarbonise our vehicle fleet to hydrogen, we need to have spare capacity on the network.'

(Air transport)

'There needs to be more collaborative thinking with connections.'
(Local Authority)

Connections timescales have impacted my organisation's plans
(Pathway to Net Zero workshops, poll base: 75)

South West | Safe and Reliable Network

A reliable network is a top priority for everyone.



Commitment

Maintaining a safe, reliable and resilient system through a period of growth and changing asset base.



Challenge

If we looked to do this portfolio of work in isolation, we would not have enough resource, supply chain support or access to the network to complete it.



Solution

Our approach aligns asset health and new infrastructure plans to optimise best use of our resources.

Natural hazard resilience

By the end of 2025, all relevant South West sites will be fully compliant with Energy Networks Association standard 138 on flood protection.

Physical security resilience

With increasing generation and demand we are investing in enhanced physical security at sites within the region.



Overhead line in region that requires replacement in the next 10 years

% 6 km

High voltage cable to replaced in the next 10 years

Asset health intervention regional metrics

器61

Circuit breakers

† 299

Bay assets

464

Voltage management assets

South West | Customer Connections

We need to make it easy to connect and use the electricity network



Commitment

Enable the connection of new generation and demand customers to support Government targets.



Challenge

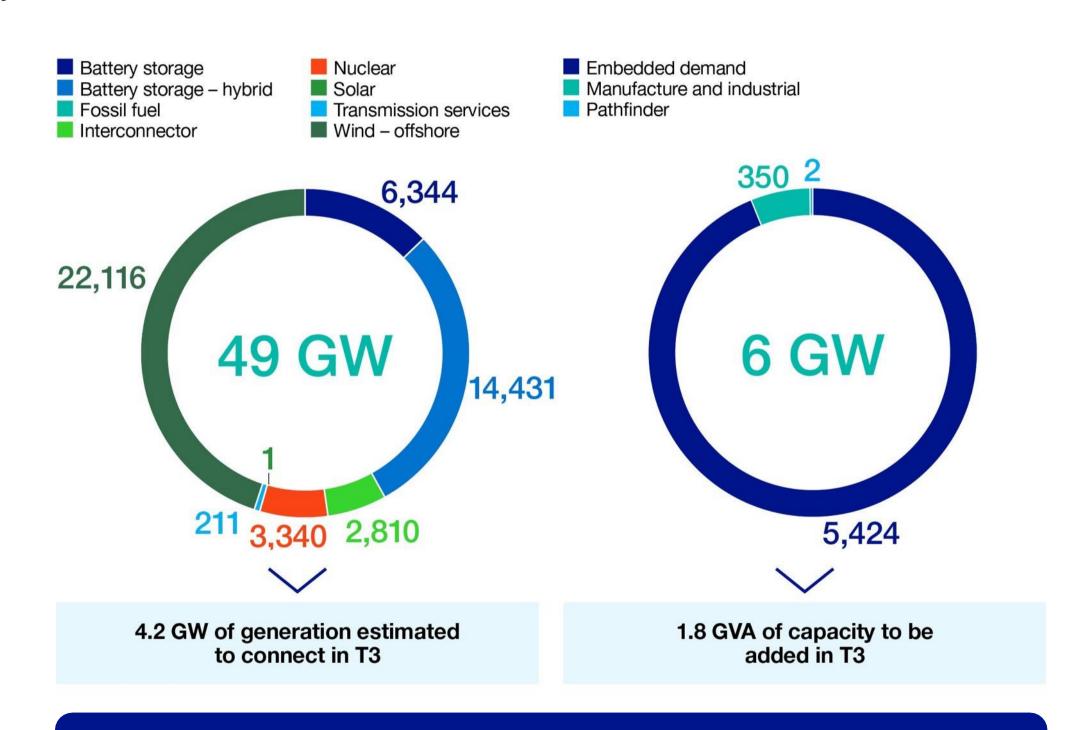
Not all the connections in the queue will connect to the network.



Potential solutions

We have progressed a number of connections which form a baseline and pipeline plan of work.

Connections Reform will help enable connections to the network by reviewing the current connections queue.



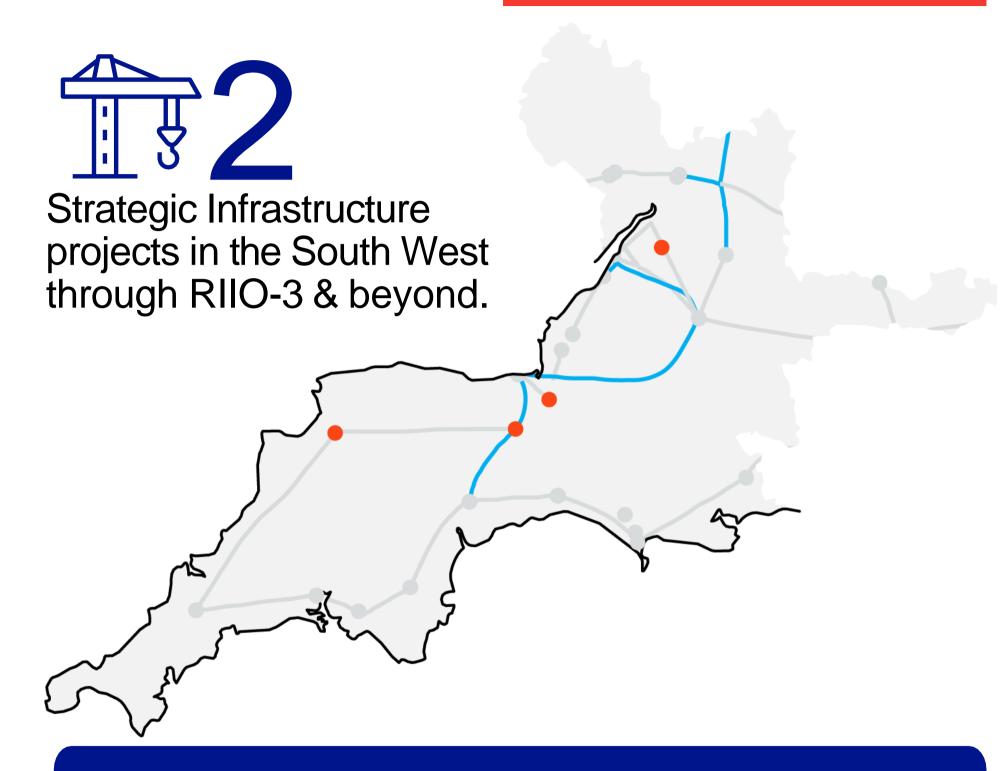
Customers have contracts for new connections to 2034 that would deliver **49 GW generation** and **6 GW of demand connections** in this region.

South West | Strategic Infrastructure

The National Energy System Operator (NESO) is responsible for identifying and timing of new strategic infrastructure on the electricity transmission network by incorporating;

- Energy scenario analysis
- Alignment with government policies on decarbonisation
- Market intelligence
- Stakeholder engagement to predict future energy needs.

The process is evolving to ensure that strategic infrastructure development is proactive, addressing both current and future challenges, and supporting the transition to a sustainable and reliable energy system.



In the South West we are maximising the use of existing infrastructure through upgrades, whilst also establishing new to support increasing power flows in the region.

South West | Plan Overview

National Grid's electricity transmission strategy in the South West focuses on upgrading several existing sites and circuits in the region to increase capacity and improve power flows across the region.

This includes completing the strengthening of the network around Hinkley Point C to facilitate the export of surplus clean power

We are working with the distribution network to enable additional capacity for embedded generation and are also evolving a regional strategy for broader transmission reinforcements for expected future renewable connections in the region



of investment

to maintain, upgrade and develop our network in T3

۲۸٦ ۸۸ 6 GW demand

contracted to connect*: **1.8 GVA** of additional capacity expected to be installed in T3



generation

曲

substation

and 4 major

region

investments; 1 new

interventions in the

contracted to connect*: **4.2 GW** estimated to connect in T3



strategic

the region

infrastructure projects within

of overhead line

reconductoring planned within T3, equating to 39% of the region

686 km

器 Circuits

- Hinkley Point Melksham Reconductor OHL circuit
- Imperial Park-Melksham Reconductor OHL circuit
- Melksham-Seabank Reconductor OHL circuit - T3 period

THRE - Hinkley Point -Taunton-Exeter Upgrade circuit - T3 period

- 9 FMR2 Feckenham to Minety Upgrade circuit T3 period
- 10 Feckenham Walham Reconductor OHL circuit - T3 period

South West Strategy



- T3 period
- T3 period

Severn Crossing - Cable and tunnel replacement -Beyond T3

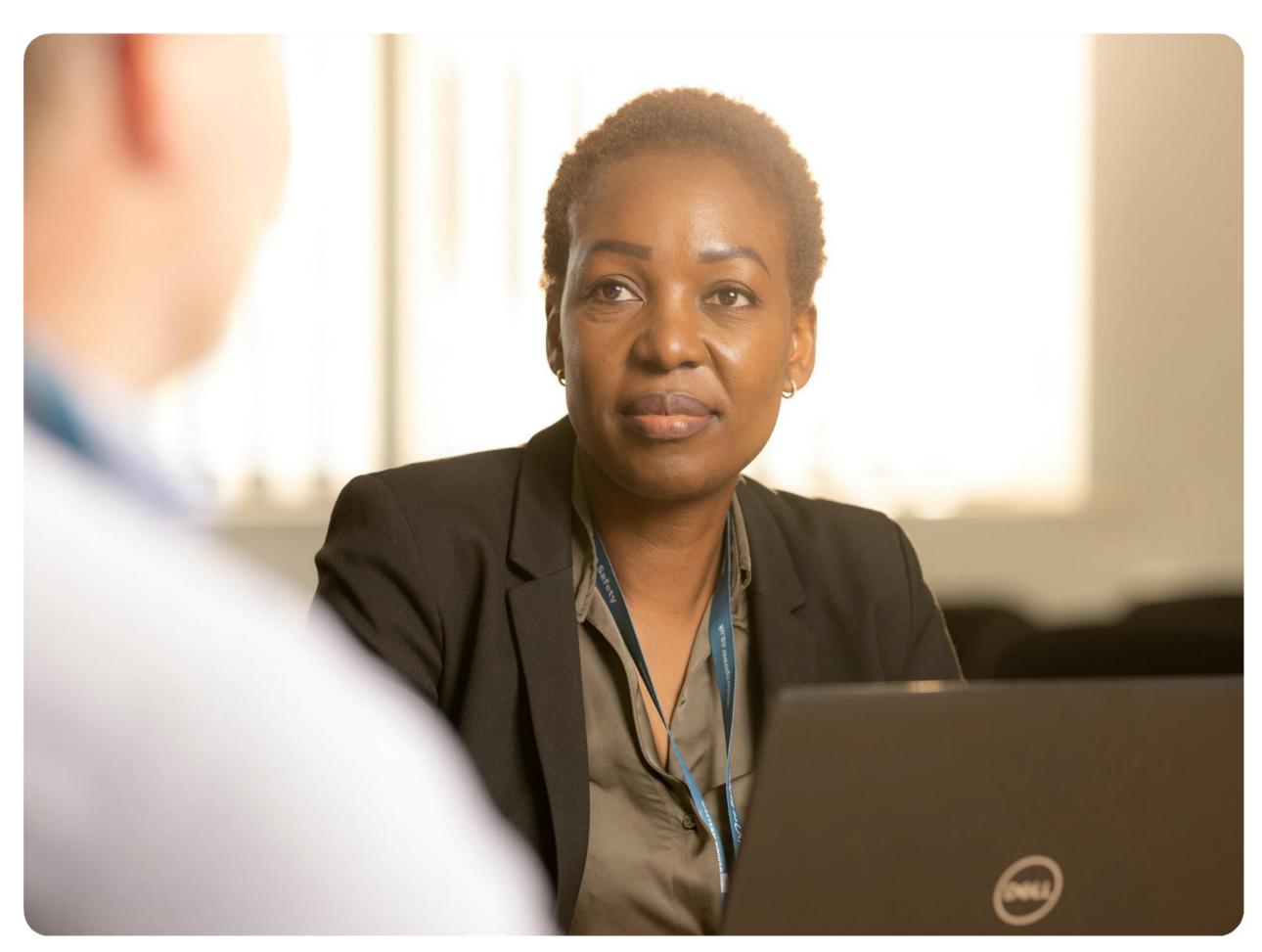
Next Steps



What's next for the South West Future Network Blueprint?

We want to be transparent about our plans today and into the future. Planning is an ongoing, evolving process and we want to ensure we incorporate the needs and expectations of those impacted by their shape, direction and timing.

- Outcomes from Clean Power 2030 and Connections Process reform – We have designed our plans to be adaptable to changes.
- We continue to work with our network partners Scottish and Southern Electricity Networks (SSEN) and National Grid Electricity Distribution (NGED), stakeholders and the newly formed National Energy System operator (NESO) RESP team to evolve our 'Whole System' planning approach and regional plans.



Environmental Update for the South West

Alison Fulford Carbon Technical Lead

National Grid Electricity Transmission



Delivering a sustainable electricity transmission network

Our ambition

The changes we are proposing to our Environmental Action Plan in T3 will support the energy transition in a way that achieves sustainable operations and contribute to a nature positive future, whilst being respectful of planetary boundaries.

How we deliver is as important as what we deliver

Pillars

Goals

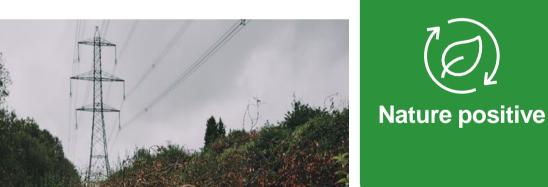
Metrics

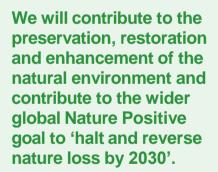
Delivering in the South West



We will achieve net zero by 2050, ensuring alignment to climate science and industry best practice to avoid the worst effects of climate change on people and the planet.

- 50% reduction in scopes 1 and 2 emissions from 2018/19 baseline;
- 50% reduction in SF6 emissions by 2030 from a 2018/19 baseline;
- 20% substation energy efficiency improvement from a 2022/23 baseline;
- Purchase 100% zero emission vehicles for our light-duty fleet;
- Deliver our construction projects as low carbon intensity as possible;
- Achieve net zero emissions for our corporate property office estate.





- Deliver at least 10% or greater Biodiversity Net Gain (or equivalent in Wales) plus wider environmental and societal benefits.
- Advance understanding in the development and delivery of effective marine restoration and enhancement;
- Work with grantors to deliver nature connectivity.
- Disclose our material nature-related risks and opportunities.





We will operate within the limits of our planet by seeking to eliminate pollution and restrict the use of finite resources. so that humanity can continue to develop and thrive for generations to come.

- Improve our circular economy maturity levels and aim to be in the 'engaged' level in BS8001 circular economy standard;
- Deliver zero avoidable waste in construction
- Requirements for 10% recycled / reused content in key construction materials.

Case study

Hinckley Connection Project

The 57km, high voltage Hinkley Connection between Bridgwater and Avonmouth in the South West is bringing low carbon, homegrown energy to six million homes and business across the UK. National Grid has installed overhead conductors on all 116 of its new T-pylons.

As well as connecting millions of homes and businesses to low carbon energy National Grid is committed to leaving an environmental legacy as part of the Hinkley Connection Project.

Nature

2,500 trees planted along Hinkley Connection route.

Reducing waste Five wooden cable drums to the Bristol Wood Recycling Project, saving 750kg of wood from going to waste.





Update from the DNOs

Please post any questions you have for us via Teams Q&A function or through: pathwaytonz@nationalgrid.com

Update from Scottish and Southern Electricity Networks

Andy Wainwright

Whole System Manager







THE SSEN STRATEGIC PLANNING PROCESS

Making decisions today in light of long-term and whole system needs.

Forecasting needs



Create strategic plan ()



Develop detailed options

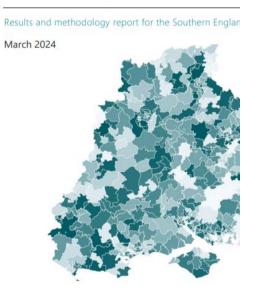


Deliver projects



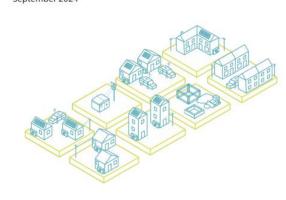


SSEN DISTRIBUTION FUTURE **ENERGY SCENARIOS 202**



JUST TRANSITION, **VULNERABILITY AND FUTURE ENERGY SCENARIOS**

regens









COWLEY GSP EXAMPLE

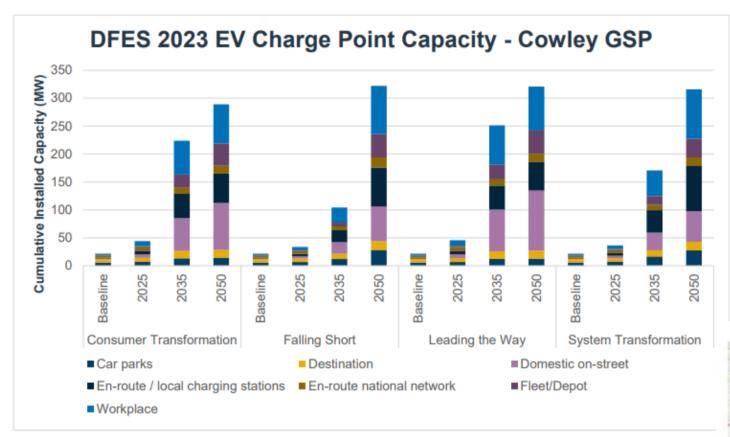
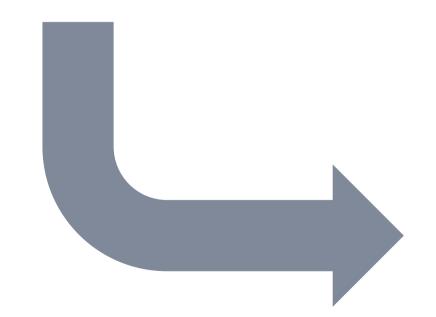
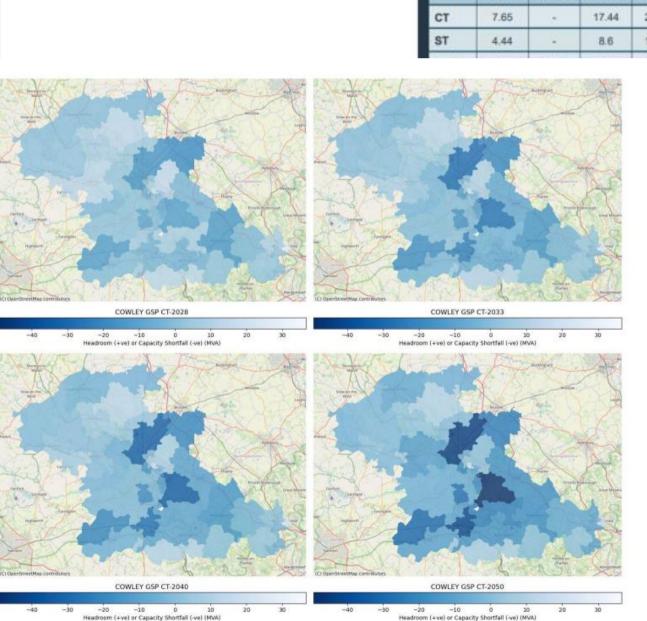


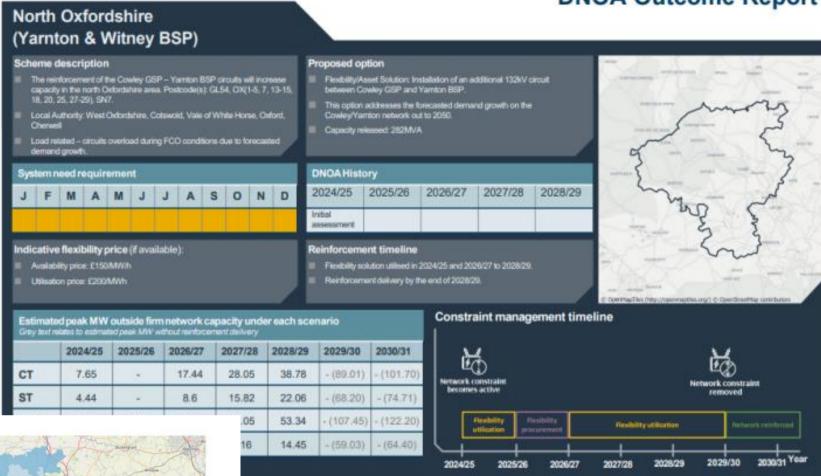
Figure 9 Projected EV charge point capacity across Cowley GSP. Source: SSEN DFES 2023.



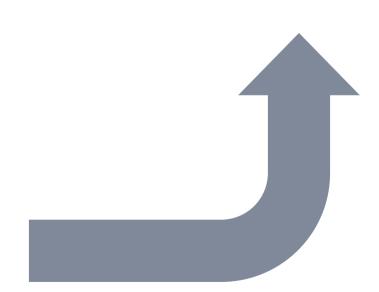


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DNOA Outcome Report



stcomes Report November 2024 - Ref. 1124-17





Update from National Grid Electricity Distribution

Emily TaylorRegional Decarbonisation Manager



Planning our future distribution network

Emily Taylor

DSO Strategic Engagement Officer



What we are working towards

We are committed to evolving and improving how we collaborate and coordinate the local energy transition across the whole system, in partnership with key stakeholders, working together in order to identify network improvements required for decarbonisation.

We are taking a more strategic approach to how we design and build our distribution network going forward with strategic investment that is evidence based.

This approach is based on open and transparent conversations about our network and doing all we can to support our stakeholders achieve their decarbonisation aspirations

Investing in our network

Strategic Investment Process



Forecasting



Network Impact Assessment



Optioneering



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

future

The Network

Development Plan

(NDP) uses forecasts
to analyse and identify
future network
constraints

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

Network Investment and the Importance of Stakeholder Engagement

Our strategic investment process will ensure we:

- Maximise the use of 'hidden' capacity on the network, whilst ensuring network investment is delivered when it's needed and to keep consumer bills low in the process.
- Collaborate and coordinate across the whole-system, to help stakeholders achieve their decarbonisation plans.

Please scan the QR codes below for further details of our Distribution Future Energy Scenarios (DFES), Network Development Plan (NDP) & Distribution Network Options Assessment (DNOA)







Thank you for listening.

If you have any questions you can email nged.energyplanning@nationalgrid.co.uk.

National Grid Electricity Distribution plc. Avonbank Feeder Road Bristol BS2 0TB

nationalgrid.co.uk



Introduction to the NESO

NESO update on Strategic Energy Planning (SEP)

January 2025

Kieran Highman – RESP Regional Manager – South West

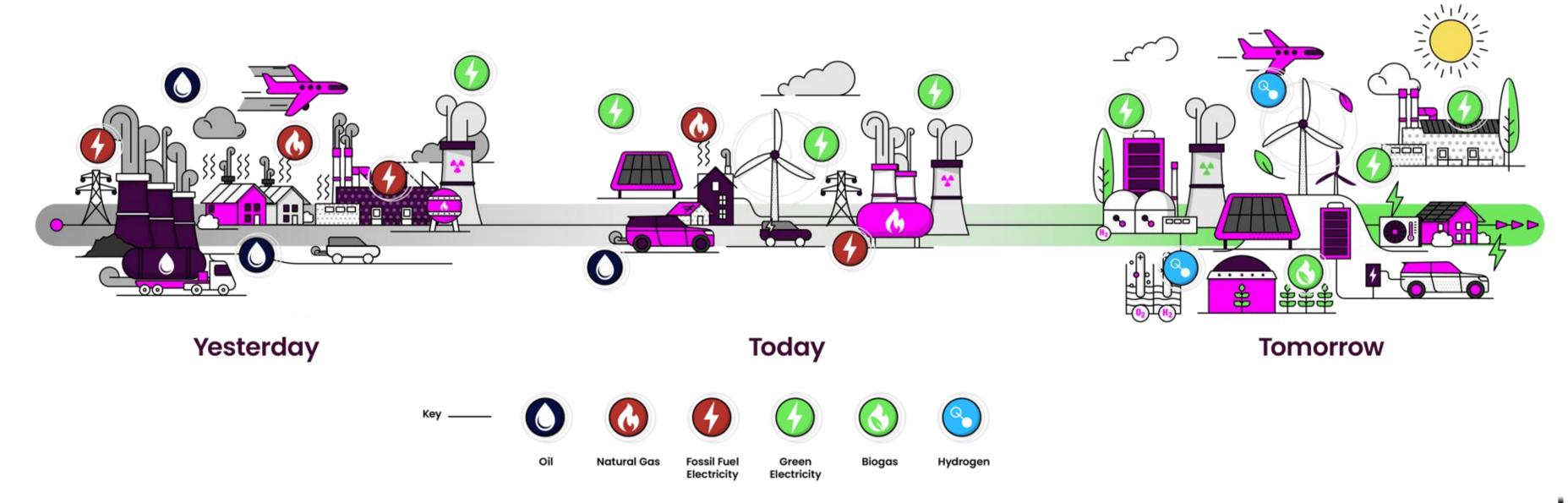
Regional Energy Strategic Planning National Energy System Operator





A changing energy landscape

- The energy system is critical to almost all aspects of our daily lives and fundamental to decarbonising the economy.
- The way we use, store and source energy is significantly changing and we have an opportunity in this period of change to shape an energy system that fosters economic growth and prosperity for Great Britain, creating jobs and building skills.
- This valuable opportunity will help protect the environment for current and future generations and ensure energy is affordable for everyone.





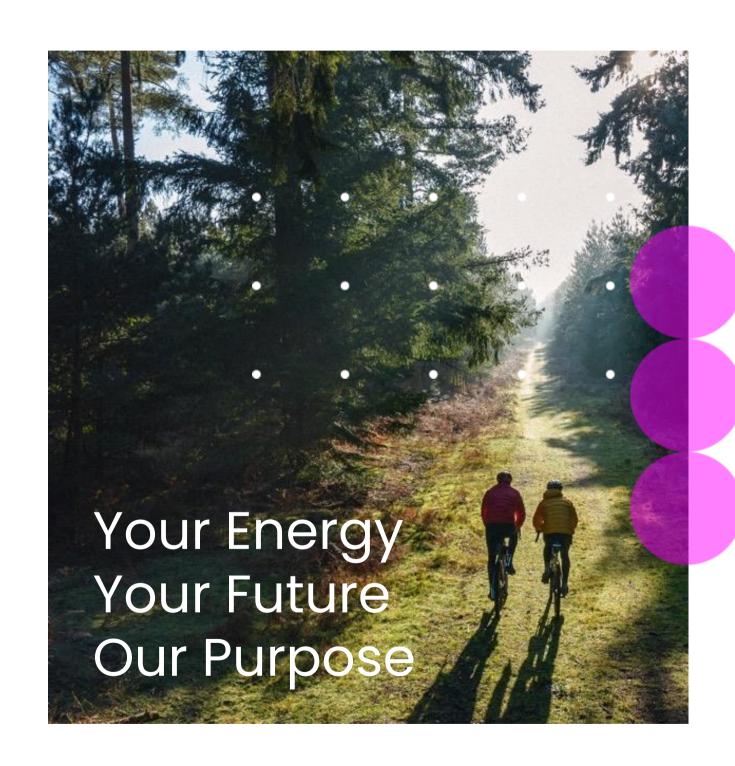


1. National Energy System Operator overview

Who we are:

The National Energy System Operator, NESO, is an independent, public corporation at the centre of the energy system taking a whole system view to create a world where everyone has access to reliable, clean and affordable energy.

Our work will be the catalyst for change across the global community, forging the path to a sustainable future for everyone.





Our Purpose, Vision And Values



Our purpose is to forge the path to a sustainable future for everyone.



Our vision is a future where everyone has access to reliable, clean and affordable energy; our work will be a catalyst for change across the global community.

Our values are what define us, setting the foundation for our purpose and guiding us as we move towards achieving our vision.



Accelerate Progress
We deliver better
outcomes at pace when
we take accountability,
are courageous and
progress the bigger
picture.



Be Curious
We achieve more when
we demonstrate a
growth mindset, being
curious, asking questions
beyond and within our
organisation to develop,
learn and innovate.



Build Trust
We build trust when we
listen to and understand
the needs of our colleagues
and customers, are
transparent with our actions
and deliver on our
commitments.



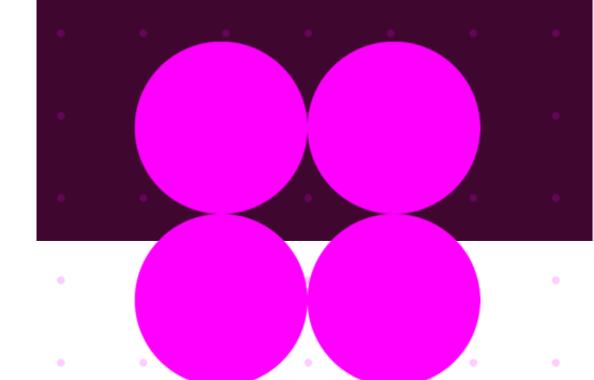
Create Belonging
We perform at our best
when we can be our true
selves, embrace diversity
and are truly inclusive.



Our Governance

NESO is operationally independent of government. We plan the electricity and gas systems and operate the electricity system.

Being independent means we can give impartial recommendations to the government and the regulator.



Our shareholder



The Department for Energy Security & Net Zero is responsible for national policy and providing strategic direction and targets in relation to UK energy

Our regulator



Ofgem is the energy regulator for Great Britain

Independent NESO Board

The NESO Board oversees our strategic direction, ensuring compliance with regulations and mitigation of corporate risks.

The Board ensures that we build strong relationships with customers and it evaluates performance.

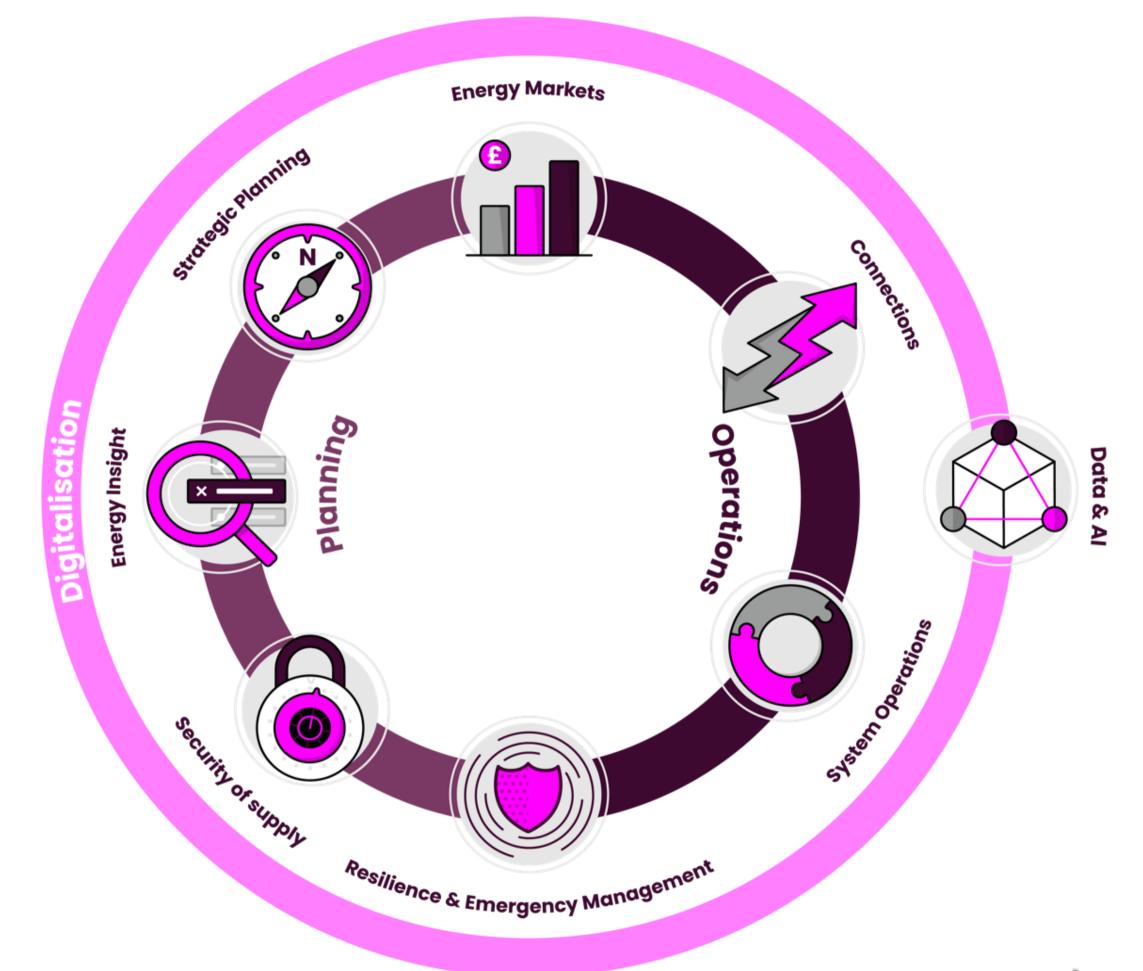


What we do:

We bring together eight activities required to deliver the plans, markets and operations of the energy system of today and the future.

Bringing these activities together in one organisation encourages holistic thinking on the most cost-efficient and sustainable solutions to the needs of our customers.

https://www.neso.energy/whatwe-do





2. Strategic Energy Planning (SEP) overview

Pre 2030 Post 2030

CP2030

Advise government on which network upgrades, market and policy decisions could accelerate the development of a clean power electricity system by 2030.



UK Government response to CP30 advice to be published by end of 2024 Adopted Clean Power
2030 advice by
Government feeds into
the background
assumptions
underpinning all three
Strategic Plans.

Supply and demand projections from Future Energy Scenarios (FES)



DESNZ data inputs and assumptions

SSEP

Spatially maps out the energy assets necessary to meet 2050. Focus on optimisation of cost, environment, community impact.

Key stakeholder inputs



Environmental, societal and technical perspectives

CSNP

Whole system plan for the development and assessment of high-level investment options for transmission networks.



Long term feedback loop



RESP

Focus on developing whole system, cross-vector regional plans with input from local actors.



Strategic Spatial Energy Plan (SSEP) overview

Accelerate clean, affordable, secure energy through certainty

The SSEP will accelerate and optimise Great Britain's transition to clean, affordable and secure energy by taking a holistic approach and providing greater certainty for key stakeholders.

Zonal approach, taking account of environment and communities

Splitting Great Britain's energy system into zones to assess the optimal locations for electricity generation and storage of electricity and hydrogen.

Options identified using economic, environmental and technical input, with considerable societal, stakeholder and political engagement planned.

SSEP will not focus on specific projects, leaving the energy market or subsequent processes to determine the specific projects and exact locations.



CSNP framework

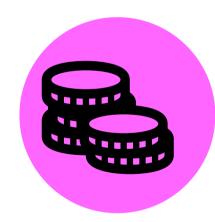
Our vision

Provide an **independent, coordinated, and longer-term approach to wider network planning** in GB to help meet the government's net zero ambitions

Provides a network blueprint for the country, mapping demand and optimal locations for onshore and offshore transmission infrastructure to support a decarbonised energy grid.



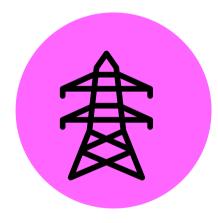
25-year horizon, on a three-year cycle



Co-ordinate reinforcements and anticipate investments ahead of infrastructure delivery



Balance development against environment/community impacts to maximise benefits



Understand transmission infrastructure needed for onshore/offshore electricity transmission and interconnectors **NESC**

Regional Energy Strategic Plans (RESP)

Why?

To achieve local and national net zero targets we need:

- 1. To accelerate electricity network investment enable heat & transport decarbonisation
- Consistency same approach for all network companies
- Whole system joined-up plan for all aspects of energy system

Where? (proposed)



Who? (proposed)

Ofgem – defining role

NESO – delivering role

Strategic Boards & Working Groups

Local authorities:

England: CAs, CCs, unitaries Scotland & Wales: unitaries

Networks: DNOs & GDNs

Other local actors: relevant to energy system & spatial planning

NESO

National Energy System Operator

Draft RESP Outputs

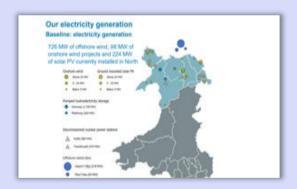
Ofgem have outlined 3 building blocks that the NESO RESP must deliver. So far, we have identified **6 key outputs** that will enable the NESO RESP Team to deliver credible whole energy regional plans. These outputs will be refined and validated when developing the RESP Methodology.

The Regional Energy Strategic Plans

The RESPs will develop future energy pathways and hotspots where strategic investment need is likely to arise to meet the regional energy visions

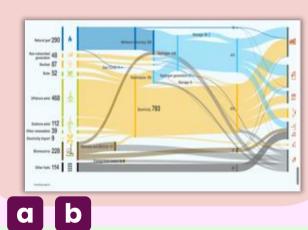
Regional Energy Vision

RESP will enable distinct Regional Energy Visions, reflecting local needs, to collectively support national objectives



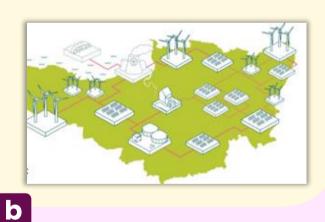
Regional Pathways

RESP will create Regional Pathways built from bottomup that are coherent with national needs. NESO will also develop consistent planning assumptions



Spatial System Need

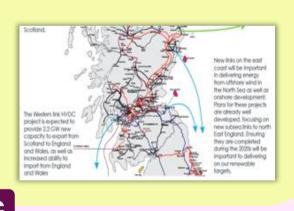
RESP will identify strategic investment needs as well as spatial cross-vector system needs, resulting from the pathways considering network constraints



Support for price controls

Network plan Technical coordination

RESP will assure that regional network investment plans are integrated across vectors, built on consistent assumptions and deliver regional needs at pace, within national constraints



Societal

Impact

Assessment

The RESP Team will

review the societal

impact at a local

level of the energy

transition (including

jobs, transport,

industry, environment

etc.

Regional Geospatial Energy Plan

RESP Team will develop geospatial regional plans that provide transparency and visibility to local communities and national stakeholders. The RESP Team will continue to track and monitor the delivery of the RESPs including Strategic Investments.

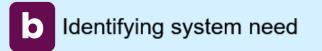


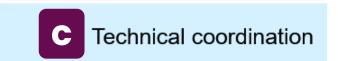






Modelling supply and demand

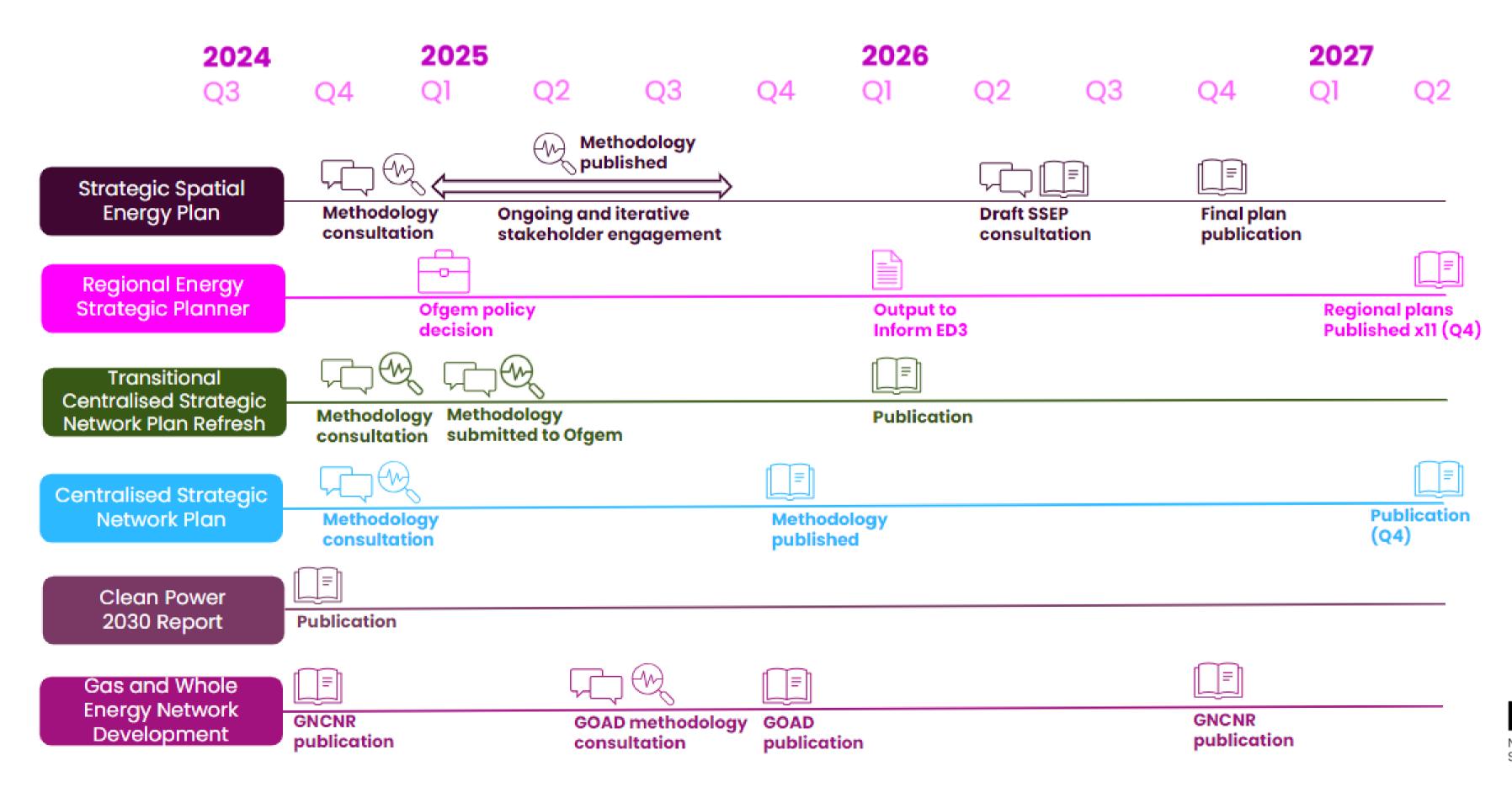






3. Next steps - High level milestones*

*These are indicative dates and subject to change.

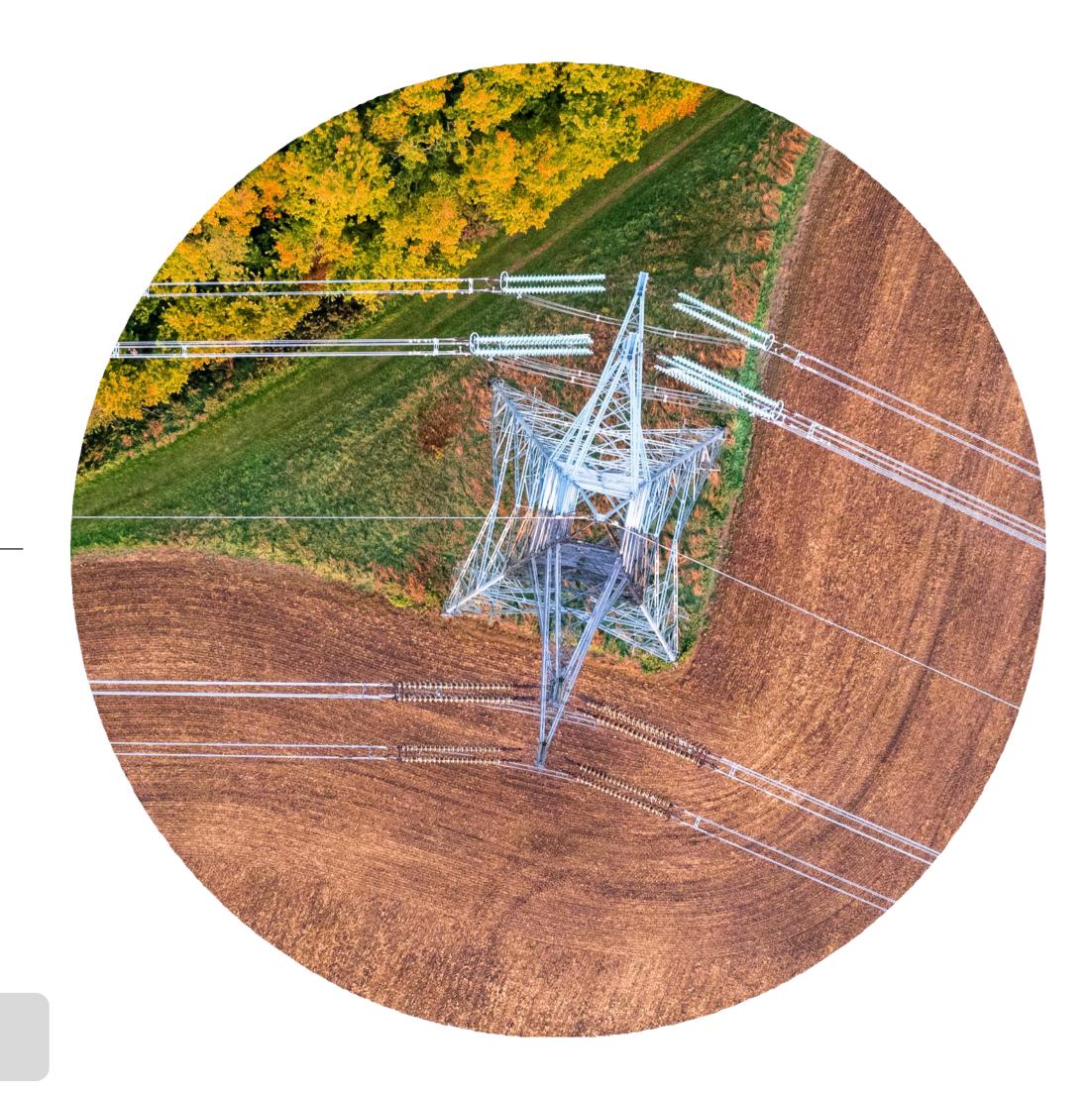






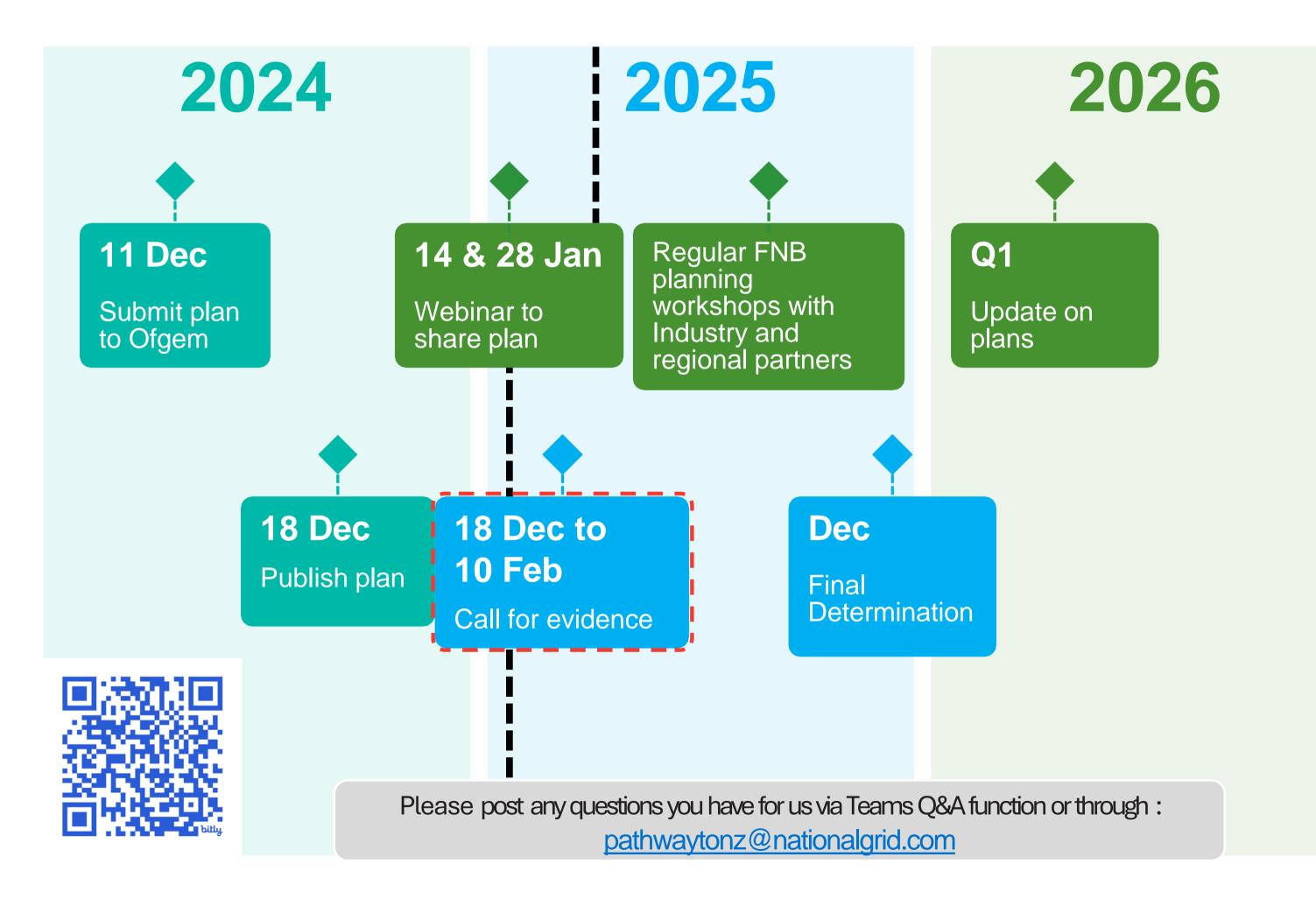


Timeline



Please post any questions you have for us via Teams Q&A function or through: pathwaytonz@nationalgrid.com

Planning next steps for the South West



Ofgem's Call for Evidence 18 December to 10 February

All responses welcomed

Your response will help to inform Ofgem's Final Determinations.

Please send your response to RIIO3@ ofgem.gov.uk

More information at Ofgem Call for Evidence RIIO-3

Q&A

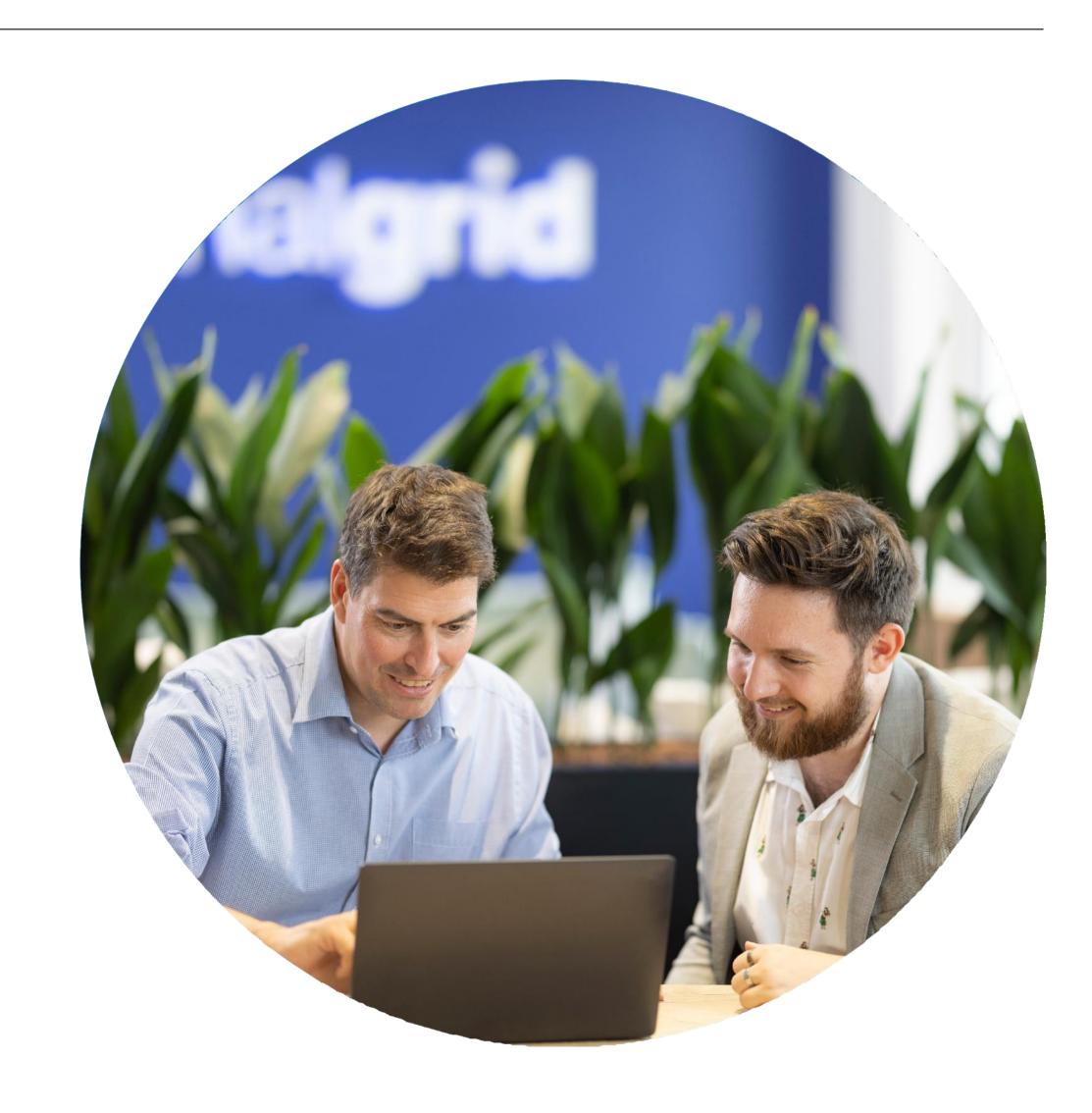
Please post any questions you have for us via Teams Q&A function or through:

pathwaytonz@nationalgrid.com



We welcome your feedback on what you have heard today, our FNB process and how we can work better together?

Please get in touch via pathwaytonz@nationalgrid.com



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Our approach to local engagement

We consult and work with local residents, their representatives and statutory stakeholders through all stages of the planning and construction process.

Our approach is underpinned by the 5Cs:

- Communities play a vital role and should see the benefits from hosting new infrastructure.
- We undertake the highest standards of consultation.
- We identify and **collaborate** with partners to deliver tangible community benefits.
- Our communications campaigns will clearly explain the need for a reliable decarbonised grid, and greater energy security for Britain.
- Our **colleagues** are experts in the energy sector, land, planning and the environment.

How we engage with local communities

We consult and work with local residents and their representatives through all stages of the planning and construction process.

- Consultation and information events
- Stakeholder briefings
- Public webinars
- Community newsletters
- Dedicated e-mail and phone services
- Project websites



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