

East Anglia focus RIIO-T3 Webinar

nationalgrid

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

Agenda

Introduction	5 mins
Forming Future Network Blueprints	10 mins
East Anglia Future Network Blueprint	10 mins
Next Steps	5 mins
Environment commitments	5 mins
Update from UK Power Networks	10 mins
Update from NESO	15 mins
Questions and Answers	30 mins

Introduction

Lauren Buchalter

Director Strategy & Transformation

National Grid Electricity Transmission



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

pathwaytonz@nationalgrid.com



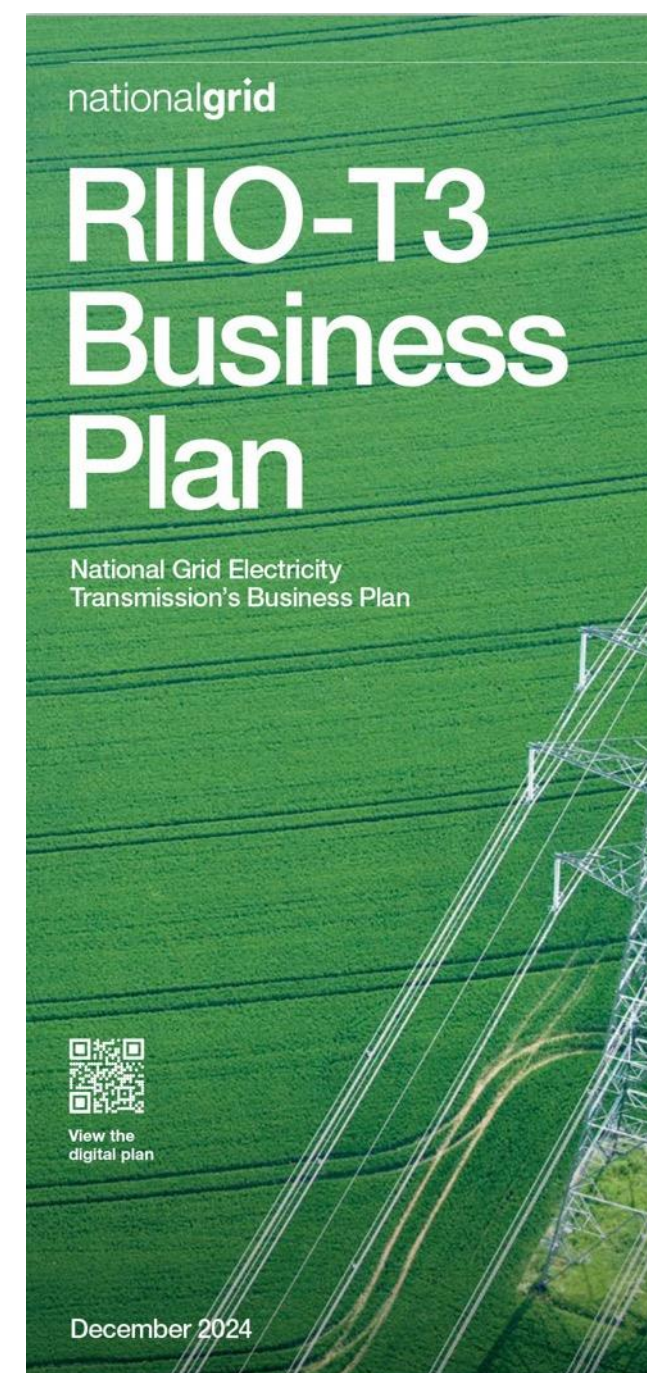
We own and operate
the transmission network
that is the backbone
of electricity system in
England and Wales

The objective of today's webinar is to set out the East Anglia view of the future network outlined in our business plan for 2026-2031.

Our £35bn business plan was submitted in December 2024 and is being 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.

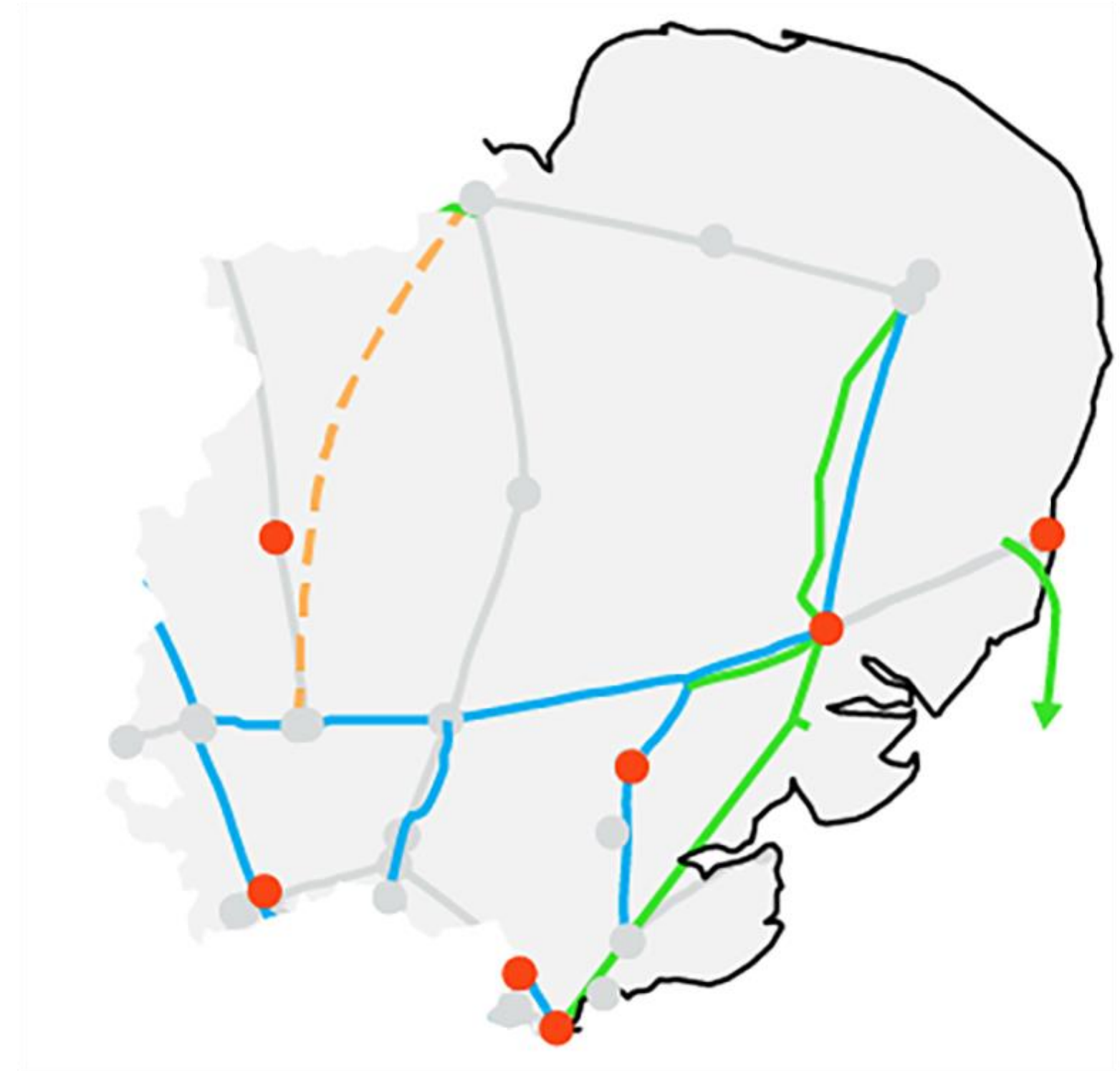
We want stakeholders to be involved in the 'call for evidence' that Ofgem has opened as part of the RIIO-T3 price control process and to feel well-informed on what is included in our plan and why.



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 Electricity System Operator (NESO), to gather perspectives and co-create our network plans.

Forming the Future Network Blueprints

Presenter:

Ben Haggerty
Head of Whole Systems

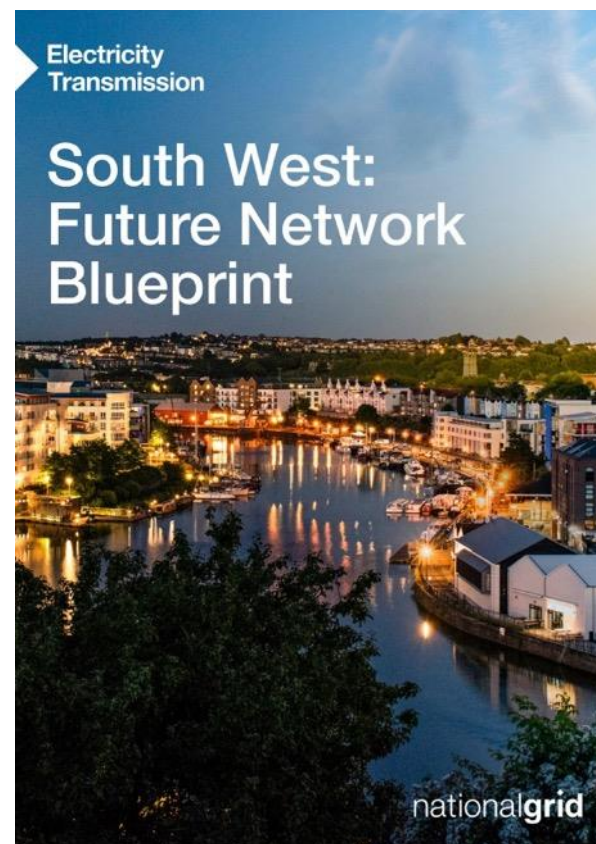
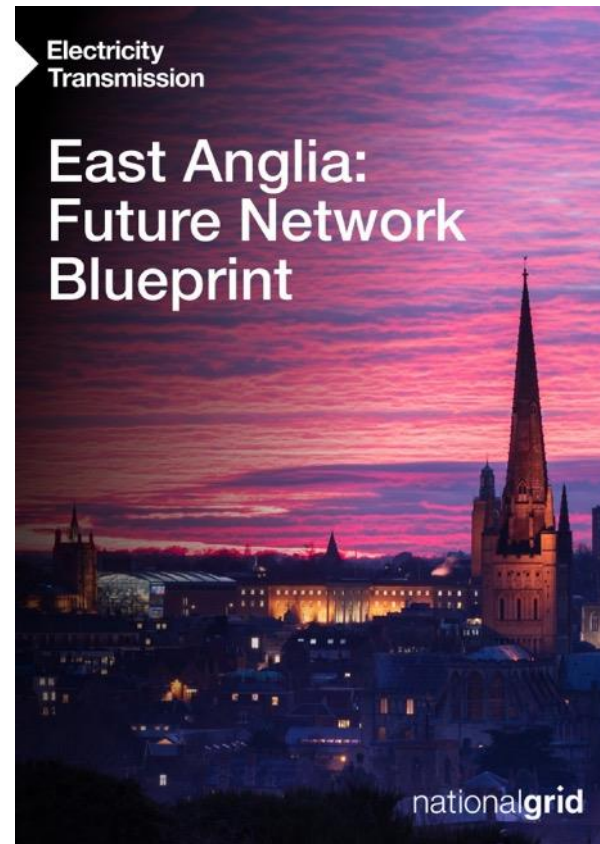
National Grid Electricity Transmission

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Future Network Blueprints



What are they?

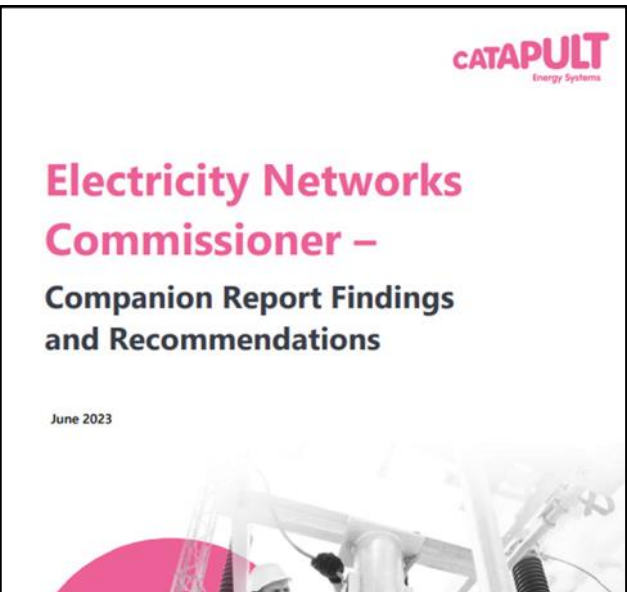
A single and coordinated ‘best view’ of the work needed across different regions of our network across England and Wales to enable the overall transition to net zero.

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



National Grid Electricity Transmission and other network companies

Ofgem

Mission Control

Customers
Consumers
Communities

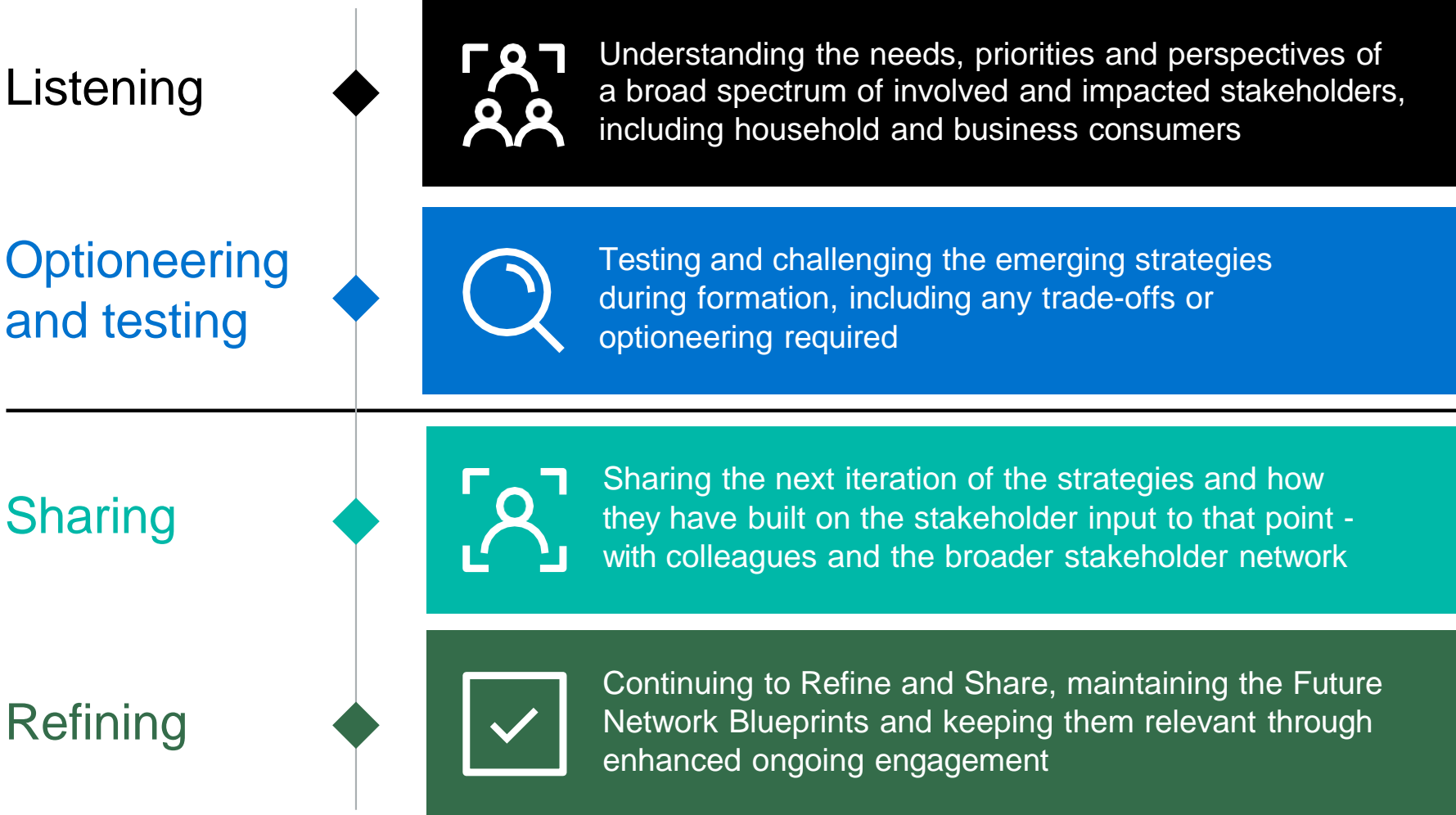
National Energy System Operator

Department for Energy Security & Net Zero



Our overarching 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...



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


12,000
voices

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


23,000
residents

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


35
workshops

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


 During our listening phase we got to understand the detail...

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

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

 Local network needs differ, requiring a more focused approach

 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 overarching ambitions which shape our plan

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

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

Ambition A
Deliver the grid of tomorrow, today

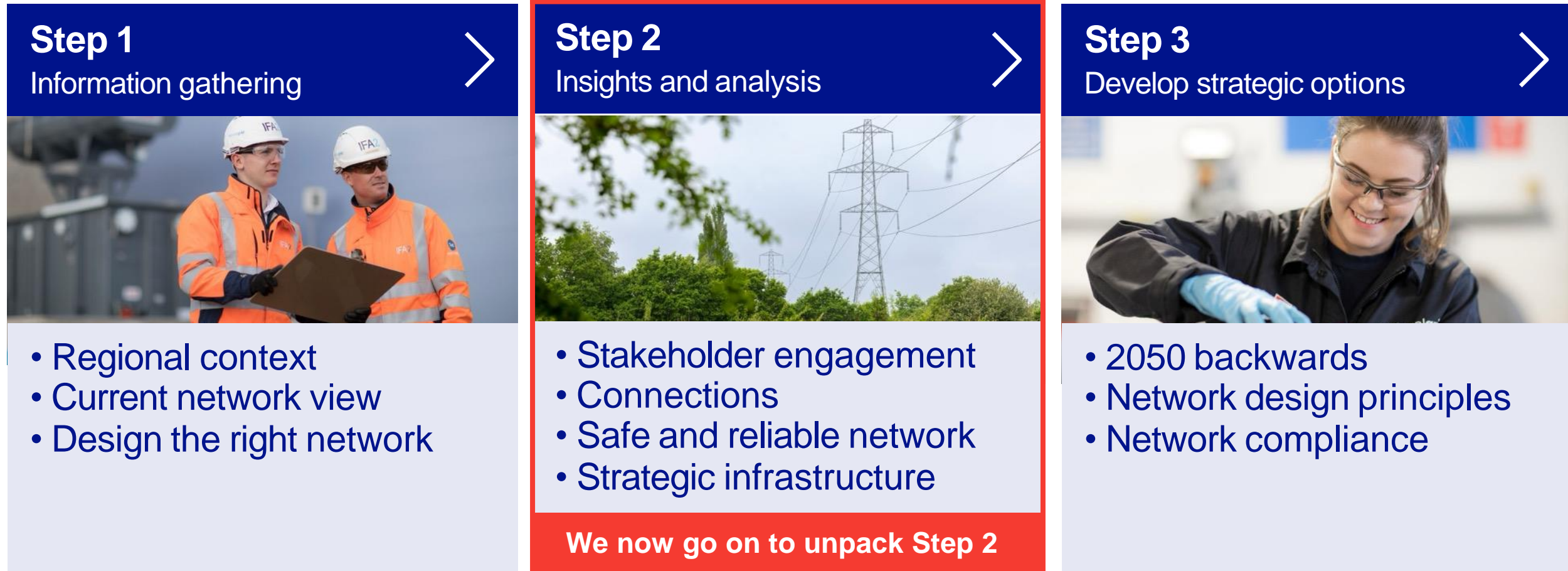
Deliver with urgency the Transmission Network needed for Great Britain's future growth and decarbonisation

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



East Anglia Future Network Blueprint

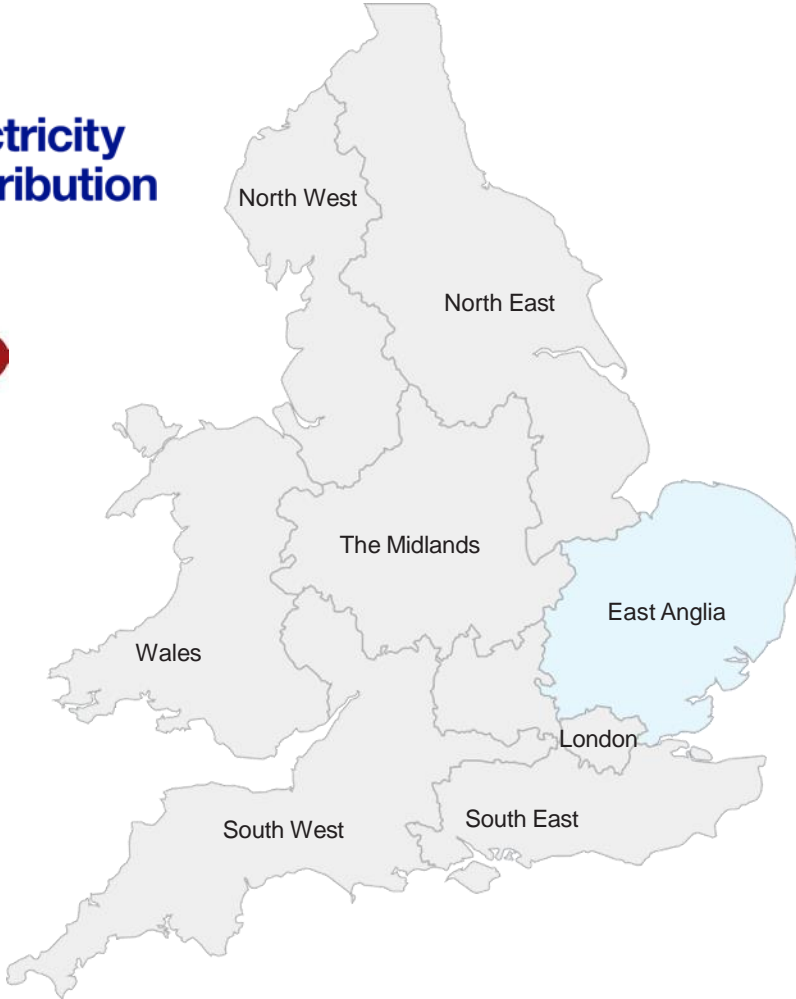


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East Anglia | Stakeholder Engagement

Distribution networks



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

15
Indicates the number of whole system opportunities we have already identified in the East Anglia

What does the term 'whole systems thinking' mean to you?
Pathway to Net Zero workshop, poll base: 69



What did stakeholders in the East Anglia initially tell us?

'In terms of planning strategically... we need to know where the **connections** are, what the **capacity is**, and to get those developers to engage with us sooner rather than later.'
(Local Authority)


'**Better communication** between local area energy planning strategies and other organisations is needed.'
(Local Authority)


'Anticipatory investment would **reduce connection timescales**. We're not thinking about what might come, but what's there already.'
(Local Authority)


80%
Connections timescales have impacted my organisation's plans
(Pathway to Net Zero Workshop, 2023 - poll base: 57)

East Anglia | 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 East Anglia 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.





 **2**
High voltage substations identified in region that require enhanced asset health intervention


 **5 km**
Overhead line in region that requires replacement in the next 10 years

Asset health intervention regional metrics

 **1**
Super grid transformer

 **62**
Circuit breakers

 **58**
Voltage management assets

 **355**
Bay assets

East Anglia | Customer Connections

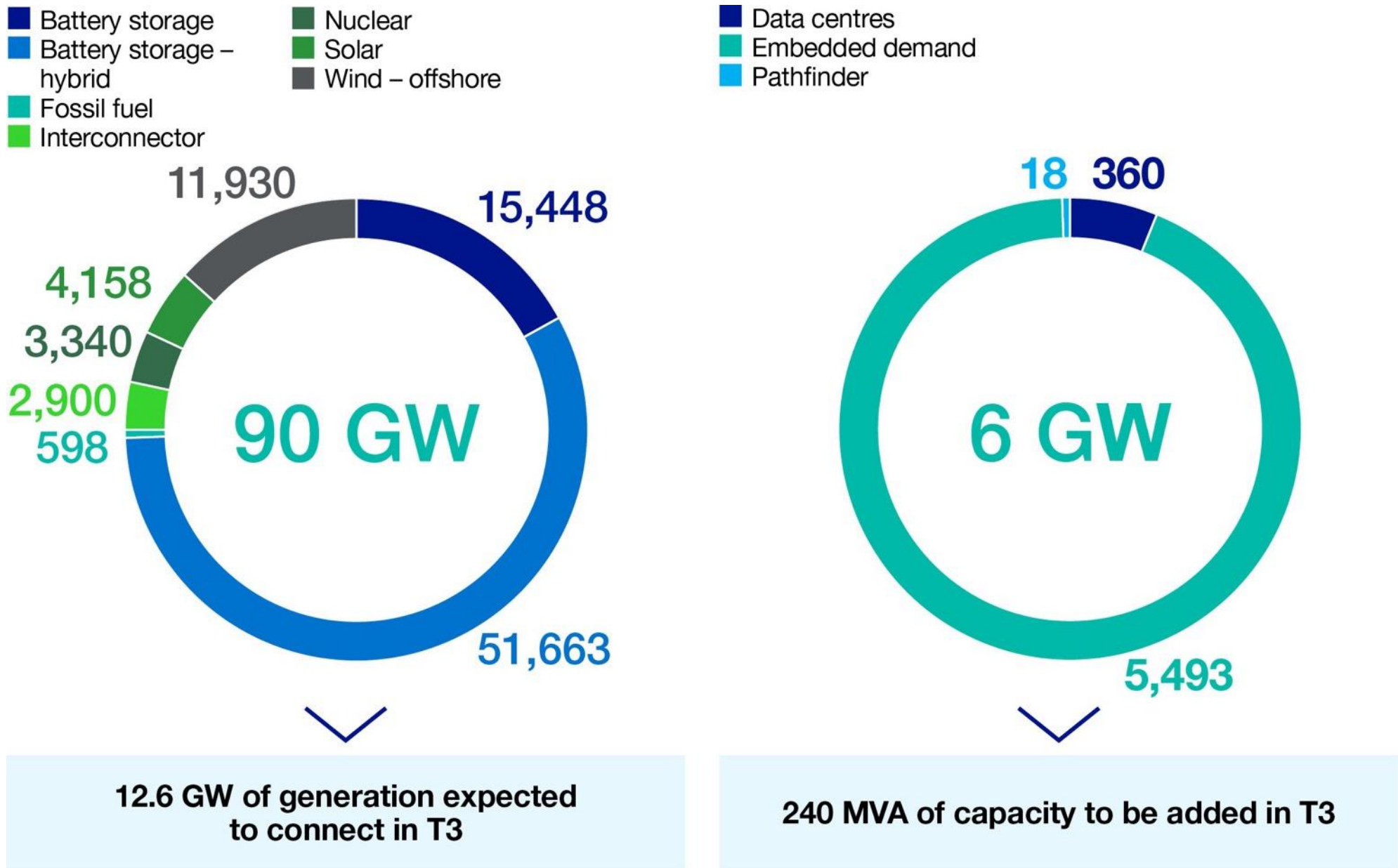
We need to make it easy to connect and use the electricity network

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.



12.6 GW of generation expected to connect in T3

240 MVA of capacity to be added in T3

Customers have contracts for new connections to 2037 that would deliver **90 GW generation** and **6 GW of demand connections** in this region.

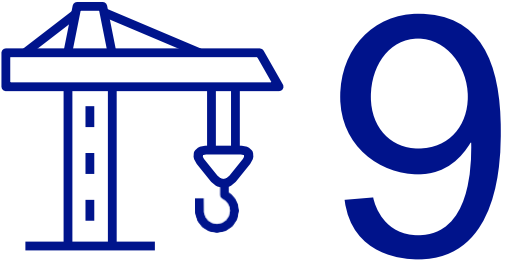
East Anglia | Strategic Infrastructure



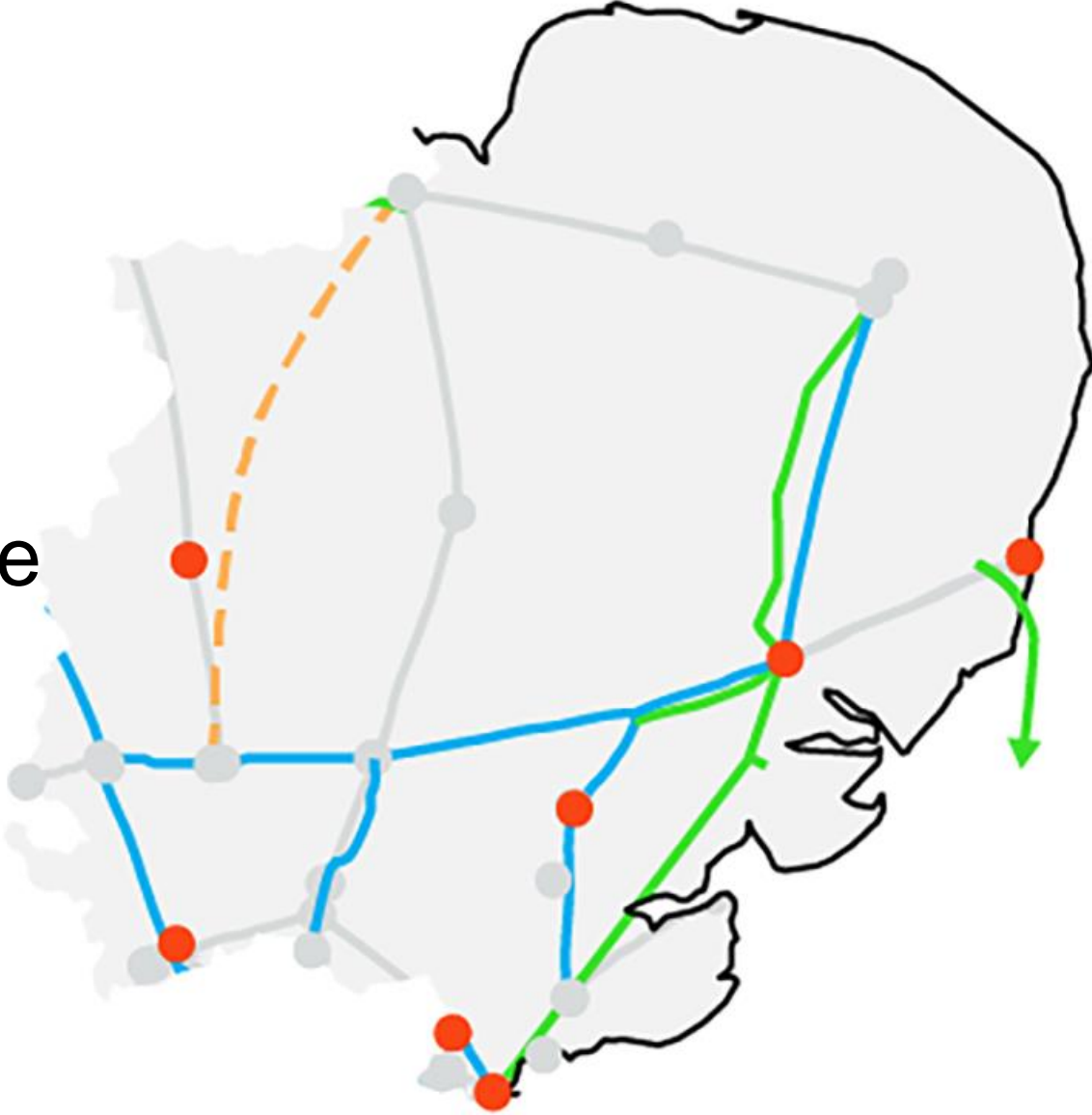
The National Energy System Operator (NESO) is responsible for identifying and timing of new strategic infrastructure on the electricity transmission network by incorporating;

- 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.



Strategic Infrastructure projects in East Anglia through RIIO-3 & beyond.



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

East Anglia | Plan Overview

National Grid’s electricity transmission strategy in the East Anglia focuses on upgrading and expanding the network to support substantial renewable energy integration and enhance grid resilience.

Many of these reinforcements are being delivered through the Great Grid Update initiative which supports the region's increasingly strategic role in the UK's energy transition.

Alongside these projects, we are also enabling capacities at distribution level. In addition, we are enabling the connection of new Sizewell C nuclear generation that will further support the long-term security and resilience of the UK energy supplies.

£9.6bn
of investment

to maintain, upgrade and develop our network in T3

6 GW
demand

contracted to connect*; **240 MVA** of additional capacity expected to be installed in T3

90 GW
generation

contracted to connect*; **12.6 GW** estimated to connect in T3

340 km
of overhead line

reconductoring planned within T3**, equating to 24% of the region

13
substation investments; 8 new and 5 major interventions in the region

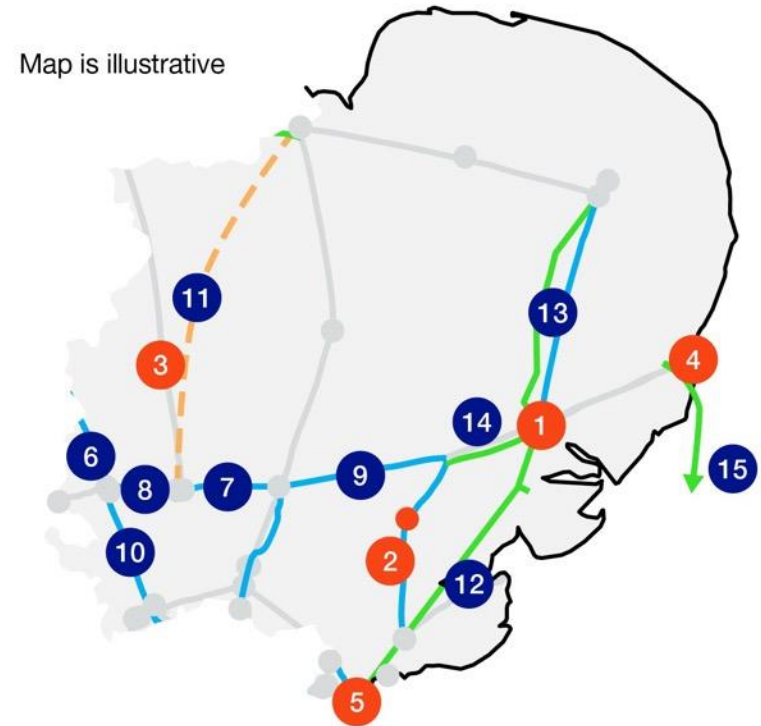
9
strategic infrastructure projects within the region

East Anglia Strategy

- Substations**
- 1 **Bramford GIS 400 kV**
Upgrade/extension – T3 period
 - 2 **Bulls Lodge 400 kV**
Upgrade/extension – T3 period
 - 3 **Eaton Socon 400 kV**
Rebuild – Beyond T3
 - 4 **Sizewell 400 kV**
Rebuild – Beyond T3
 - 5 **Tilbury 275 kV**
Rebuild – Beyond T3

8 In addition we will be investing in 8 new substations with the region.

- Major site strategy
- New substation
- Coastline
- Existing network
- Upgrade existing
- New build
- Developing only*



Circuits

- 6 **SGRE Grendon to Sundon 1 and 2** – Reconductor OHL circuit – T3 period
- 7 **Pelham to Sundon** – Reconductor OHL circuit – T3 period
- 8 **Sundon to Wymondley** – Reconductor OHL circuit – T3 period
- 9 **BPRES Bramford – Pelham – Braintree – Rayleigh** – Reconductor second main circuit – T3 period
- 10 **SER1 Elstree to Sundon 2** – Reconductor OHL circuit – T3 period
- 11 **LRN6** – New transmission capacity between South Lincolnshire and Hertfordshire – Beyond T3
- 12 **ATNC** – New circuit – between Norwich and Tilbury (South) – Beyond T3
- 13 **AENC** – New circuit – between Norwich and Tilbury (North) – Beyond T3
- 14 **BTNO Bramford to Twinstead** Reinforcement – T3 period
- 15 **SCD1 Sea Link HVDC link** between Suffolk and Kent – Beyond T3

*Including T3 and beyond
**Includes 99 km for BRRE which has already been completed in RIIO-T2

Next Steps



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

What's next for East Anglia 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 NGED and UKPN, stakeholders and newly formed NESO RESP team to evolve our 'Whole System' planning approach and regional plans.



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pathwaytonz@nationalgrid.com

Environmental Update East Anglia

Presenter:

Paul de Jong

Head of Environment,
Sustainability and Energy

National Grid Electricity Transmission

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

pathwaytonz@nationalgrid.com






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
 <p>Net Zero</p>	<p>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.</p>	<ul style="list-style-type: none"> • 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.
 <p>Nature positive</p>	<p>We will contribute to the preservation, restoration and enhancement of the natural environment and contribute to the wider global Nature Positive goal to 'halt and reverse nature loss by 2030'.</p>	<ul style="list-style-type: none"> • 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.
 <p>One planet living</p>	<p>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.</p>	<ul style="list-style-type: none"> • 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.

Delivering in East Anglia

Case study
The Great Grid Upgrade

The Great Grid Upgrade comprises 17 major infrastructure projects that will both scale up the grid and update our existing networks. It will enable us to carry more clean, secure energy from where it's generated – like out in the North Sea by wind turbines – to where you need it, boosting energy security and helping the nation become more self-sufficient.

For the Great Grid Partnership, we have committed to achieving a minimum of 10% BNG with an aim of 15% across the portfolio, whilst delivering this in a way that maximises the benefit to local communities and the environment.




Update from UK Power Networks

Presenter:
Ian Turpin
Regional Planning Manager
EPN North



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pathwaytonz@nationalgrid.com

About UK Power Networks



8.5 M homes and businesses

28% of UK Total

9.3GW+ Distributed Generation Connected

32% of UK Total

16GW+ Peak Demand

28% of UK Total

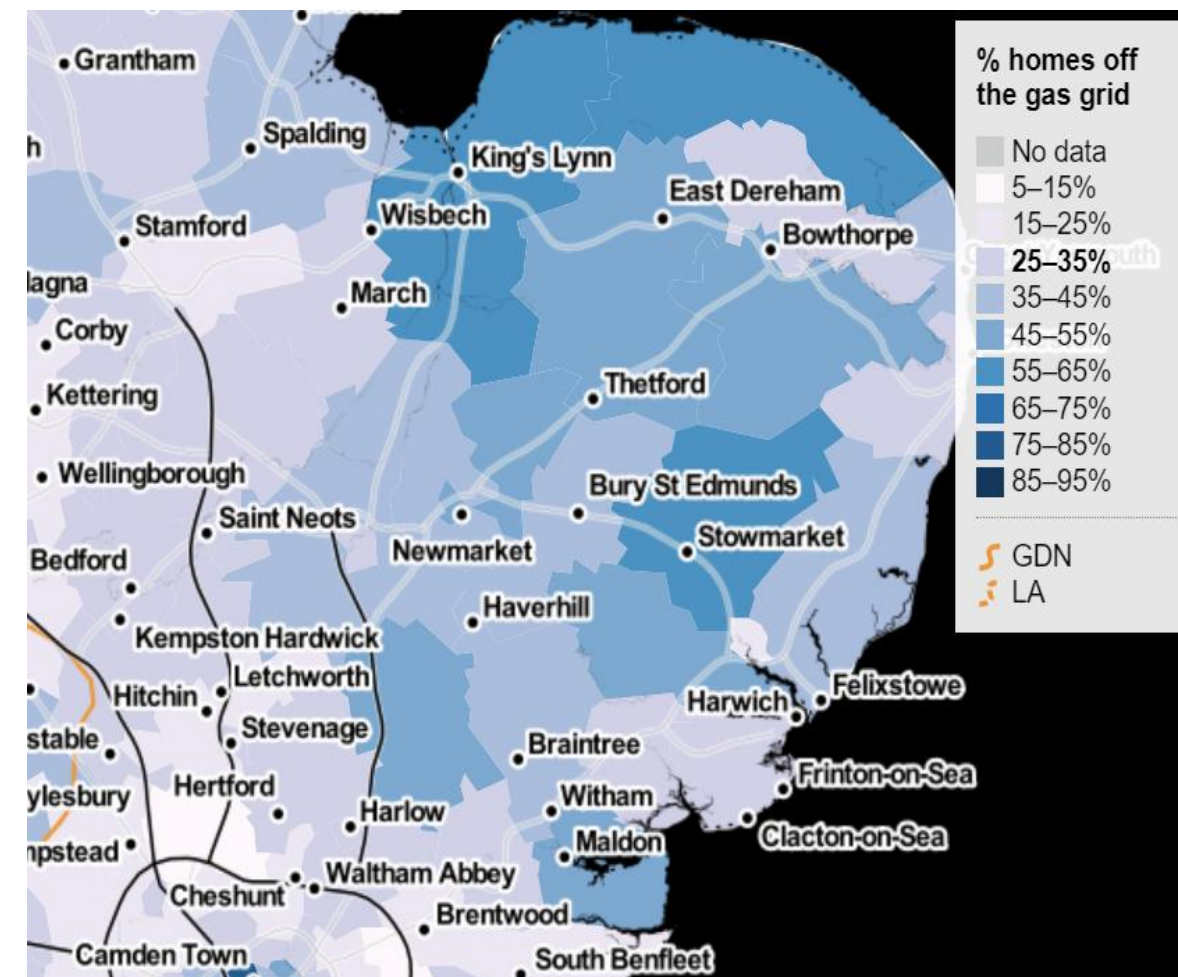
Regional Focus

- Ensuring we provide the best service and provide capacity for the future, three key focus areas across London and the East of England:
 - **Local Engagement**
 - Understanding growth across the region both in terms of energy use and future development areas.
 - **Detailed Forecasting Models**
 - Developing and sharing class leading forecasts which support co-ordinated collaborative working.
 - **Efficient Targeted Delivery**
 - Where investment is needed a flexibility first approach is driven to ensure rapid provision of cost effective capacity.



Examples of Work Underway

- Local Area Energy Planning
- Local Growth Enabling Projects
- Motorway Service and EV Hub capacity
- Capacity for off gas grid homes
- Enabling the Clean Power 2030 transition



Above: New transformer installed at Tilbury Grid, Essex

Left: Off Gas Grid Map (source nongasmap.org.uk)



Introduction to the NESO

NESO update on Strategic Energy Planning (SEP)

January 2025

Jon Morris – RESP Strategic Lead – East Anglia

Regional Energy Strategic Planning
National Energy System Operator

Overview

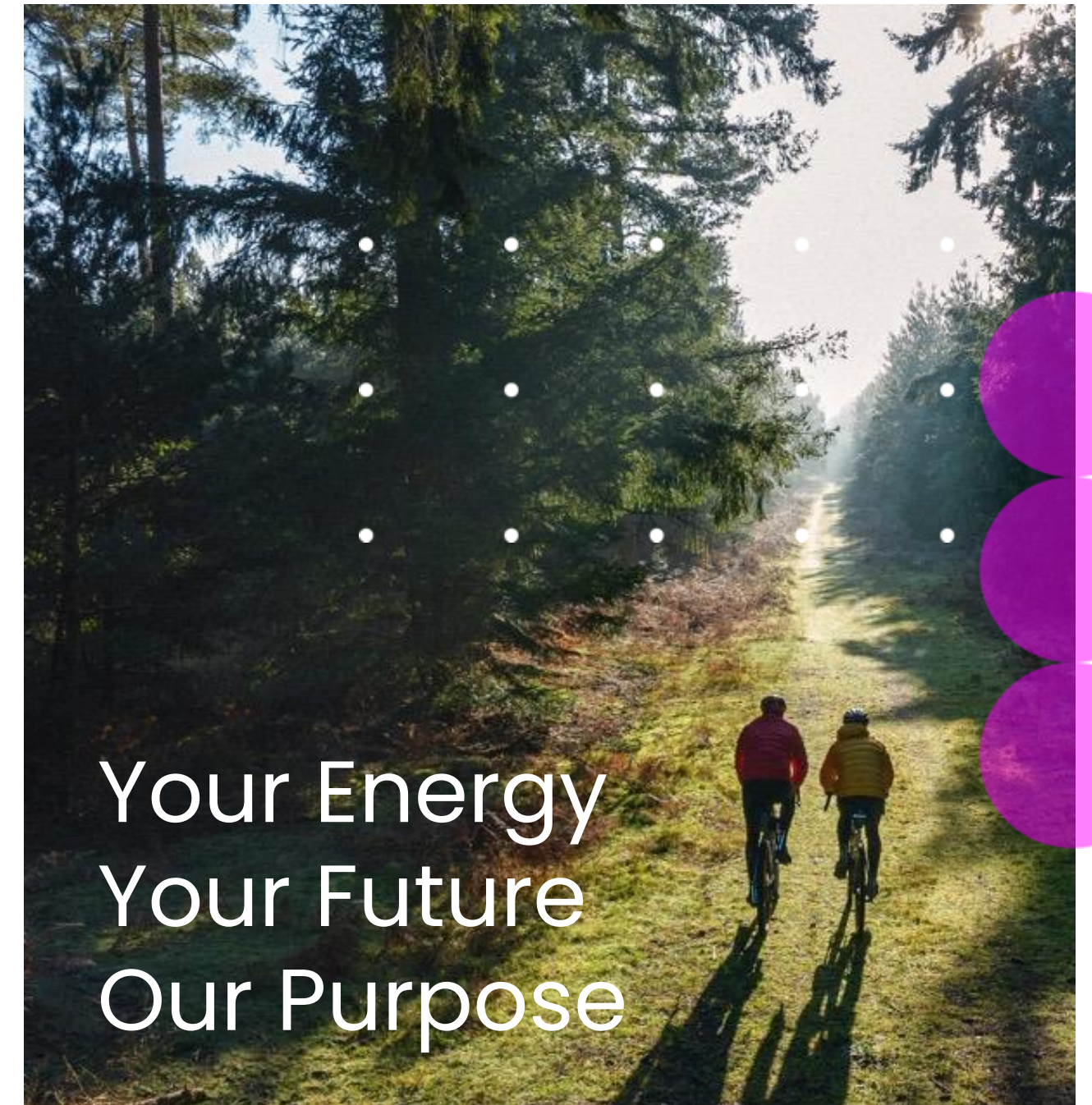
1. National Energy System Operator overview
2. Strategic energy planning (SEP) overview
3. Next steps (milestones)

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

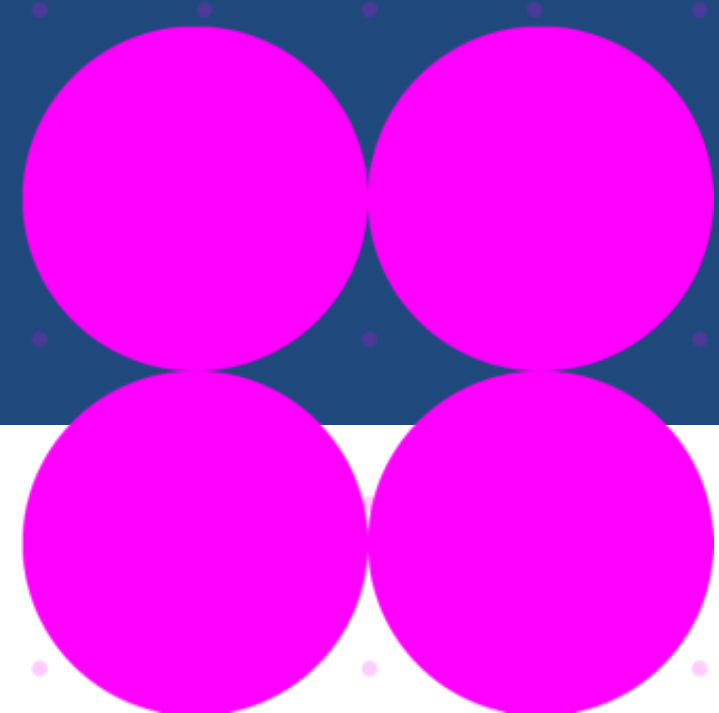


Ofgem is the energy regulator for Great Britain

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.

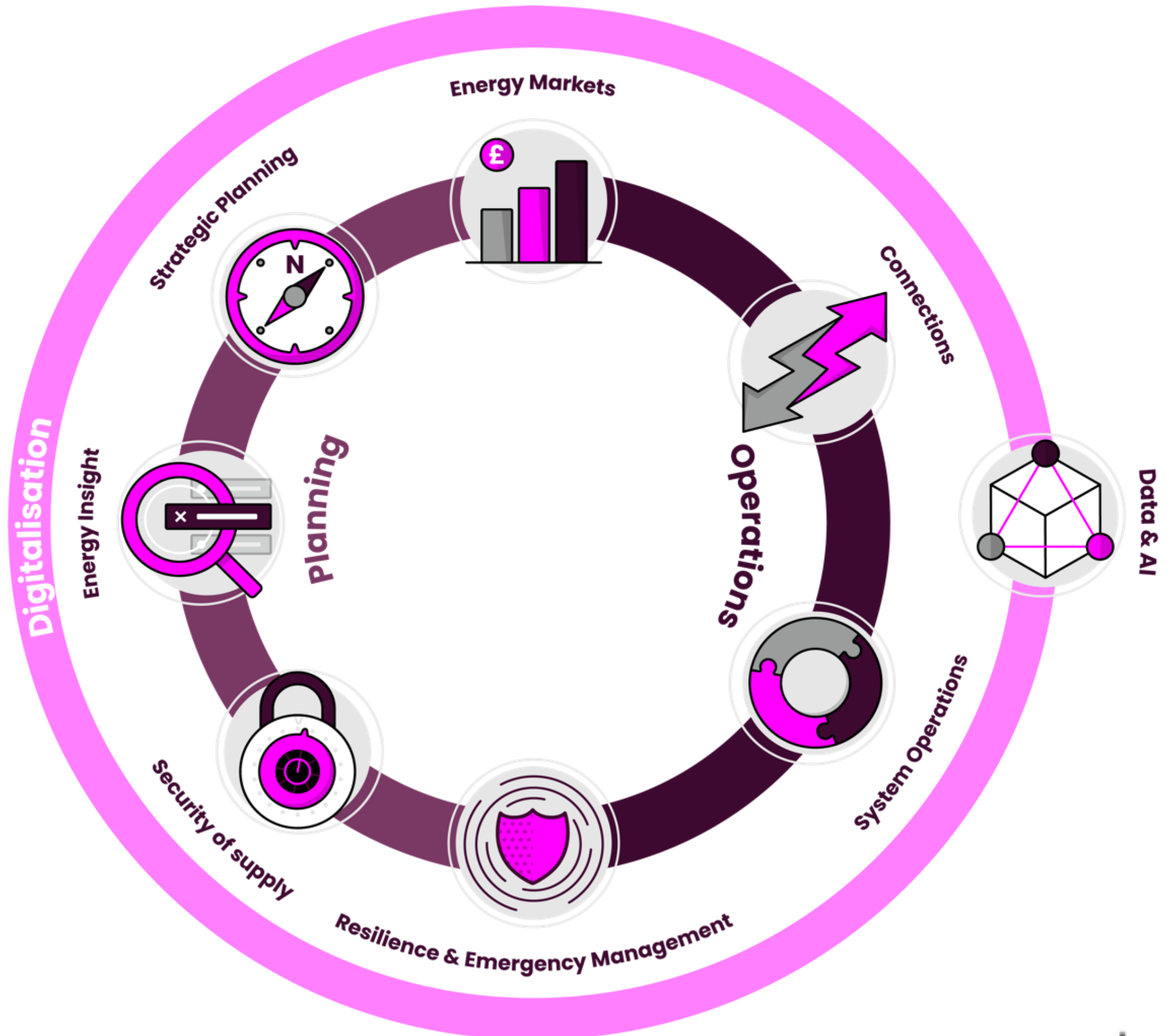


What we do:

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.

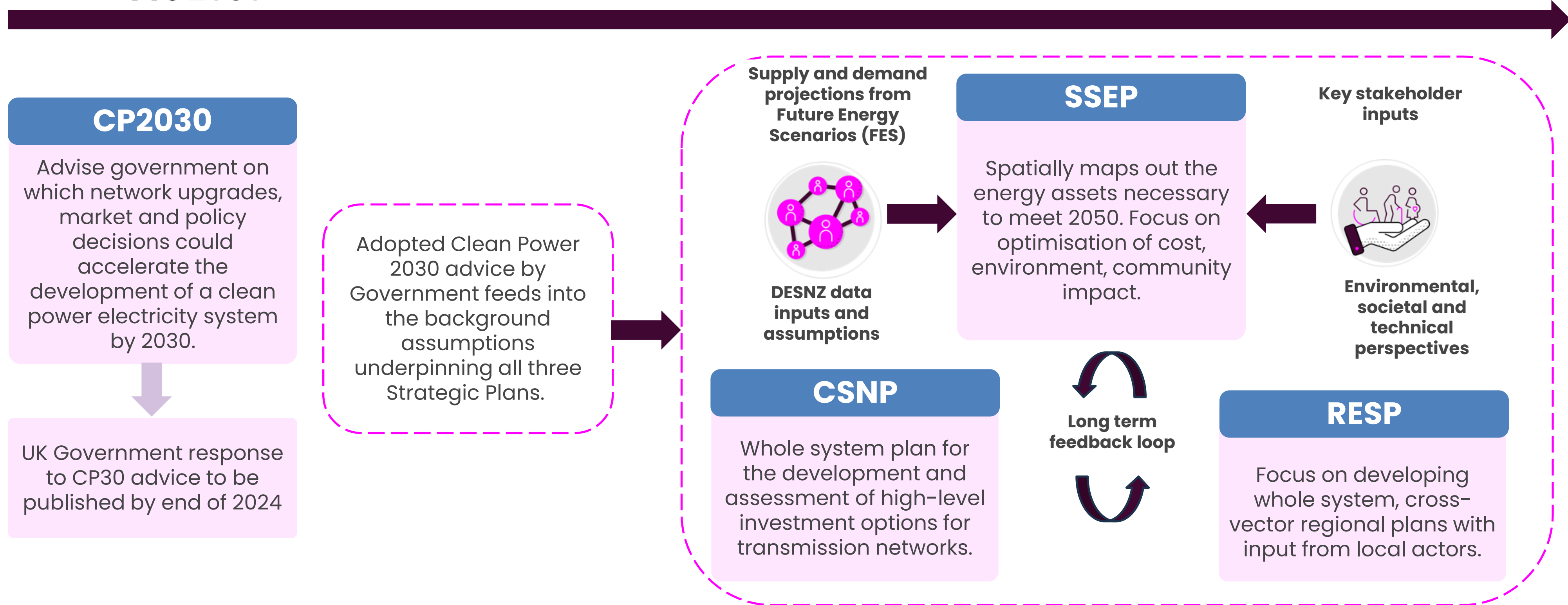
<https://www.neso.energy/what-we-do>



2. Strategic Energy Planning (SEP) overview

Pre 2030

Post 2030



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

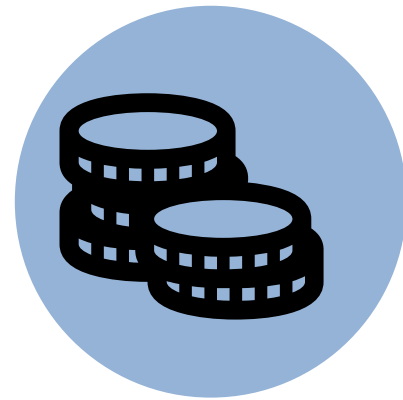
Our vision

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

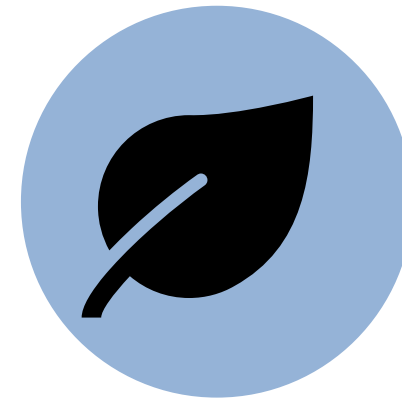
Provides a **network blueprint for the country**, mapping demand and optimal locations for onshore and offshore transmission infrastructure to support a decarbonised energy grid.



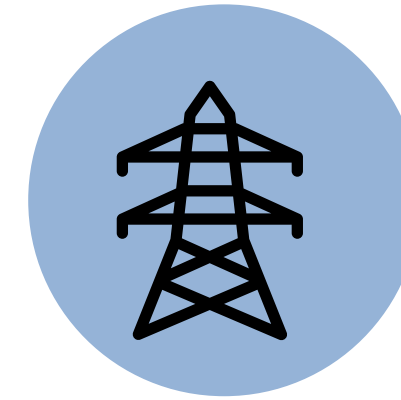
25-year horizon,
on a three-year
cycle



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**

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
- 2. Consistency** – same approach for all network companies
- 3. 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

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.

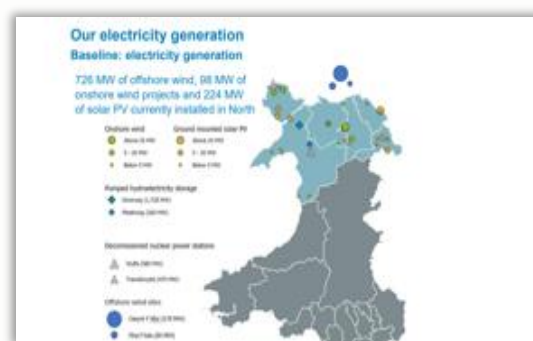
The Regional Energy Strategic Plans

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

1

Regional Energy Vision

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

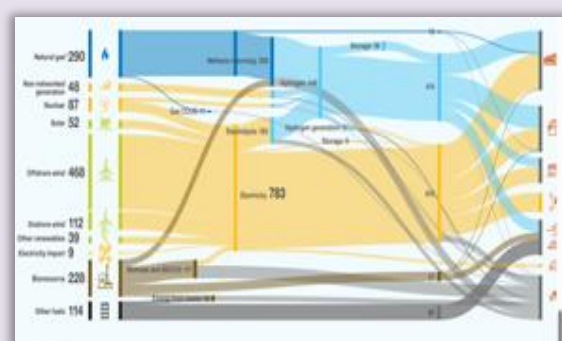


a

2

Regional Pathways

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



a b

3

Spatial System Need

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



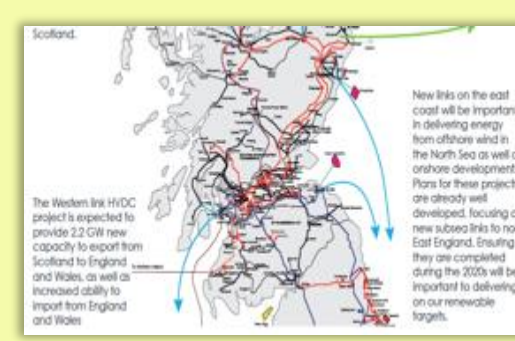
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4

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

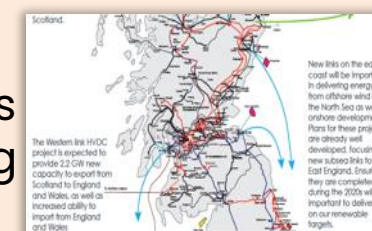


c

5

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.

b c



6

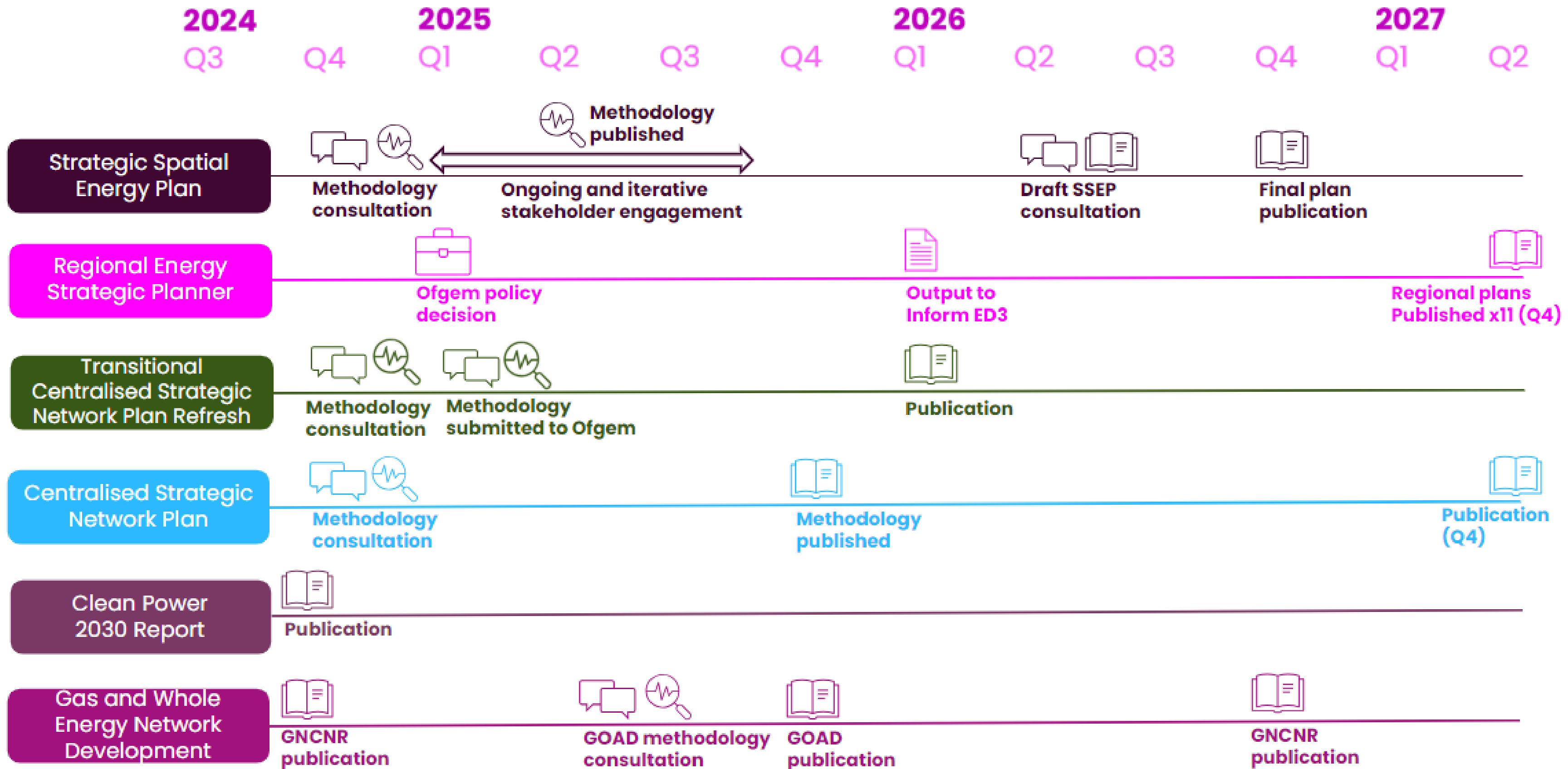
Societal Impact Assessment

The RESP Team will review the societal impact at a local level of the energy transition (including jobs, transport, industry, environment etc.)



3. Next steps - High level milestones*

*These are indicative dates and subject to change.



Thank you

NESO

<https://www.neso.energy/what-we-do>

Strategic Energy Planning

<https://www.neso.energy/what-we-do/strategic-planning>

Contact

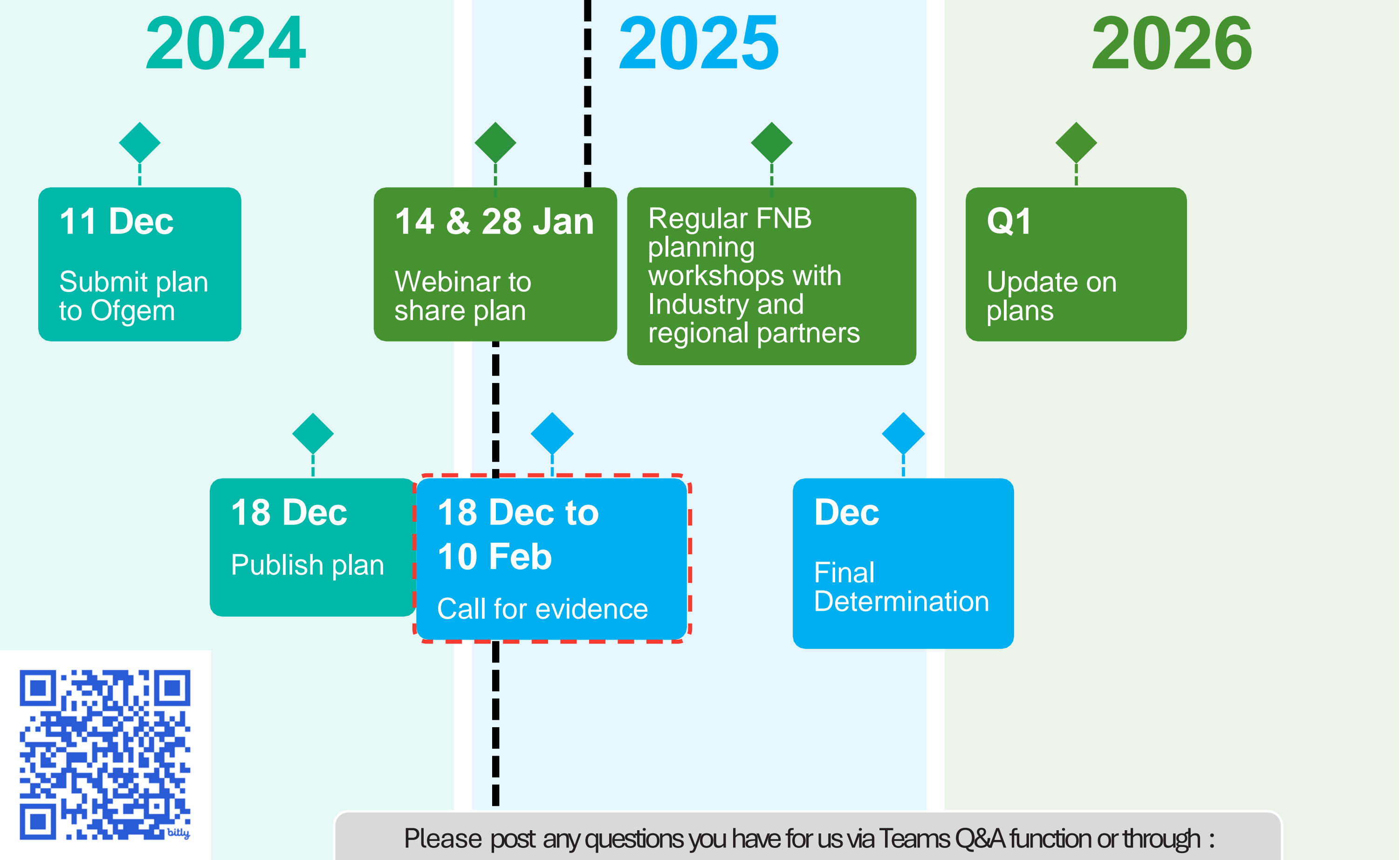
jonathan.morris3@uk.nationalenergyso.com

Timeline



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

Planning next steps for East Anglia



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

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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



nationalgrid

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



nationalgrid