Electricity Transmission

Shaping our T3 Plans

Stakeholder Engagement Workshop

8th May 2024

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Agenda: 8th May 10:00-13:15

Registration	9:50-10:00	Leigh Lipton
HOUSE KEEPING, WELCOME INTRO Welcome and Introduction to our T3 business plan	10:00 – 10:10	**Sara Habib** Head of Future Price Control
SESSION 1. Network Design approach		
PRESENTATION Our Network design approach, framework, considerations, risks and opportunities.	10:10 – 10:30	**Ben Haggerty-** Network Design Manager
Q&A + Poll	10:30- 10:45	
SESSION 2 . Asset operations		
PRESENTATION Our asset strategy including investment decisions to build our T3 Plan.	10:45-11:00	**Jon Hennah and Gaurav Khanna-** Asset Management Director
Q&A + Poll	11:00-11:10	
SESSION 3. Connection		
PRESENTATION. Our approach to setting the T3 baseline for DNO demand and embedded generation connections	11:10-11:30	**Wayne Mullins** Connections Strategy Development Lead
Q&A + Poll (2 - 3 questions)	11.30-11:40	
COFFEE BREAK	**11:40-11:50**	
SESSION 4. Responsible business		
PRESENTATION Our responsible business strategy, that will influence our plan.	11:50-12:10	**Anna Turrell** Responsible Business Manager.
Q&A + Poll	12:10-12:20	
SESSION 5. Our Digital strategy		
PRESENTATION Validate that the digital priorities in the investment plan are targeted in areas that have clear line of sight to cross industry priorities	12:20-12:35	**Sarah Milton–Hunt** Chief Information and Digital Officer.
Q&A + Poll	12:35-1245	
SESSION 6. Our Innovation strategy		
PRESENTATION Our innovation strategy and how it influences our T3 business plan.	12:45-13:00	**Gary Stockdale** Innovation Manager
Q&A + Poll	13:00-13:10	
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WRAP UP AND NEXT STEPS	**13:10-13:15**	**Akram Farook**

Welcome and introduction

Sara Habib - Head of Future Price Controls

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Electricity Transmission

Purpose of today

Today's aim is to provide you with an overview of the inner workings of our forming T3 business plan. We're eager to hear your thoughts regarding the risks and opportunities involved and how these could impact your area. Your input will play a vital role in refining our T3 submission.

If you have questions or reflections you'd like us to consider more closely after the presentations, there will be further opportunity to discuss a topic at a more detailed level with the relevant team.

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Session 1: Network Design Approach

Ben Haggerty - T3 Regional Network Strategy Manager

10:10 – 10:30

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We are living a new context now

Generation

Generation dominated by renewable sources, particularly offshore wind and solar (+ batteries)

Not just traditional large combustion plants anymore!

Demand

Expected growth to meet decarbonisation needs of sectors such as transport and heating

Not necessarily yet manifesting

Network Capacity

Delivery of significant upgrades and extensions to National Grid Electricity Transmission's networks

5 times more transmission lines than we have built in the last 30 years. And 4 times more for marine cables

Ageing Assets

The scale of new transmission infrastructure required, as well as the need to replace and upgrade a significant proportion of the built network over the coming decades

~1200km of reconductor need

Industry Process change

National Energy System Operator: Its role is to provide a view of the whole energy system and facilitate net zero, whilst maintaining the system's resilience and affordability

Focus will be in network planning

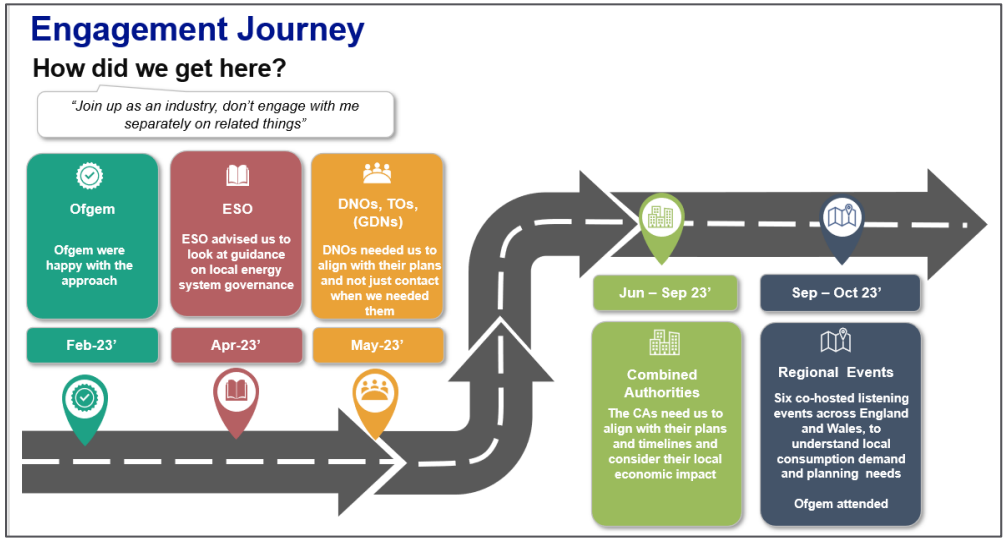
Interim Processes

Transitional Centralised Strategic network Planning: Refresh of the onshore works of the selected offshore options, combining onshore and offshore network needs.

This is still an incremental approach, therefore needs more…

How we shaped our approach

We know through previous stakeholder engagement, industry changes and closer insights from our own electrical transmission grid that **each region of the network has unique and independent requirements**, this led to us initially creating ‘regional areas’.



We spoke to OFGEM, the ESO, DNO’s and other TO’s to shape our approach to this regional engagement, this helped make the decision to **show up at these events as ‘Networks’** showing solidarity and a joined-up approach between us all.

Through early engagement we realized **gaps were still present which we needed to explore**:

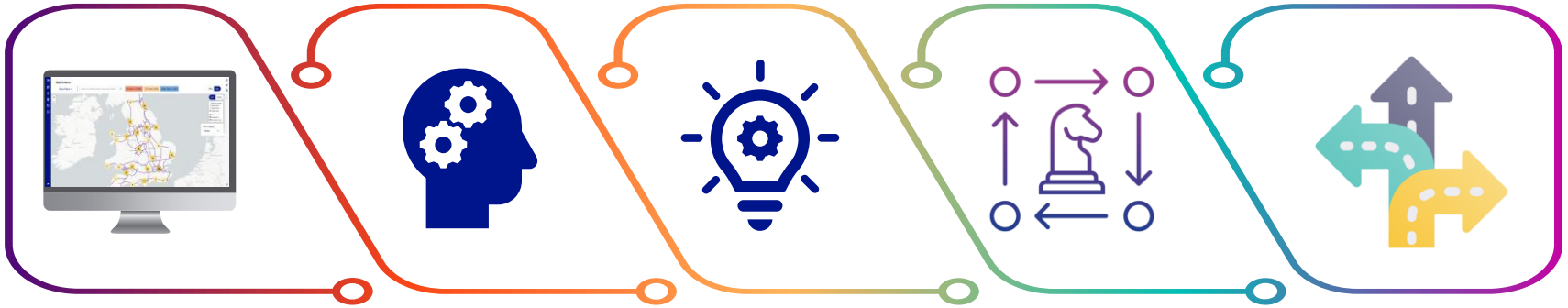
- Granularity of decarbonisation plans from local and combined authorities,
- Large industry plans and new technologies
- Better understanding of the over subscribed connections queue.
- Industry changes which may impact the network planning (Regional Energy System Planner - RESP).

This engagement has allowed us to to develop 3 key areas:

1. **New relationships and partnerships** – We have been able to build on previous relationships in some areas and also create new links which weren’t there previously. This has allowed us to begin to identify whole system opportunities, for example we are exploring district heating of homes near St Johns Wood in London by using waste heat from National Grids transformers and cable tunnels.
2. **Stakeholder Priorities** – We now have a better understanding of the priorities our stakeholders want us to apply when developing the network. These are being embedded into our decision making.
3. **Key considerations** – We also got insight on key considerations we should apply when developing network options, for example; ‘having a capacity rich network’. These are being embedded into our Network Strategy Design Principles.

This allowed us to then create, and begin to take, a principle-based approach to investments in T3 (and beyond). Using a new network planning methodology where we bundle investment drivers together for site and circuit strategies.

Strategic Optioneering Process



Collate network drivers together

- Pulling our network drivers into one single place.
- Automated against governed data sources.
- Looking out as far as possible into the future (ambition to 2050)

Develop strategic options

- Meet identified network needs
- Clear methodology
- Deliver just ahead of need.
- Use the richness of stakeholder intelligence to shape anticipatory investment
- Future proofing the network.
- Ability to apply cost assumptions to the options including potential constraint costs and delay costs

Avoid reinforcement through innovation

- Opportunities to improve network operability within regions.
- New technology onto the network.

Synergy opportunities

- Possible synergy opportunities across the load and non-load plans.
- Review strategic plans with stakeholders
- Joint optioneering between networks
- Avoid costly disruption of repeated network outages
- Future proof our investments against a robust forecast of demand growth.
- Finding broader opportunities such as Socio – Economic

Stakeholder sharing

Network risks or deliverability challenges identified?

No

Yes

Cross discipline working group to explore and identify a solution.

Move forward to driver development

Baseline network drivers

Governance through business units

Complex multi-investment site strategies.

Governance through Heavy Scrutiny Team

Investment through appropriate Regulatory Framework

Strategic Optioneering

Collate network drivers together

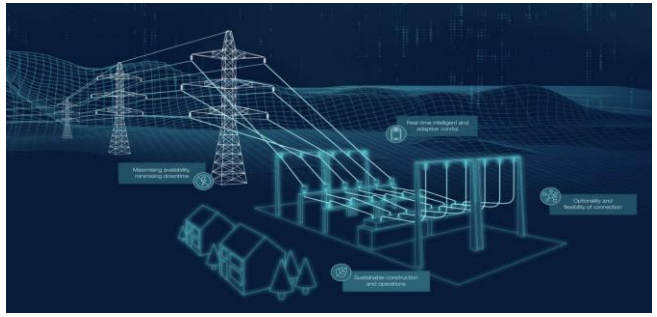
Develop strategic options

Avoid reinforcement through innovation

Synergy opportunities

Stakeholder sharing

When developing these options, we have key enablers which ensure we remain consistent in our approach. Examples of these include:



NGET Network Strategy

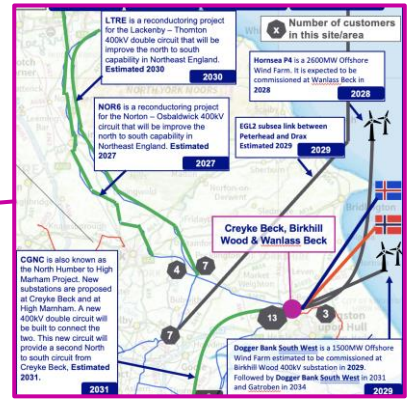
Providing **Planning Principles**, and **Network Design Principles** from which we approach our investments.

Things like whole system thinking, sustainable construction and Intelligent substations ready for the future.

Asset Management Strategy

Providing a holistic set of practices and capabilities for any types of asset over their whole life cycles.

Providing guiderails to **act on synergies** with load related plans for new customers or new strategic infrastructure while also ensuring the network is resilient.



By then mapping these options at regional level it begins to surface conflicts or constraints to explore further.

Site and circuit strategies

Please let us know what else we should consider using the link:

- Have you any suggestions on our approach?
- (DNOs) What should we consider to help make this strategic planning alignment work for you? (format, frequency, topics etc)

Using our regional understanding, we can then shape site and circuit strategies.

- **At strategic timescales we want to set long-term intents for the sites and circuits. This will help us understand when the right timing for network drivers should be delivered in consideration with everything else happening.**

Codification and logic principles set will help us to shape these site and circuit intents in a more automated way due to volume.

- **We can then test these strategic intents with our stakeholders, for alignment and transparency to help others develop their plans.**

Recognizing change is almost certain we need to ensure we lean in closer to where this change is most likely to occur, for example the connections landscape.

- **Longer term rebuilds and new sites triggered may be opportunities for us to signal energy hubs for customers in the future and/or landing points for large strategic infrastructure to move bulk power across the network.**

Rebuild of sites and building of new sites have relatively long lead times, ensuring we maximise benefit of these during design for efficiency purposes and consumer benefit is essential. Stronger strategic optioneering will support this.

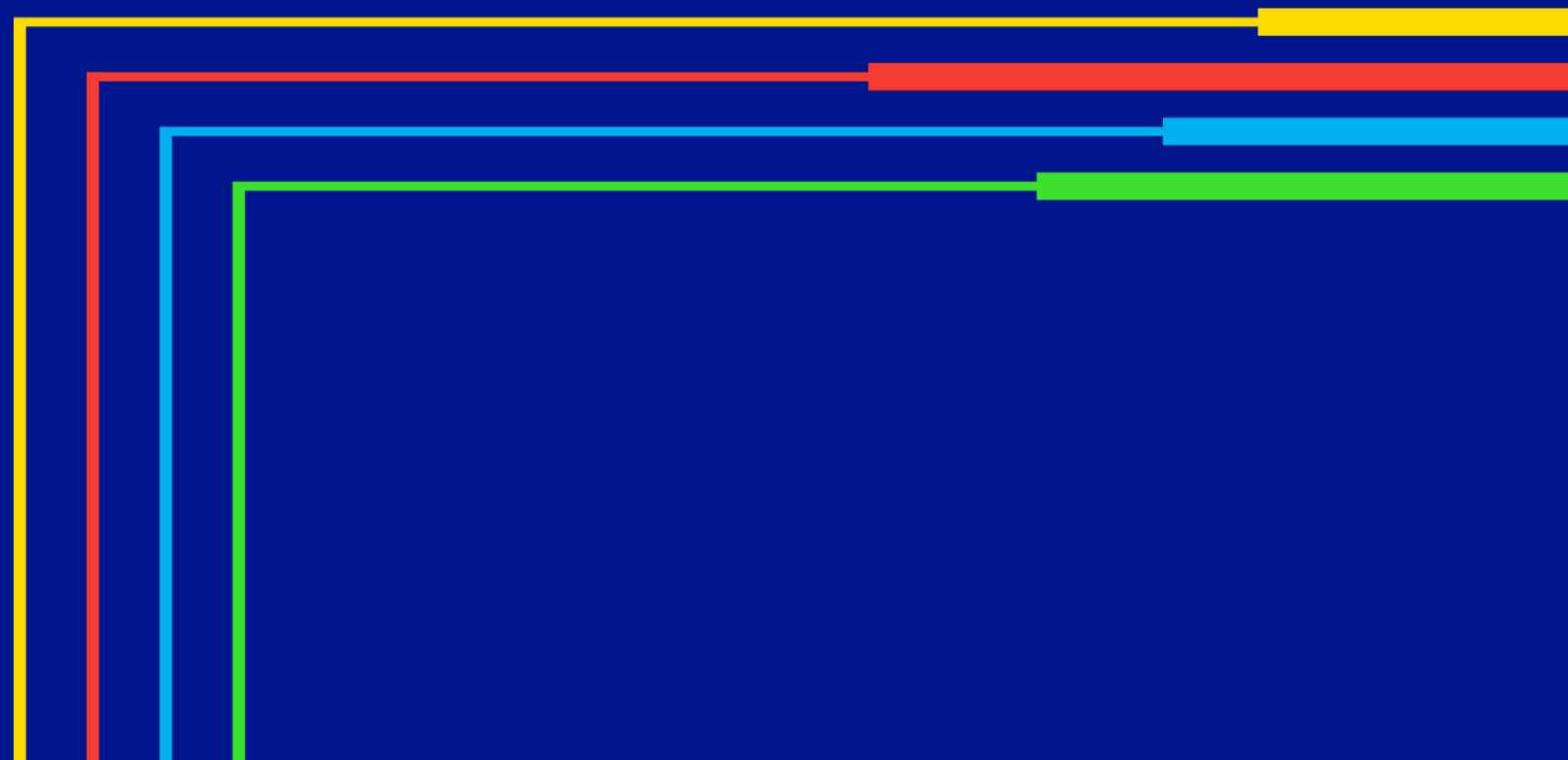
- **We then take these investments through our Investment Process to develop.**

Through which we apply our Network Strategy design principles for consistency. There will be more project specific engagement on these investments including stakeholder and community engagement to shape the design.

Q&A and Poll

Network Design Approach

10:30 – 10:45



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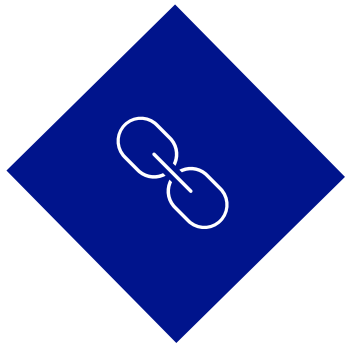
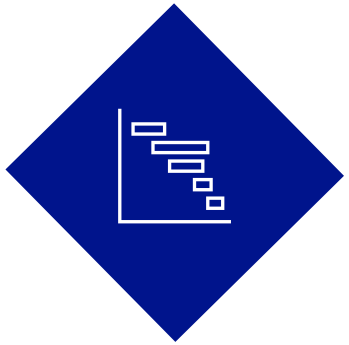
Q&A





To what extent do you agree/disagree with the following statement:

“I broadly support the approach being taken to form site and circuit strategies ”

a) Agree
b) Somewhat agree
c) Neither agree nor disagree
d) Somewhat disagree
e) Disagree

What would be one core thing you need us to consider when working with you to refine these strategies?

(Word cloud)

Session 2: Asset Operations

Jon Hennah and Gaurav Khanna -
Asset Management Director

10:45 – 11:00

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What does our asset strategy look like for RIIO- T3

Why we are talking to you…

We'd like to talk to you about our asset strategy for RIIO-T3.

The energy landscape has changed significantly since our T2 submission 5 years ago.

We need to think longer term beyond the 5 year price control if we are to ensure our system is fit for the future, meets our Net Zero commitments, flexible in a changing energy landscape in an affordable way for consumers.

What have we learnt from RIIO -T2

We are delivering a different plan to that expected at the start of T2. We have used the flexibility of the price control to respond to customer needs (more connections) and changing environment (more cyber) and are scaling up our delivery capability in line with that needed for Net Zero. We have done this without sacrificing delivery of asset health, continuing to deliver increasing numbers of asset health interventions each year.

This isn't easy to see in reporting or hear in our conversations - the nature of the work doesn't draw a crowd like LPT2 or the first solar farm to connection at transmission voltages – but the vital work continues and is reflected in the reliability figures consumers enjoy.

Delivering a different plan from RIIO -T2

Fewer Asset Health Interventions

- Supply Chain lead times were slow to recover following Covid-19
- Impact of war in Ukraine further impacted lead times for key transmission equipment. Surge Arresters lead times for example are nearly 2 years.
- Industry wide resourcing challenges has impacted our ability to deliver the volumes of work we need.
- Accelerated connection dates for customers and net zero.
- Complexity of system access with outage availability, proximity outages, DNO/DSO coordination, short notice cancellations, short notice disconnection requests
- Plan churn from over running customer schemes leading to replan of asset management work, outages, resource etc.

Different mix of asset health interventions

- Cyber risk environment has changed
- Better condition information on assets
- Refurbishment support limited for some asset types.
- Supply chain engagement to move with our needs such as SF6.

Resource

- Industry wide resourcing challenges – for example smaller OHL contractor resources
- The resource skillset has changed due to nature of work changing. Need more engineers for the connection schemes. Challenges with retention with competing industry roles
- Time to train to competency is slower that the deliverability rate of work.

Please let us know what else we should consider using the link:

Are these similar challenges to your business?…have you experienced other challenges working with us?

A coordinated strategy to asset health – long term view

RIIO -T2 approach:

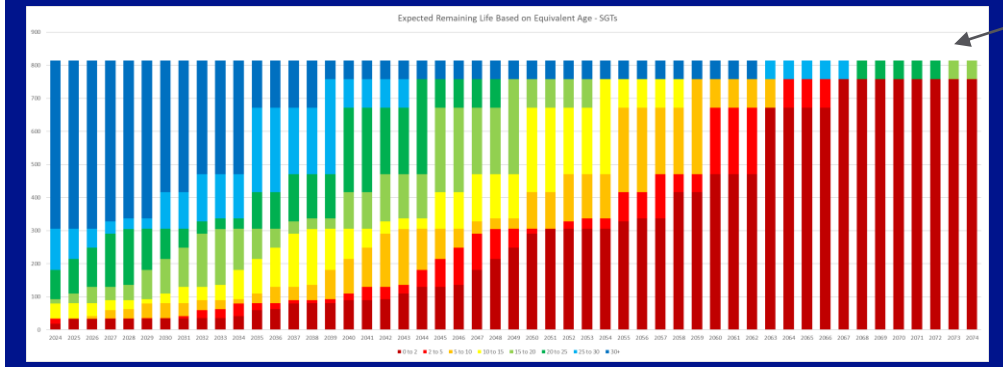
Determine a volume of intervention drivers based on Health and Risk

- Time in service vs. anticipated life
- Condition
- Duty
- Operating Environment
- Family Susceptibility
- Obsolescence
- SF6 Top-ups (where applicable)

70,608 total number of assets

For RIIO- T3

Long term forecasting of assets reaching 'end of life' over +50 years



SGT expected remaining life based on equivalent age

This has allowed us to identify the volume of asset interventions required to manage health over the short-term (0-10 years) and long-term (0-60 years), so we could mitigate 'undeliverable' peaks in future intervention requirements. Short-term drivers tend to have lower uncertainty (asset specific condition) than longer term.

A coordinated strategy to asset health – managing risk

Managing risk and prioritisation

In T3, we continue to use monetised risk but we have complemented this with the use of simpler, discrete risk categories. These enable the magnitude of health, criticality and risk to be understood for any single asset without the need of the context of the whole population.

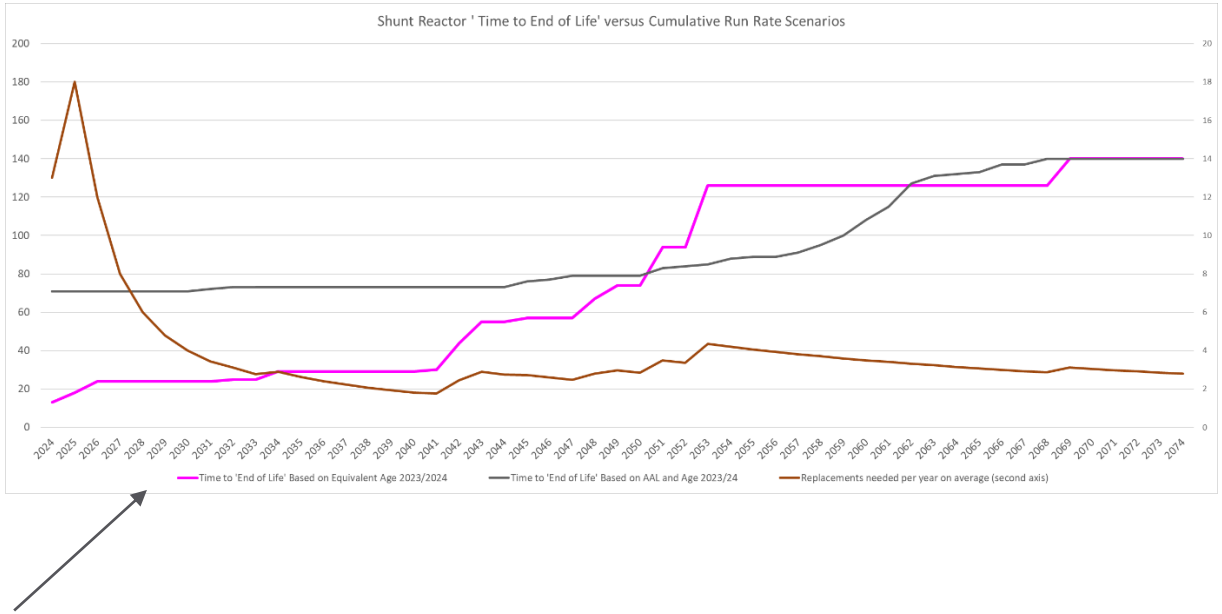
We've developed a new risk scoring system that splits health severity and criticality into 5 categories.

For criticality components these were:

- Consequence Values (Safety, System, Environment and Finance)
- Probability of an event

		Criticality				
EOL	EOL Cat	1	2	3	4	5
0-34	1	Low	Low	Low	Low	Low
35-59	2	Low	Low	Low	Low	Medium Low
60-79	3	Low	Medium Low	Medium Low	Medium Hig	High
80-95	4	Medium Low	Medium Hig	High	High	Very High
95-100	5	Medium Hig	High	Very High	Very High	Very High

This view enables us to focus our T3 volumes on the highest risk assets (anchor points for our plan) with greater flexibility on lower risk elements. This will likely require different regulatory mechanisms to be defined, but likely reopeners for low confidence items.



Shunt Reactors mapping of Time to End of life Risk Probability and Replacements Need Per Year.

Optimising the way we deliver our work

For optimising our investment options, for T3 we need to consider the following:

- **Specific asset type treatment** - for example refurb options for some air blast circuit breakers are no longer available and therefore replacement is the only viable investment option when reviewing asset type in isolation.
- **Requirement differences between site and regional** - for example regional power flow boundary constraints that limit outage availability might mean offline rebuild is a better option in the long term. We are doing this via the use of an optimiser tool called Copperleaf for whole transmission network study.
- **Better understand our decision drivers** – for example better coordinate our load and non load drivers at an individual site, regional and whole network.
- **Looking beyond RIIO-T3** - our health and long term planning is looking out to 2050 to build into our regional strategies. If we have identified a rebuild before 2050, we are using our whole life tool to undertake a full cost benefits analysis.

Investment Options Analysis	To 2035	2035 to 2050	2050+
Baseline Option: 'Do Nothing'	Feasible?	Feasible?	Feasible?
	Worth it?	Worth it?	Worth it?
Option 1: In-situ, Incremental Asset Refurb and Replacement with Substation Extensions As Required	Feasible?	Feasible?	Feasible?
	Worth it?	Worth it?	Worth it?
Option 2a: In-situ, Incremental Rebuild of the Site (using existing site footprint) AIS	Feasible?	Feasible?	Feasible?
	Worth it?	Worth it?	Worth it?
Option 2b: In-situ, Incremental Rebuild of the Site (using existing site footprint) GIS	Feasible?	Feasible?	Feasible?
	Worth it?	Worth it?	Worth it?
Option 3a: Offline Rebuild of Existing Site AIS	Feasible?	Feasible?	Feasible?
	Worth it?	Worth it?	Worth it?
Option 3b: Offline Rebuild of Existing Site GIS	Feasible?	Feasible?	Feasible?
	Worth it?	Worth it?	Worth it?
Option 4: Other Please Specify	Feasible?	Feasible?	Feasible?
	Worth it?	Worth it?	Worth it?

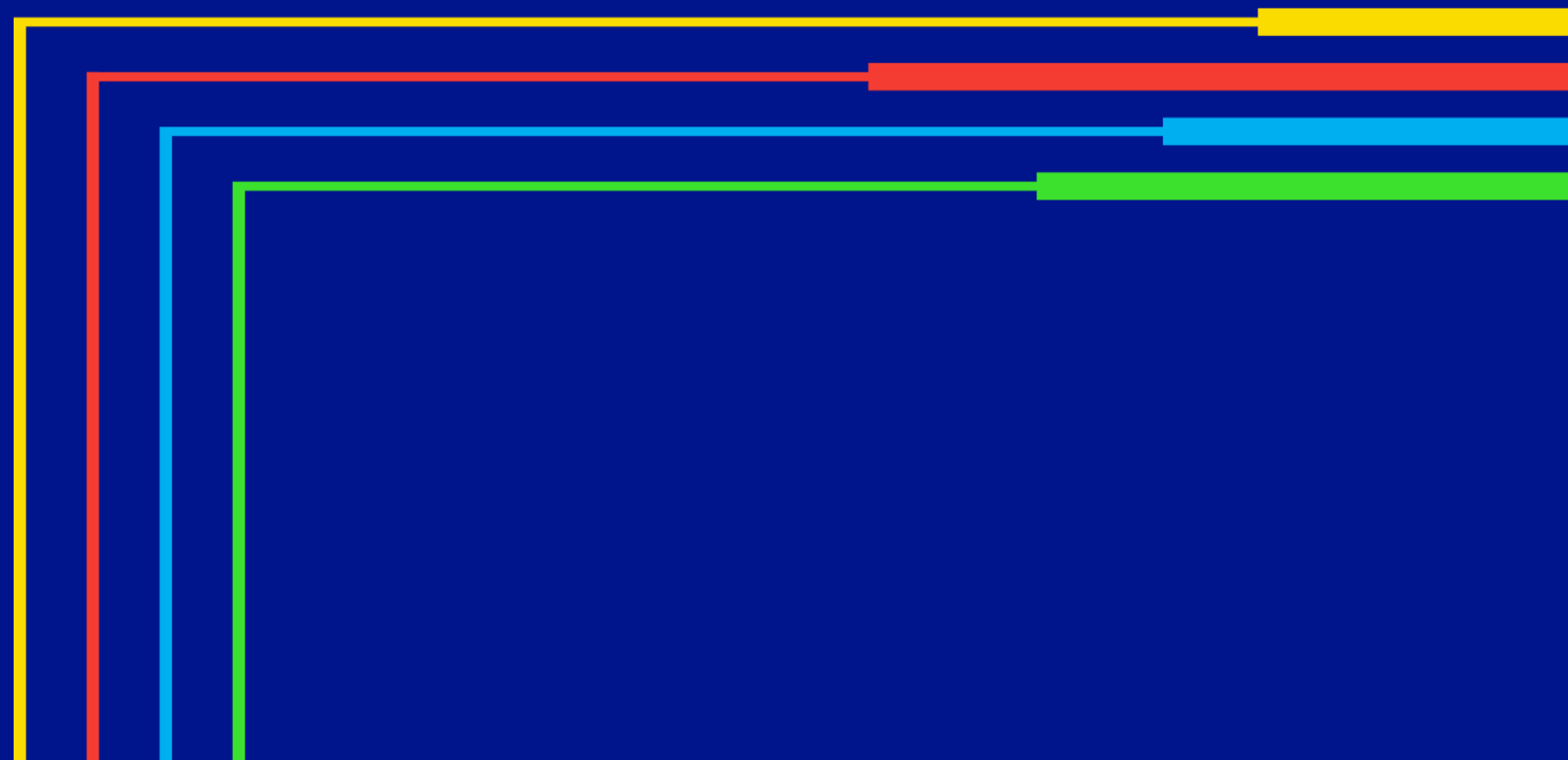
Please let us know what else we should consider, using the link:

Do you agree with our approach to optimisation? Do you see anything missing from your perspective?

Q&A and Poll

Asset Operations

11:00 – 11:10



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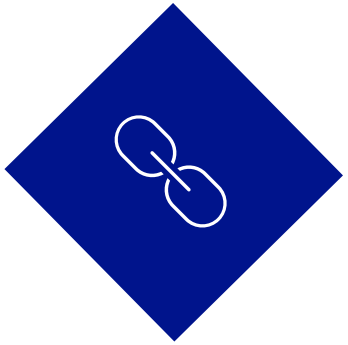
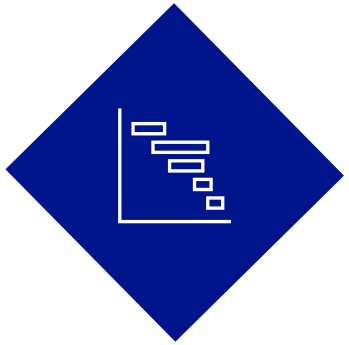
Poll Questions



To what extent do you agree/disagree with the following statement:

"I broadly support the approach to a longer term focus on Asset Health."

a) Agree
b) Somewhat agree
c) Neither agree nor disagree
d) Somewhat disagree
e) Disagree



To what extent do you agree/disagree with the following statement:

"I broadly support NGET's approach to managing risk and prioritisation, *i.e. maintain levels of risk 'flat' at our overall network level'* "

a) Agree
b) Somewhat agree
c) Neither agree nor disagree
d) Somewhat disagree
e) Disagree

Session 3: Connections

Wayne Mullins - Connections strategy development lead

11:10 - 11.30

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We expect RIIO-T3 to have three main building blocks for connections, today we are focusing on how we set the baseline

Funding new connections & connections options

1 Baseline allowances

These allowances are made ahead of RIIO-T3 starting. They fund new connections and connections options at sites where we have high confidence in customer need and the costs of delivery.

2 Uncertainty mechanisms

Will be used to adjust the baseline allowances and deliver additional connections and connections options during RIIO-T3 using volume drivers and re-openers. For example, when new information about existing customers becomes available and new customers are contracted.

Encouraging service and delivery

3 Incentives

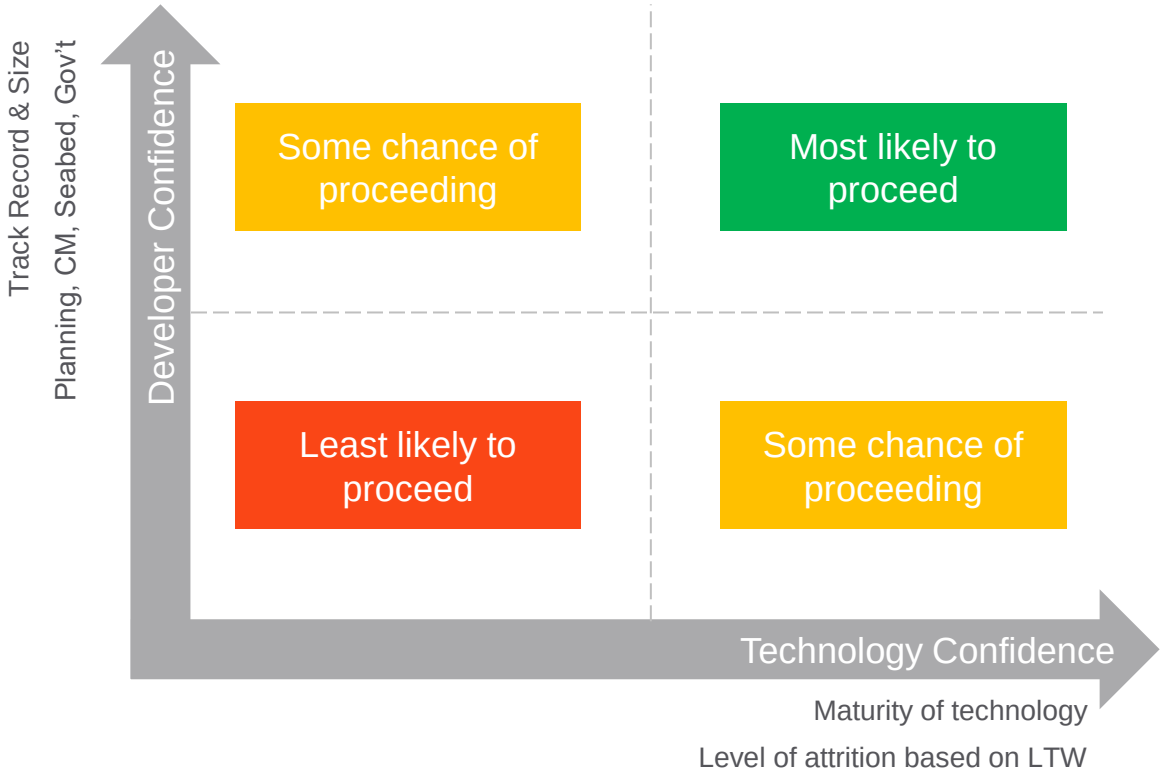
Incentives will encourage us to provide a high quality of service and efficient delivery of infrastructure fit for a low cost energy transition. The November 2023 Connections Action plan commits Ofgem to review connections incentives. The development of this component of the regulatory framework will lag others.

We have proposed to Ofgem that it reviews the operation of the components of its framework ahead of RIIO-T3 to reduce barriers to delivery at pace and ahead of need. It intends to publicly conclude on its methodology in May 2024.

Ofgem expects the baseline to include projects with high confidence in the need and the costs, that means there will be possibly greater reliance on uncertainty mechanisms during the period

To build our baseline, we have developed a methodology to assess relative confidence that each contracted customer project will proceed

Relative confidence is determined from a combined 'developer' and 'technology' score. The methodology is consistent and will be repeated periodically to account for new information. It uses available information at a point in time. Some projects considered least likely to proceed may do so following future assessment. We will use the uncertainty mechanisms in the RIIO-ET3 regulatory framework to fund these projects.



Developer score

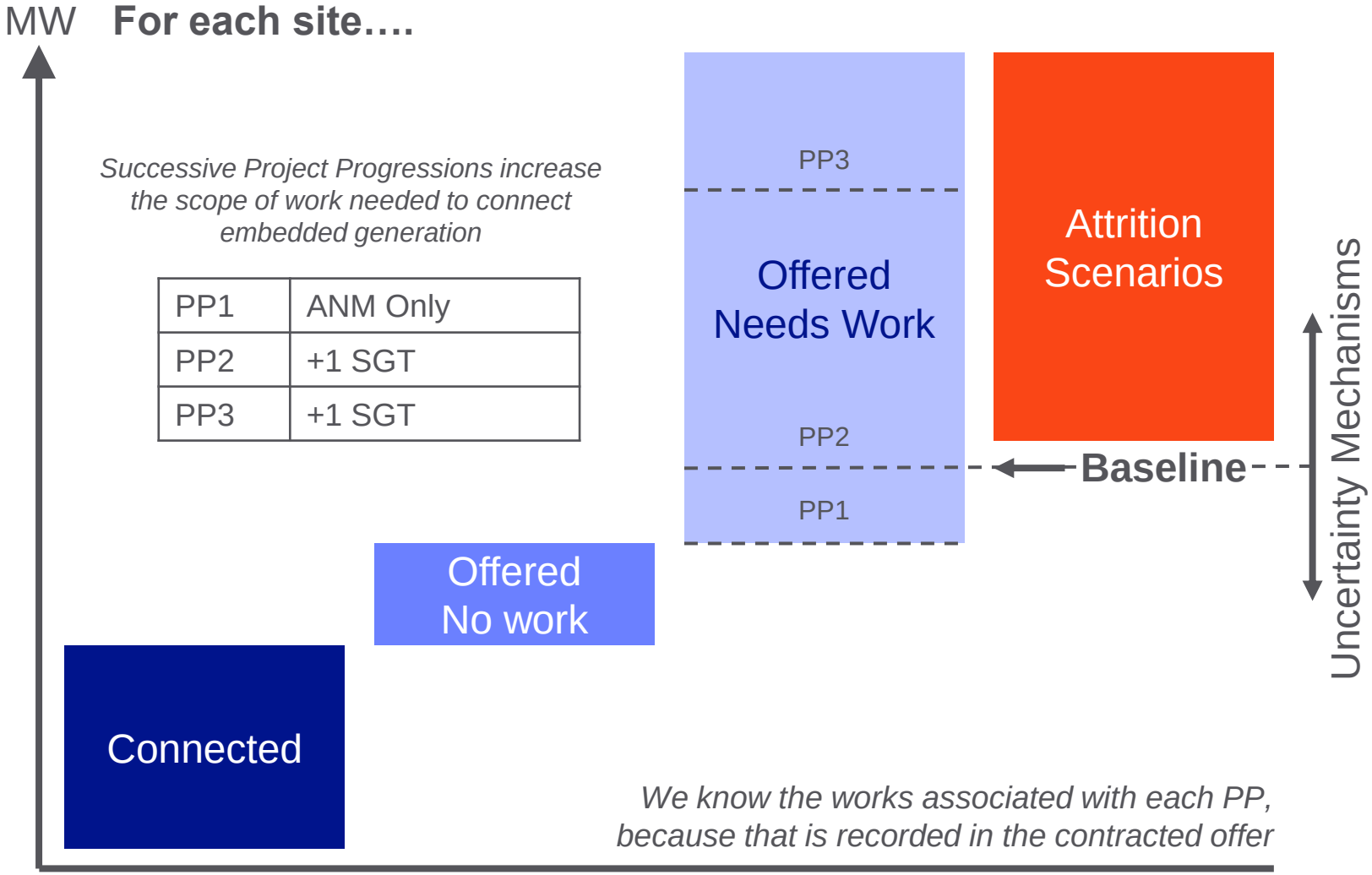
The project confidence score reflects the developer's level of experience of developing the proposed technology and whether key project milestones have been achieved (e.g. planning consents, success in the capacity market, contracts for difference).

Technology score

Technology scores account for the maturity of each technology type connecting to our network and the amount by which contracts to connect indicate oversubscription against the expected level of connections (under the 'Leading the Way' scenario).

For embedded generation, where technical limits have not addressed the DNO's need we have reviewed the level of capacity required post-attrition

- DNOs submit project progressions (PPs) for contracted embedded generation within their networks.
- The DNOs do not assume attrition.
- To avoid creating an investment plan that assumes all embedded generation will connect, we considered attrition based on that assumed in **transmission CPAs**.
- Four **attrition scenarios** reflecting impact of various technology types.
- We have selected the investment needed that most closely reflects the average need after attrition.
- If more embedded generation connects, this can either use headroom or trigger new investment funded by UMs.



We are using a balanced scorecard to assess our overall confidence…

Technology Score (DNO)

Technology Score – DNO	Score
DNO demand growth (e.g. New GSPs)	4.5
Projects from DNO for Compliance, Fault Level, Asset Upgrades	3.5
Customer specific demand connections (e.g. Data Centres)	Based on customer technology

OR

Technology Score (EG)

- Based on the number of scenarios that capacity of the GSP is exceeded following attrition **and** the extent of this
- Each PP is scored between 5 and 0
- Greater confidence in the first PP (and associated scope) compared to the most recently received.

+

Project Score (Max 5)

Customer track record	Score
DNO	3.5

DNO's receive the highest score compared to other customer types due to their deliver track record

+

Milestone	Score
Planning	2.0
FID	2.0

Other factors are considered for other non-DNO demand customers e.g. financial strength, if there's any Government support

=

Overall Confidence Score

RAG	Score
Green	>=8
Light Green	>=7
Amber	>=5
Light Red	>=4
Red	<4

For DNOs this means…

All contracts for demand growth and compliance will be included in our baseline submission with high confidence

A post-attrition (post Technical Limits) view of embedded generation will be in the baseline submission with most being at least medium confidence

Ahead of our final submission we are considering where to draw the line to balance Ofgem's baseline expectation and drivers that are not yet clear

- Not all contracted investment will be included in our business plan submission for the baseline, as this would mean including some investments that have relatively low / lower confidence **at this stage**
- We are therefore working with Ofgem, and the other TO's, to developed a suite of **improved uncertainty mechanisms** to deal with change
- We believe these should be:
  - cost reflective – to protect consumers and network companies
  - agile, so as not to introduce delay to commencing investment
  - facilitate anticipatory investment

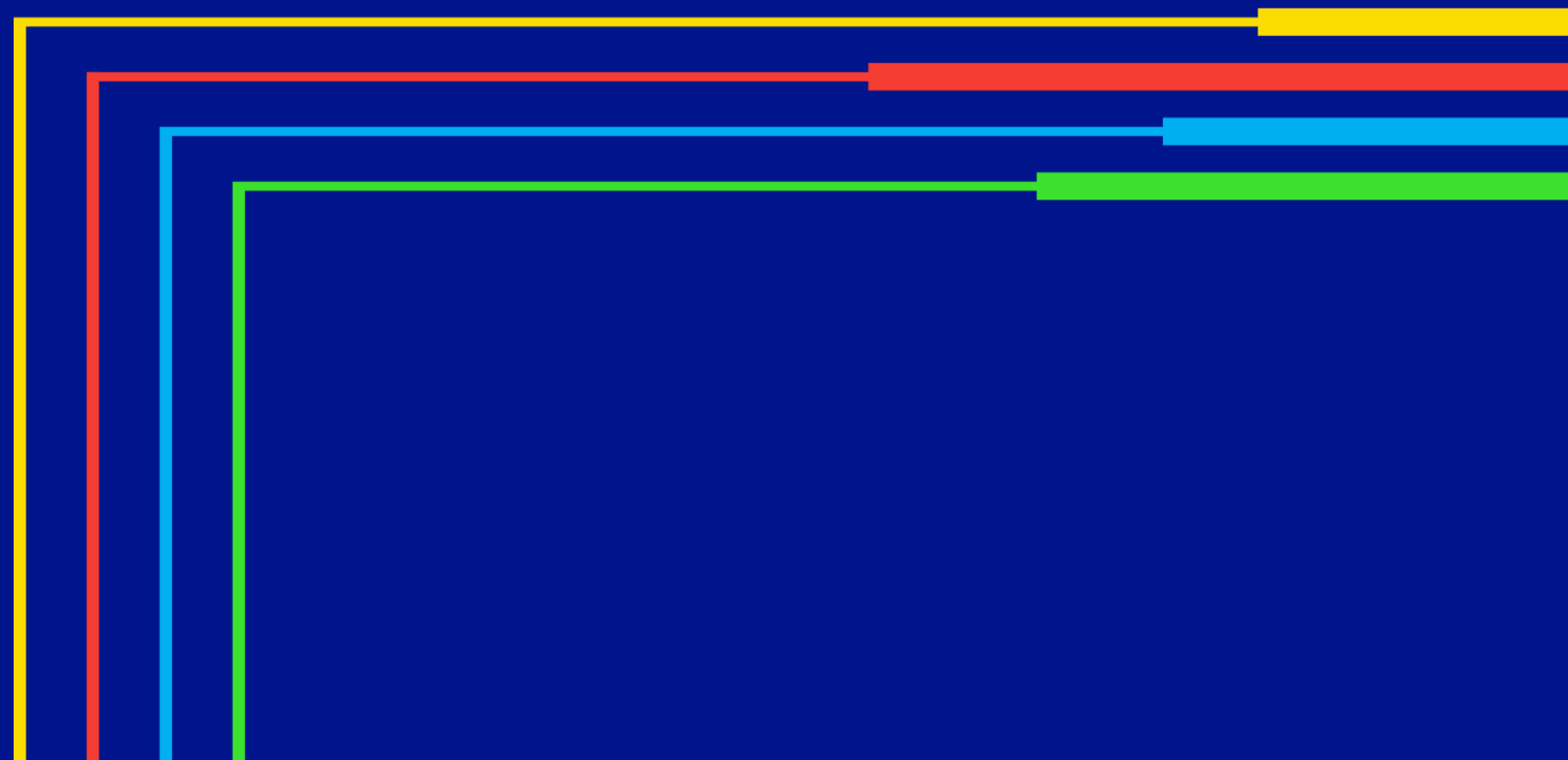
Please let us know what else we should consider using the link:

- Have you any suggestions on our approach?
- (DNOs) What approaches do you use to assess the viability of generation looking to connect to your networks?

Q&A and Poll

Connections

11:30 – 11:40



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Q&A

To what extent do you agree/disagree with the following statement:

"The customer confidence methodology is an appropriate way to identify the investments for the NGET T3 Baseline"

a) Agree
b) Somewhat agree
c) Neither agree nor disagree
d) Somewhat disagree
e) Disagree

To what extent do you agree/disagree with the following statement:

"I broadly support the way the described confidence methodology has been applied to DNO requested investments"

a) Agree
b) Somewhat agree
c) Neither agree nor disagree
d) Somewhat disagree
e) Disagree

Break

11:40 – 11:50

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Session 4: Responsible Business

Anna Turrell - Responsible Business Manager

11:50 – 12:10

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Being a responsible business is at the heart of everything we do

Our environment

Deliver a clean energy future

- Invest in the **decarbonisation** of the future of energy
- Net zero **carbon** emissions
- Use **resources** responsibly
- Caring for the natural **environment**
- Adapt to **climate** change

Our customer and communities

Support a fair and affordable transition

- Support an **affordable** energy transition
- Accelerate **social mobility** in the communities we serve
- Engage directly in our communities through **volunteering**
- Act on feedback we receive from our **customers** on the service we provide

Our people

Build the net zero workforce

- **Invest in our people** & **build the skills needed** to deliver the clean energy future
- **Reflect the communities we serve**, especially ethnic & female representation
- Create an **inclusive culture**, where it is safe to speak up
- Lead the industry on colleague **health & wellbeing**
- Ensure all colleagues receive **fair & equitable pay**

- Network **reliability**
- **Health & safety**
- **Digitalisation** & **innovation**

Responsible Business fundamentals

Be a responsible business in our operations

- **Supply chain** engagement
- **Cyber security** & **data** protection
- **Compliance** & **ethics**

Our vision for sustainability in RIIO-T3

The investment NGET will deliver during the next price control and beyond is critical to turning the UK's Net Zero ambitions into reality. But the network we are building and the way in which we deliver that investment also needs to be sustainable.

Environmental sustainability

Our ambition is to **achieve a net zero, nature positive future, respectful of planetary boundaries.**

We stand at a critical juncture that demands action. The world is experiencing pressing concerns such as exceeding 1.5˚ C global warming, habitat and biodiversity loss and extinction, and the over consumption of resources.

Now is the time for our network and sector to go beyond responding and complying – to champion a transformative, positive trajectory.

Social sustainability

Our ambition is to **maximise the social value created** through our operations and new infrastructure to **leave a lasting, positive legacy for our communities.**

Aligned to business priorities and core values, we will focus on initiatives that benefit communities and wider society.

We will seek to mitigate the impacts and enhance the benefits of our work, gathering input from our stakeholders and communities to understand their needs and preferences and ensure that we do not leave anyone behind.

Our people: diversity, equity & inclusion

Please let us know what else we should consider using the link:

We want diverse representation at all levels of our organisation and that starts with inspiring the next generation – **how can we best work with the industry to deliver skills and educational outreach in our communities?**

Diverse attraction & recruitment

- **Reflect the communities we serve**, especially ethnic & female representation
- **Accelerate social mobility** in the communities we serve
- Engage directly in our communities through **volunteering**

Invest in our people

- **Invest in our people** & build the skills needed to deliver the clean energy future

Safe, inclusive culture

- Create an **inclusive culture**, where it is safe to speak up
- Lead the industry on colleague **health & wellbeing**
- Ensure all colleagues receive **fair & equitable pay**

Our suppliers: sustainability in the supply chain

Please let us know what else we should consider using the link:

We want to maximise social value generated through supply chain management and procurement activities – **how can we best collaborate, with the industry and more broadly, to achieve this?**

Ethical labour

Promote and respect the **human rights** of everyone working for us, or on our behalf, ensuring that they can expect decent working conditions, with the ability to work freely and receive fair pay in return

Local & diverse business

Maximisation of Social Value generated through supply chain management and procurement activities, by supporting **local and diverse suppliers**, helping to sustain and grow local markets and capabilities

Local skills development & employment

Generating **new or improved skills and employment opportunities** for local communities and/or identified, disadvantaged groups to deliver environmental, social and economic benefits

Community engagement

Enable and encourage staff on our contracts to **safely volunteer** within their community and/or participate in local support networks, particularly to help people in most **vulnerable groups** (at risk categories) and the **natural environment**

Our communities: social impact

Please let us know what else we should consider using the link:

We recognise the expertise, knowledge and ongoing work of the distribution networks to help overcome challenges faced by consumers in vulnerable situations – **how can we, as a TO, best support?**

Communities impacted by new transmission infrastructure

We will assign *investment in line with Government guidance* to deliver **local community benefits** and **regional socio-economic outcomes**, informed by local needs analysis and stakeholder engagement

Communities impacted by other projects and operational activities

Continue to (self-)fund a **community-led grant scheme**, aligned to our strategic priorities:

- Education, skills & employment
- Nature for communities
- Local community benefits

Supporting wider society

We will invest in **skills and educational outreach** in our communities and supply chains to build resilient talent pipelines for the future workforce, focusing on **under-represented groups**

Social value

Now, more than ever, we have a responsibility to demonstrate our contribution to society.

Our stakeholders expect us to have a **positive social impact** in the communities we operate in, and for the customers we serve, particularly in relation to the Great Grid Upgrade and our vision of being at the heart of a clean, fair and affordable energy future.

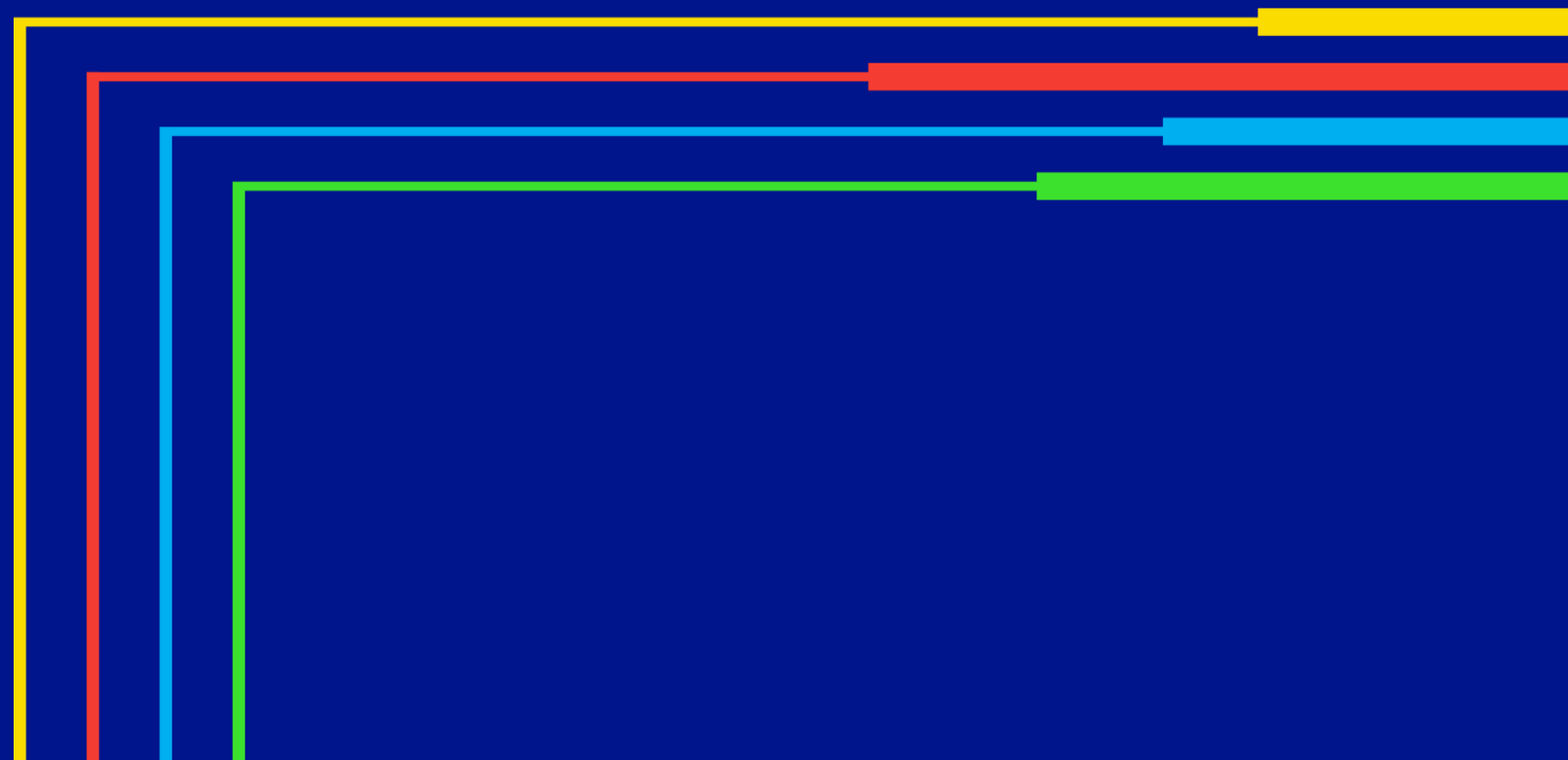
Independent experts and stakeholders have told us to:

- Promote a **mindset shift**
- Deliver **meaningful outcomes**
- Align with **business priorities**
- Engage **stakeholders and communities**
- Take a **collaborative approach**
- Focus on **fairness**
- Embed in **decision-making**
- Develop **clear metrics**

Q&A and Poll

Responsible Business

12:10 – 12:20



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Q&A

To what extent do you agree/disagree with the following statement:

"The commitments in our social sustainability strategy reflect the right level of ambition in the context of the scale and pace of work required to deliver the future network"

a) Agree
b) Somewhat agree
c) Neither agree nor disagree
d) Somewhat disagree
e) Disagree

What do you see as the most important outcome(s) of our social sustainability strategy?

(Word cloud)

Session 5: Our Digital Strategy

Sarah Milton-Hunt –
Chief Information and Digital Officer

12:20– 12:35

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NGET Digitisation in T3: Themes

Creating an Intelligent Connected Digital Utility to enable net zero and a clean, fair affordable energy future.

At its core our digital strategy holds the belief that, given the time available, digital is necessary to deliver net zero safely and efficiently, considering the volume of change, growth, and particularly, velocity required.

The following themes run throughout our T3 digitisation plans:

- **Whole System Data Sharing**

  Energy systems are complex, and one component can trigger significant outcomes throughout. Without a Whole System understanding of the interconnected elements, there is a heightened risk of costly disruptions, system unreliability, and dissatisfied consumers. Prioritising interoperability between the components in the system - electricity, gas, transmission, distribution and between energy networks and other parts of our public infrastructure – will accelerate progress towards net zero

- **Digitisation and Securing Operational Technology (OT)**

  We are developing an intelligent substation architecture to transform its operations and meet the net zero goal. The implementation will focus on digitisation, interoperability, automation, observability, and predictive maintenance. Digitisation will replace analogue measured data with digital data, enabling real-time sharing between devices and substations. The intelligent substation architecture demonstrates our commitment to leveraging advanced commodity technologies to optimise operations, improve decision-making, and enhance cyber security.

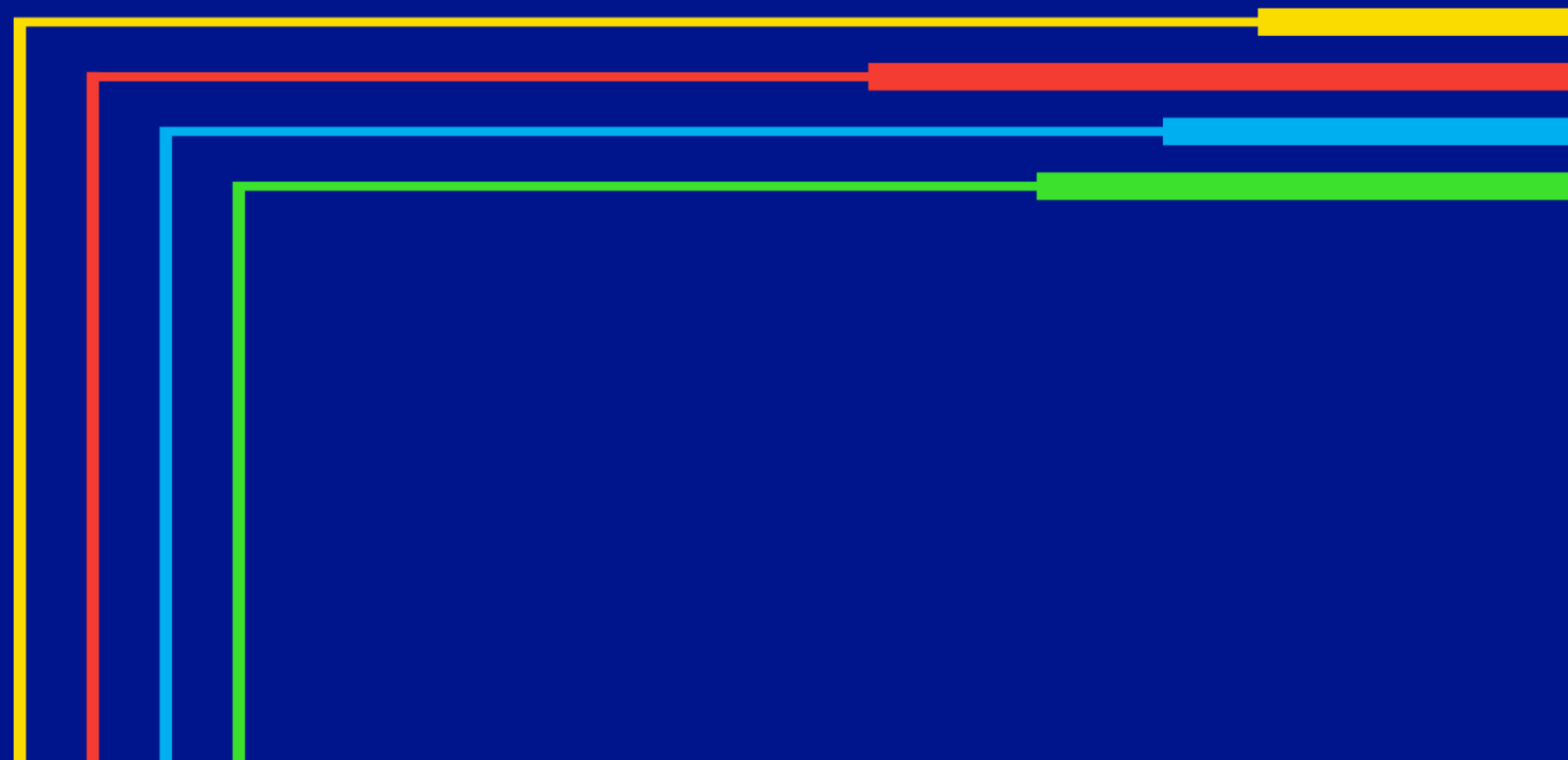
- **Building on the Foundations of T2 Digitisation**

  Through T2 we have, and continue to, lay the digital foundations necessary for future growth and decarbonisation of the power system. This focused on four key delivery areas; The Great Grid upgrade, Delivering for our Customers, and Intelligent Assets and Network Management, and Data. T3 will continue investments in these areas to leverage more of the capabilities

Q&A and Poll

Our Digital Strategy

12:35 – 12:45



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Q&A

We'd like to get your thoughts on:

1. What do you see as the key areas the industry needs to focus digitisation on?
2. What do you need from us as Transmission Operator (TO) to help meet whole system digitisation?
3. What do you need from us as Transmission Operator to help meet your digitisation strategy?

It may be helpful to think of your response under any of the following themes:

- Customers and stakeholders
- Volume of change facing the energy industry to meet net zero
- Safety and cyber
- Management and control for reliability and resilience for change

Session 6: Our Innovation Strategy

Gary Stockdale - Innovation Manager

12:45 – 13:00

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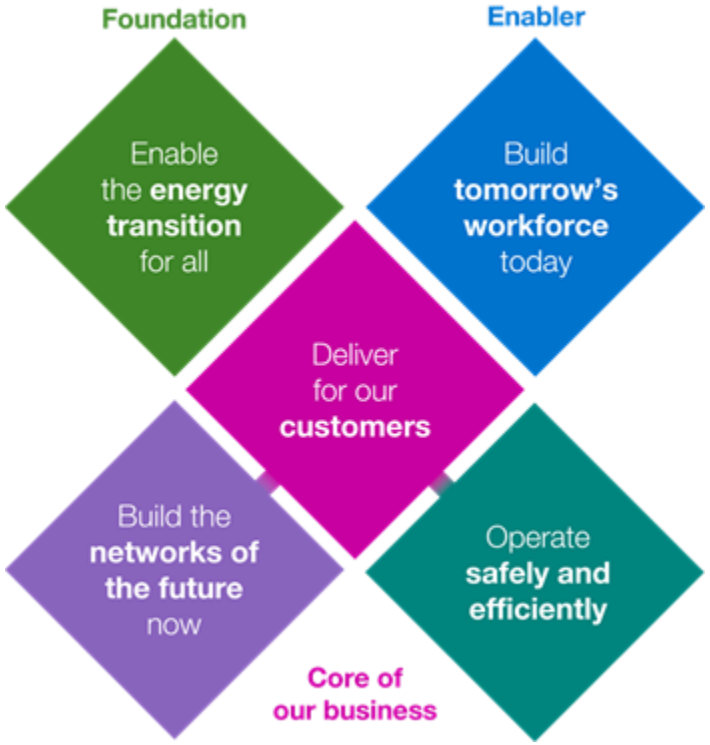
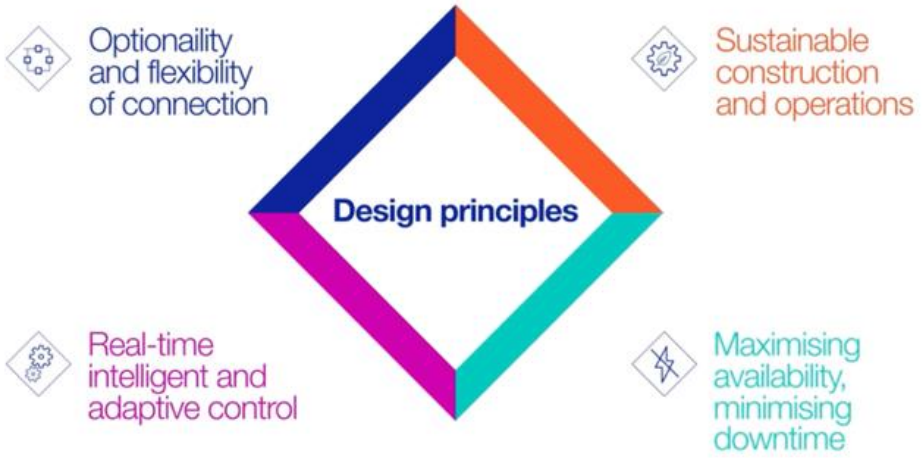
Strategic Context for Innovation

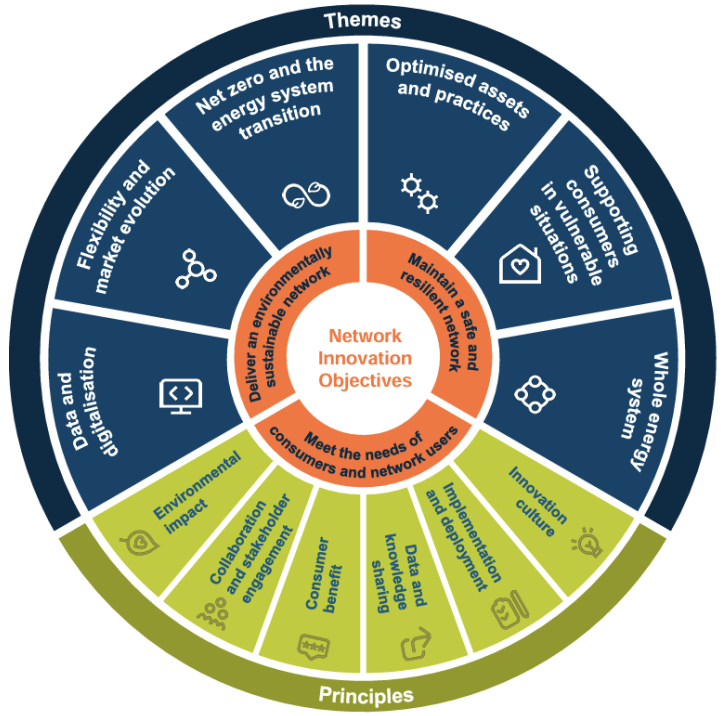
1. Net Zero



2. National Grid Strategy



3. Network Strategy



4. ENA Innovation Strategy

NGET Innovation Engineering Outcomes

Enabling us to facilitate net zero for GB

1. Network capacity maximisation	2. Accelerate new connections	3. Integrate new equipment on the network	4. Maintain an ageing asset base	5. System access for all
- Increase capacity of existing substation, overhead line and cable assets. - Enable significant uprating of existing transmission routes.	- New design solutions to enable more standardised and modular approaches to customer connections.	- Optimise power controller interaction. - Manager a low fault level, low inertia transmission system.	- Improve understanding of the condition of our assets and failure modes. - Increase throughput of condition monitoring to keep up with new infrastructure demand.	- Develop enhanced asset management practices, such as non-intrusive condition monitoring. - Develop technology to enhance understanding of real-time system performance.

NGET Innovation Engineering Outcomes

Enabling us to facilitate net zero for GB

6. Whole energy systems

- Digitalise processes for design, development, construction, maintenance and operation of the network.
- Improve approach to evaluating the societal impact of NGET activities.
- Develop and understand capabilities of whole energy system modelling.

7. New onshore / offshore network capacity

- Increased capacity/lower cost onshore transmission routes.
- Explore ultra-high voltage technology for onshore network.
- Develop offshore high voltage direct current (HVDC) technology and our modelling capability.
- Improved data and insights to speed up consenting.

Enabling us to decarbonize our own operations

8. Reduce / remove SF6

- SF6 alternatives, retrofilling assets and new gases.
- Leak detection and repair.
- Lifecycle management.

9. Reduce construction emissions

- Low carbon materials for construction.
- Novel construction techniques.
- Reduce waste from construction.
- Increase speed of construction without compromise to safety and quality.

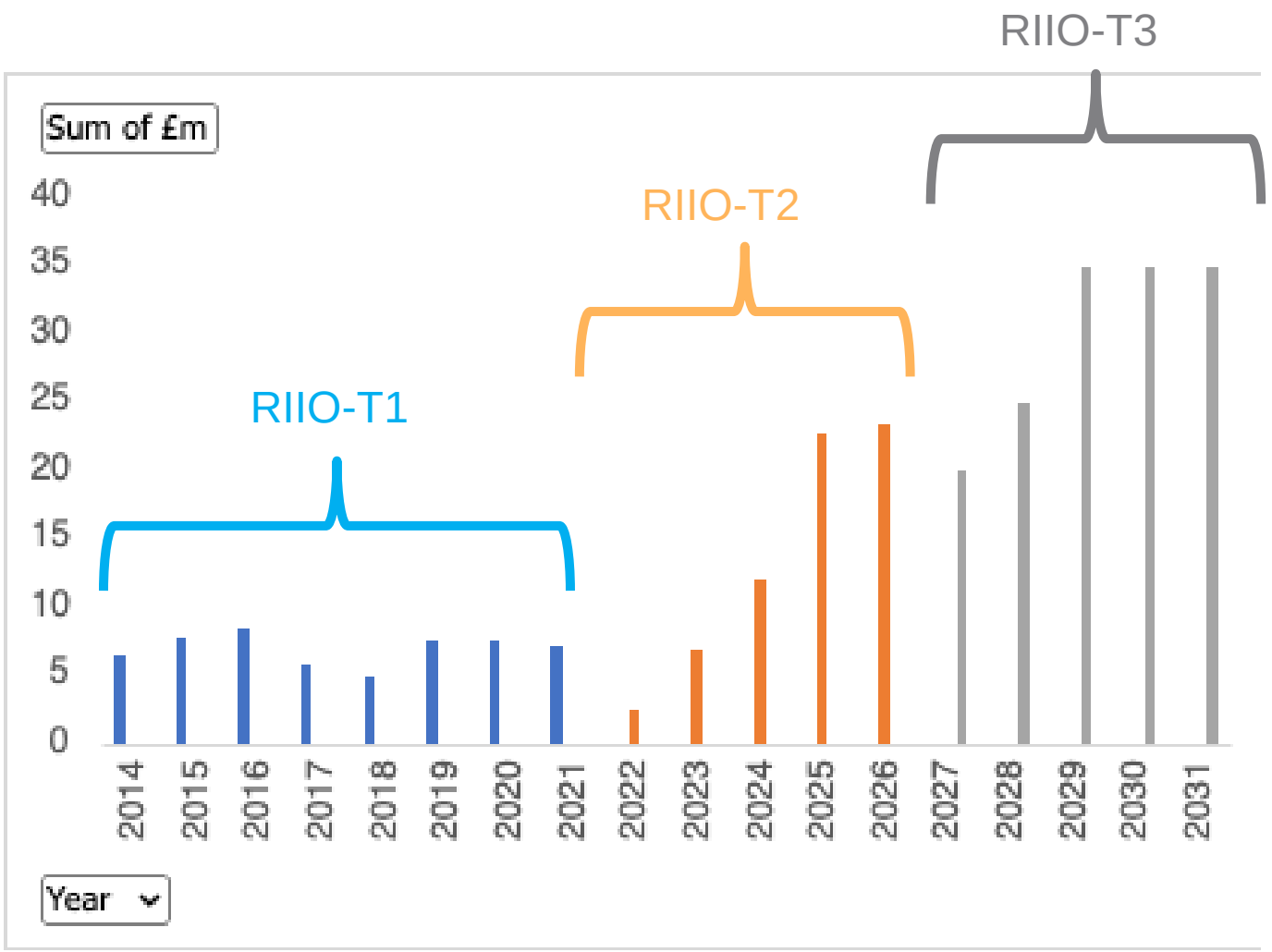
10. Maintain network resilience

- Operational technology cyber security: automated detection and management.
- Understand and develop mitigation measures for network and asset resilience in the face of climate change.

Please let us know what else we should consider using the link:
Are there any engineering outcomes missing that NGET should consider innovating in?

Funding Proposals for RIIO-T3

Year	2026	2027	2028	2029	2030	Total
NIA (£m)	20	25	35	35	35	150



Stakeholder Support

Pathway to net zero events

86%
support R&D in network efficiency and safety

91%
support making electricity system greener

ENA 2024 Innovation Strategy

96%
support net zero and energy system transition

76%
support optimised assets and practices

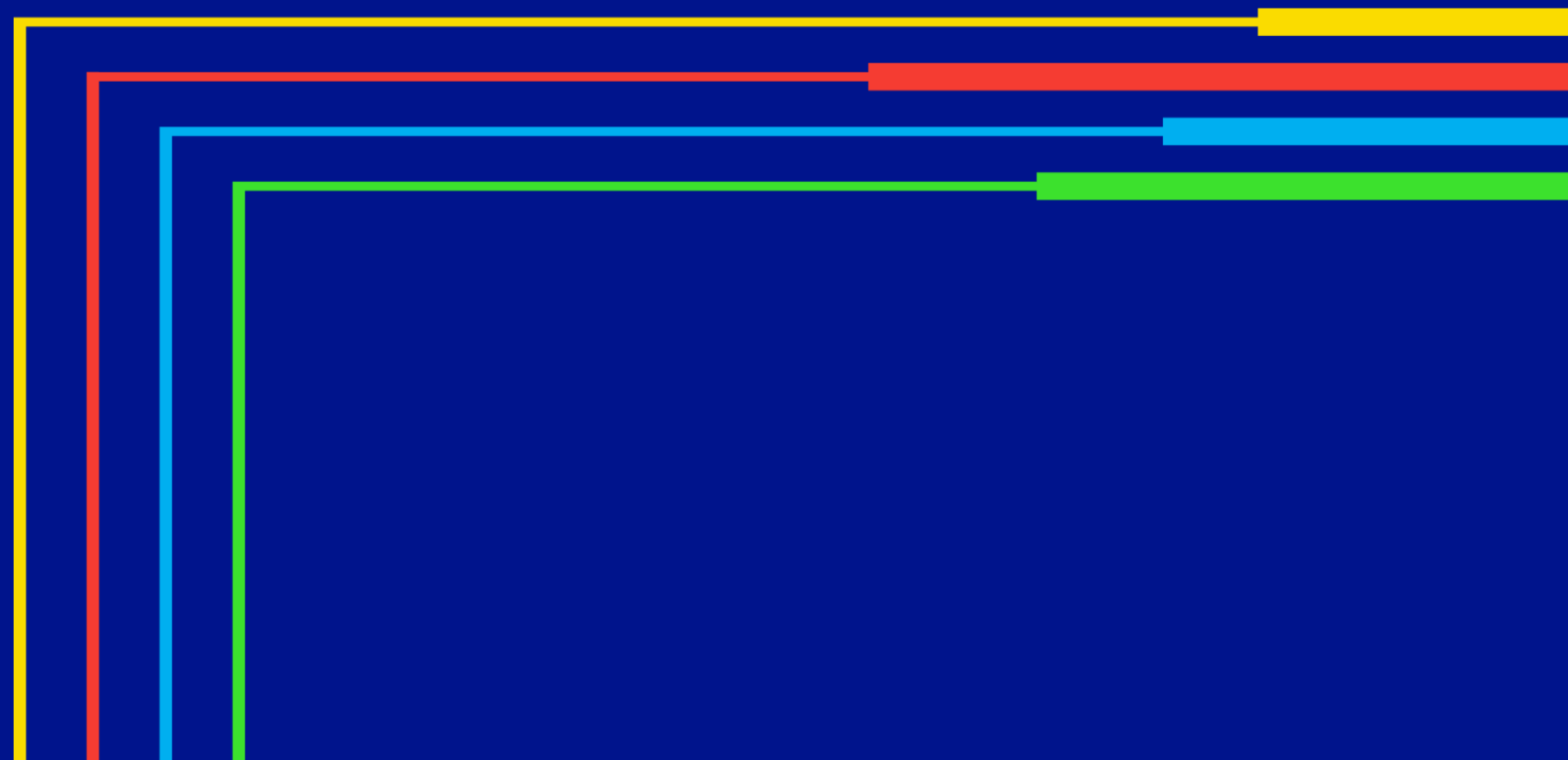
89%
support data and digitalisation

86%
support whole energy systems

Q&A and Poll

Our Innovation Strategy

13:00 – 13:10



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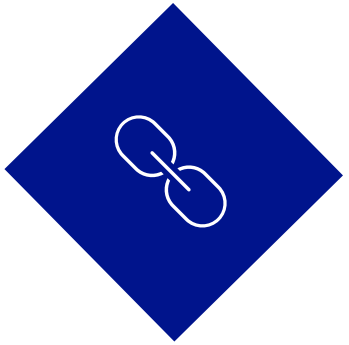
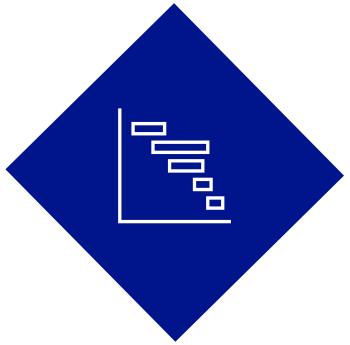
Q&A



In our innovation strategy, we have 10 engineering outcomes (7 to enable the transition to net zero, 3 to decarbonise our operations). Do you consider this number of focus areas as:

a) Too many
b) About right
c) Too few
d) Don’t know



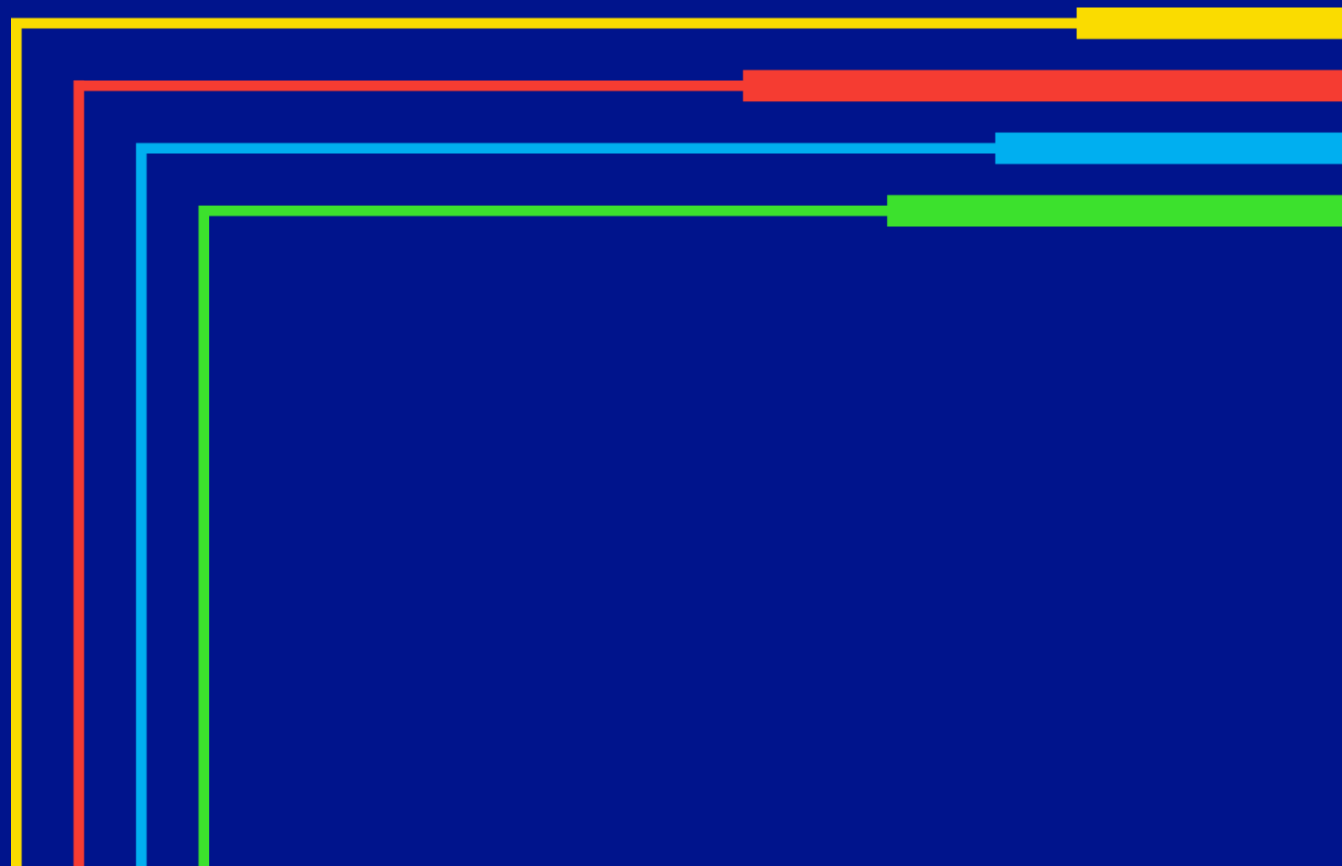
Please select the 3 innovation engineering outcomes you consider as most important, for NGET to enable the transition to net zero

a) Network capacity maximisation
b) Accelerate new connections
c) Integrate new equip on network
d) Maintain an aging asset base
e) System access for all
f) Whole energy systems
g) New on/off shore network capacity

Close and Next steps

Akram Farook

13:00 – 13:10



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Continuing the discussion

Please let us know what else we should consider using the link

Network Design
Asset Operations
Connections
Responsible Business
IT & Digital
Innovation

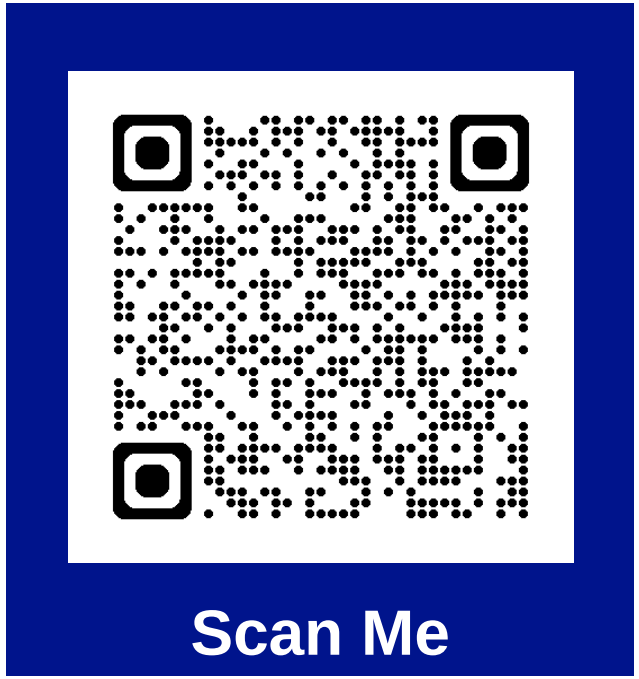
1. Is there anything you'd like us to consider in the approaches you heard today?
2. Is there anything we've missed?

Continuing the discussion

Next Steps	We will
	• Share answers to all questions raised today • Connect those who wish to follow up on specific topics (Please use link) • Continue with bi-laterals and workshops • Playback our T3 plans in Autumn

Thank you for your time, feedback and participation

QR code and link will be live on the 8th



https://re-url.uk/WI3D

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