

Delivering a Network for Net Zero:

Pathway to 2030 and our next business plan

22 February 2023



Housekeeping

- Toilets and fire protocol
- The WiFi password is on your table
- Please ensure that all mobile phones are in silent mode
- We'll be taking some photos. If you don't want to be in any, please let us know
- After lunch, we'll ask you to move to discuss the topic you chose. The colours on your badges will tell you where to go.
 - **Blue = Economic and Social Impact**
 - **Green = Greenhouse Gas Emissions**
 - **Yellow = Natural capital**
 - **Red = Visual impact of existing transmission infrastructure**
- We will ask you to vote on a series of questions using Slido. If you don't have a smartphone, please flag this with one of our team



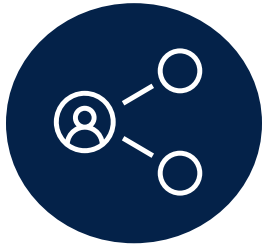
#SSEN2023

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Agenda

Registration and Breakfast	9.00 - 9.30
Welcome and housekeeping	9.30 - 9.40
Opening Address : Rob McDonald, Managing Director, SSEN Transmission	9.40 -10.00
Delivering Net Zero: Aileen McLeod, Director of Business Planning & Commercial	10.00 -10.30
Roundtable Discussion 1: Net Zero	10.30 -11.05
Break – Tea & Coffee	11.05 - 11.25
Energy Security: Brian Addison, Head of Asset Management	11.25 -11.55
Roundtable Discussion 2: Energy Security	11.55 - 12.25
Lunch & Networking	12.25 - 1.10
Economic, Social and Environmental Legacy: Christianna Logan, Director of Customers and Stakeholders	1.10 - 1.40
Roundtable Discussion 3: Environmental, Social and Economic Legacy	1.40 - 2.10
Facilitated Q&A: Greg Clarke, Head of Corporate Affairs	2.10 - 2.35
Final observations and next steps and plenary feedback	2.35 - 2.45
Close, Tea & Coffee and Networking	2.45 - 3.00

Handling feedback and information



Everybody in SSEN Transmission works hard to encourage and demonstrate transparency around our projects, proposals and plans. All information and content in today's presentation, provided by us, can be shared with others outside of this engagement.



However, feedback gathered during today's engagement will not be associated with you specifically. As one of our contributing stakeholders, we may publish your feedback in any reports or submissions we subsequently produce, **but we will anonymise this.**

Instead of quoting specific stakeholders, we will describe the origin of feedback using broad categories, such as "Local Resident" or "Landowner" as examples. We will also take care to avoid 'jigsaw identification'.

Thank you in advance for your honest feedback and constructive participation.

Delivering a Network for Net Zero

Rob McDonald
MD SSEN Transmission



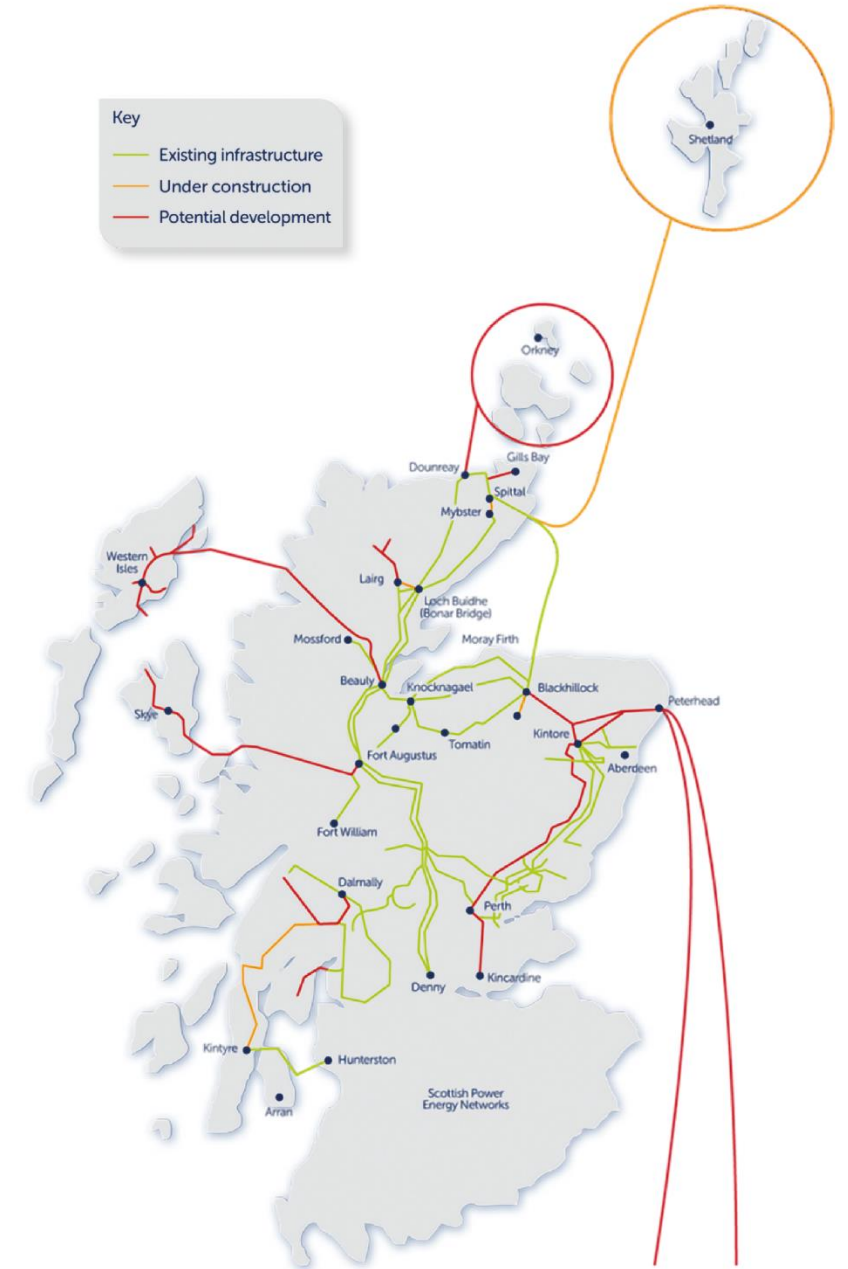
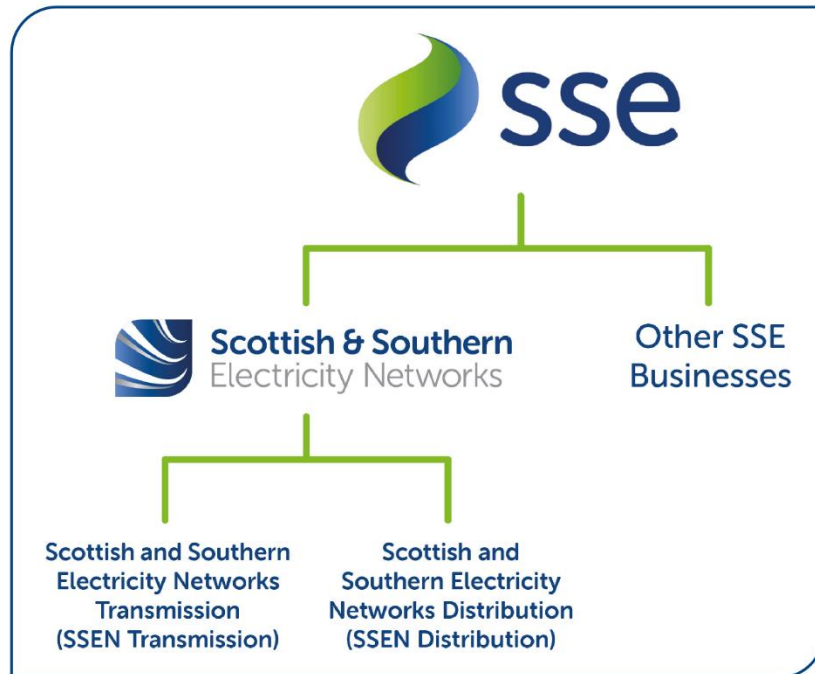
Who we are – SSEN Transmission

We are SSEN Transmission, the trading name for Scottish Hydro Electric Transmission.

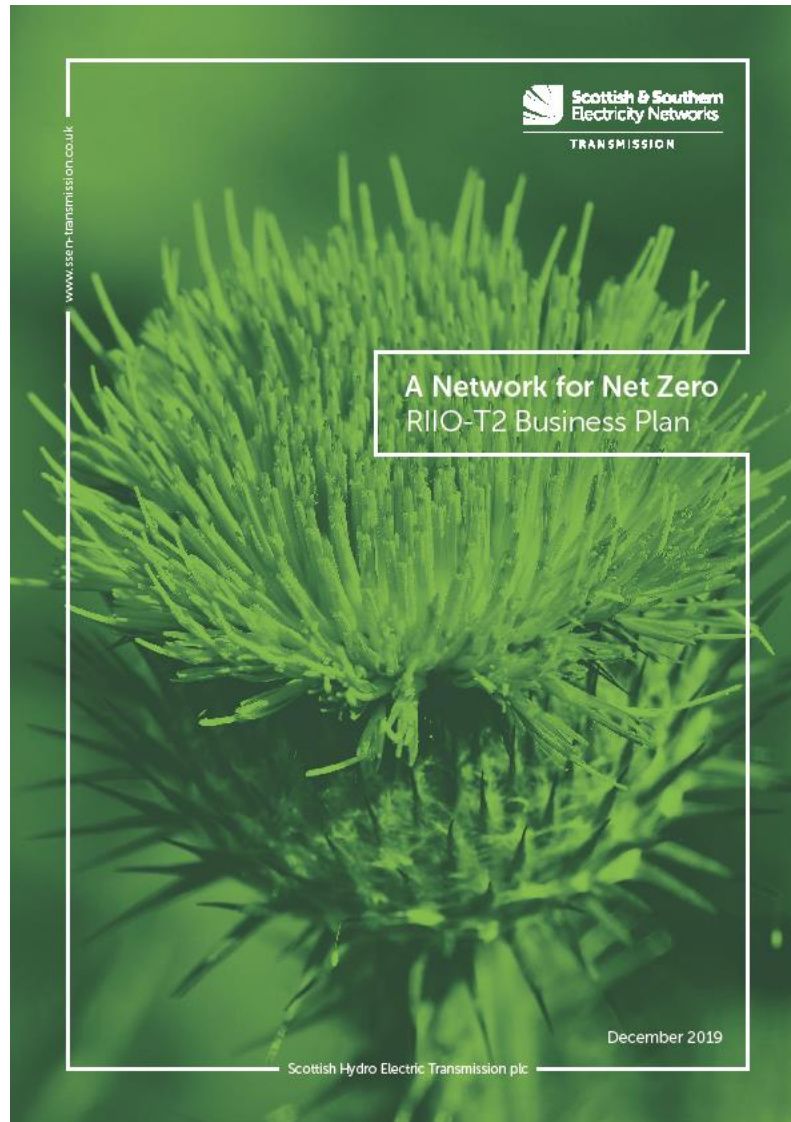
Following a minority stake sale which completed in November 2022, we are now owned 75% by SSE plc and 25% by Ontario Teachers' Pension Plan Board.



We are responsible for the electricity transmission network in the north of Scotland, maintaining and investing in the high voltage 132kV, 220kV, 275kV and 400kV electricity transmission network.



How your views shaped our current business plan



Five years Five clear goals



Transport the renewable electricity that powers 10 million homes

Our RIIO-T2 Certain View will deliver an electricity network with the capacity and flexibility to accommodate 10 GW renewable generation in the north of Scotland by 2026



Aim for 100% transmission network reliability for homes and businesses

By investing in new technology and ways of working, when cost effective for customers to do so, we will strive for 100% transmission network reliability for homes and businesses by 2026



Every connection delivered on time

By 2026 we will provide every network connection, tailored to meet our customers' needs, on time, on budget and to our customers' satisfaction



One third reduction in our greenhouse gas emissions

Reduce the controllable greenhouse gas emissions from our own operations by 33% by 2026, consistent with a net zero emissions pathway



£100 million in efficiency savings from innovation

Our RIIO-T2 Certain View includes £100 million of cost savings through productivity and increased innovation, and we aim to go further to save more

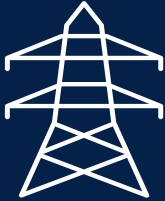
Delivered for around £7 a year

Our next business plan

Co-created with our stakeholders



Net Zero




Energy Security

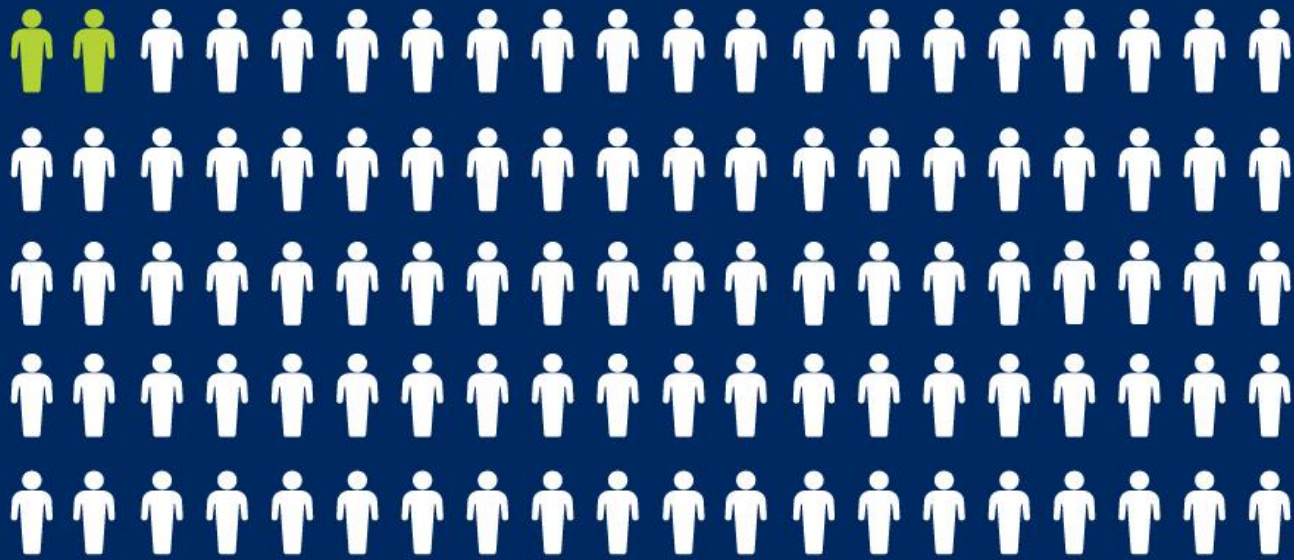


Economic, Social & Environmental Legacy



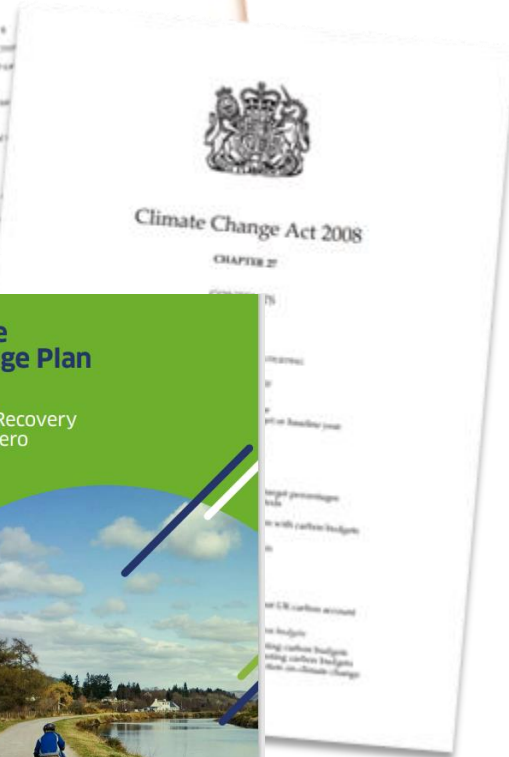
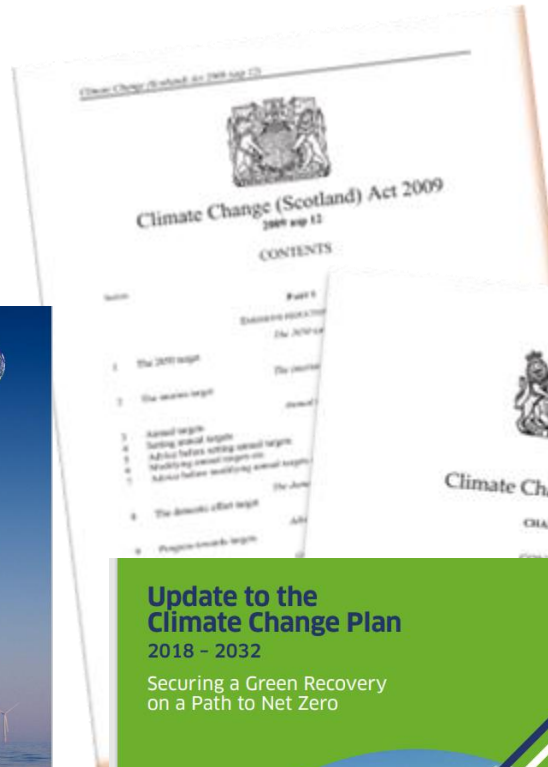
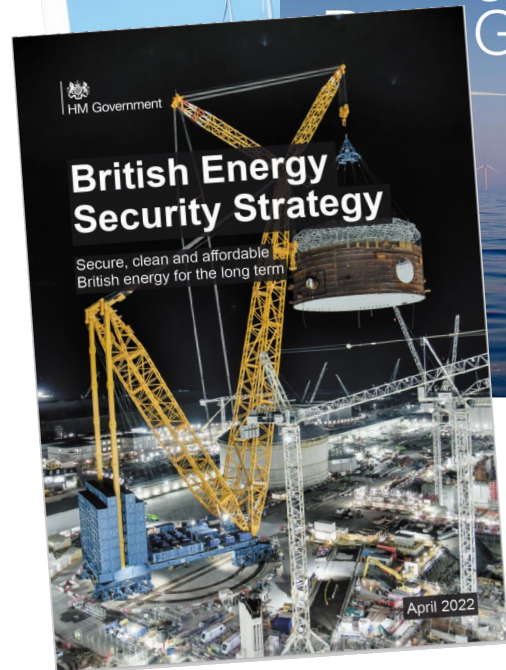
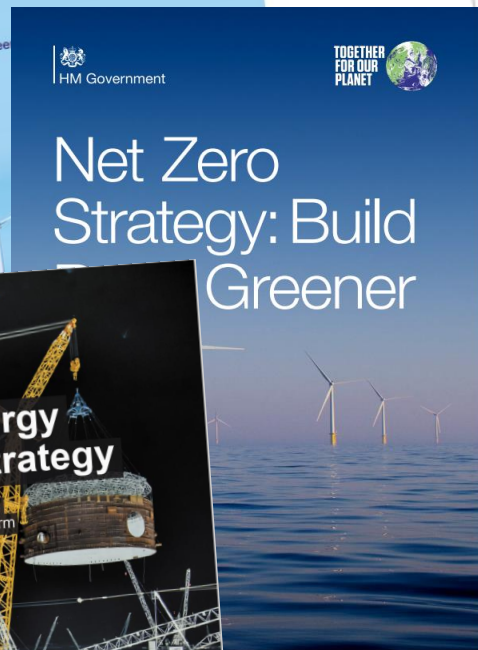
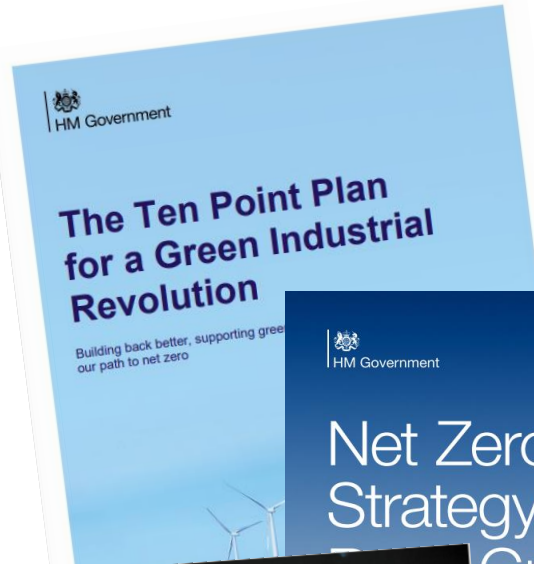


The region produces and exports low carbon electricity, and is home to **just 2% of the UK population.**



Contributing
10%
of total action
needed to achieve
UK net zero.

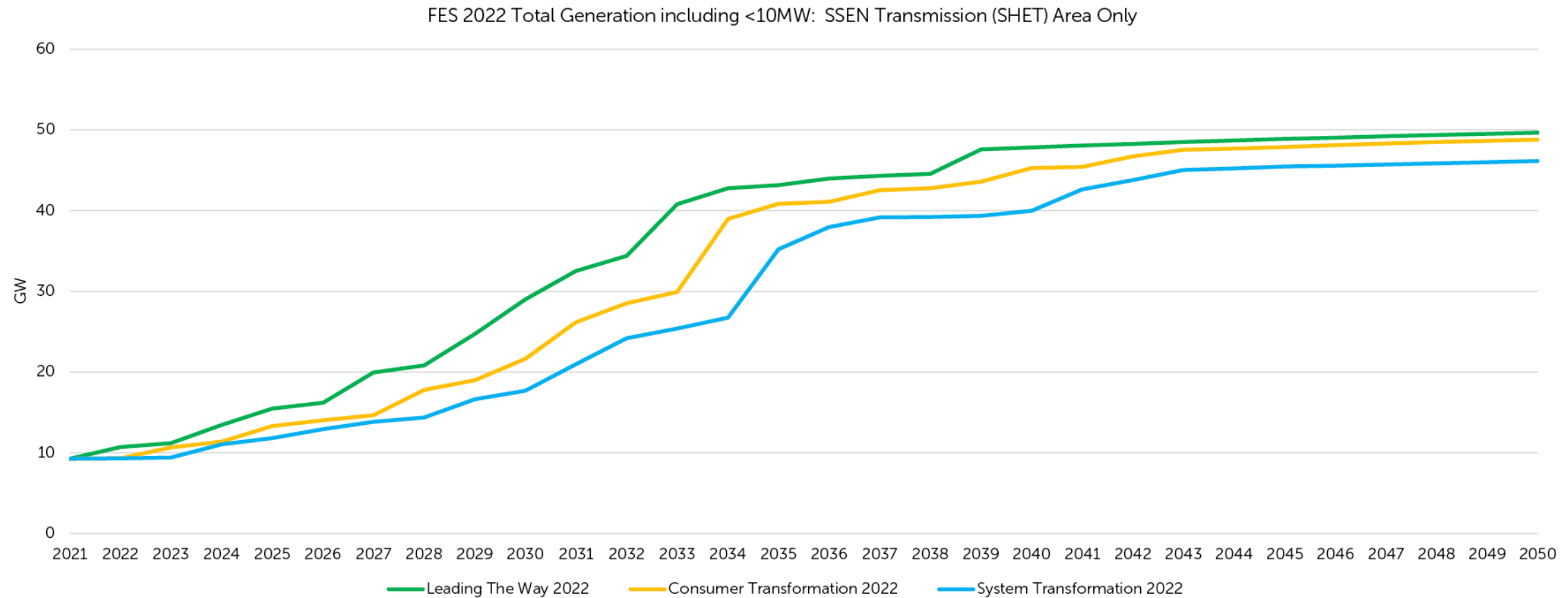
Renewable Generation Targets and Net Zero



- Scottish Government's Net Zero goal by 2045
- UK Government's Net Zero by 2050 and Net Zero power by 2035
- UK Government's 40GW by 2030 offshore wind target
- Scottish Government's 11GW offshore wind by 2030 target
- Scottish Government's 8-12GW of onshore wind by 2030 target

North of Scotland is a key enabler of GB's energy transition

SSEN Transmission set to deliver 10% of GB total emissions abatement required for net zero



Source: [Future Energy Scenarios 2022 | National Grid ESO](#)

Scottish Hydro-Electric Transmission (SHET) is part of SSE plc and operates under licence as SSEN Transmission

MAIN NORTH OF SCOTLAND ELECTRICITY TRANSMISSION NETWORK IN 2030

Investments currently in discussion with Ofgem

1. Argyll 275kV strategy
2. Fort Augustus to Skye 132kV upgrade
3. Orkney 220kV AC subsea link




Pathway to 2030 Investments

- 1a. Beaulieu to Loch Buidhe 400kV reinforcement
- 1b. Loch Buidhe to Spittal 400kV reinforcement
- 2a. Beaulieu to Blackhillock 400kV double circuit
- 2b. Blackhillock and Peterhead 400kV double circuit
3. Beaulieu to Denny 275kV circuit to 400kV
4. East Coast Onshore 400kV Phase 2 reinforcement
5. Spittal to Peterhead 2GW HVDC subsea link
6. Peterhead to Drax 2GW HVDC subsea link (EGL2)
7. Peterhead to South Humber 2GW HVDC subsea link (EGL4)
8. Arnish to Beaulieu 1.8GW HVDC Western Isle link
9. Aquila Pathfinder - Peterhead DC switching substation

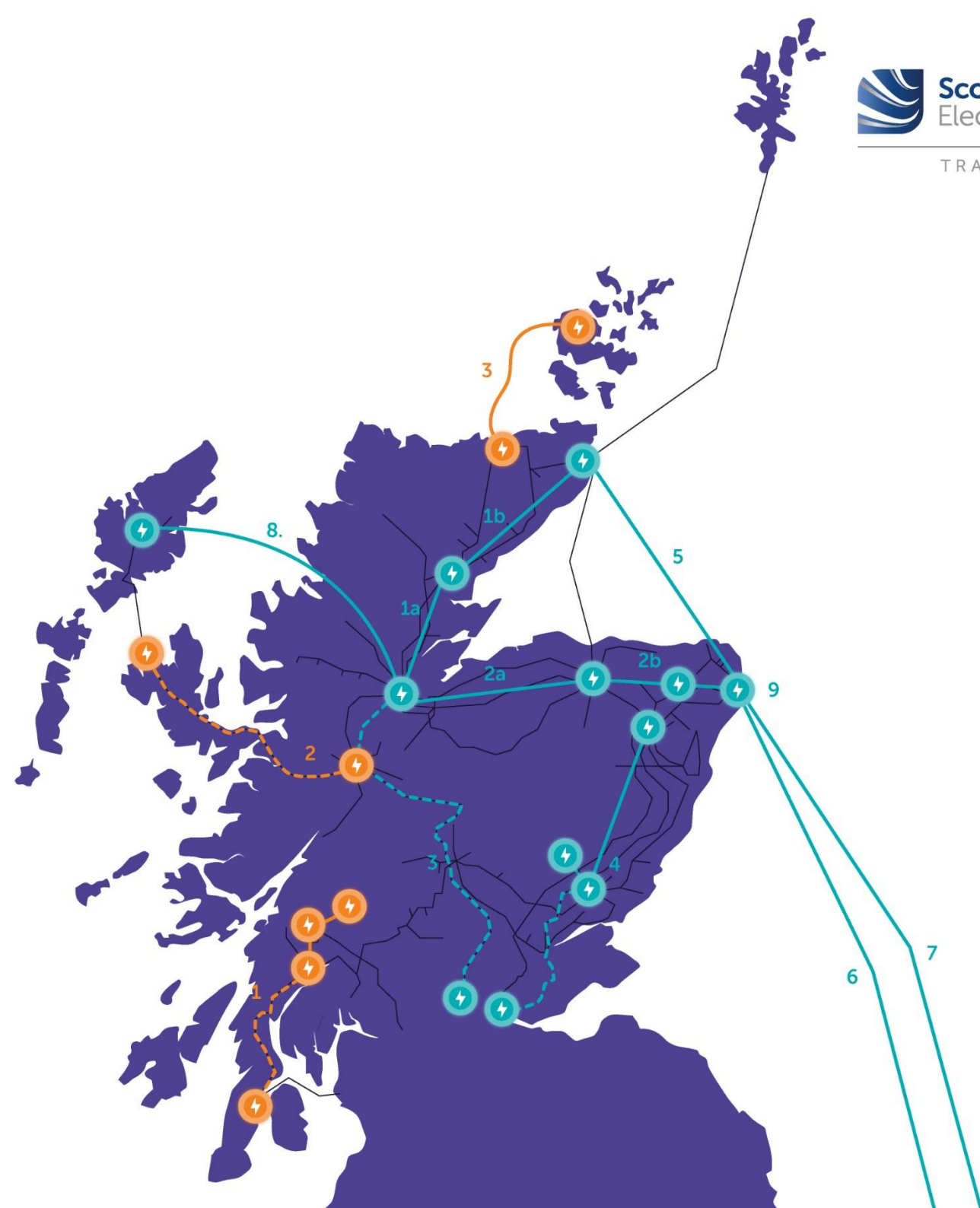
Public Consultation to Inform Project Development

All new reinforcements remain subject to detailed consultation and environmental assessments to help inform route and technology options

More detail on these projects, including how to sign up for updates, will be made available on SSEN Transmission's website, www.ssen-transmission.co.uk

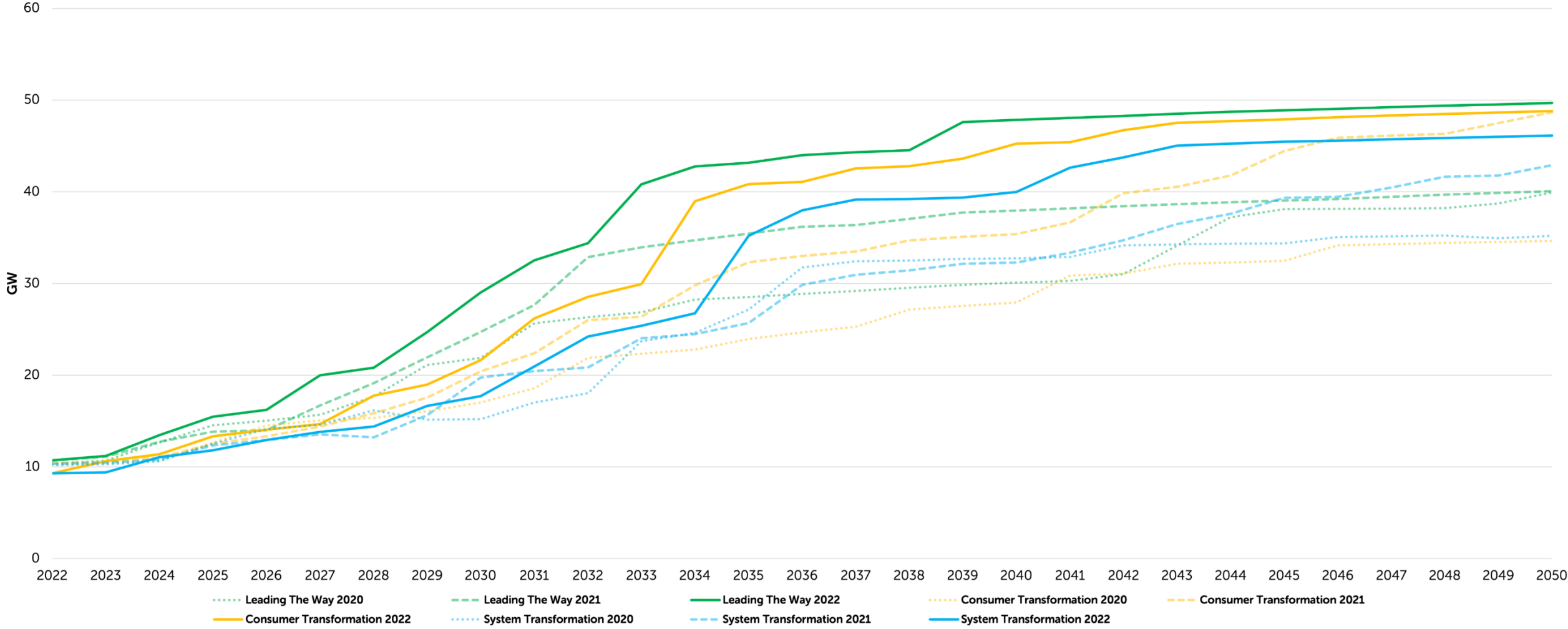
-  New Infrastructure (Routes shown here are for illustrative purposes)
-  Upgrade/Replacement of Existing Infrastructure
-  Existing Network

Forecast as at 16 Sept 2022



Continued acceleration of expected electricity generation in the North of Scotland

FES Historic View of Total Generation including <10MW (SHET Area)



Energy security and value for money

Draft Energy Strategy and Just Transition Plan –
 delivering a fair and secure zero carbon
 energy system for Scotland

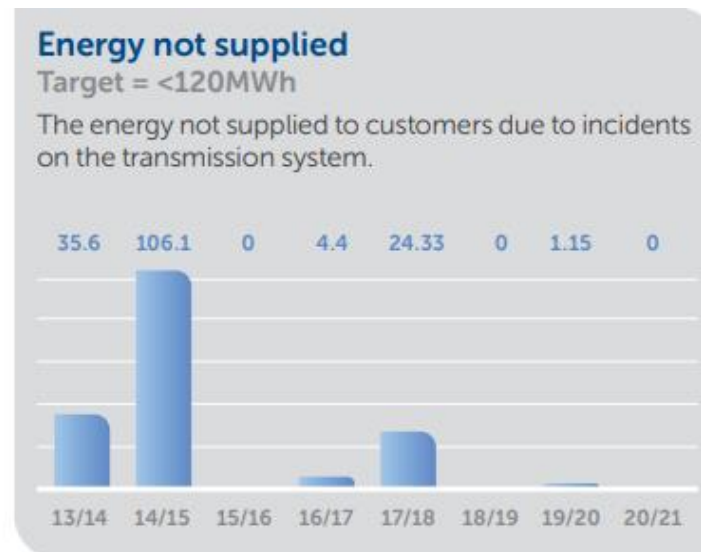
January 2023

Scottish Government
 Riaghaltas na h-Alba

**WE'VE HAD OUR
 SCIENCE-BASED TARGET APPROVED**

SCIENCE
 BASED
 TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION



Your opportunity to shape our next Business Plan



Net Zero

Aileen McLeod

Director of Business Planning & Commercial





THE ENERGY TRILEMMA

At the beginning of the workshop, stakeholders were asked to consider the energy trilemma - Cost, Environment and Reliability – stating where they see SSEN at present in terms of where the company's approach fits within these, often conflicting, factors.

They were asked to place a [blue] sticker on a board reflecting this.

At the end of the workshops, after having heard about SSEN's approach, they were asked to revisit this exercise, placing their [green] sticker according to where they believed the company would be in 2030.

This data was then plotted on a grid in order to calculate a mean position for both the present and for 2030.

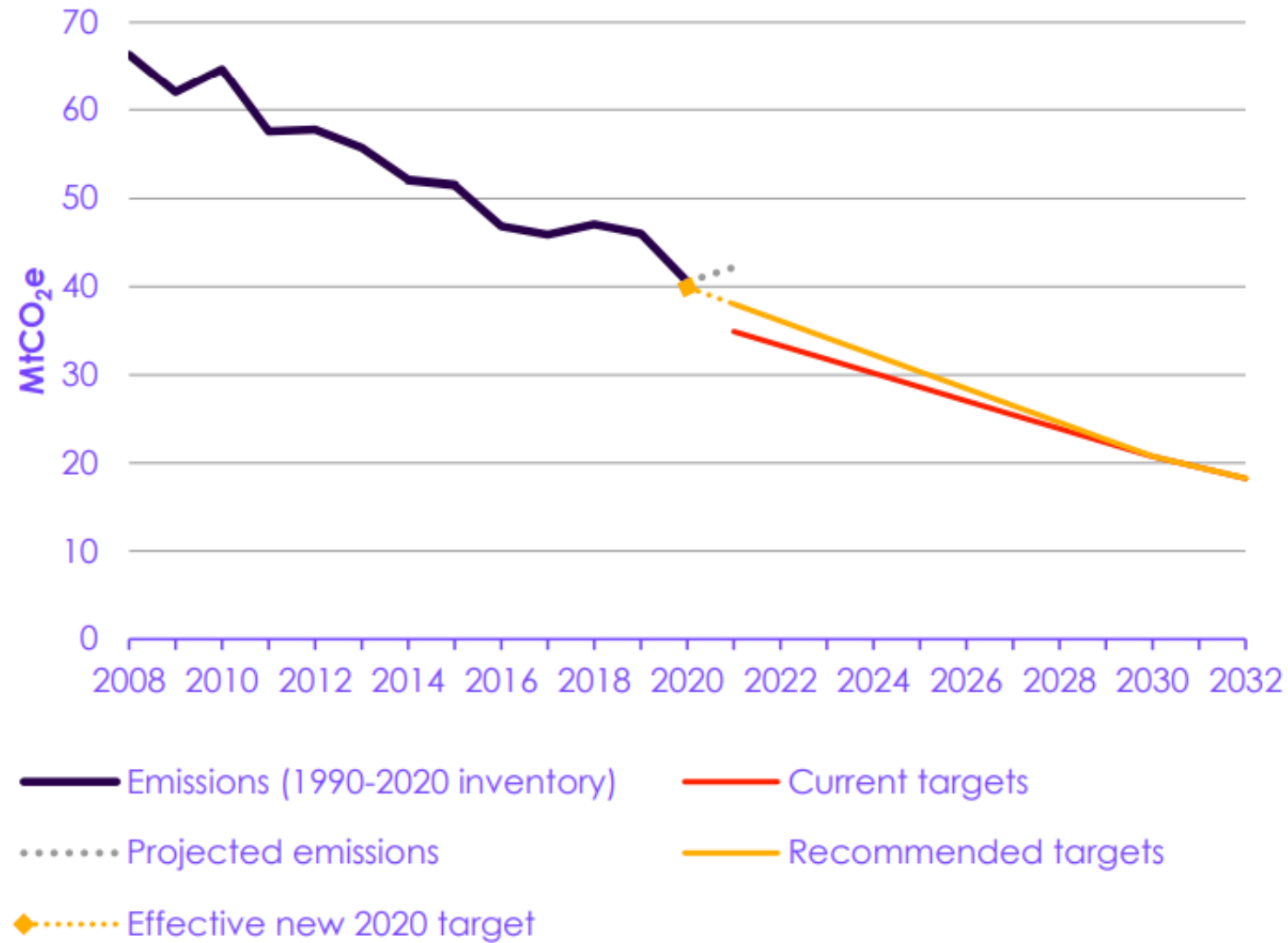




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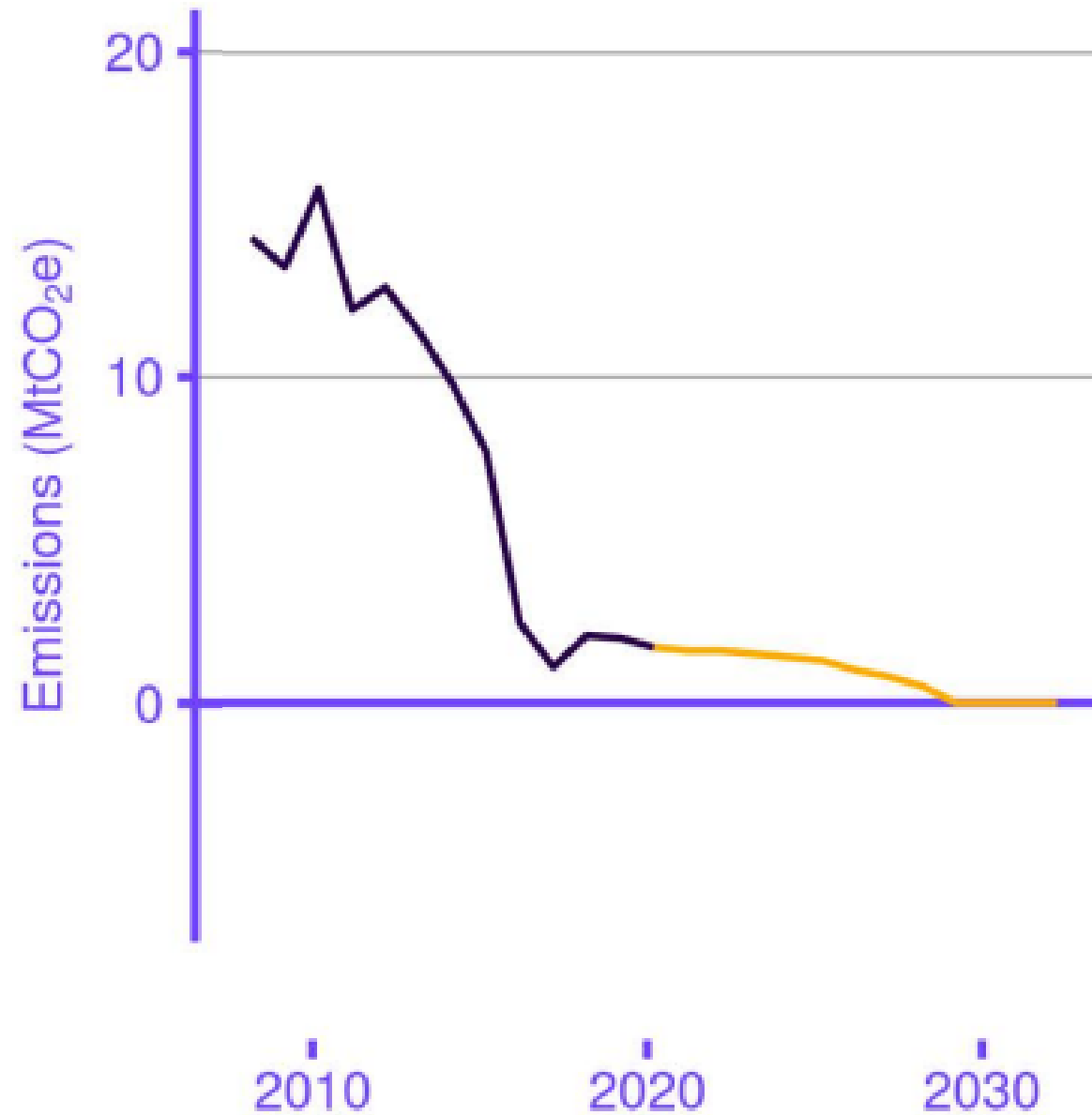
Greenhouse Gas Emissions: Scotland



Source: Progress in reducing emissions in Scotland: 2022 report to Parliament, Climate Change Committee, Dec 2022. Accessed 8 Feb 2023



Greenhouse Gas Emissions: Electricity

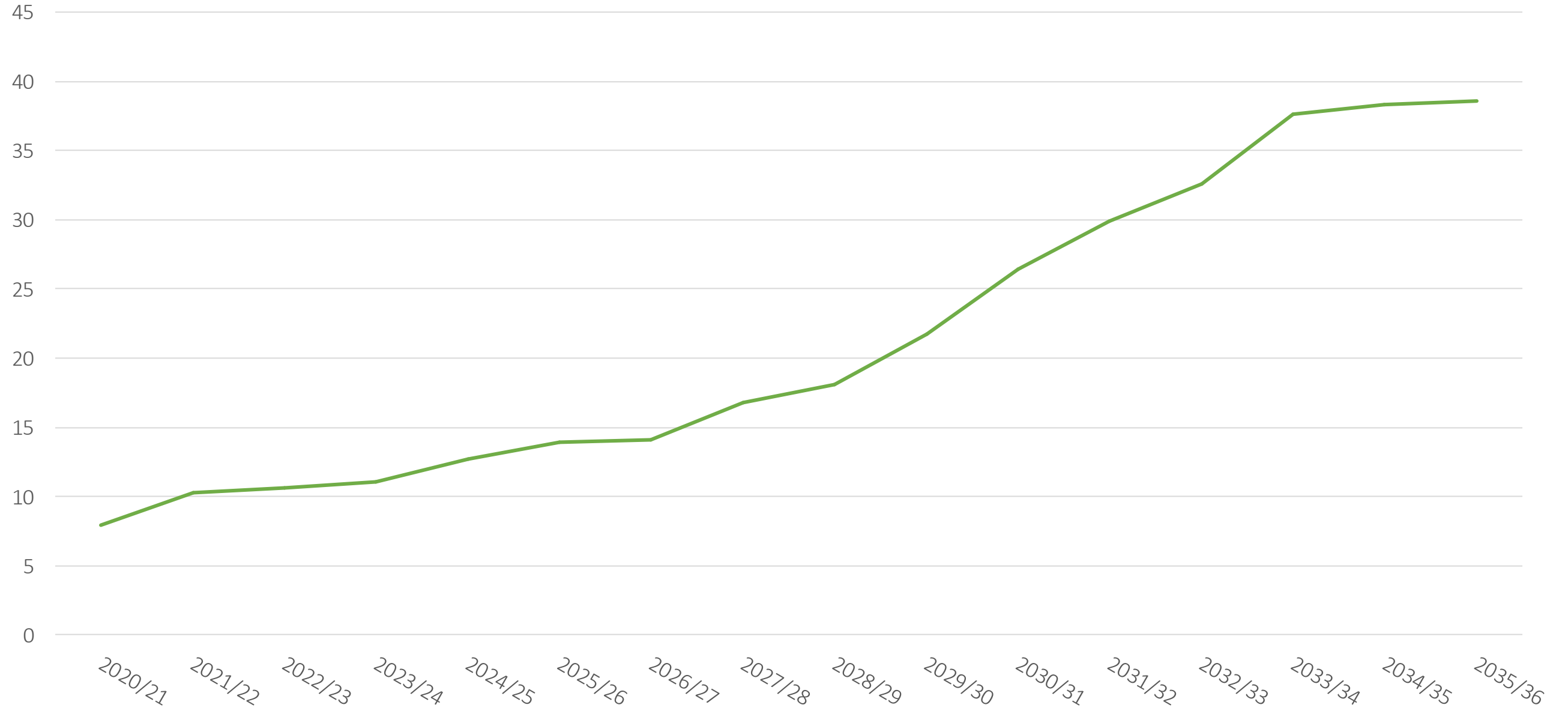


Source: Progress in reducing emissions in Scotland: 2022 report to Parliament, Climate Change Committee, Dec 2022. Accessed 8 Feb 2023



Holistic Network Design (HND) for 2030

Leading the Way Generation (GW)





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The Motorways

Accelerating Strategic Transmission Investment (ASTI)

MAIN NORTH OF SCOTLAND ELECTRICITY TRANSMISSION NETWORK IN 2030

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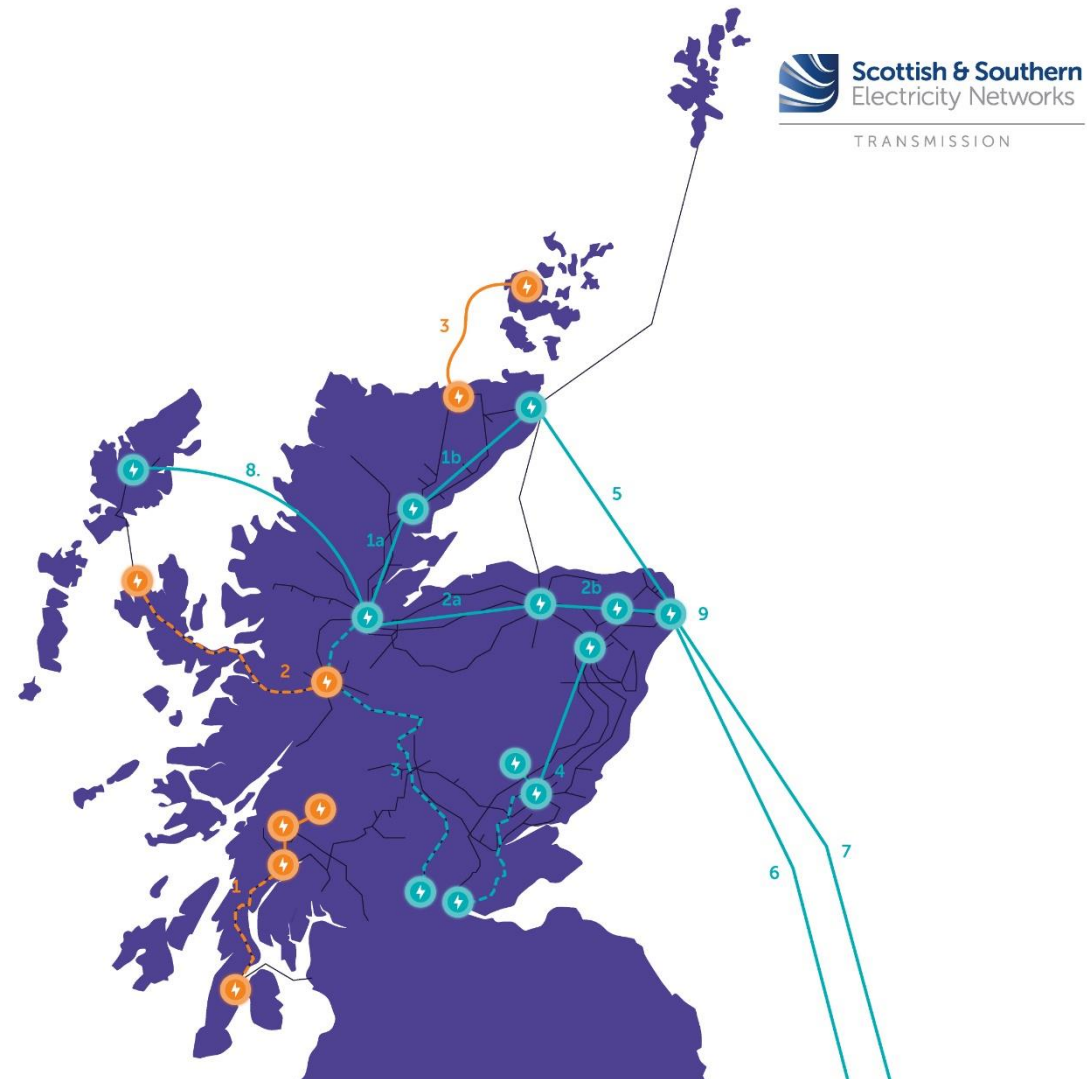
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Forecast as at 16 Sept 2022



Group Discussion



ASTI was approved by Ofgem in December 2022.

It is SSEN Transmission's view that this should **not be reopened** as part of the RII0-T3 price control.

The Trunk Roads

Strengthening our regional transmission network

Wind Farms - Constructed/Under Construction

- Constructed
- U_Construction

Wind Farms - Approved



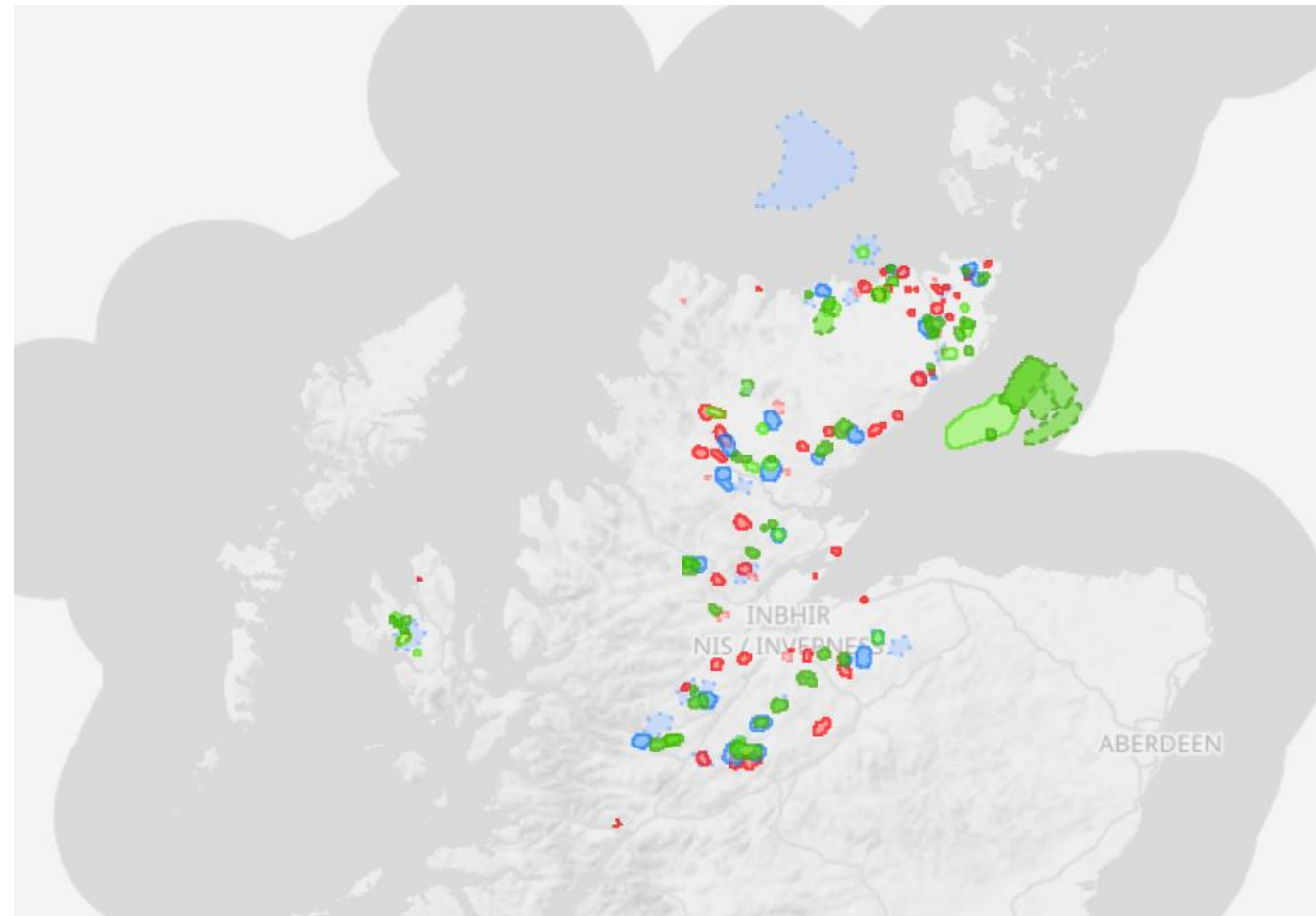
Wind Farms - In Planning



Wind Farms - Refused/Expired/Withdrawn

- Refused
- Expired
- Withdrawn

Wind Farms - Scoping/Screening



Group Discussion



The local grid will need to be strengthened to accommodate new generation and changing demand.

What **factors should be taken into account** when planning the local grid?

Should SSEN Transmission 'build once' by undertaking **anticipatory investment?**

Getting Connected

Timely, cost-effective connections for new customers

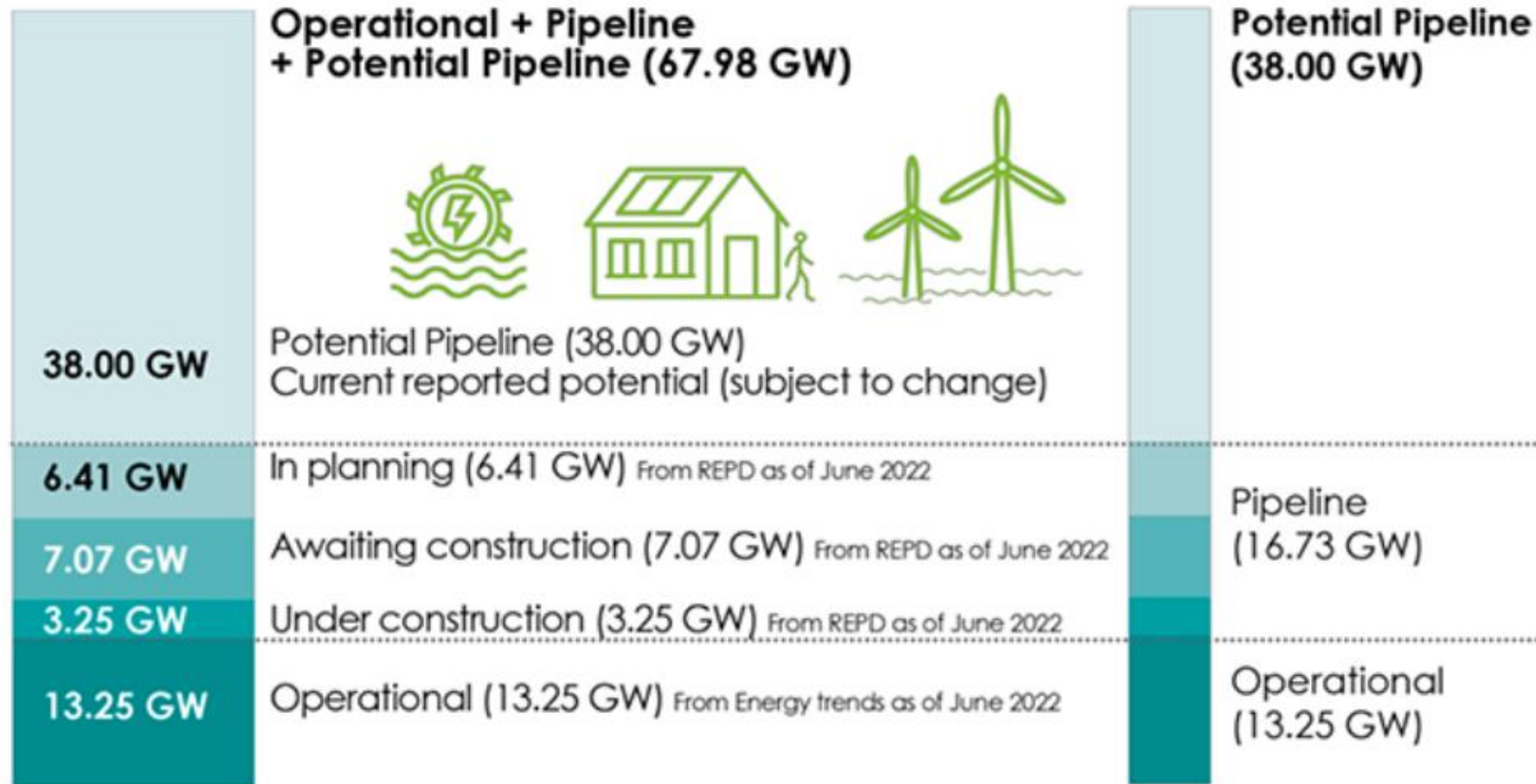


Figure 14 : Scotland's renewable electricity capacity (operational, pipeline and potential pipeline)

Source: Draft Energy Strategy and Just Transition Plan, Scottish Government, January 2023. Accessed 8 Feb 2023.

Group Discussion



Connected generation is forecast to triple by 2030.

What are the **key requirements** for an excellent connections service?

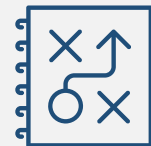


Group Discussion



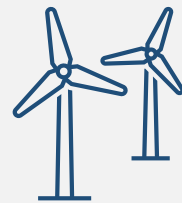
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Connected generation is forecast to triple by 2030.

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Discussion



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Coffee break



Scottish & Southern
Electricity Networks

TRANSMISSION

Energy Security

Brian Addison

Head of Asset Management



A quick reminder of why we are here today...

The International Asset Management Standard – ISO55001 – defines Asset Management to be:

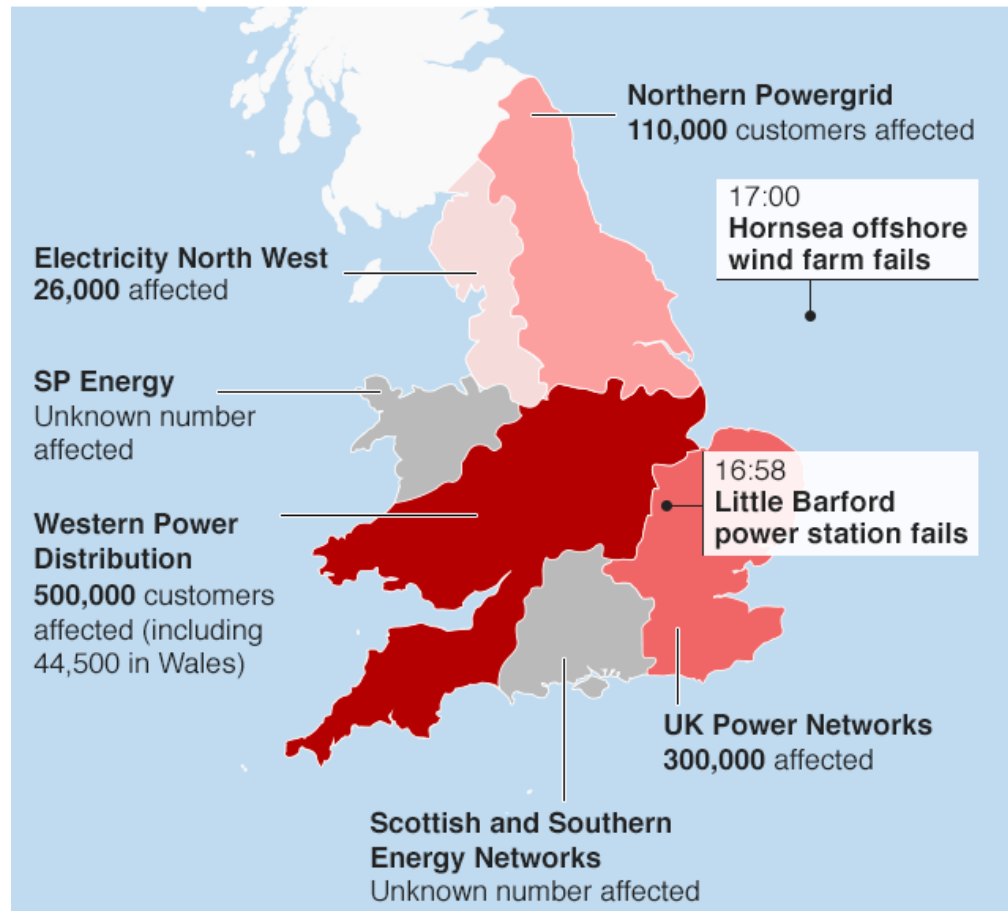
“The coordinated activities of an organisation to realise benefit from assets”

Energy Security

Why we think this is important

England and Wales power cut

Customers affected in each electricity supply area



Source: Electricity supply companies / National Grid



Substation fault caused huge north Scotland power cut

© 22 April 2014



The cause of the power outage on Wednesday was traced to a substation near Inverness

A fault at a substation was the cause of a power outage which affected more than 200,000 properties across the north of Scotland last week.

Energy Security

A look back to your priorities for us in 2018/19

You said...

Your No1 priority was
Security of Supply

*This informed the development of one of our
5 clear goals for RIIO-T2....*

Aim for
**100% transmission
network reliability**
for homes and businesses

We delivered...

Network Reliability:

18/19	19/20	20/21	21/22	22/23
99.99%	99.99%	99.99%	*99.98%	99.99%

Network Availability:

18/19	19/20	20/21	21/22	22/23
97.09%	97.83%	97.17%	97.07%	~97%

SSEN Transmission are consistently delivering UK
sector-leading performance for both
Network Reliability & Availability

*Storms Arwen, Corrie & Malik



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Energy Security – Goal No1

To operate a reliable and available network

Benefits

We're aiming for 100% reliability for homes, businesses & generators – through investing in those assets that need work done.

The benefits of this approach are:



Reliable power for homes & businesses



Maximise renewable generation on the network



Reduce constraint costs



Energy Security – Goal No2

To Maintain strong, modern defences for critical systems in line with best practice



Benefits

Improve the Resilience of the Network by managing & mitigating risks relating to climate change and external factors



Asset Risk – Strategic Spares, 24/7 condition monitoring



External Threats – Continuous evolution of Cyber resilience & the physical security of our assets



Climate Resilience – Vegetation management, SF₆, Exploring innovative ways to model & predict the impact of climate on our assets

Energy Security – Goal 3

A System capable of 100% Safe & Secure, Zero-Carbon Operation



How do we ensure your Energy Security when it isn't windy or sunny?

Benefits

Supporting the transition to net-zero and reducing the reliance on fossil fuels by ensuring the network is capable of maintaining the quality of power transmitted from intermittent, renewable sources



Discussion



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During lunch we will be moving your place setting to a different table where you'll be discussing the topic you chose when you registered.

Blue = Economic and Social Impact Tables: 1,2,3,4

Green = Greenhouse Gas Emissions Tables: 5,6,7,8

Yellow = Natural capital Tables: 9,10

Red = Visual Impact of Existing Transmission Infrastructure Tables: 11,12,13

Please make sure you pick up your belongings – mobile phones, wallet, etc.



Lunch

Please make sure you pick up your belongings – mobile phones, wallet, etc.

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Yellow = Natural capital Tables: 9,10

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Economic, Social and Environmental Legacy

Christianna Logan

Director of Customers & Stakeholders



Our Greenhouse Gas emissions reduction targets

Target Wording:

46% reduction* by FY 2029/30

= 5.4% annual reduction

One-third reduction* by FY2025/26

Registered with:



ofgem

Jargon:

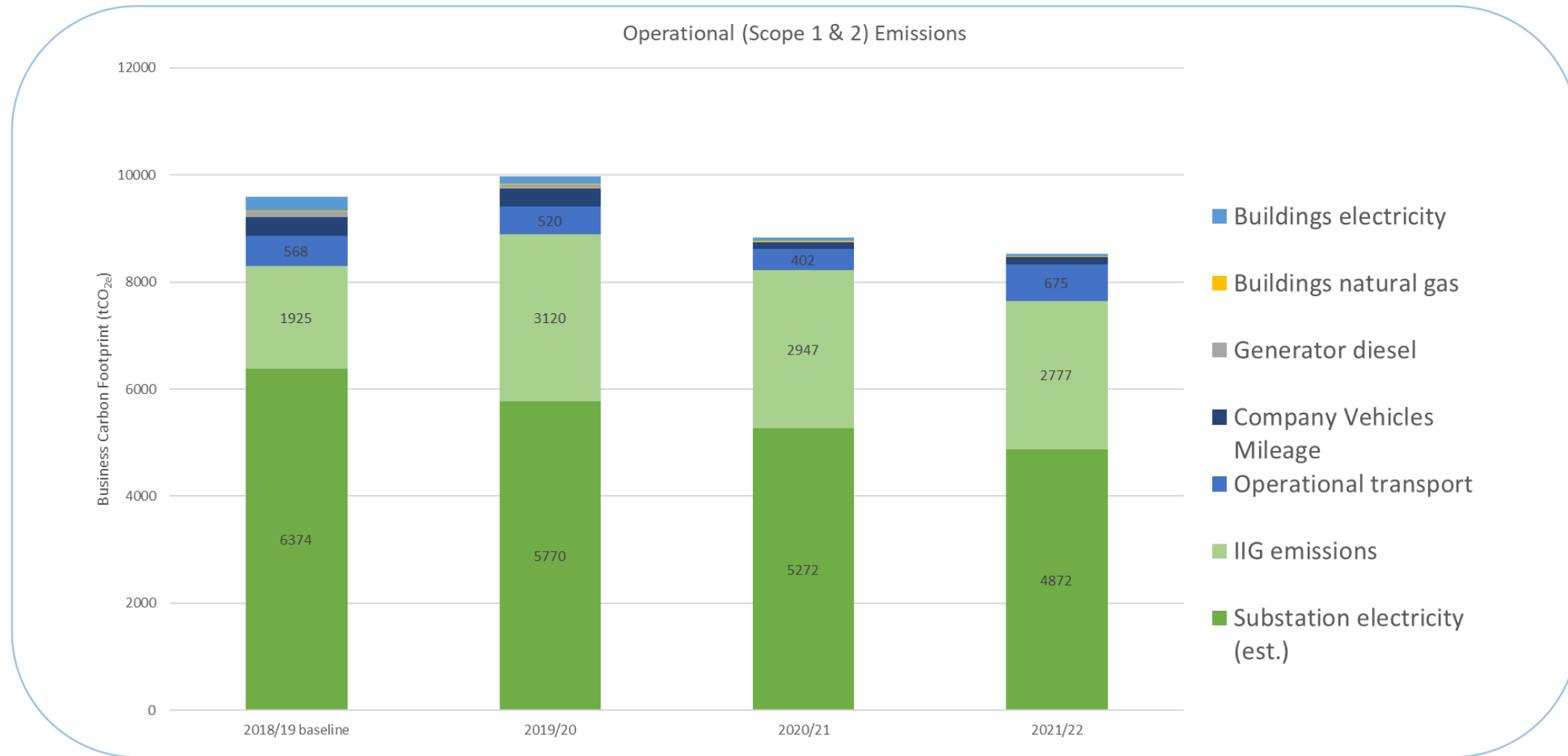
Scope 1 is direct GHG emissions from our equipment.

Scope 2 is indirect emissions from electricity use.

Scope 3 (not currently included in reduction targets) is indirect emissions from everything else, e.g. supply chain.

*-In Scope 1 & 2 emissions and against a 2018/19 baseline.

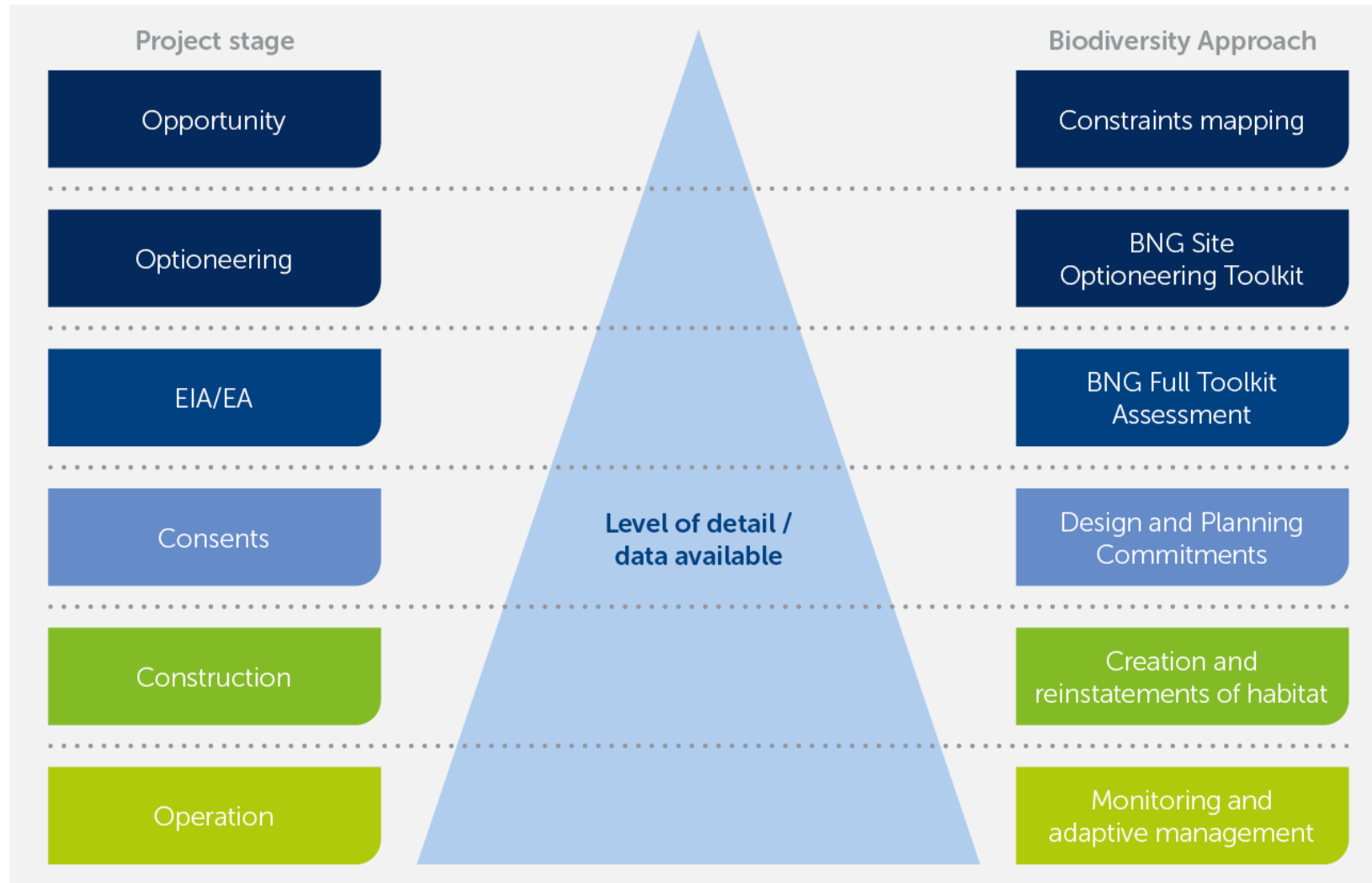
Our operational carbon footprint



IIG emissions are Insulation and Interruption Gases e.g. SF6

Biodiversity Net Gain

Development that leaves biodiversity in a better state than before



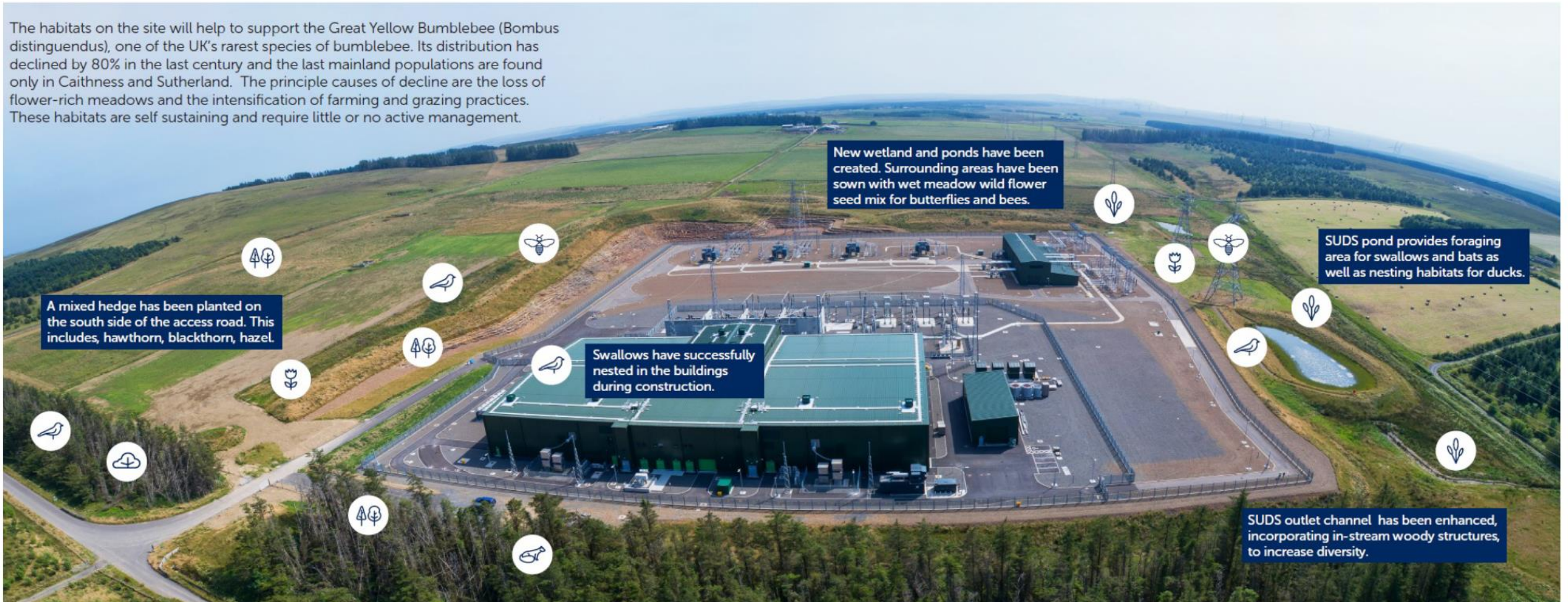
For new infrastructure projects, SSEN Transmission commits to:

- Achieve an overall 'No Net Loss' on new infrastructure projects gaining consent in 2020 onwards
- Achieve an overall 'Net Gain' on projects gaining consent in 2025 onwards

Spittal Substation

Biodiversity Net Gain in action resulted in a 34% net gain from what would have been a significant net loss

The habitats on the site will help to support the Great Yellow Bumblebee (*Bombus distinguendus*), one of the UK's rarest species of bumblebee. Its distribution has declined by 80% in the last century and the last mainland populations are found only in Caithness and Sutherland. The principle causes of decline are the loss of flower-rich meadows and the intensification of farming and grazing practices. These habitats are self sustaining and require little or no active management.



A mixed hedge has been planted on the south side of the access road. This includes, hawthorn, blackthorn, hazel.

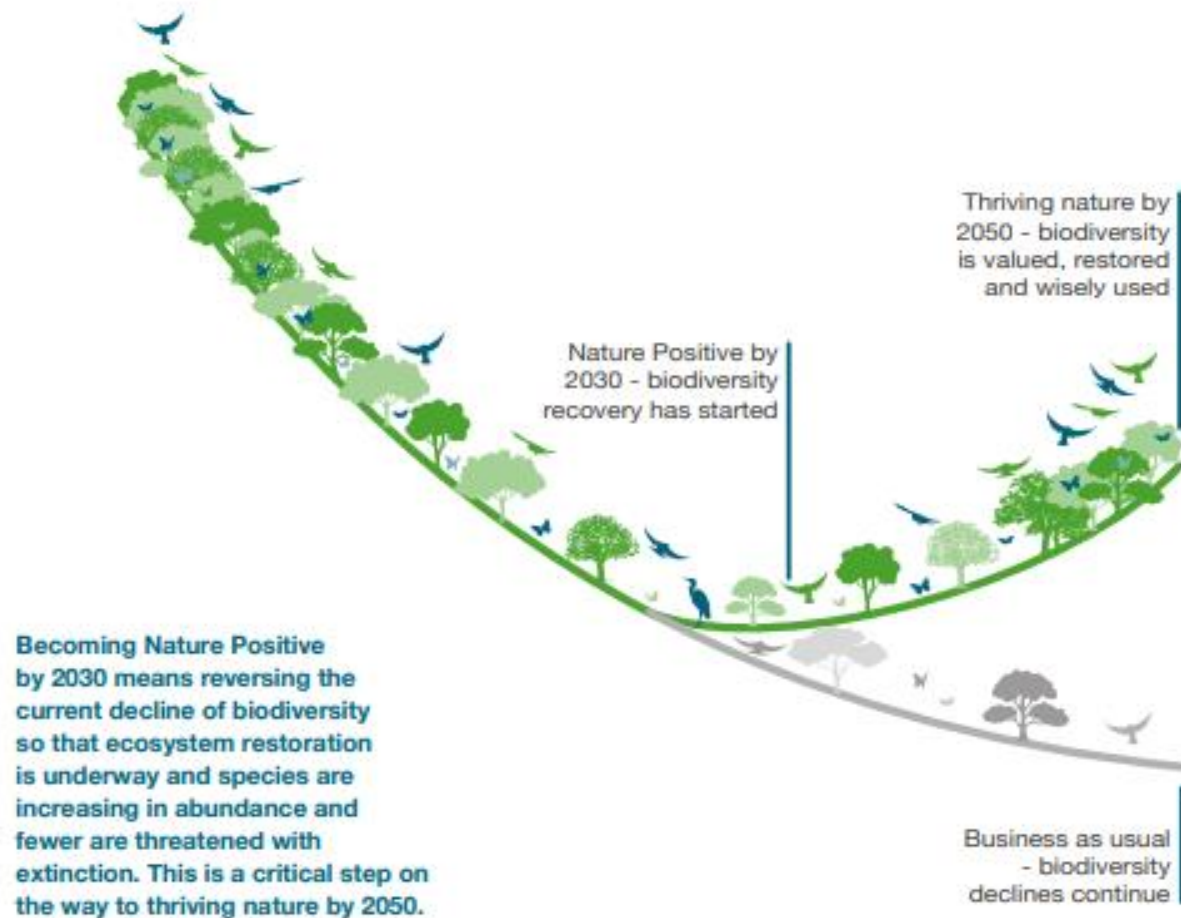
Swallows have successfully nested in the buildings during construction.

New wetland and ponds have been created. Surrounding areas have been sown with wet meadow wild flower seed mix for butterflies and bees.

SUDS pond provides foraging area for swallows and bats as well as nesting habitats for ducks.

SUDS outlet channel has been enhanced, incorporating in-stream woody structures, to increase diversity.

Nature Positive by 2030



“Just stopping any further habitat loss is not enough to halt biodiversity decline: we now need to make more space for nature”

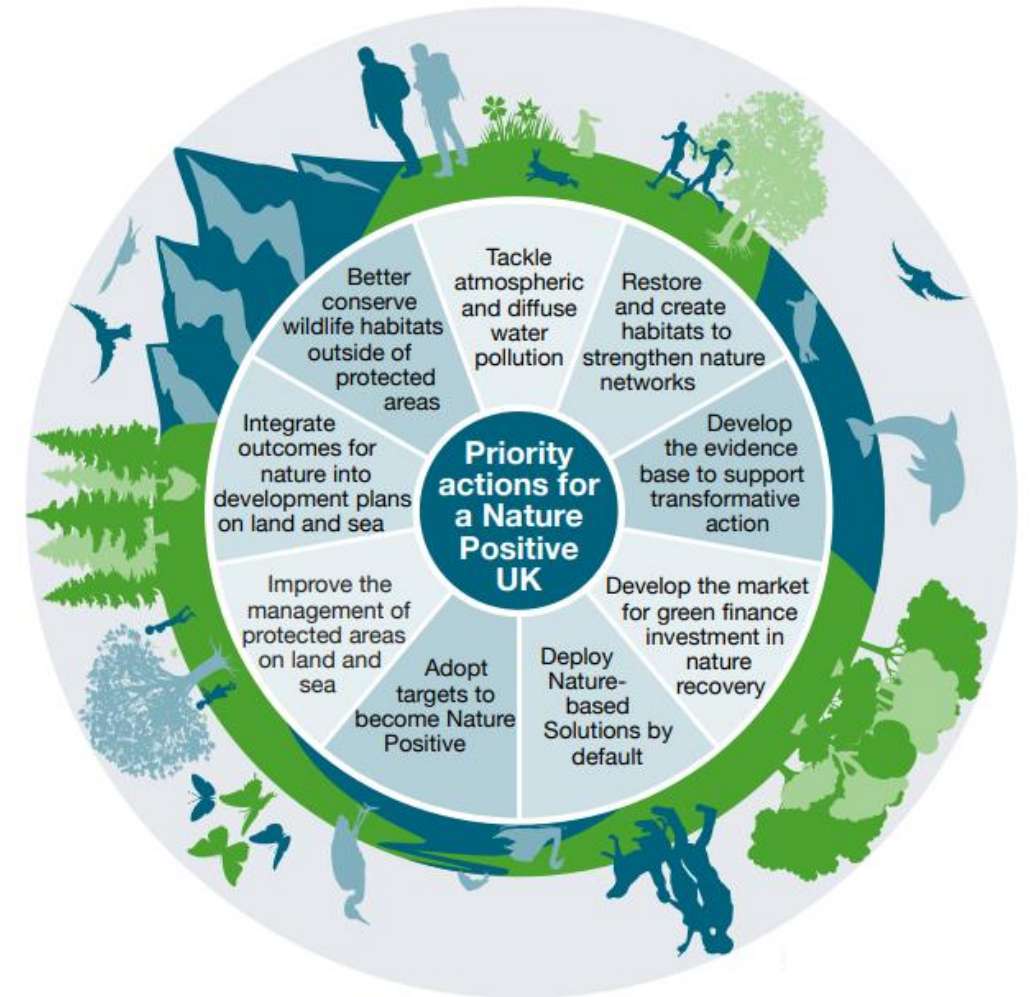
Nature Positive by 2030

The twin crisis of biodiversity loss and climate change means factoring in the value of nature into our decision-making.

We want to reduce our impact on nature and restore and regenerate biodiversity in the future.

We need to:

- Understand our current impact on nature
- Take a leadership role and collaborate to become a Nature Positive business
- Develop the tools and resources to measure, manage and monitor our impact
- Report on our progress



Visual Impact of Scottish Transmission Assets



Images: Tower felling in the Loch Lomond and the Trossachs National Park as part of the Sloy VISTA project

Non-technical Visual Amenity Projects

Painting of the 132kV towers visible from the Queens View and implementation of a **native woodland planting** scheme to blend the towers into the landscape.



Pre-development



Post-development



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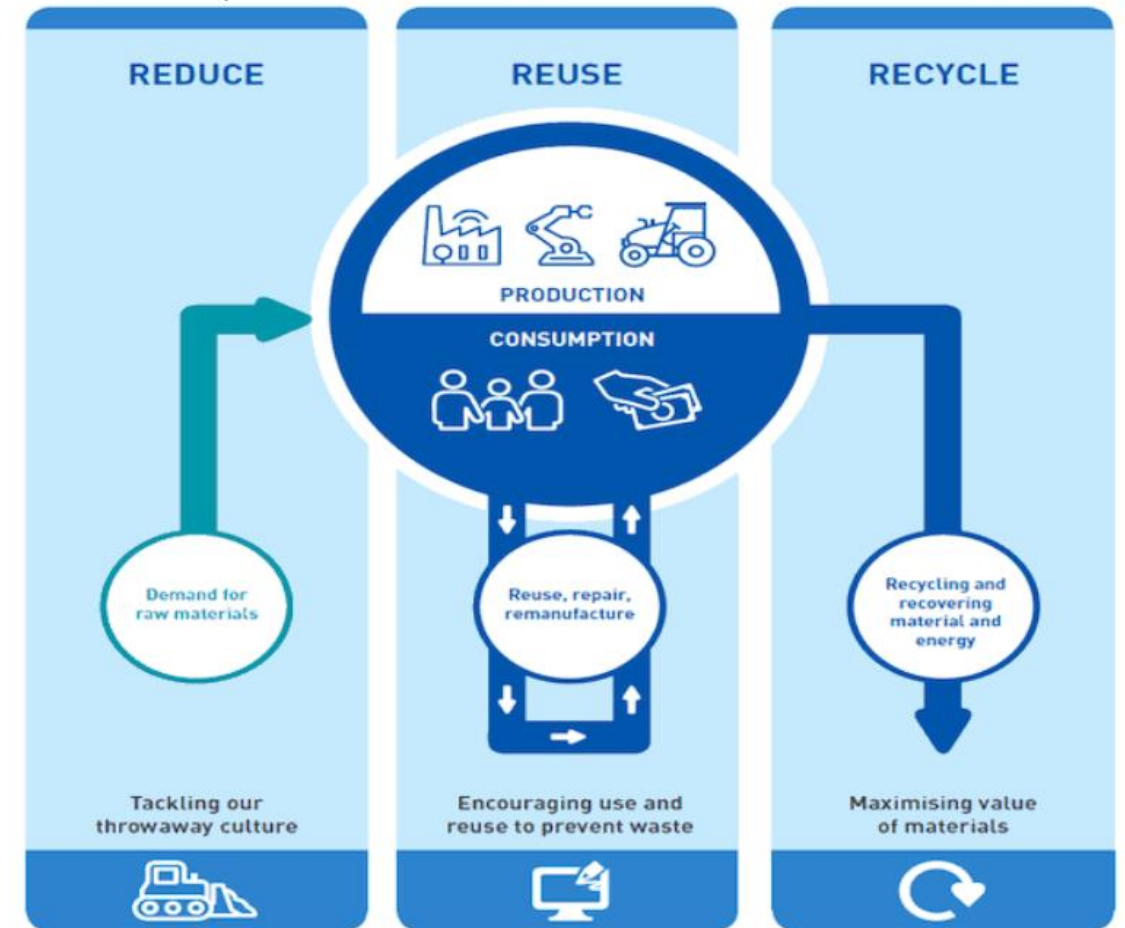
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Circular Economy

"Material consumption and waste are the primary drivers of nearly every environmental problem we currently face, from water scarcity to habitat and species loss."

Source: Making Peace with Nature, United Nations Environment Programme (2021)

Figure 1: a circular economy approach to production and consumption (source: Zero Waste Scotland)



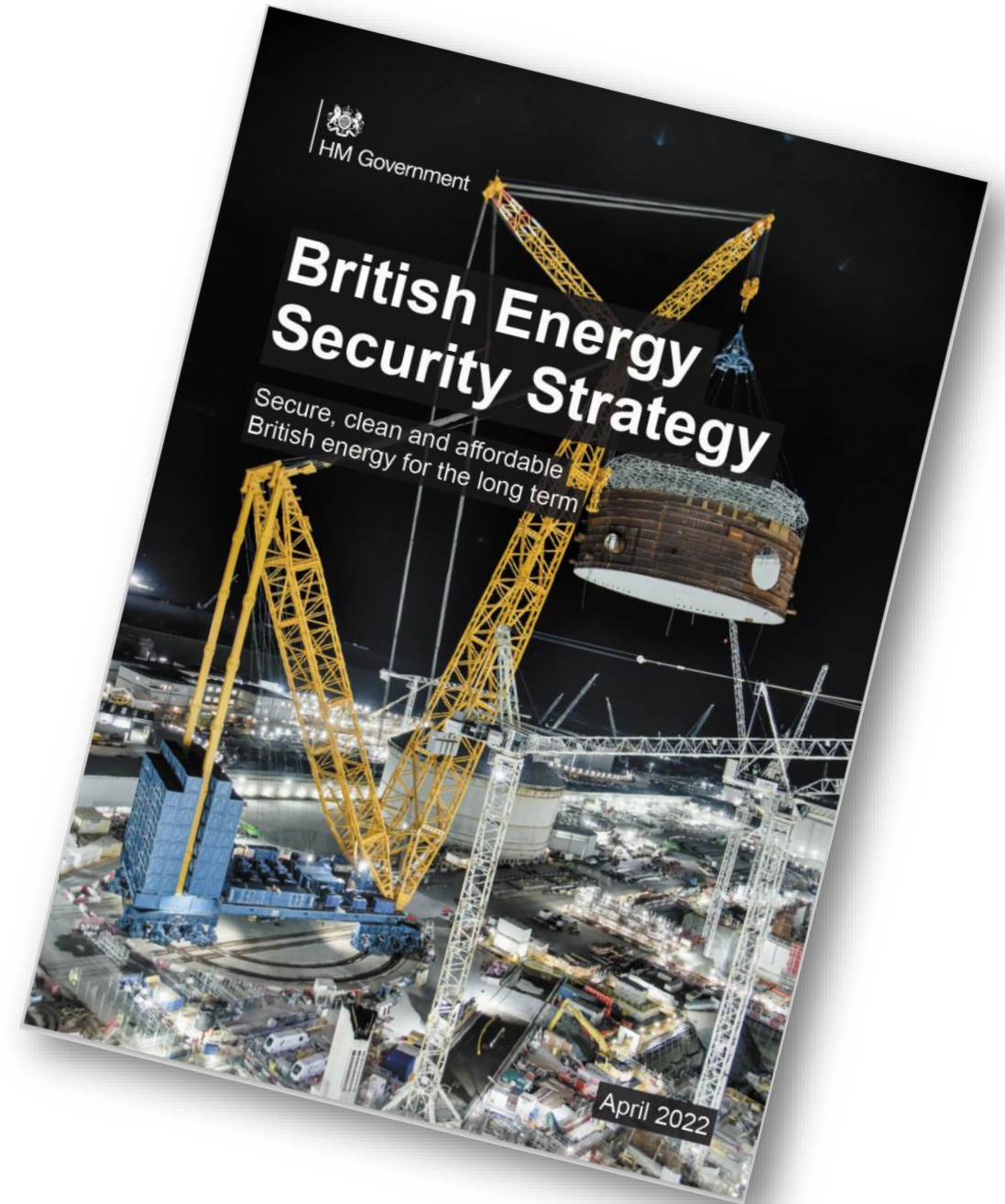


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Socioeconomic legacy

“Improving community benefits for areas with strategic network infrastructure”



Our current thinking

- Funds allocated from all projects with capital spend over £100m
- Two types of funding and benefit:
 1. Local
 2. Regional
- Focus on:
 - Education
 - Skills
 - Employability
 - accreditation of Small and Medium Sized Enterprises
- Funds must benefit communities not individuals





Discussion

Q&A

Hosted by: Greg Clarke
Head of Corporate Affairs



Ask any questions you have for our panel...



Aileen McLeod
Director of Business
Planning & Commercial



Brian Addison
Head of
Asset Management



Christianna Logan
Director of
Customers & Stakeholders



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Next Steps

Sharing your views

We'll now share with you a short feedback survey and would appreciate your feedback on today's event



The slide pack will be available on www.ssen-transmission.co.uk in the next few days



You can contact us at Transmission.Stakeholder.Engagement@sse.com

To register for updates on future events visit us at [Delivering Net Zero – Pathway to 2030 and our next Business Plan](#)



SSEN TRANSMISSION
AA1000 STAKEHOLDER
ENGAGEMENT PERFORMANCE

ADVANCED
2022