

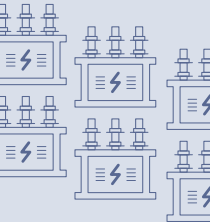
# Delivering a Network for Net Zero: The Pathway to 2030

Our Plan for the RIIO-T3 Period





# Executive Summary



## This is SSEN Transmission's Business Plan for the RIIO-T3 period from 1 April 2026 to 31 March 2031.

The RIIO-T3 period is a critical time for the energy transition when, as a country, we will make transformative steps towards homegrown secure and clean power. There can be no transition without transmission – and this Business Plan sets out the role that SSEN Transmission will play in achieving our shared national mission.

Our Plan is clear on our 2030 Goals:



### Reliable Energy

Zero interruptions in electricity supply to homes and business due to our network



### Clean Power

Our network will have the capability to meet 20% of the GB demand for clean power



### Our Legacy

Drive investment in the energy transition that delivers transformative lasting benefits for local communities, our economy and nature

To achieve these 2030 Goals, we set out in this Plan a comprehensive, well justified set of investments and actions that are value for money for today's energy consumers and for future generations. These build upon our exceptional track record for security of supply and on time, on budget delivery of capital investment.

We are committed to over **£22 billion in capital investment in the electricity grid** to deliver a network for net zero. This includes our strategic investment commitments already approved by Ofgem. Our initial assessment of the new clean power pathways suggests that the total investment could be around £32 billion. Early engagement with supply chain partners and putting in place workforce resilience plans mean we have confident programmes for delivery.

**Delivering this capital investment will support up to 37,000 UK jobs, with 17,500 jobs in Scotland**, and add £15bn of value to the UK economy, half of which will be in Scotland. Through our housing strategy, we will support at least 1,000 new homes across the north of Scotland. This will be complemented by our Community Benefit Fund, designed in collaboration with stakeholders, expected make awards in excess of £100 million during the RIIO-T3 period, alongside our unwavering commitment to protect and restore nature.

**Transforming our operational capability to ensure safety and reliability** is at the heart of our Plan. We will be looking after the existing network with a programme of maintenance, refurbishment and replacement. By investing in training and developing the workforce of the future, rolling out new technology and digital tools, and modernising our buildings and equipment, we will be ready to operate the new clean power grid.

**Over the long term, our modelling shows consumer energy costs could fall by over a third.** Our financial framework balances protecting consumers and attracting the significant capital investment that is required. Under Ofgem, we have a stable, well designed regulatory framework that can be flexed to meet the challenges of the RIIO-T3 period.



## Reliable Energy



## Clean Power



## Our Legacy



# Foreword

//

...we have efficiently expanded the north of Scotland transmission system, significantly increasing the connection of renewable energy sources to advance the nation towards net zero emissions."



## Welcome to our Pathway to 2030 Plan for the RIIO-T3 period

I am delighted to introduce our RIIO-T3 Business Plan, covering the period from 1 April 2026 to 31 March 2031.

SSEN Transmission has consistently delivered sector-leading outcomes for consumers, communities, stakeholders, and shareholders. This plan builds on that proven track record, underpinned by our team's ability and dedication to achieving our ambitious goals.

Over recent years, we have efficiently expanded the north of Scotland transmission system, significantly increasing the connection of renewable energy sources to advance the nation towards net zero emissions. At the same time, we have successfully maintained - and enhanced - network reliability for the homes and businesses we serve.

This plan will further expand our network to deliver against UK and Scottish net zero targets, ensuring a safe and reliable service while delivering transformative benefits to the communities we serve.

As we stand at a crossroads in not just the UK's transition to net zero, but global efforts to tackle the climate emergency and deliver homegrown energy security, now more than ever we need the regulatory framework to deliver the scale and pace of investment required.

The successful delivery of this plan therefore requires an appropriate financial framework that balances protecting consumers with attracting the unprecedented levels of investment required to support our and the nation's ambitious goals. It is crucial that Ofgem recognises the importance of setting financial parameters that enable us to deliver a robust and future-proof transmission system.

Our team has demonstrated exceptional rigour and assurance in producing a high-quality and accurate Business Plan. We are confident that this plan is not only deliverable but also represents excellent value for money for current and future GB energy consumers.

Our Board of Directors fully endorses this plan.

**Gregor Alexander**  
Chair | SSEN Transmission Board



**The RIIO-T3 price control period covers a critical period in our national endeavour to deliver a cleaner, more secure and affordable energy system for current and future generations.**

This plan delivers the investments required to help achieve UK and Scottish energy security and net zero targets, unlocking the major contribution the north of Scotland will make in meeting these targets, and helping enable Clean Power 2030 across Great Britain.

It also delivers for society and the communities our network serves.

Underpinned by our exceptional track record in keeping the lights on for homes and businesses across the north of Scotland, our Reliable Energy goal targets zero interruptions in electricity supply to homes and businesses.

Building on our equally proud track record in the efficient and timely delivery of our major capital investments, this plan will deliver the major renewal of the north of Scotland transmission system required to further unlock the region's potential to be a clean energy powerhouse. Our Clean Power goal will see our network have the capability to meet 20% of the GB demand for Clean Power.

And in what we believe is one of the biggest programmes of investments in the north of



Scotland of all time, Our Legacy goal will deliver transformational benefits for local communities, our economy and nature.

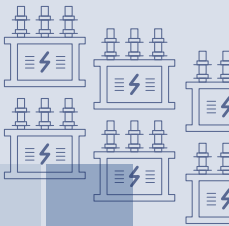
Our investments will unlock thousands of direct and indirect jobs, create significant opportunities for existing and new businesses and supply chains, and establish a lasting environmental legacy as we transition from delivering biodiversity net gain to supporting nature restoration.

We have already secured the supply chain for the main strategic investments. This plan is based on what we believe to be the most extensive listening exercise conducted across the north of Scotland; we have developed projects in close consultation with communities and stakeholders. We stand ready to deliver.

This is a highly ambitious, achievable plan, that delivers for consumers, our customers and wider society.

We now look forward to working with Ofgem and wider stakeholders to achieve our collective ambition of a low-cost clean energy transition.

**Rob McDonald**  
Managing Director | SSEN Transmission Board





# Our 2030 Goals



## Reliable Energy

**Zero** interruptions in electricity supply to homes and business due to our network

Our ambition is “to keep the lights on” for electricity consumers across the north of Scotland and beyond. We measure our success using the nationally agreed metric: incentivised loss of supply. Even when taking all cost-effective steps to prevent interruptions, rare events will occur.

The top priority of energy consumers and customer groups is safe, reliable and resilient electricity supplies



## Clean Power

Our network will have the capability to meet **20%** of the GB demand for clean power

National clean power pathways forecast that low and zero carbon generation in the north of Scotland will contribute around one-fifth of clean power by 2030. Our goal is to deliver the necessary transmission infrastructure to make that happen.

The UK Government has set targets for zero carbon electricity, and new renewable generators and flexibility providers expect timely connection



## Our Legacy

Drive investment in the energy transition that delivers **transformative lasting benefits** for local communities, our economy and nature

A just energy transition will be inclusive and equitable – with people’s needs at the centre – seeking to minimise negative impacts and maximise opportunities. Based on an objective materiality assessment, we have set specific targets for the Pathway to 2030.

Communities, investors and other stakeholders expect us to act in a just and sustainable way; this is supported by Government and Ofgem



# Commitments

Our Plan for the RIIO-T3 period is a comprehensive set of investments, interventions and activities to provide essential transmission services. Within this, we have identified **nine highly ambitious commitments** that show industry leadership in areas of the greatest importance to consumers and stakeholders. Our 2030 Goals form three of these nine commitments.



## Reliable Energy

**Why?** A reliable and available supply of electricity is essential to homes and business

### Our Commitments

1. **2030 GOAL** Zero interruptions in electricity supply to homes and businesses due to our network
2. To be world class in asset management and network operations in international benchmarks
3. To establish 'operations of the future' with an engineering training school, multi-team operational campus and integrated real time digital operations

Our commitments will be delivered through our package of resilience investment and interventions, including our estate and digital modernisation plans



## Clean Power

**Why?** Our nation has legislated for net zero, with a mission for clean power by 2030

### Our Commitments

4. **2030 GOAL** Our network will have the capability to meet 20% of the GB demand for clean power
5. To deliver excellence in customer service and community engagement during the energy transition
6. To show international leadership in the development and deployment of HVDC technology working with suppliers and through our HVDC Centre

Our commitments will be delivered through our innovative approach to accelerating transmission investment



## Our Legacy

**Why?** Society expects the energy transition to be just and sustainable

### Our Commitments

7. **2030 GOAL** Drive investment in the energy transition that delivers transformative lasting benefits for local communities, our economy and nature
8. To demonstrate international leadership in the development of sustainable business practices for post-2030
9. To realise long term consumer value through targeted innovation, strategic supply chain partnerships and accelerating the transition to clean power

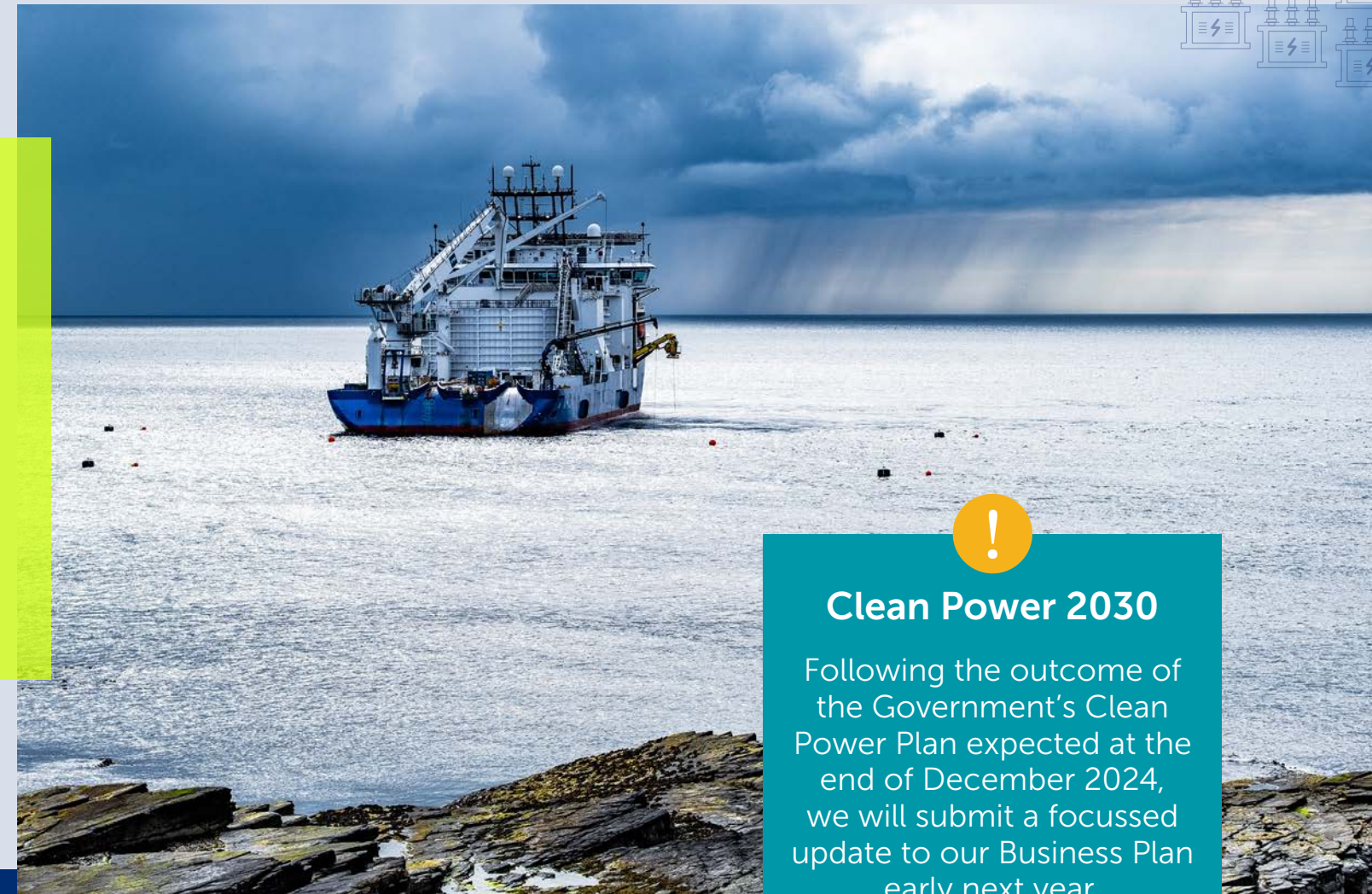
Our commitments will be delivered by the collaborations and cross-business actions set out in our detailed sustainability action plan

Commitments are subject to regulatory approval of this Business Plan  
Further details on our commitments are in [Appendix 1](#)



# Contents

1. Overview	1
2. A Safe, Reliable and Resilient Network	15
3. Accelerating the Pathway to Net Zero	23
4. A Business that is Fair and Sustainable	30
5. Data, Digital and Cyber	37
6. Team Transmission	43
7. Working with Our Stakeholders	47
8. Consumer Energy Costs and Value for Money	51
9. The Regulatory Framework	64
10. The Financial Framework	74



## Clean Power 2030

Following the outcome of the Government's Clean Power Plan expected at the end of December 2024, we will submit a focussed update to our Business Plan early next year.

## Readers Guide

This RIIO-T3 Business Plan outlines our strategic priorities and bold and ambitious goals for the RIIO-T3 period of 1 April 2026 to 31 March 2031. This plan is a crucial milestone in our journey towards delivering a Network for Net Zero and UK and Scottish Government energy targets.

Policy development for both Clean Power 2030 and Connections Reform is ongoing, and we have not sought to pre-judge the outcomes in this Plan. However, we believe our Plan significantly advances the Clean Power ambitions. We recognise that further efforts will be necessary, and we will provide a focussed update to the Plan early next year.

This document should be read with a clear understanding of who we, SSEN Transmission, are, what we have delivered, and what we aim to achieve in both the long and short term. This is outlined in the overview section, specifically **Our Strategy**.

Our long-term Strategic Objective is to create **A Network for Net Zero**. To achieve this, we focus on five areas. Three of these focus areas, each aligning with a 2030 goal, form the substance of this Plan.

- **Focus Area:** A Network that is Safe, Reliable and Resilient.  
**Goal:** Zero Interruptions in electricity supply to homes and business due to our network (Section 2)
- **Focus Area:** Accelerating the Pathway to Net Zero.  
**Goal:** Our network will have the capacity to meet 20% of the GB demand for clean power by 2030 (Section 3)
- **Focus Area:** A Business that is Fair and Sustainable.  
**Goal:** Drive investment in the energy transition that delivers transformative lasting benefits for local communities, our economy and nature (Section 4)

Within each focus area, we outline the **strategies**, co-created with stakeholders, that guide our decision-making and the investments we propose to make.

We then address the "cross-cutting" areas that ensure we can deliver our Plan effectively and efficiently. These include **data and digital initiatives** (Section 5) and our **people and supply chain** (Section 6). Meaningful stakeholder engagement is part of our DNA and embedded across our business, and how we work with our **customers and stakeholders** every day is set out in Section 7. Delivering a transition that is not only sustainable but also efficient is at the heart of our ambitions, as detailed in the **Consumer Energy Costs and Value for Money** section.

Our Plan aims to meet Government and stakeholder ambitions. The remaining sections - **The Regulatory Framework** and **The Financial Framework** set out our requests to Ofgem to turn these ambitions into reality.



# About SSEN Transmission

## We are sector leaders in the planning, delivery and operation of zero carbon grids

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

We are responsible for the electricity transmission network in the north of Scotland, maintaining and investing in the high voltage electricity transmission network operating at and above voltages above 132kv.

Our network consists of underground and subsea cables, overhead lines on wooden poles or steel towers, and electricity substations. It extends over a quarter of the UK's land mass, crossing some of its most challenging terrain.

Our first priority is to provide a **safe and reliable supply** of electricity to our communities. We do this by taking the electricity from generators and transporting it at high voltages over long distances through our transmission network for onwards distribution to homes and businesses in villages, towns and cities.

Our operating area is home to vast renewable energy resources and this is being harnessed by wind, hydro, solar, marine and other generation. Working closely with National Energy System Operator (NESO), we enable these electricity generators to connect to the transmission system by providing their **connections** and allowing the electricity generated by them to be transported to areas of demand across the country.

Scotland's transmission network has a leading role to play in supporting the **delivery of the UK and Scotland's net zero and energy security targets**. We are already a mass exporter of renewable energy, with around two thirds of power generated in our network area exported to demand centres further south. By 2050, the north of Scotland is expected to need 49GW of low carbon energy capacity to support net zero delivery. For context, we currently have 10.6GW of renewable generation connected in the north of Scotland.

As a natural monopoly, we are closely regulated by the GB energy regulator, Ofgem, who determine how much revenue we are allowed to earn for constructing, maintaining and renovating our transmission network in the north of Scotland. These costs are shared between all those using the transmission system, including generation developers and electricity consumers.

[Learn more about SSEN Transmission here](#)



Our network is pivotal to connecting and transporting the renewable energy needed to decarbonise Great Britain's electricity network



### SSEN Transmission Network Facts in 2024

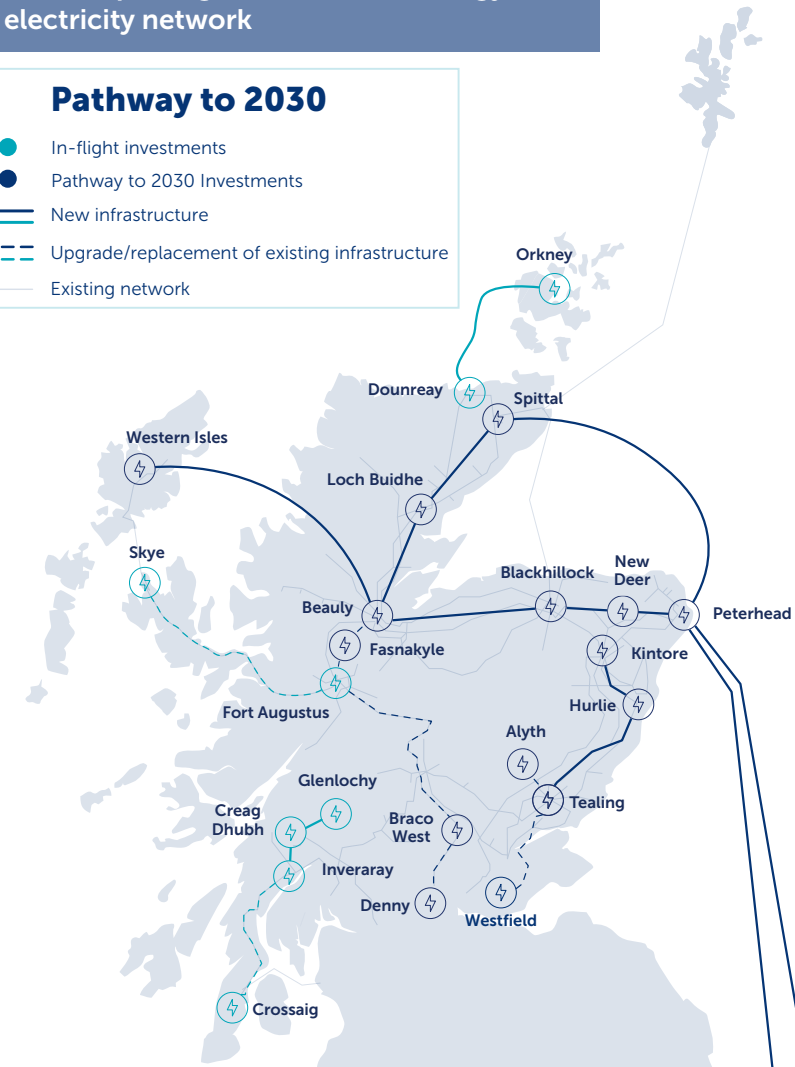
800,000 end consumers

5,000+ kms of electricity circuits

10.6 GW of renewable energy generation

### Pathway to 2030

- In-flight investments
- Pathway to 2030 Investments
- New infrastructure
- - - Upgrade/replacement of existing infrastructure
- Existing network



## About our shareholders



SSE plc, the UK and Ireland's clean energy champion, holds a majority **75%** stake in SSEN Transmission. SSE's purpose is to provide the energy needed today while building a better world of energy for tomorrow. SSE aim to be a leading energy company in a net zero world and their strategy for achieving this is to create value for shareholders and society in a sustainable way by developing, building, operating and investing in the electricity infrastructure and businesses needed in the transition to net zero.

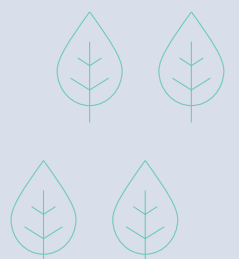
[Learn more about SSE here](#)



Ontario Teachers' Pension Plan acquired a **25%** minority stake in SSEN Transmission in 2022. The organisation is a leading global investor with net assets of \$255.8bn\*, delivering retirement income to 340,000 active and retired teachers in Ontario, Canada. As a purpose-driven, long-term oriented investor, Ontario Teachers' is committed to helping reduce carbon emissions and achieve net zero by 2050, as part of its desire to shape a better future for the teachers it serves, the businesses it backs and the world we live in.

\*Canadian dollars as of 30 June 2024

[Learn more about Ontario Teachers' here](#)



# Our Strategy

A longstanding strategy that guides our actions

## Network for Net Zero

Increased electrification is central to the global effort to reduce greenhouse gas (GHG) emissions, and our actions will help further unlock the north of Scotland's vast renewable energy sources.

We are guided in all our actions by the "SSESET" values, and we have five focus areas that guide our planning, decision-making and actions that we take, day in and day out.

But a strategy is only credible if it has a) tangible measures of progress; b) a detailed plan for execution; and c) transparency in delivery.

We will measure our progress on our three Goals for 2030, or RIIO-T3 Goals, which reflect our role in contributing to net zero and energy security. We are committed to decarbonising at an accelerated pace, while keeping the lights on and leaving a positive lasting legacy for local communities, our economy and nature.

We have a detailed, robust and evidence-based plan for execution – this Business Plan.

We will continue to be transparent in our delivery through our annual reporting.



## Our Strategy

Our shared long-term direction and aspiration

## To Deliver a Network for Net Zero

## Our Values

That guide our day-to-day decisions and actions

<p><b>Safety</b></p> <p>If it's not safe we don't do it</p>	<p><b>Service</b></p> <p>We can be relied on to deliver</p>	<p><b>Efficiency</b></p> <p>We focus on adding value</p>	<p><b>Sustainability</b></p> <p>We do the right thing for people and the planet</p>	<p><b>Excellence</b></p> <p>We innovate to improve the way we do things</p>	<p><b>Teamwork</b></p> <p>We work together in an inclusive and collaborative way</p>
---	---	--	---	---	--

## Our Focus

How we act on our strategy

- A network that is safe, reliable and resilient**  
We deliver world class asset management
- Accelerating the pathway to net zero**  
To be a global leader in the planning, delivery and operation of zero carbon grids
- A business that is fair and sustainable**  
We demonstrate leadership in sustainable business practices, being thoughtful of our impact on energy customers, our shareholders and wider society
- Being part of one team Transmission**  
We attract, retain and develop a talented, diverse and inclusive team that are equipped, engaged and empowered to deliver in an innovative and positive way
- Working with our customers and stakeholders**  
To be at the forefront of stakeholder engagement practices and the transmission owner of choice for low carbon energy developers in the UK

## Our 2030 Goals

How we measure success

- Resilient Supply**      **Zero** interruptions in electricity supply to homes and business due to our network
- Clean Power**      Our network will have the capability to meet **20%** of the GB demand for clean power
- Our Legacy**      Drive investment in the energy transition that delivers **transformative lasting benefits** for local communities, our economy and nature





# Plan on a Page

To deliver our strategic objective and three 2030 Goals, we are guided by six cross-cutting strategies and five investment-specific strategies. These strategies enable us to make evidence-based decisions to deliver a suite of projects, activities and interventions over the RIIO-T3 period, with an estimated cost of £32bn in 2023/24 prices (discussed over the page). Our investments include 46 asset management and asset resilience projects, and nine digital and cyber projects, along with our ongoing investments in our network operating costs and overheads. We also propose numerous load projects to grow our network over the period.

## Strategic Objective: To Deliver a Network for Net Zero

Pathway to 2030 Goals: Resilient Supply, Clean Power and Our Legacy

<b>Cross Cutting Strategies</b>	<b>1 Sustainability Strategy<sup>1</sup> &amp; Sustainability Action Plan</b>			<b>2 Workforce Resilience &amp; Supply Chain Resilience Strategy</b>			<b>3 Stakeholder Strategy<sup>1</sup></b>			
	<b>4 Innovation Strategy</b>			<b>5 Data &amp; Digital Strategy<sup>1</sup></b>			<b>6 Cost &amp; Benchmarking Annex</b>			
<b>Specific investment related strategies</b>	<b>7 Asset Management Strategy</b>			<b>9 IT &amp; Telecoms Strategy</b>		<b>10 Cyber Strategy (confidential)</b>		<b>11 Network Growth/ Load Strategy</b>		
	<b>8 Climate Resilience Strategy</b>									
<b>Investments, projects, and interventions</b>	Asset Management	Resilience/ Security of Supply	Network Operating Costs	Digital/IT	Cyber	Overheads	+ T3	LOTI + ASTI	Future Connections	Beyond 2030 + Co-ordinated Offshore
	(23 Projects) <i>Non-Load</i>	(23 Projects) <i>Non-operational capex</i>	<i>Direct operational costs</i>	(4 Projects) <i>Non-operational capex</i>	(5 Projects - confidential) <i>Other costs</i>	<i>Indirect operational costs</i>	+ 10	(3 + 8 Projects) <i>Load</i>	<i>Future Load</i>	(6 Development Projects) <i>Future Load</i>
<b>Total £31.7bn</b>	<b>£6.1bn</b>						*	<b>£16.2bn</b>	<b>£9.4bn</b>	
<b>Ofgem decision on need and costs within RIIO-T3 Plan</b>								<b>Ofgem decision on need and costs outside of RIIO-T3 Plan</b>		
<b>Ofgem decision on Regulatory and Financial Framework within RIIO-T3 Plan</b>										

<sup>1</sup>Not required and not submitted as part of Ofgem submission but available on our website.

\*£1.4bn of Load need only projects in Plan in £6.1bn

All prices in 2023/24 price base



# Plan at a Glance: Total Expenditure



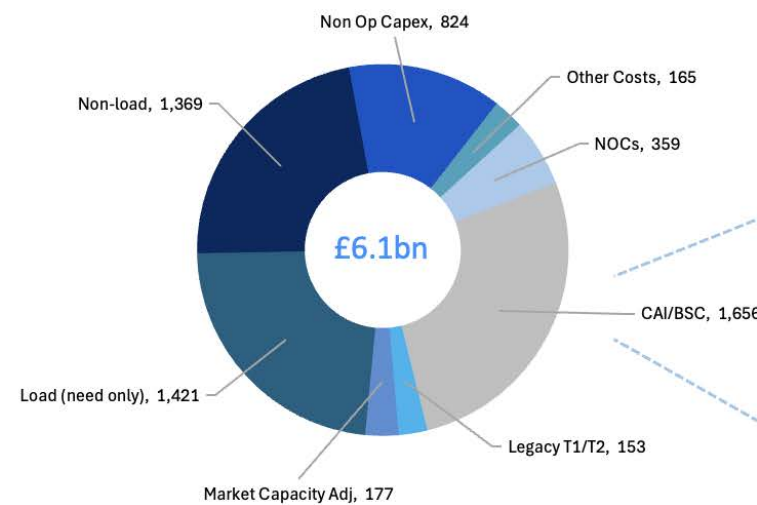
Within this Plan, we outline our maximum potential expenditure for the period from 1 April 2026 to 31 March 2031. Our total expenditure (Totex, in 2023/24 prices), which is substantially driven by capital investment, is broadly divided into three categories:

- 1. Baseline Totex:** This represents known expenditure and includes our proposed RIIO-T3 baseline expenditure plus crossover schemes from RIIO-T2. The RIIO-T3 element is expected to comprise around £4.7bn with a further £1.4bn for the load related programme, totalling £6.1bn. It includes a residual £153m for in-flight T1/T2 schemes. Note we are seeking a regulatory mechanism that adjusts costs within the £4.7bn when we reach the contracting stage. Given the significant cost volatility we are experiencing, it is difficult to accurately forecast costs at the point of Plan submission. This is to protect both consumers and companies from windfall gains and losses. Should Ofgem not provide this, we have included £177m to protect from cost escalations outside our control, which can be removed if Ofgem provides a suitable regulatory mechanism to manage this cost volatility.
- 2. Committed Uncertainty Mechanisms:** This category includes known projects that span RIIO-T2, RIIO-T3 and into subsequent price control periods. It encompasses our anticipated expenditure on the eleven LOTI and ASTI schemes over the RIIO-T3 period with the total expected expenditure to be around £16.2bn for the period. The timing and final costs of these schemes remain subject to planning and supply chain factors, so the expenditure profile in our RIIO-T3 plan is based on estimates and may change.
- 3. Future Uncertainty Mechanisms:** This covers the potential expenditure that may occur dependent on various unknowns, such as connections reform, government policy and other factors. This category includes schemes that extend well beyond RIIO-T3, with the RIIO-T3 period costs estimated around £9.4bn. There is also potential for further investment for projects funded under Uncertainty Mechanisms at the early stage of development.

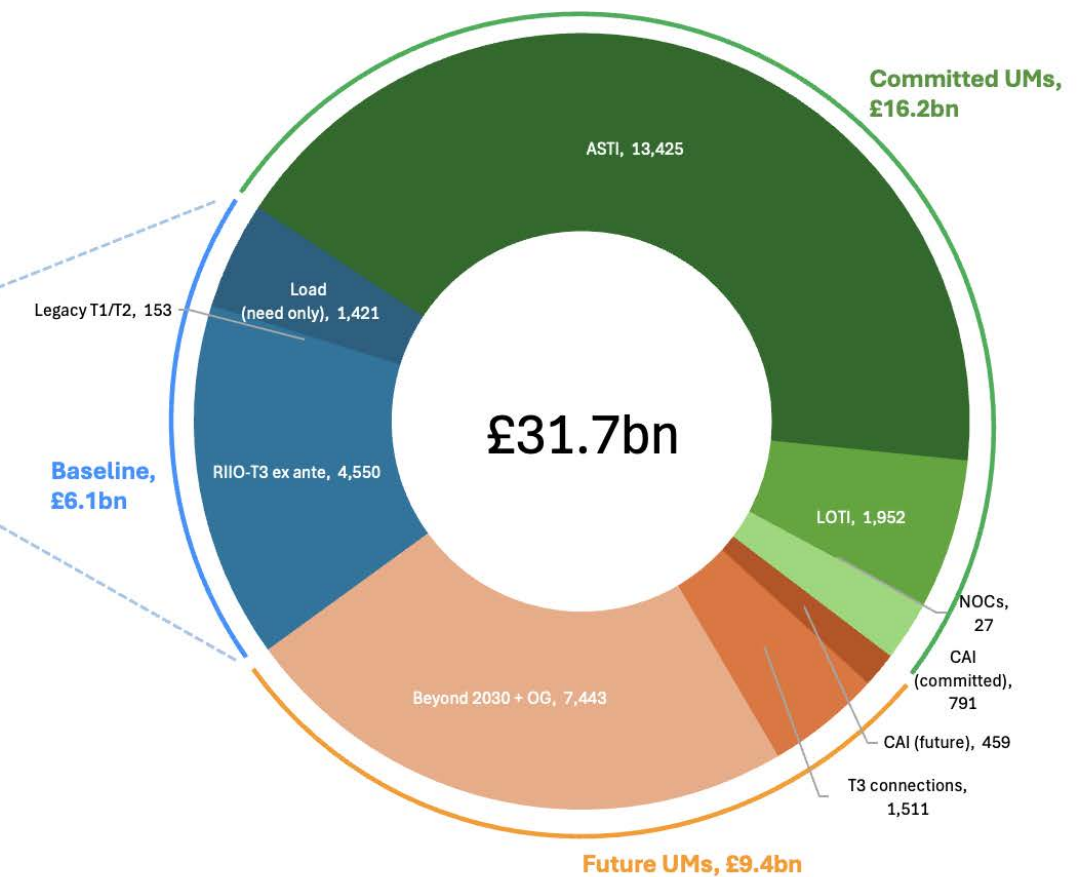
As a result, our known potential Totex expenditure over the RIIO-T3 period is around £22.3bn comprising Baseline Totex and Committed Uncertainty Mechanisms. Our Plan also includes an additional potential £9.4bn of Future Uncertainty Mechanisms, bringing the total to £31.7bn.

Reaching this is subject to various factors largely beyond our control. Delivery of this plan depends on regulatory and government decisions, industry reform, planning, and supply chain capacity.

## Baseline Totex



## Baseline + Uncertainty Mechanisms



RIIO-T3	£M	ADDITIONAL COMMENTARY
Ex ante	4,550	23 asset management projects, 23 resilience projects, 4 digital, 5 cyber, network operating costs, overheads (CAIs & BSCs) + other costs.
Legacy T1/T2	153	£91m T2 non-load scheme trailing spend + £62m load spend on T2 outputs with deliverables in T3.
Load (need only)	1,421	10 load projects
<b>TOTAL BASELINE</b>	<b>6,124</b>	
ASTI	13,425	In-train ASTIs, allowances still to be approved
LOTI	1,952	In-train LOTIs, allowances still to be approved
NOCs	27	Forecasted additional NOCs relating to T3 Uncertainty Mechanism/reopener schemes
CAI (committed)	791	Forecasted additional CAI to deliver T3 UM/reopener schemes
<b>TOTAL COMMITTED UMS</b>	<b>16,195</b>	
T3 connections	1,511	Current view of additional T3 sole and shared use infrastructure**
Beyond 2030 + OG	7,443	Forecasted Beyond 2030 strategic investments (tCSNP2) + offshore grids
CAI (future)	459	Forecasted additional CAI to deliver T3 UM/reopener schemes
<b>TOTAL FUTURE UMS</b>	<b>9,413</b>	
<b>TOTAL T3</b>	<b>31,732</b>	

LOTI = Large Onshore Transmission Investment, ASTI = Accelerated Strategic Transmission Investment, OG = Offshore Grids, NOCs = Network Operating Costs. All UM costs are forecast estimates only and not subject to assessment under this plan.

Note: Of the Beyond 2030 schemes in the table, we expect to undertake the Shetland 2 Link based on Ofgem decision earlier this year (<https://www.ofgem.gov.uk/consultation/proposed-regulatory-funding-and-approval-framework-onshore-transmission-works>) with the remaining proportion being part of additional onshore transmission works we also expect to undertake over the RIIO-T3 and T4 period.



# Plan at a Glance: RIIO-T3 Investment Map

Existing Network

## LOTI INVESTMENTS

- New Infrastructure (routes show here are illustrative)
- Upgrade/Replacement of Existing Infrastructure

## ASTI INVESTMENTS

- New Infrastructure (routes show here are illustrative)
- Upgrade/Replacement of Existing Infrastructure

## TCSNP2 INVESTMENTS

- New Infrastructure (routes show here are illustrative)
- Upgrade/Replacement of Existing Infrastructure

## LOAD

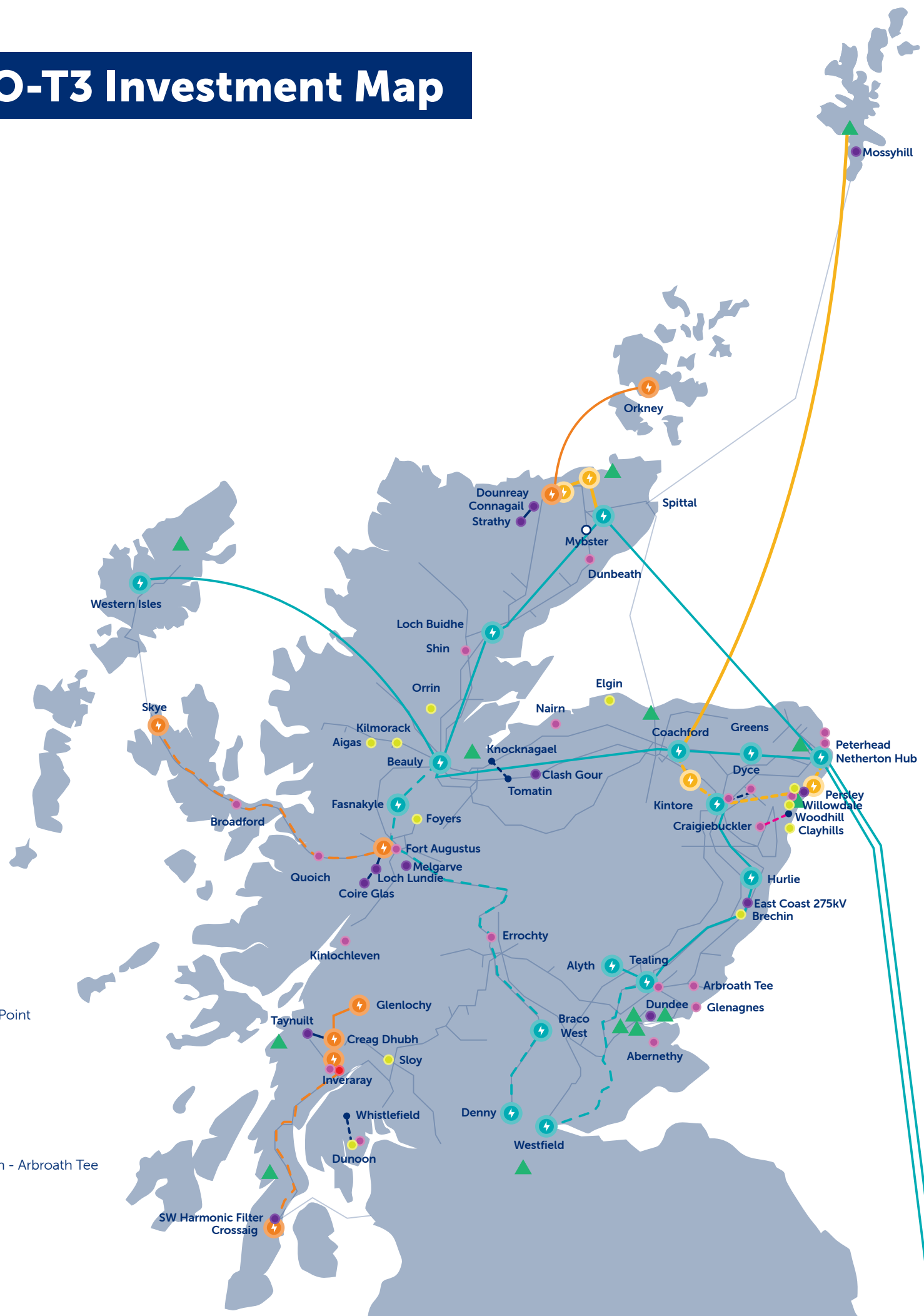
- Coire Glas
- Dundee Strategy (Stannergate)
- Melgarve Cluster
- Mossyhill
- Southwest Harmonic Filter (SWHF)
- Strathy Cluster
- Taynuilt - Creag Dhubh Reinforcement
- Tealing Solar
- Tealing-Arbroath
- East Coast 275kV

## NEW OHL BUILD

## NON-LOAD CORE

- Substation Rebuilds**
  - Dunoon Substation – Grid Supply Point
  - Elgin Substation – Grid Supply Point
  - Clayhills Substation (replaced by Willowdale) – Grid Supply Point
  - Orrin Substation – Hydro Connection
  - Sloy Power station – Hydro Connection
  - Foyers Power station – Hydro Connection
  - Kilmorack Substation – Hydro Connection
  - Aigas Substation – Hydro Connection

- Upgrade/Replacement OHL**
  - Wood Pole Replacement - Craigiebukler – Fiddes - Brechin - Arbroath Tee
  - Reconductoring - Kintore - Dyce Overhead Line
  - Noise Reduction Reconductoring - Tomatin
  - Whistlefield - Dunoon



**Underground Cables**  
Underground Cable Replacement - Craigiebukler - Woodhill

- Asset Upgrades**
  - Switchgear Replacement - Abernethy
  - Switchgear Replacement - Inveraray
  - Switchgear Replacement - Kinlochleven
  - Circuit Breaker Replacement - Errochty
  - Circuit Breaker Replacement - Fort Augustus
  - Circuit Breaker Replacement - Peterhead
  - Circuit Breaker Replacement - Shin
  - Circuit Breaker Replacement - OX36 (multiple sites)
  - Liquid NERs Replacement (multiple sites)

**Disposal**  
Switchgear Removal (Mybster)

**Resilience**

**Network Control**  
The Transmission Operations Campus (incl. Control Centre)  
Integrated Condition Performance Monitoring

**Protection and Control**  
Protection Refurbishment/Replacement and Modernisation  
System Monitoring Modernisation Project  
Transmission Substation SCADA Replacement  
HVDC Station Control & Monitoring Upgrade  
HVDC User Interface Upgrade  
HVDC Autonomous Robot & Thermal Camera  
HVDC Cable Monitoring System

**Reliable Communications**  
Telecoms Network Infrastructure Update  
Telecoms Operations and Maintenance  
Personnel Communications

**Substation Resilience**  
Operational Security  
Flood Mitigations  
Substation Earth Mats Replacement & Refurbishment  
RAAC Intervention  
Gas Insulated Switchgear (GIS) Refurbishment

**Preparedness, Response and Back Up**  
HVDC Centre Expansion  
Transmission Training School  
Transmission Operations Depots  
Strategic Spares  
Electric Vehicle Chargers  
Overhead Line Circuits Painting

(Routes are shown for illustrative purposes only)

The green triangles on the map denote the The Transmission Operations Campus, HVDC Centre Expansion, Transmission Training School, and Transmission Operations Depots.



# Plan at a Glance: Our Requirements of Ofgem

Ofgem's primary objective is to protect the interests of current and future energy consumers, by reducing greenhouse gas emissions and ensuring a secure gas and electricity supply. Ofgem has an explicit net zero mandate, aligning consumer interests with achieving net zero by 2050 and since May 2024, a Growth Duty to consider economic growth.

Ofgem regulates energy networks, such as SSEN Transmission, through detailed scrutiny of expenditure plans. How Ofgem intends to do this for the RIIO-T3 price control period was published in its [Sector Specific Methodology Decision \(SSMD\)](#). This set out the regulator's requirements, approach and timetable for determining on the Business Plans. In it, Ofgem recognised the increasingly pivotal role of grids in achieving net zero targets and the consensus on the urgency of a rapid build-out of networks.

To accommodate that, Ofgem has designed a price control framework that carries forward approvals already

made (LOTI, ASTI). A significant portion of our Plan has already been approved by Ofgem, described above as "Committed Uncertainty Mechanisms" including the strategic investments under LOTI and ASTI mechanisms. "Future Uncertainty Mechanisms" Ofgem will approve within price control periods.

Submitting this Business Plan to Ofgem completes our investment programme in RIIO-T3, aiming to secure the remaining funding for asset management and network resilience, digital, operations and overheads, before we can proceed.

In determining the remainder of our RIIO-T3 Plan, Ofgem is expecting high-quality service for network users, maintenance of existing assets to the required standard and minimising the impact on the environment. All of this will need to be done with a constant eye on cost efficiency. Our 2030 goals are strongly aligned with Ofgem's RIIO-3 objectives.

Figure 1: RIIO-T3 Plan and Ofgem Decisions

Investments, projects, and interventions	Asset Management	Resilience/ Security of Supply	Network Operating Costs	Digital/IT	Cyber	Overheads	+ T3 + 10	LOTI + ASTI	Future Connections	Beyond 2030 + Co-ordinated Offshore
	(23 Projects) <i>Non-Load</i>	(23 Projects) <i>Non-operational capex</i>	<i>Direct operational costs</i>	(4 Projects) <i>Non-operational capex</i>	(5 Projects - confidential) <i>Other costs</i>	<i>Indirect operational costs</i>		(3 + 8 Projects) <i>Load</i>	<i>Future Load</i>	(6 Development Projects) <i>Future Load</i>
<b>Total £31.7bn</b>	<b>£4.7bn + *£1.4bn</b>						*	<b>£16.2bn</b>	<b>£9.4bn</b>	
	<b>Ofgem decision on need and costs within RIIO-T3 Plan</b>							<b>Ofgem decision on need and costs outside of RIIO-T3 Plan</b>		
	<b>Ofgem decision on Regulatory and Financial Framework within RIIO-T3 Plan</b>									

All prices in 2023/24 price base

To achieve these shared ambitions, and to ensure the success of our holistic Business Plan, we seek Ofgem's approval for:

- The remaining £4.7bn largely to maintain high standards of network reliability and resilience (46 projects), enable our digital and cyber ambitions (9 projects), and support our growing business, plus the need approval of £1.4bn of area load projects (10 projects).

- Regulatory mechanisms that underpin the delivery of the potential £31.7bn, specifically to protect both consumers and companies from windfall gains and losses through appropriate risk/reward mechanisms (see Section 9).

- Fair financial parameters to attract essential investment (see Section 10).



# Building on a Track Record of Delivery

## Delivering our five ambitious goals for the RIIO-T2 period, allows us to set ambitious 2030 goals

One of our core values guiding every decision and action is **Service** (see page 7). This means we can be relied on to deliver what we say we will do. Our proven track record is testament to this, and our RIIO-T3 Business Plan is designed to build on this consistent, sector leading, high performance.

For the RIIO-T2 period, we set Five Clear Goals to track our progress in delivering for our customers, stakeholders and society.

We continue to make excellent progress and are on track to deliver our main RIIO-T2 regulatory outputs, excelling across the **common TO incentives** put in place by Ofgem (Table 1), and are on track to deliver four out of five of our ambitious RIIO-T2 goals. Due to the significant growth of our network, our goal to deliver an absolute 33% reduction in greenhouse gas emissions may not be met in full. However, our commitment to sustainability and tackling our own emissions remains, underpinned by our revised [Sustainability Strategy](#).



### 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.

**ON TRACK.** By the end of RIIO-T2 we are forecasting that our network will accommodate 13.5GW of renewable generation.



### 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.

**ON TRACK.** For the first three years of T2, we have had just one loss of supply event, having achieved full incentives under the Energy Not Supplied (ENS) mechanism for the first two years and 95% in 23/24. Our network reliability exceeds 99.999%.



### 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.

**ON TRACK.** We have delivered every connection on time. Against a target of 7.7 out of 10, for the first three years of RIIO-T2, we achieved an average quality of connections rating of 8.5 maintaining a sector leading position.



### 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.

**AT RISK.** We may hit the incredibly ambitious absolute science based target, despite our unprecedented growth. Underpinning this is our SF<sub>6</sub> leakage performance. Our relative SF<sub>6</sub> leakage performance is sector-leading, with leakage rates of installed capacity down from 1.01% at the start of RIIO-T1 to 0.17% in 2024. This is driven by world leading investment in alternatives and a zero-tolerance approach to leakage.



### £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.

**ON TRACK.** For the five-year period in RIIO-T2, we forecast savings of around 3% on our baseline allowances. 64% of savings go back to consumers.

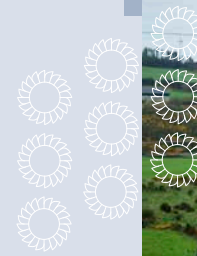


Table 1: RIIO-T2 incentive performance

Incentive	Metric	Target	Output to Date (Year 3 of T3)	
Energy not Supplied (rewards or penalty)	Volume of unsupplied energy incidents due to Incentivised Loss of Supply Events (MWh)	<306 (<102 p.a)	5.3 total	Reward
Insulation and Interruption Gas (IIG) Emissions (rewards or penalty)	Measured Leakage (TCO <sub>2e</sub> )	<18,108	9,000	Reward
Timely Connections (penalty only)	% of offers on time	100%	100%	Penalty avoided
Quality of Connections (reward or penalty)	Overall satisfaction at customer connection milestones (out of 10)	7.7	8.5 average	Incentive Reward
SO:TO optimisation (reward only)	Reward of 10% based on NESO forecast savings	N/A	£276m savings to NESO	Reward

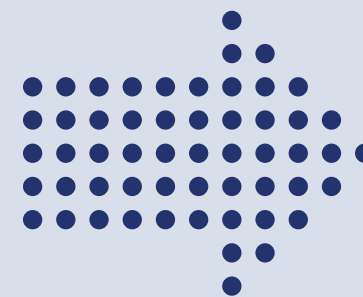
Our new goals for the RIIO-T3 period build on the foundations laid by our RIIO-T2 goals. By leveraging and learning from the insights and achievements from both RIIO-T2, and previously RIIO-T1, and to meet the increasing ambition of our customers, Governments and our stakeholders, we have set even more ambitious targets for the future. Our T3 Business Plan reflects this evolution, to further expand the network to unprecedented levels, ensuring a safe and reliable service, and deliver transformative benefits to the communities and stakeholders we serve.

## Our 2030 Goals How we measure success

**Resilient Supply** **Zero** interruptions in electricity supply to homes and business due to our network

**Clean Power** Our network will have the capability to meet **20%** of the GB demand for clean power

**Our Legacy** Drive investment in the energy transition that delivers **transformative lasting benefits** for local communities, our economy and nature





# A Track Record that Supports Ofgem's Strategic Objectives

For more information on our exceptional performance, explore our [Annual Performance Reports](#). Below are a few key highlights that showcase our proven track record as of 2024.



## SSENT Focus Area: A Network that is Safe, Reliable and Resilient

### Ofgem's Strategic Objective: Safe, Secure & Resilient Supplies

#### Improved Safety, Health and Well Being

The health and safety of our employees, contractors, and members of the communities we serve is our top priority. We are unwavering in our commitment to ensuring everyone involved in delivering and operating our network returns home safely every day. Our safety outcomes, measured using the Total Recordable Incident Rate (TRIR), have averaged 0.22 over RIIO-T2, a 29% improvement when compared to our T1 average (0.31) despite a significant increase in activity in RIIO-T2.

With the launch of our comprehensive Safety Health and Wellbeing Strategy in 2022, we are dedicated to fostering a Healthy, Happy, and Safe Workplace as we build a network for net zero. We actively monitor stress, anxiety, and depression rates against industry averages to inform our [Workforce Resilience Strategy](#). We have committed to achieving ISO45003, the global standard for managing psychological health in the workplace,

ensuring proactive management of psychosocial risks, leading to a safer, healthier and more productive workforce.

### Exceptional Asset Performance

Driven by innovation, continuous improvement and use of new technologies, we have delivered exceptional sector-leading asset performance in RIIO-T2; performance that has been recognised internationally.

The reliability of the north of Scotland transmission system is outstanding, measured by ENS, which calculates the electricity not delivered due to power interruptions. Our network reliability exceeds an impressive 99.99% and annual system availability is around 97%, as reported by the NESO.

This performance is underpinned by a robust and ongoing programme of inspection, maintenance, refurbishment, and replacement of our assets. We are committed to keeping the lights on for our communities and ensuring reliable network access for electricity generators, supporting the security of supply across GB. Notably, we have made significant strides in enhancing the resilience of our vast 5,000km overhead line network across

some of the UK's toughest terrains. By the end of year three in RIIO-T2, our network reached resilience rates of up to 95% against falling vegetation and goes beyond mere electrical clearance, offering superior protection against fallen trees and storm damage. This strategic shift recognises that the impacts of climate change are

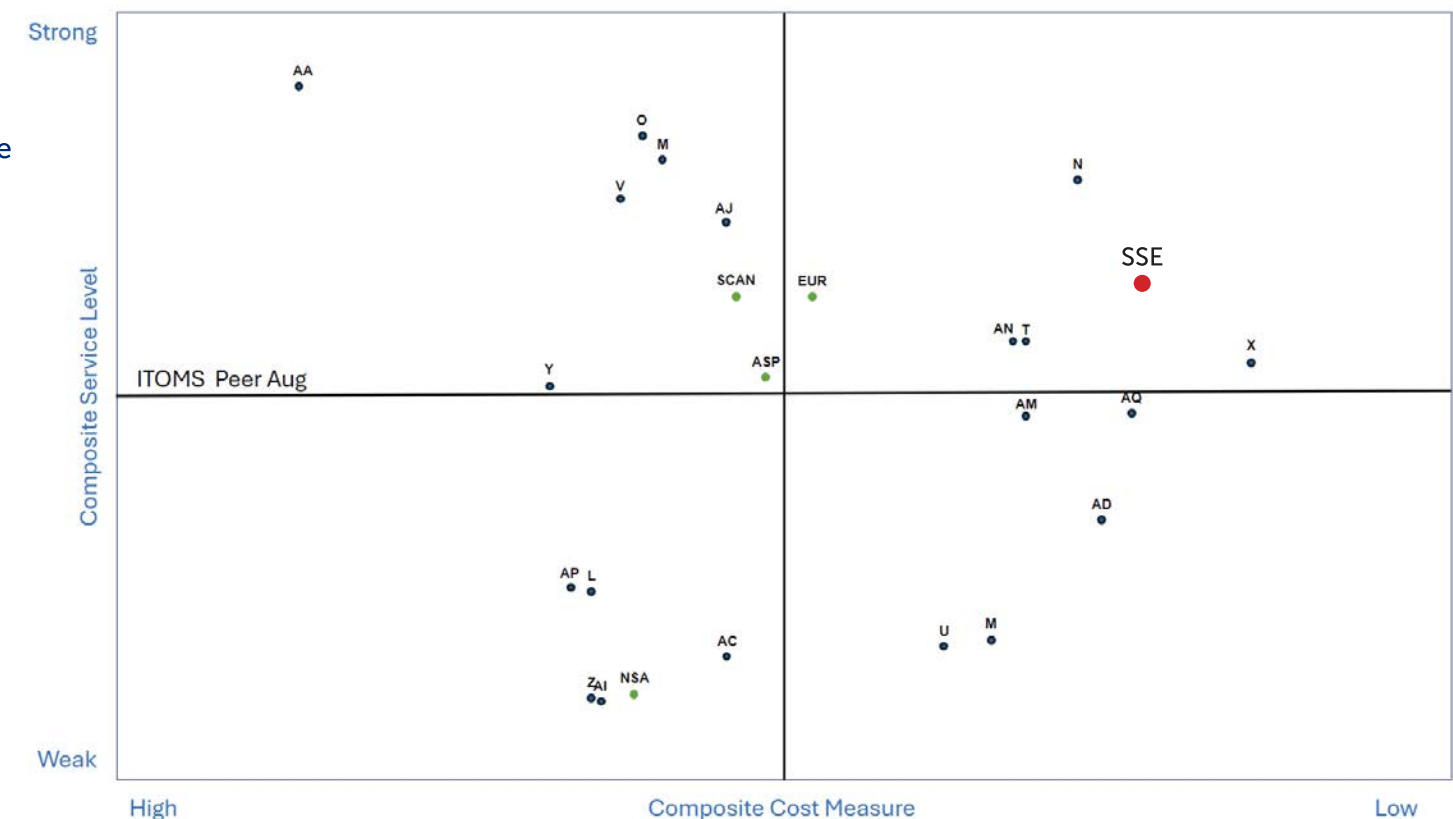
leading to more extreme weather events in northern Scotland and stakeholder expectations of resilience to storms.

We continue to **demonstrate international best practice and efficiency** in asset management, by achieving top quartile in the global International Transmission

Operations and Maintenance Study (ITOMs) benchmarking, receiving ISO 55001 certification, the international standard for infrastructure asset management, since 2021 and winning the 2023 Corporate Transformation award at both the UK and Global Excellence Awards of the Institute of Asset Management.

Figure 2: ITOMS Performance

### Overall Composite Performance Scatter Plot



## SSENT Focus Area: Accelerating the Pathway to Net Zero

### Ofgem's Strategic Objective: A low-cost transition to net zero

As of September 2024, the total installed capacity in the north of Scotland reached nearly 11.9GW, with over 10.6GW from renewable sources, including pumped storage and battery storage. By the start of T3, this is expected to soar to around 13.5GW; with 12.2GW from renewables. This remarkable growth is driven by strategic, daily actions to reinforce and grow the transmission system to support the forecast growth in renewable electricity generation across our region, such as:

- **Delivering on our RIIO-T2 Commitments:** We successfully energised all circuits in the North East between Rothienorman, Blackhillock, and Peterhead, increasing the network capacity to 400kv, including the new Peterhead 400kv substation. We energised the Alyth 275kv substation, with ongoing upgrades to 400kv as part of our comprehensive East Coast 400kv programme.
- **Operating the National HVDC Centre:** We effectively operate a global centre for technology innovation, the National HVDC Centre. This cutting-edge facility has been instrumental in identifying several groundbreaking innovation projects in support of the energy transition.

- **Meeting Connections Offers:** We have met all connection offer deadlines specified in industry codes and work closely with our customers to ensure timely energisation of their connections.
- **Progressing LOTI Investments:** We completed the Shetland HVDC link, on time and within budget, connecting the islands to the GB energy system for the first time and unlocking 600MW of Shetland's vast renewable potential. Working closely with Ofgem, within only four months we secured Final Needs Case approval for the Orkney transmission link, the Skye reinforcement programme, and the Argyll and Kintyre 275kv projects, further accelerating the pathway to net zero.
- **Securing the Supply Chain:** Despite challenging global and domestic market constraints, we successfully secured the supply chain for all our ASTI projects and the EGL2 link by acting swiftly and decisively, demonstrating our commitment to maintaining momentum and delivering on our promises.



# A Track Record that Supports Ofgem's Strategic Objectives



## SSENT Focus Area: A Fair and Sustainable Business

### Ofgem's Strategic Objective: High Quality Service

#### Delivering exceptional quality

We continue to deliver exceptional value to our directly connected customers and end consumers. In the first three years of RIIO-T2, we issued over 650 connection offers, all on time and in compliance with our licence obligations. Our sector-leading Quality of Connections (QoC) survey consistently scores above Ofgem's baseline, indicating high customer satisfaction. By extensively engaging with our customers, we gain invaluable insights into their needs and identify areas for improvement. Our Voice of the Customer Initiative won Gold at the 2024 UK Customer Experience Awards.

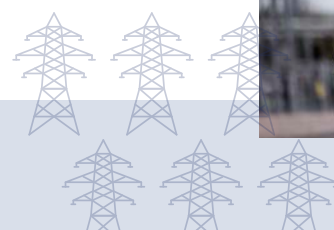
Our network has supported over 10.6GW of low-carbon electricity generation. However, with over 60GW of new generation capacity contracted, the connections queue is significantly exceeding the forecasted requirements to achieve net zero. We are actively working with Government, Ofgem, the NESO and our customers to reform the connections process and accelerate the transition to a net zero future and to deliver energy security. Additionally, our optimisation projects saved consumers over £270m by avoiding constraints and transporting clean power to demand centres.

We achieved a top rating of 88% in AccountAbility's AA1000 Stakeholder Engagement Standard with a top advanced rating in all six pillars, demonstrating our commitment to fostering strong relationships with our stakeholders and continuously improving our engagement practices.

#### Delivering sustainably

Our sector-leading [Sustainability Strategy](#), launched in September 2024, builds on our strong track record of achievements in climate, nature, and community initiatives where we have strengthened our commitment to biodiversity net gain, reduced our own carbon footprint and actioned our community commitments. Key achievements include:

- **Nature:** Advancing our industry-leading target to deliver biodiversity net gain on all new projects by two years.
- **Climate:** Reducing our own carbon footprint, achieving a significant reduction in SF<sub>6</sub> leakage and making progress on embodied carbon. Our sector leading SF<sub>6</sub> gas leakage rate of 0.17% in 2023/24, is at least 0.37 percentage points lower than other TOs.
- **Communities:** Launching the first £2m regional funding round as part of our £10m RIIO-T2 community benefit fund, which will be expanded in the T3 period.



## SSENT Focus Area: Cross Cutting

### Ofgem's Strategic Objective: Efficiency and Value for Money

We expect to achieve efficiency savings of 3% on baseline allowance due to innovation, intelligent engineering, and efficient contracting strategies. The regulatory sharing factor mechanism ensures that consumers benefit from a significant portion of our savings, receiving 64% of all efficiency gains. Early in RIIO-T2 we successfully negotiated early contracts for certain load schemes, leveraging favourable market conditions to secure fixed-cost agreements.

To navigate the challenging supply chain issues, we are now experiencing in RIIO-T2, we have adopted innovative approaches to enhance efficiency and value for consumers. These include strengthening supply chain management, proactively procuring assets, and fostering close collaboration with NESO on outage planning.

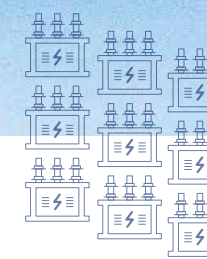
Value extends beyond cost savings. We are committed to creating a positive impact on jobs and local communities. To give just a few examples:

- Our preferred bidder status with the Sumitomo Electric Van Oord Consortium (SVOC) for the Shetland 2 HVDC subsea link has underpinned Sumitomo's significant investment in a new cable manufacturing facility in Nigg in the Scottish Highlands, supporting hundreds of skilled jobs in the region.
- Our Delivery Charter, signed by 11 Principal Contractors, outlines a commitment to leaving a positive legacy in the communities where our infrastructure is located.
- In August 2024, we welcomed our 2,000th employee to team transmission, a four-fold increase in four years, demonstrating our commitment to support high-value green jobs in Scotland.

Figure 3: ASTI delivery charter



Our proven track record, which support Ofgem's RIIO-T3 strategic objectives, ensure that we are exceptionally well-equipped to deliver our RIIO-T3 Plan, as detailed in the remainder of this document.



# 2. A Safe, Reliable and Resilient Network

**Our 2030 Goal: Reliable Energy**

Aim for **zero**

interruptions in electricity supply to homes and business due to our network

Our ambition is "to keep the lights on" for electricity consumers across the north of Scotland and beyond. Even when taking all cost-effective steps to prevent interruptions, rare events will occur.

We will measure our progress by recording the incentivised loss of supply events.

This goal is aligned with Ofgem's strategic objective of achieving **Safe, Secure & Resilient Supplies**





The essential purpose of electricity transmission systems is to provide the safe, reliable and resilient transportation of electricity from generators to homes and businesses.

Our society and economy are increasing the use of renewable electricity as a primary energy source. As high carbon fuels are phased out and we move towards greater electrification of our economy, we continue to deliver energy security and net zero. Over the RIIO-T3 period, GB electricity demand is forecast to increase by around 15% and the Government has a clear mission for clean power by 2030. Yet at the same time, threats to ensuring security of supply are real whether natural, such as the effect of climate change, or human such as cyber or physical attacks on infrastructure.

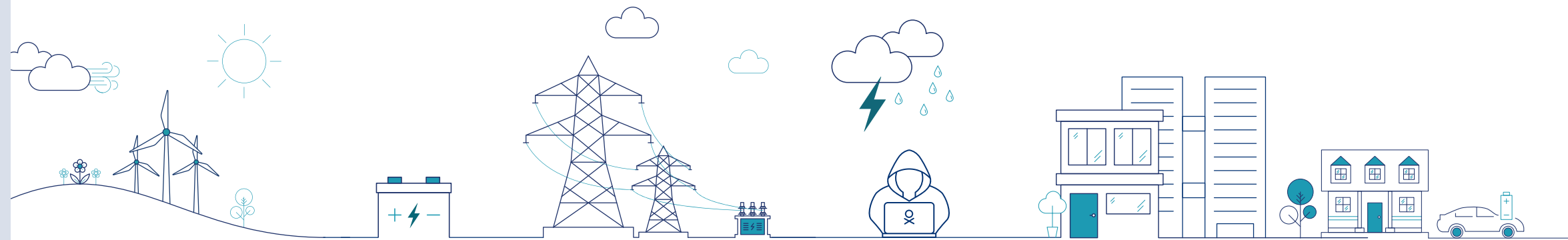
Ensuring the resilience of the whole energy system is complex and involves multiple parties.

How our role as an electricity transmission network operator fits into that whole energy system is shown in Figure 4. There are three main elements:

1. We have to plan ahead to ensure that the grid is able to meet the needs of energy consumers today and in the future. This can result in us refurbishing or replacing existing equipment as it reaches the end of its operational life, or by building new capability.
2. We take steps to protect the grid from threats that might interrupt continuity of supplies to homes and businesses. In this, we work closely with Government and other authorities to develop and test our resilience plans.
3. We operate in real time, 24 hours a day, 7 days a week, all year, monitoring the flow of electricity and controlling grid operations. As we grow the grid, we are making a significant investment in data and digital technologies.

# Our Role in a Whole System Approach to Energy Security

Figure 4: TO role in the whole energy system



Electricity Production	Electricity Flexibility	Electricity Network Capability	Resilience	24/7 Control	The Impact On Customers
We plan decades ahead to understand where electricity generating stations might be located, the type of generator and the amount of electricity likely to be produced	Flexibility is achieved by storing electricity until it is needed or changing the time at which electricity is needed; understanding flexibility is critical to planning the grid	The electricity grid is the necessary link between generators and demand all day and every day – even when the grid is being maintained or when some generators cannot operate	There are many natural, cyber and human threats to the electricity system – we take action to reduce the risk of these threats and are prepared to act quickly if needed	We aim for 100% reliability for homes and businesses, and act on this using real time information about the operation of the electricity grid and the power that is flowing	As we undertake the net zero transition, use of electricity is forecast to increase – to heat buildings, fuel transport and power our economy – as other energy sources decline
Critical Input To Network Security		Core Activity For Transmission Asset Owner		Critical Input To Network Security	



# A Network that is Safe, Reliable and Resilient

**Aiming for:**

**Commitment 1:**

2030 GOAL Zero interruptions in electricity supply to homes and businesses due to our network

**Commitment 2:**

To be world class in asset management and network operations in international benchmarks

**Commitment 3:**

To establish 'operations of the future' with an engineering training school, multi-team operational campus and integrated real time digital operations

**Guided by:**

**Strategies:**

- Network Asset Management Strategy
- Climate Resilience Strategy
- IT & Telecoms Strategy
- Data & Digital Strategy

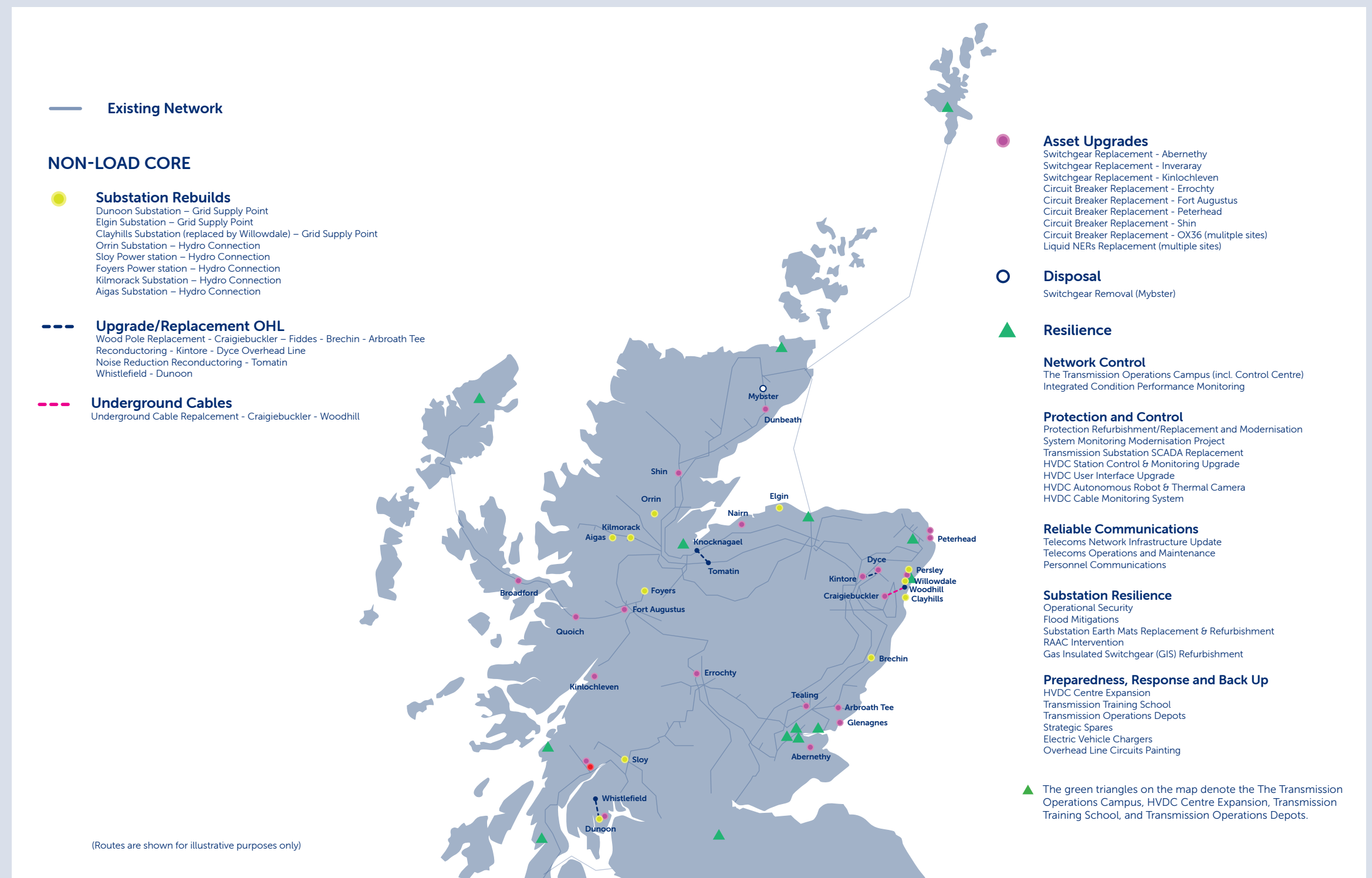
**Delivered through:**

46 capex projects @ £2.4bn  
 £178m in Network Operating Costs  
 9 Digital, IT & Cyber @£387m

The first focus area of our Business Strategy is delivering a network that is safe, reliable and resilient by delivering world class asset management. This will be ultimately measured by our first goal of aiming for **zero interruptions to homes and business**. To achieve this, we have various regulatory commitments and deliverables set out in Appendix 1 and 2, and we set three **Ambitious Business Plan Commitments** in this area.

These will be guided by four stakeholder-led strategies; our **Network Asset Management Strategy**, supported by our **Climate Resilience Strategy**, **IT & Telecoms Strategy** and our **Data & Digital Strategy**. The key actions we will take are delivery of 46 capital projects and our ongoing network operations and maintenance programme. These are supported by our digital, data and cyber projects set out in Section 5.

We list the projects in the map below and where possible, highlight their location on the map.





# Managing our Network: Investing for Resilience

## Building resilience reduces vulnerability

By implementing our comprehensive [Network Asset Management Strategy](#), in alignment with and supported by, our [Climate Resilience Strategy](#), and [IT & Telecoms Strategy](#) we will ensure resilience against disruptions to our network, which can cause power outages. Our resilience plans encompass all four aspects of resilience - reliability, redundancy, resistance and response & recovery:

- **Reliability** is achieved through proactive asset management, by replacing or refurbishing equipment at the end of its economic operational life, and through our day-to-day operations to prevent performance decline.
- **Redundancy** involves having in place back-up systems for operational continuity during disruptions.

- **Resistance** focuses on proactive protection against natural or malicious events.
- **Response and Recovery** aims for quick and effective recovery from significant disruptions, including full or partial system shutdowns, including 'Blackout' events.

The approximately 800,000 end consumers and businesses in the north of Scotland expect high levels of reliability in their electricity supply, increasingly important as we continue to electrify our economy, and our directly connected generators need availability of network to transport their power to end consumers.

The **reliability** of the north of Scotland transmission system is excellent and sector leading. Reliability is the measure of how well we manage

our network to prevent a loss of power. We will continue to measure the reliability of our network through incentivised loss of supply, termed Energy Not Supplied (ENS). It has been consistently at 99.999%. Homes and businesses rarely experience a power cut due to an event on the transmission system. Continuing to strive for zero interruptions to our network is central to what we do.

**System availability**, which measures the percentage of our network switched off at any one point for maintenance, faults and capital works, is also sector leading. This has been around 97% for the last 10 years, but due to the massive increase in capital works, it is naturally unavoidable that our availability will reduce as more of the network is required to be switched off for planned outages to enable construction and the commissioning of new assets.

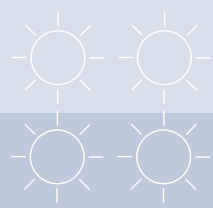
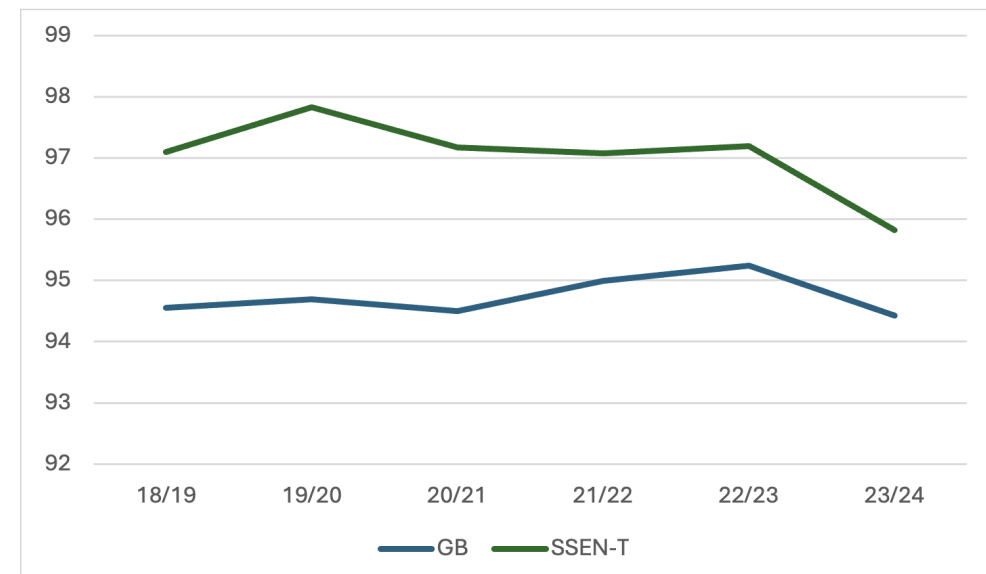


Figure 5: GB system availability



[Read more on reliability and availability in NESOs National Electricity Transmission System Performance Report here](#)

[Read the national transmission system annual performance report here](#)



# Managing our Network: Reliability

Replacing and refurbishing our assets and maintaining our network day to day

Aiming for zero interruptions for homes and businesses, we have pinpointed 23 essential asset management interventions for the RIIO-T3 period.

Our asset managers take a rigorous data-led and risk-based approach to plan cost-effective asset replacements or refurbishments. The identified interventions include eight substation replacements, four overhead line upgrades, one underground cable upgrade, nine specific asset upgrades across multiple sites and one asset removal project.



**Table 2: RIIO-T3 asset management projects**

Substation Rebuilds	
1	Dunoon Substation – Grid Supply Point
2	Elgin Substation – Grid Supply Point
3	Clayhills Substation (replaced by Willowdale) – Grid Supply Point
4	Orrin Substation – Hydro Connection
5	Sloy Powerstation – Hydro Connection
6	Foyers Powerstation – Hydro Connection
7	Kilmorack Substation – Hydro Connection
8	Aigas Substation – Hydro Connection
Overhead Lines	
9	Whistlefied-Dunoon 132kv OHL
10	Wood Pole Replacement - Craigiebuckler – Fiddes - Brechin - Arbroath Tee
11	Reconductoring - Kintore - Dyce Overhead Line
12	Noise Reduction Reconductoring - Tomatin
Underground Cables	
13	Underground Cable Replacement - Craigiebuckler - Woodhill
Asset Upgrades	
14	Switchgear Replacement - Abernethy
15	Switchgear Replacement - Inveraray
16	Switchgear Replacement - Kinlochleven
17	Circuit Breaker Replacement - Fort Augustus
18	Circuit Breaker Replacement - Errochty
19	Circuit Breaker Replacement - Peterhead
20	Circuit Breaker Replacement - Shin
21	Circuit Breaker Replacement - OX36 (multiple sites)
22	Liquid NERs Replacement (multiple sites)
Disposal	
23	Switchgear Removal (Mybster)

Detailed justification is provided in engineering Justification Papers T3BP-EJP-001 to T3BP-EJP-017, T3BP-EJP-019, T3BP-EJP-022, T3BP-EJP-023, T3BP-EJP-056, T3BP-EJP-058, T3BP-EJP-059.



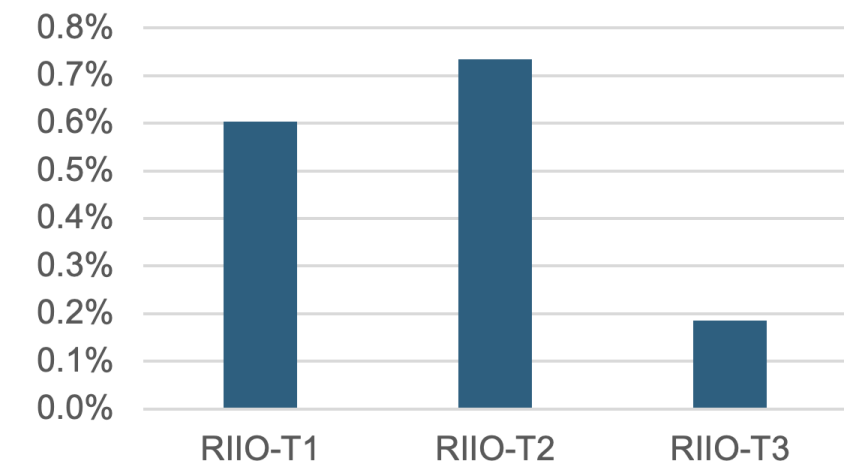
Our operations team is dedicated to inspecting and maintaining all component parts of our growing transmission network throughout the RIIO-T3 period, ensuring the reliability of supply. Their work is crucial to keeping the light on.

Our network operations are vast and encompass seven key areas: faults, inspections, maintenance, repairs, service agreements, vegetation management and other costs (such as compliance with legal and safety regulations). For instance, our operations team promptly and safely repair faults caused by unplanned interruptions and undertake vegetation management around our equipment such as tree cutting near overhead lines.

Their responsibilities go far beyond asset intervention. They also oversee substation building facilities management, which includes building maintenance, grounds management (horticulture & arboriculture), building services, pest control, management of legionella, asbestos etc, substation electricity costs, and maintaining environmental or planning requirements. They also manage access and egress to sites.

As our network continues to grow, our operations team must continue to grow too, while remaining committed to efficiency and excellence in all aspects of their work. Our network operating costs (NOCs) has been impressively maintained at approximately 0.7% of RAV during the RIIO-T2 period, with a downward trend as RIIO-T2 assets are delivered and enter warranty periods. Looking ahead, we will reduce our proportionate spend on NOCs to RAV, despite our growing ambitions related to sustainability, specifically where we expect greater activity in managing biodiversity initiatives implemented as part of our commitment to achieve a minimum 10% biodiversity net gain on all our capital projects.

**Figure 6:** % of Network Operating Costs (NOCs) to Regulated Asset Value (RAV)





## CASE STUDY: Dunoon Substation Replacement

During the RIIO-T3 period, we plan to replace end-of-life equipment due to asset condition at substations with Grid Supply Points (i.e. the connection point of the local distribution network to the transmission system), ensuring a secure future supply to 56,000 homes and businesses. This includes substations at Dunoon, Clayhills (to be replaced by Willowdale) and Elgin.

We have coordinated with SSEN Distribution to align our interventions with their future needs and other works. In planning these projects, we aim to minimise the impact of interventions while adhering to safety standards and environmental constraints. Early engagement has already taken place with the local landowner(s) and Ofgem.

### Dunoon 132/33kV substation

#### Location:

Situated in Argyll and Bute on the west coast of Scotland.

#### Connection:

Connected to the transmission network by two 132kV overhead lines as a tee-off from the Sloy and Windyhill circuits. It connects to the distribution network at 33kV, providing feeders to the local distribution network.

#### Need for intervention:

- **Primary driver:** The condition of the existing 132kV grid transformers and associated equipment, which have been in service since 1971 and will be over 60 years old by the end of RIIO-T3.
- **Secondary driver:** The contracted connection queue exceeds the current capacity; necessitating the

replacement of the 45MVA (42.75MW) transformers with 120MVA (114MW) units.

The existing site is unsuitable for extension or refurbishment. Therefore, the proposed solution is a full offline build of the 132/33kV GSP at a new site near to the existing Dunoon Substation.

#### Project Outcome:

Completion of this project will secure supply for 15,600 end consumers and ensures the current contracted connections can export when energised.



Earthing Transformer Corrosion

## CASE STUDY: Fort Augustus Circuit Breaker Replacement Portfolio

During the RIIO-T3 period, we will replace circuit breakers that have reached the end of their economic life either due to asset condition or operational issues such as being obsolete and no longer being supported by the manufacturer. We will do so at four sites – Fort Augustus, Errochty, Peterhead, and Shin – as well as replacing a specific type of circuit breaker – OX36 – across multiple sites.

### Fort Augustus 400/275/132/33kV Substation

#### Location:

Situated within the Central Highlands of Scotland.

#### Connection:

It is a key transmission hub, connecting the 275/400kV network between Beaulieu and Denny and the radial 132kV circuit to Skye.

#### Need for intervention:

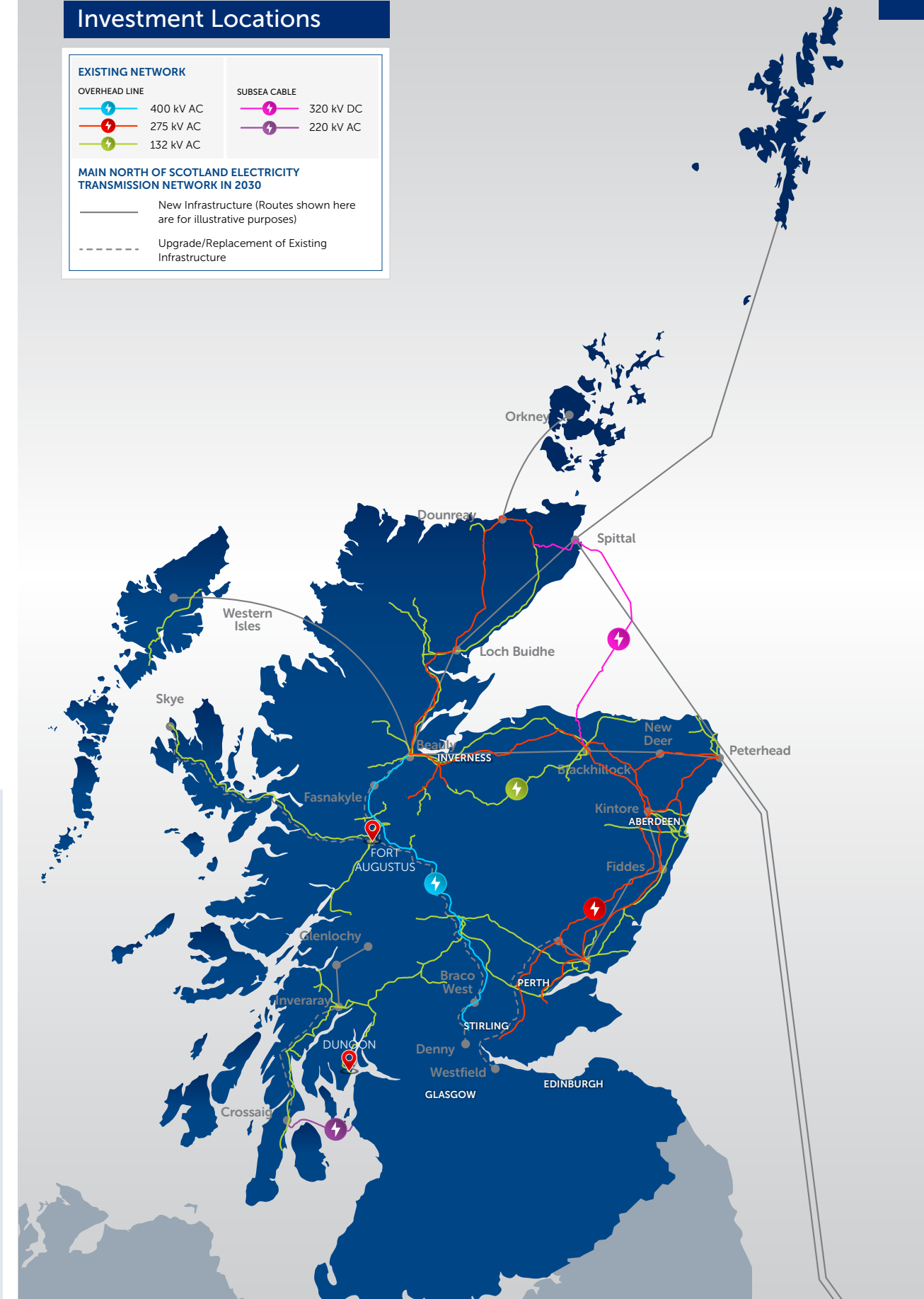
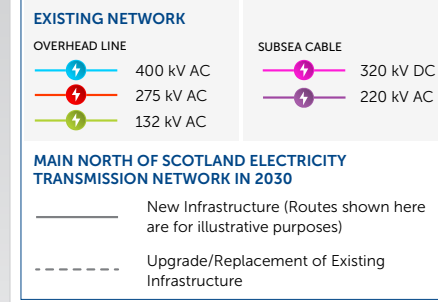
The primary driver for investment on circuit breaker at Fort Augustus is asset condition and operational issues. This circuit breaker will soon be the only one of its type remaining on the network as the only other is due to be replaced within the RIIO-T2 period as part of another project.

As specialist and technical resource for this type of circuit breaker is no longer available, refurbishment is not an option. Therefore, the proposed solution is in-situ replacement of the circuit breaker and associated current transformers, disconnectors and protection system within RIIO-T3.

#### Project Outcome:

Completion of this project will secure the resilience of our network in the Fort Augustus area.

### Investment Locations





# Strengthening our network: Investing for Redundancy, Resistance and Response & Recovery



## Ensuring we are resilient to all threats

We have identified the need for 23 projects in RIIO-T3 that will bolster Redundancy, Resistance, and Response & Recovery, to ensure our network is fit for the future

**Network control** A new Transmission Control Centre housed within our Operations Centre will manage real-time electricity flow in the north of Scotland, and Integrated Condition and Performance Monitoring (ICPM) will enhance asset performance and longevity. Timely diagnosis of critical assets is vital for reliable, cost-effective and efficient network operation.

**Protection and control** We have plans to ensure we can swiftly isolate faulty transmission parts for safety and performance. Control systems monitor and control the transmission network in real time, and we will replace obsolete system components to ensure compatibility with modern digital substations. We will also refurbish and enhance protection at various sites.

**Reliable communications** The modernisation of our protection systems is increasing data transfer demand. By 2030, we will complete a full, dual, diverse fibre network to all substations and install secure data network connections and cyber security devices. We will modernise our operations teams' radio communications to digital as standard, enhancing remote and emergency connectivity.

**Substation resilience operational security** Protecting our network from disruptions and the public from electrical equipment is critical. We continuously conduct ongoing risk assessments against threats, leading to the identification of deterrent and detection measures being required at 34 sites.

**Substation resilience** Environmental and climatic hazards, including extreme weather, landslides, wildfires and in particular, flooding in our area, pose evolving threats to our network. We plan to continue our work to improve flood mitigation at nine substations, with new measures at 55.

**Preparedness, response and back-up** Having the right resources at the right time is crucial for supporting our entire operations and ensuring we are fit for the future. Our HVDC Centre expansion project will serve as a robust testing and simulation facility, hosting intricate hardware to support the delivery and operation of the expanding HVDC infrastructure across GB. Our Transmission Training Centre will act as a new centralised hub, equipping us with the skills needed to safely and efficiently build, operate, and maintain our network. Our existing and new local operations depots are critical to facilitate construction and enhance operational efficiency, while also supporting our strategic approach to spare equipment. We will focus on expanding our strategic spares capability, considering factors such as network growth, new technologies, environmental impact, lead times, and availability. Additionally, our EV chargers will enhance our EV charging network, ensuring our operational staff can travel sustainably to and from where they are needed. Having the right resources at the right time is crucial for supporting our entire operations and ensuring we are fit for the future.



Table 3: RIIO-T3 asset resilience projects

### Network Control

- 1 Transmission Operations Centre (incl. Control Centre)
- 2 Integrated Condition Performance Monitoring

### Protection & Control

- 3 Protection Refurbishment/Replacement and Modernisation
- 4 System Monitoring Modernisation Project
- 5 Transmission Substation SCADA Replacement
- 6 HVDC Station Control & Monitoring Upgrade
- 7 HVDC User Interface Upgrade
- 8 HVDC Autonomous Robot & Thermal Camera
- 9 HVDC Cable Monitoring System

### Reliable Communications\*

- 10 Telecoms Network Infrastructure Update
- 11 Telecoms Operations and Maintenance
- 12 Personnel Communications

### Substation Resilience

- 13 Operational Security
- 14 Flood Mitigations\*\*
- 15 Substation Earth Mats Replacement & Refurbishment
- 16 RAAC Intervention
- 17 Gas Insulated Switchgear (GIS) Refurbishment

### Preparedness, Response and Back up

- 18 HVDC Centre Expansion
- 19 Transmission Training School
- 20 Transmission Operations Depots
- 21 Strategic Spares
- 22 Electric Vehicle Chargers
- 23 Overhead Line Circuits Painting

\*Emerge from IT & telecoms strategy.

\*\* Emerge from Climate Resilience Strategy. All other from Asset Management Strategy

Detailed justification is provided in Engineering Justification Papers T3BP-EJP-023 to T3BP-EJP-046.





## CASE STUDY: Transmission Operations Campus

We are embarking on an essential and transformative project to build an operational campus that will ensure we are fit for the future.

This facility will house our Critical National Infrastructure teams and capabilities on a single, unified site, and will include a new state of the art Transmission Control Centre.

This project replaces our previous RIIO-T2 control centre proposal, offering a solution tailored to meet the significant network growth driven by our ASTI projects and wider accelerated net zero ambitions. By pivoting from the RIIO-T2 proposal, we avoid investing in an outdated control room. As our network expands, the demands for safe, secure, and resilient operations grow. To maintain world-leading energy security, safety, and performance, and support the net zero transition, our control centre requirements need substantial expansion beyond what was planned through our RIIO-T2 proposal.

Our operational teams are pivotal in delivering this transition, ensuring our network and employees remain safe, secure, efficient, and compliant with regulations. These teams include:

- **Transmission Control Centre:** Manages power system safety, outage coordination, real-time network management, and project delivery compliance.
- **Technology Operations Centre:** Oversees all critical national infrastructure operational computer systems and technologies.

- **Network Operations Centre:** Manages all critical national infrastructure communications networks.
- **Cyber Security Centre:** Protects our critical national infrastructure from cyber threats.

### The facility will:

- Meet current net zero requirements designed for future expansion.
- Facilitate comprehensive management of power system safety, outage coordination, and real-time network management.
- Comply with Department of Energy, Security, and Net Zero requirements.
- Complement our Resilient Control Centres Architecture.

The final costs for the project are under review as we remain at the architectural design phase. We propose a phased approach to regulatory funding approval when design and costs are more certain to ensure thorough project development and design, and being cognisant of the in-flight Clean Power 2030 Plans, to protect both SSEN Transmission and GB consumers from undue risk.



## CASE STUDY: HVDC Centre

The HVDC Centre's purpose is to:

**Deliver world-leading simulation, training and innovation to de-risk, accelerate and enhance GB's efficient transition to a resilient net zero network.**

The role of the National HVDC Centre, established in April 2017, while part of SSEN Transmission, is to collaborate with all GB TOs and the NESO, maintaining the UK's global leadership in HVDC development and innovation.

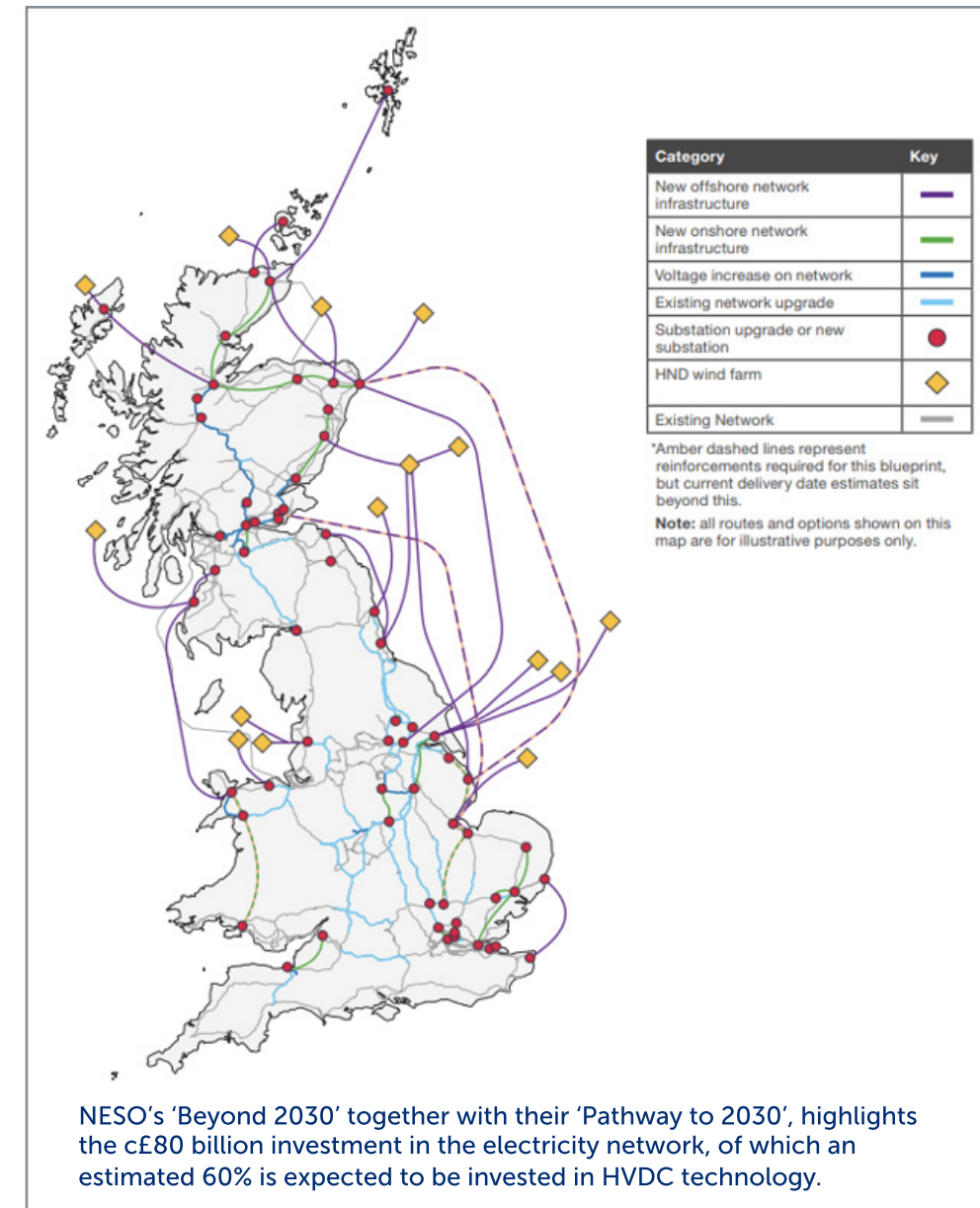
It operates to support the delivery and operation of HVDC projects, leads the HVDC innovation required for a net zero network, and serves as a robust testing facility, hosting intricate models (hardware and software) from suppliers, developers and asset owners to simulate HVDC deployment and innovations.

Over the RIIO-T3 period and beyond, there will be a significant increase in the deployment of HVDC assets connecting to the GB network. Through simulation and testing, the HVDC Centre is required to de-risk their development, commissioning and operation to ensure the ongoing resilience and reliability of the network. This means there is a need to further expand the HVDC Centre facilities to ensure there is available space to support projects across GB.

This includes increasing simulation infrastructure, replica hosting capacity, growing headcount, as well as expanding the building and facilities.

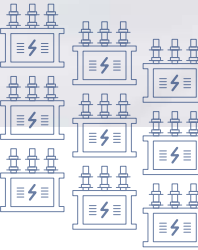
The need for the expansion was identified by the three TOs and the NESO, who are part of the Centre's

Extract from ESO's 'Beyond 2030' Report (March 2024): (nationalgrideso.com)



Technical Advisory Board. They collectively agreed that all ASTI projects require the Centre's support and hosting of their project replicas. The wider stakeholder community, including HVDC suppliers, GB interconnectors and offshore wind farm developers, were consulted on the expansion plans during the Centre's HVDC Operators' Forum in June 2024. The plans received unanimous support, and the feedback provided was used to refine the plans.

The completion is planned by the end of 2028. This expansion will solidify the Centre's role as a leader in energy innovation and an exemplar for other countries.



## 3. Accelerating the Pathway to Net Zero

### Our 2030 Goal: Clean Power

Our network will have  
the capability to meet

# 20%

of the GB demand for clean power

National clean power pathways forecast that low and zero carbon generation in the north of Scotland will contribute around one-fifth of clean power by 2030. Our goal is to deliver the necessary transmission infrastructure to make that happen.

We will measure our progress by tracking our power transfer capability at our southern network boundary.

This goal is aligned with Ofgem's strategic objective of achieving a **low-cost transition to net zero**





# No Transition without Transmission

## Electrification is at the heart of the national net zero journey

To tackle climate change we need to get to net zero by removing as much GHG emissions (like carbon dioxide) as we emit across the economy. For the UK, this means meeting the legally-binding carbon budgets on the way to the net zero target of 2050. Carbon budgets are recommended by the independent Climate Change Committee. The Fifth Carbon Budget covers the period 2028-2032 and sets a 57% reduction on 1990 emission levels.

Decarbonisation of the power sector is prioritised on the journey to net zero as alternatives to fossil fuel sources of electricity production already exist. Going forward, it is expected that electricity will replace oil and gas as a fuel across our economy, for example by moving from petrol and diesel cars to electric vehicles and electrified heating, such as heat pumps. We are already using large volumes of renewable energy to power our homes, businesses, transport and industries.

As we transition to electricity as our primary energy source, demand for electricity will significantly increase. In parallel, the carbon intensity of electricity will decrease as more of our production comes from low or zero carbon sources such as wind and solar.

## What role does the north of Scotland play in the national net zero ambition?

The north of Scotland has vast renewable energy resource and will play a leading role in Scotland and the UK's transition to net zero. The transmission system is therefore critical to harnessing this energy for the rest of the UK, transporting clean power to households, businesses and communities across GB and beyond.

Industry forecasts show the capacity of renewable generation in the north of Scotland needs to at least double by 2030. And by 2050, there could be over 40GW of renewable generation connected to meet net zero – four-times what we have today.

This means that, by 2030 the north of Scotland could provide more than one fifth of the UK's total electricity demand. By 2050, this increases to nearly a third.

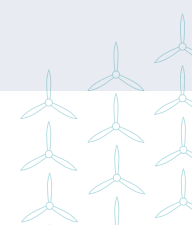
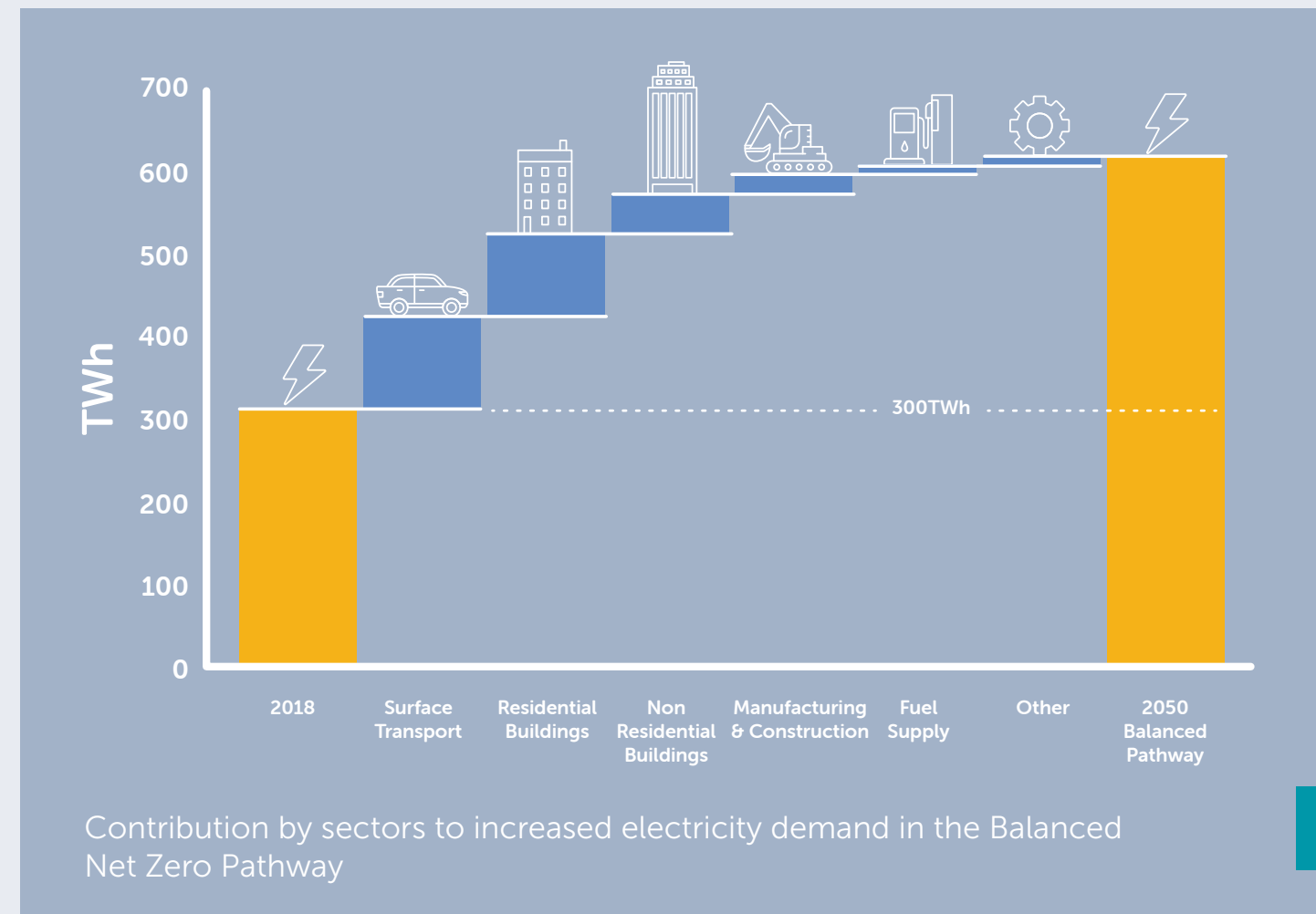
Our analysis, based on the CCC's sixth Carbon Budget and NESO's future energy scenarios, shows that the north of Scotland is forecast to make a significant contribution to the national net zero transition.

Through renewable electricity generation, the region could contribute:

- 9% of the UK emissions reductions required by 2030 (80 MtCO<sub>2e</sub>)
- 16% of the UK emissions reductions required by 2050 (1,580 MtCO<sub>2e</sub>)

[Read our analysis in the "Getting to Net Zero" report here](#)

Figure 7: Contribution by sectors to increased electricity demand in the Balanced Net Zero Pathway





# The Pathway to Net Zero and 2030

By 2030, our network needs to be able to accommodate around 25 GW of zero carbon generation and flexibility providers

In accordance with Ofgem guidance, our RIIO-T3 Business Plan uses the NESO FES24 Holistic Transition scenario. In the Holistic Transition, net zero is met by 2050 through a mix of electrification and hydrogen, with hydrogen mainly around industrial clusters. Consumer engagement in the transition is very strong with demand shifting, with smart homes and electric vehicles providing flexibility to the grid.

In the Holistic Transition, installed generation capacity in the north of Scotland is nearly 26 GW by the end of the RIIO-T3 period, compared with around 11 GW by end 2024. To accommodate this substantial growth in the required system capability, our Business Plan sets out substantial network investment.

Figure 8: Actual and forecast connected generation (including non-renewable, storage and large embedded) under the FES24 Holistic Transition



As we set out in our [Load Strategy](#), known as our Network Growth Strategy, there are two types of investment for growth:

**1. Strategic investment determined at a GB-level**

This focuses on the major grid infrastructure, or ‘motorways,’ that transport electricity over long distances. Investment requirements are determined by collaboration between network owners and co-ordinated by the NESO through the Centralised Strategic Network Planning process.

**2. Regional investment in the north of Scotland**

These are the ‘A roads’ that wire up individual generators and points of connection with the low voltage distribution network. This extends from large investments that connect many users across a region, down to the small local investments that serve a single generator.

We have detailed plans for both strategic and regional investment in our Business Plan for the RIIO-T3 period supported by our [Load Strategy](#), and individual investment justification packs.



Our RIIO-T3 Business Plan, which has been in development for some time, is currently based on the previous UK Government target of clean power by 2035, the NESO FES24 Holistic Transition Pathway and insight from stakeholders including customers and consenting authorities. Following the new Government’s Clean Power 2030 mission, we are actively working with NESO and Government to update our investment plans to meet the clean power pathways. We expect to provide a focussed update to the Plan for additional load investments to Ofgem early next year.

Aiming for:

**Our highly ambitious commitments for clean power**

**Commitment 4:**

2030 GOAL Our network will have the capability to meet 20% of the GB demand for clean power

**Commitment 5:**

To deliver excellence in customer service and community engagement during the energy transition

**Commitment 6:**

To show international leadership in the development and deployment of HVDC technology working with suppliers and through our HVDC Centre

Guided by:

**Strategies:**  
Load Strategy

Delivered through:

Strategic Investment  
Regional Investment





# Strategic Investment

## Growing the national transmission system

The 'Holistic Network Design' publications from the NESO (formally the ESO) in July 2022 set out the blueprint for the strategic electricity transmission network infrastructure required to enable the forecast growth in renewable electricity across GB by 2030.

This blueprint for strategic investment was the result of a collaboration between the NESO, TOs and wider stakeholders to identify national investment that is critical to powering the just energy transition - meeting Scotland and the UK's renewable energy ambition and accelerating infrastructure delivery to meet the 2030 offshore wind targets.

For the north of Scotland, eight strategic investments are part of that national blueprint for 2030. Four of these are subsea HVDC links, and four are onshore reinforcements of overhead lines and substations. Over the past year, we have undertaken extensive and meaningful public consultation on these investments and, where possible, have made modifications in response to feedback. This has led to several significant changes to our development plans. These projects are expected to enter construction between 2025-2028.

In December 2022, Ofgem approved the need for these projects as part of its Accelerated Strategic Transmission Investment (ASTI) framework.

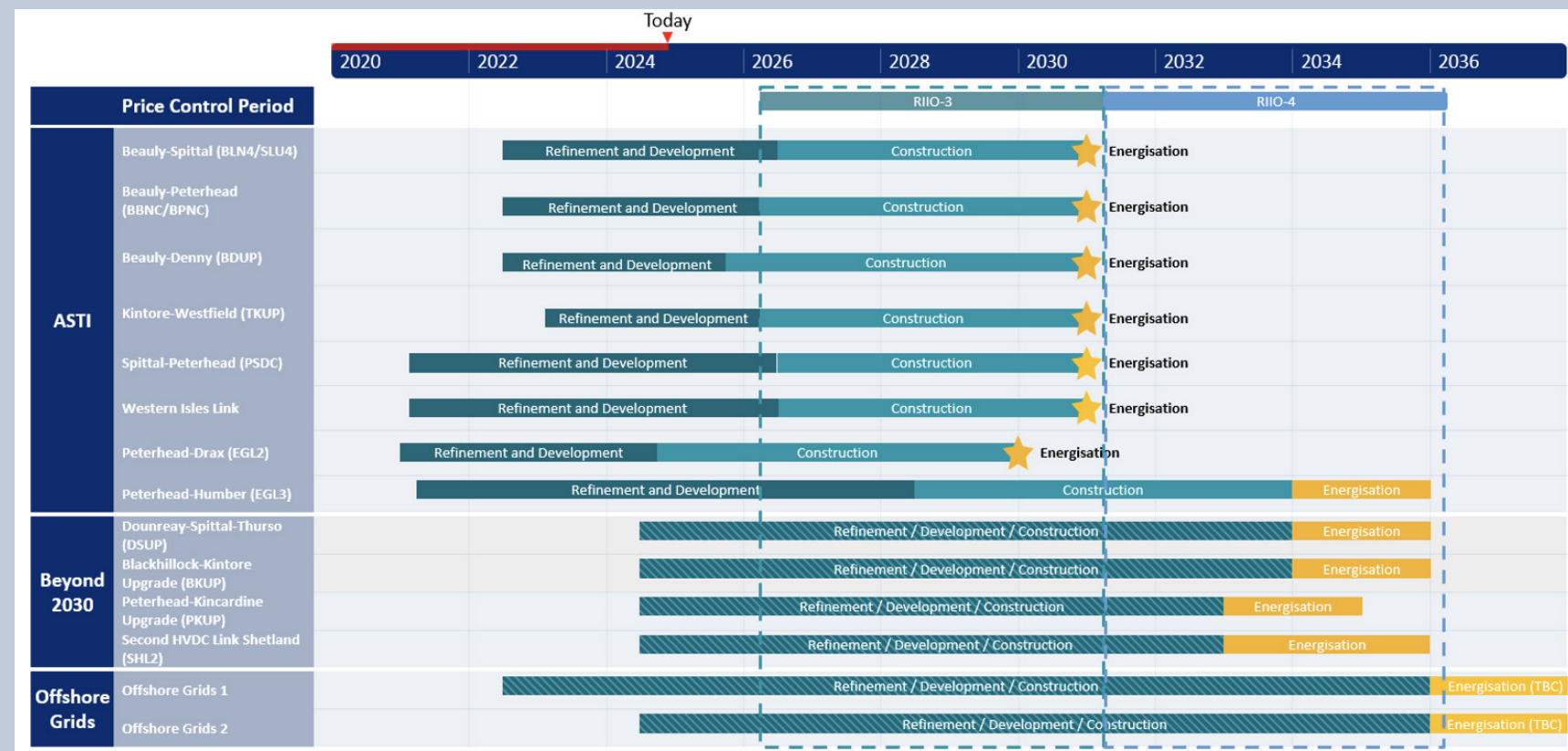
## Beyond 2030 and co-ordinated offshore grids

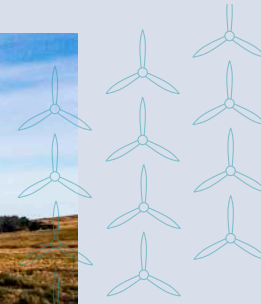
2030 is a milestone on the pathway to net zero, not the end point. During the RIIO-T3 period we will be developing strategic infrastructure for delivery after 2030 including:

- Two co-ordinated offshore grids identified by the NESO, and currently undergoing consultative impact assessments, that would provide 'bootstraps' between Scotland and England that also provide connection for large offshore windfarms.
- Five investments identified in NESO's March 2024 'Beyond 2030' publications. In August, Ofgem confirmed that four of these projects would receive development funding to enable delivery in 2033-34, with one requiring further development.
- The need for additional and significant north-south transfer capability has also been identified, with work ongoing across the TOs and the NESO to establish the scope of this additional reinforcement requirement.

Further strategic investments are expected to be identified through the ongoing Centralised Strategic Network Planning process led by the NESO.

Figure 9: SSEN Transmission strategic investment to 2030 and beyond





# Regional Investment

## Growing the north of Scotland transmission system

Investment in the north of Scotland transmission system is essential to directly connect new users such as zero carbon generators, flexibility providers and carbon capture. Investment is also required to accommodate changes on the local distribution networks to enable local decarbonisation ambitions.

Our regional investment plans for 2030 have two elements already underway:



1. Large regional reinforcements in Argyll, Skye and Orkney. These investments have been approved by Ofgem under its Large Onshore Transmission Investment (LOTI) framework and are due to be energised in 2028-2029.
2. Investments that are approved under the RIIO-T2 regulatory settlement and are due to complete in the period up to 2027.

Looking ahead, we have identified ten new regional investments that are required in the RIIO-T3 period. Together, these investments would allow for the connection of up to 2.2GW<sup>1</sup> of new generation capacity.

The ten new investments comprise:

- Two overhead line and substation works of aged assets that will also increase network capability
- The first phase of strengthening the Dundee city system to improve security of supply and provide additional network capability
- Two generation 'clusters' to connect multiple windfarms with shared overhead line, cable and substation works
- Four local overhead line, cable and substation works to connect new generators
- The installation of specialist equipment at a substation to improve power quality

Detailed justification packs for these ten new regional investments are set out for approval in our Plan<sup>2</sup>.

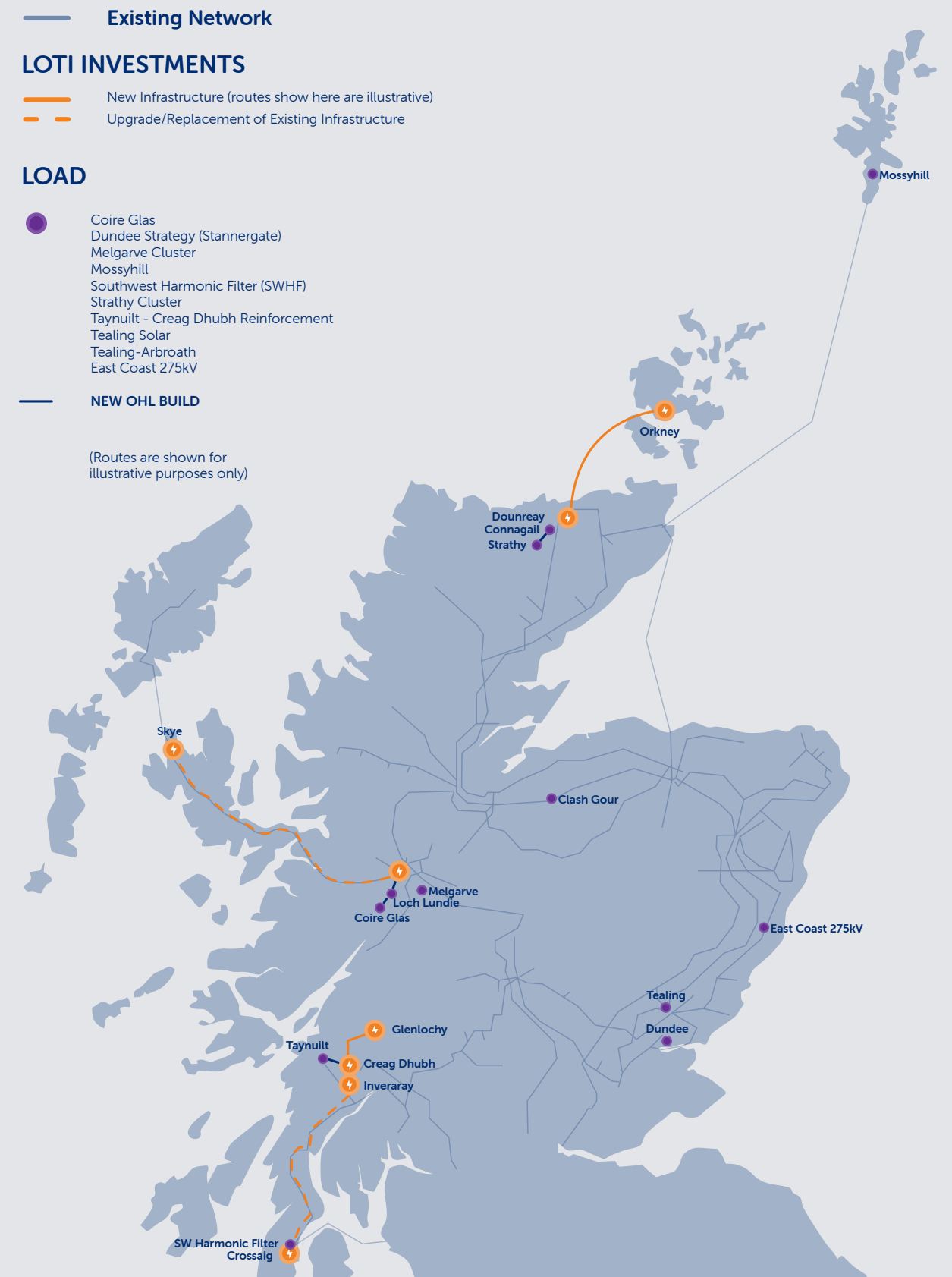


In addition to these known investments, we also expect new connections to the transmission system to trigger regional investment. The requirements of these new connections are expected to be included in the clean power plan and we expect to provide an update to our Business Plan for this early next year.

<sup>1</sup> This is the Likely Outturn Assessment (LOA) position at the time of writing. Includes battery MW and Coire Glas of 1,296MW service.

<sup>2</sup> T3BP-EJP-047 to T3BP-EJP-055 and T3BP-EJP-057.

Our ten new regional investments (in purple) that we are seeking regulatory approval for in our RIIO-T3 Business Plan and three large regional investments already approved (in orange)





# Impact of In-Flight Industry Reform

Significant reform is underway, but not yet concluded, as we publish our RIIO-T3 Business Plan



## Clean Power 2030

In July 2024, the new UK Government announced its mission to achieve clean power by 2030. Following advice from NESO on 5 November 2024, the Government is expected to publish its Clean Power Action Plan by end 2024.

NESO's advice reaffirms the need for the strategic investments set out in our RIIO-T3 Business Plan. The advice also sets out the need for additional regional investments to accommodate the acceleration in the zero-carbon electricity target from 2035 to 2030. Furthermore, NESO highlights the criticality of investment to ensure safe and secure system operation of the clean power system.

We have been working with NESO, Government and other stakeholders to reassess our network investment plans to meet clean power pathways. We expect to provide an update in Q1 2025.



## Connections Reform

There is an urgent need to reform the process for getting connected to GB electricity transmission and distribution networks. Projects are waiting too long to connect, which is hindering our national ability to transition our energy system from high carbon production to clean, flexible power.

At the time of publishing this Plan, detailed proposals are in consultation for 'root and branch' reform of the connections process encompassing modifications to networks' licences, establishing new methodologies, and enacting code changes supported by financial incentives for both system users and networks. Together, these would result in a shift away from 'first come, first connected' build-up of a queue, to regular windows that offer connection to users who are ready and align with clean power pathways.

The main implication of connections reform for our RIIO-T3 Business Plan is in planning regional investments. Rather than planning as we have done in the past following connection applications, we will be required to plan regional investments aligned with clean power pathways. This is an essential element of the wider reform to implement strategic network planning.

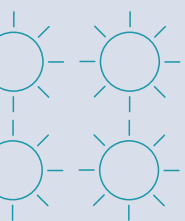


## Strategic Network Planning

A new framework for strategic network planning has been established for GB. This comprises the Strategic Energy Spatial Plan (SSEP), Centralised Strategic Network Plan (CSNP) and Regional Energy Strategic Plan (RESP). Together, these will provide a co-ordinated network and low carbon generation development pathway for secure, clean power.

CSNP builds upon the existing centralised strategic planning processes co-ordinated by NESO; hence we have accounted for this within our RIIO-T3 Business Plan.

SSEP and RESP are new, with first iterations expected early in the RIIO-T3 period. The main implication (consistent with connections reform) is in planning regional investments. A new process for regional planning that is pathway-aligned (or target-led) is required. We have commenced development of this process (which we term "Area System Planning (ASP)") and will roll it out across the north of Scotland during RIIO-T3 working with NESO and other stakeholders.





# Converting Innovation to Business-as-Usual

As we deliver our load and non-load projects in RIIO-T3, we will always seek out innovations

**The energy transition requires us to do things differently.** Our approach to innovation focuses on identifying, developing and implementing novel solutions that meet the real challenges of the energy transition and enhance value for energy consumers. We have a diverse portfolio of innovation activities that is rigorous in demonstrating tangible benefits and moving rapidly into business-as-usual deployment. Many of the innovation projects that we have initiated under the RIIO innovation funding mechanisms are part of our core delivery plans for RIIO-T3.



## INSPECTION AND MAINTENANCE

### 'Haggis' the Robot

High Voltage Direct Current (HVDC) valve halls are inaccessible to people due to the hazardous environment. We have developed an autonomous robot to monitor equipment status and assess the need for maintenance without causing unplanned downtime of the system.

Following a successful innovation project, we will use autonomous robots at all our HVDC sites going forward. Our initial analysis is that a single robot can reduce operational costs by up to 61%.

The NIA 'AIM Hi' Project, total cost £0.45 million.



## NEW TECHNOLOGY

### Environmentally-friendly switchgear

SF<sub>6</sub> is a gas with warming potential 23,500 times that of CO<sub>2</sub>. The installation of 'Green Gas for Grid' (g<sup>3</sup>) switchgear at the Kintore substation is the first time globally that SF<sub>6</sub>-free gas insulated switchgear will be used at a voltage level of 400 kV. This new technology will avoid the addition of roughly 350,000 tonnes of CO<sub>2</sub> equivalent to the grid.

This is part of our innovation focus on reducing leakage (monitoring and repairing) and replacing (new technology) SF<sub>6</sub> gas across our network.

'Business-as-usual' innovation, in partnership with GE.



## POWER QUALITY

### Modelling the GB transmission system

We have led a national effort to develop a large-scale Electromagnetic Transients (EMT) model and analysis tool. This allows us to understand and predict the behaviour of new large volume power electronics before integration into the GB network. The model has already been successfully used to investigate observed system disturbances.

A second and third phase of development will be completed and convert to business-as-usual by 2026 that increase model functionality and reduce simulation run times.

The NIA 'TOTEM' Project, total cost £1.02 million.



[Read our RIIO-T3 Innovation Strategy here](#)



## 4. A Business that is Fair and Sustainable

### Our 2030 Goal: Our Legacy

Drive investment in the energy transition that delivers **transformative lasting benefits** for local communities, our economy and nature

A just energy transition will be inclusive and equitable – with people's needs at the centre – seeking to minimise negative impacts and maximise opportunities. Based on an objective materiality assessment, we have set specific targets for the Pathway to 2030.

We will measure our progress by new housing that will be made available to communities; the allocation of community benefit funding; our greenhouse gas emissions; and biodiversity net gain achievements.

This goal is aligned with Ofgem's strategic objective of providing a **High Quality Service and Efficiency & Value for Money**



# A Transition that is Fair and Sustainable

## Our commitment to deliver transformative lasting benefits

We are committed to ensuring the energy transition provides exceptional value for current and future generations. While our ambitions are high, decarbonising while keeping the lights on is not enough. Electricity consumers, the communities in which we operate, and wider stakeholders expect us to achieve these goals responsibly, leaving a positive lasting legacy.

The third focus area of our Business Strategy is to ensure we are a **fair and sustainable business**. We will measure our progress through our third RIIO-T3 goal of **delivering a transformative, lasting legacy for local communities, our economy, and nature**. This goal is supported by specific and measurable Business Plan commitments and deliverables, set out in Appendix 1 and 2 and delivery of these is integrated with our resilience and net zero investment plans to ensure efficiency and a practical approach to delivery. We have three ambitious Business Plan commitments in this area, guided by our stakeholder-led [Sustainability Strategy](#) and [Sustainability Action Plan](#), supported by our [RIIO-T3 Innovation Strategy](#), [Supply Chain Resilience Strategy](#) and [Workforce Resilience Strategy](#), all of which have been developed with significant input from stakeholders.

## Our practical approach to Sustainability

The unprecedented pace and scale of network expansion during the energy transition will have impacts on communities hosting our infrastructure, on the natural environment, and on the climate. By being intentional in our actions, we strive to leave a positive legacy on the Pathway to 2030, for people, the environment, the economy, and our wider world.

Our [Sustainability Strategy](#) aims to ensure that our network expansion during the energy transition leaves a positive legacy; by focusing on climate, nature, and communities, we strive to tackle climate change, protect and restore nature, and engage with communities through world-leading sustainability practices. Updated in September 2024, our approach is informed by stakeholder insights and a 2023 double materiality assessment, focusing on the most significant impacts. Our [Sustainability Action Plan](#) includes detailed action plans with measurable targets, demonstrating we are committed to making a tangible, positive impact on the world, ensuring a sustainable future for all.



Sustainability is one of our core values, defined as **“we do the right thing for people and the planet”**.

### Aiming for:

**Commitment 7:**  
2030 Goal delivering a transformative, legacy for local communities, our economy, and nature

**Commitment 8:**  
To demonstrate international leadership in the development of sustainable business practices for post-2030

**Commitment 9:**  
To realise long term consumer value through targeted innovation, strategic supply chain partnerships and accelerating the transition to clean power (see Section 8 on value for money)

### Guided by:

**Strategies:**  
Sustainability Strategy & Action Plan  
Innovation Strategy  
Supply Chain Resilience Strategy  
Workforce Resilience Strategy

### Delivered through:

Our capital projects and operating activity with costs embedded in project costs, network operating costs and overheads (CAIs and BSCs)

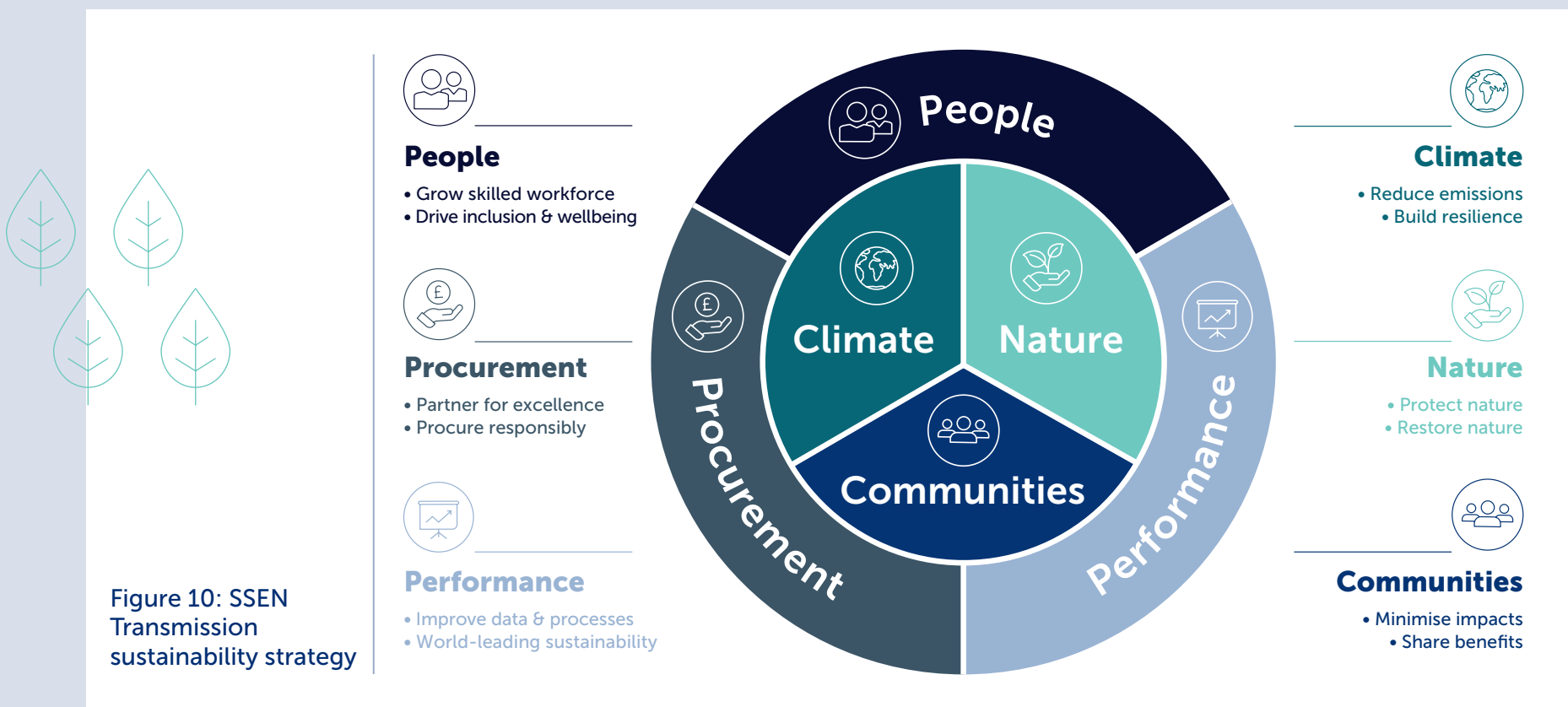


Figure 10: SSEN Transmission sustainability strategy





# Making a Tangible Difference to People: Communities

## We will ensure benefits are shared with communities and any adverse impacts are minimised

As expected by national and local Government and by local communities, we are dedicated to ensuring the benefits of the energy transition are shared with our communities, leaving a lasting positive legacy.

Throughout the lifecycle of our projects, we aim to work positively with local communities and keep people informed about what we are doing. This is particularly important when we are developing a proposal. We want to take the time to understand what local stakeholders think about our plans, listen to their feedback and where possible adjust our proposals to reflect this.

We understand that the work we do can have an impact on communities. So, we're committed to minimising our impacts and maximising all the benefits that our local developments can bring to the areas we're working in. That means we provide all the information communities need to know about our plans through different channels and events.

We want to hear people's views, concerns, or ideas and harness local knowledge so that our work brings positive benefits to the communities where we are working, today and long into the future. We deliver this engagement at scale across our network area with over 50 ASTI and

22 RIIO-T2 project consultation events undertaken in 2024 with around 4,500 attendees at these events.

Of note our Community Benefit Fund, launched ahead of the UK Government concluding its guidance, will support host communities through targeted actions. This includes a regional fund which stakeholders asked us to focus on the themes of people, place, and tackling fuel poverty, as well as local funds dedicated to addressing specific local priorities.

 [Read more about our fund here](#)

## Community Benefit Fund

### What?

- An initial £10m of Community Benefit Funding to local Communities already launched.
- Preparing to deliver well over £100m based on draft UK Government guidance.
- Focusing on projects relating to skills, culture, alleviating fuel poverty and other stakeholder-led local priorities, informed by extensive stakeholder consultation.

### Why?

- To bring communities with us on our project journey.
- To support community wealth building requirements of Scottish planning policy.
- To share the benefits of investment in our network with communities across the north of Scotland.
- To support communities to prosper through the delivery of projects which will enhance and improve lives.
- To create a transparent, meaningful and lasting positive legacy.

### Ambition

- Early commitment to the first £10m phase of our fund despite no UK Government guidance yet.
- Extensive stakeholder consultation to influence the fund design and reflect feedback.
- An impactful Regional and Local approach to unlock transformative projects across our whole licence area.





# Making a Tangible Difference to People: Housing Strategy

## A bespoke, inclusive approach ensures we can meet the local requirements and multiply the local impacts

In an industry first, our highly ambitious Housing Strategy will support the development of at least 1,000 homes across the north of Scotland, while housing thousands of transient workers who work on our projects. Our goal is to support the development of at least 1,000 legacy homes without displacing communities, helping to build homes that otherwise would not exist.

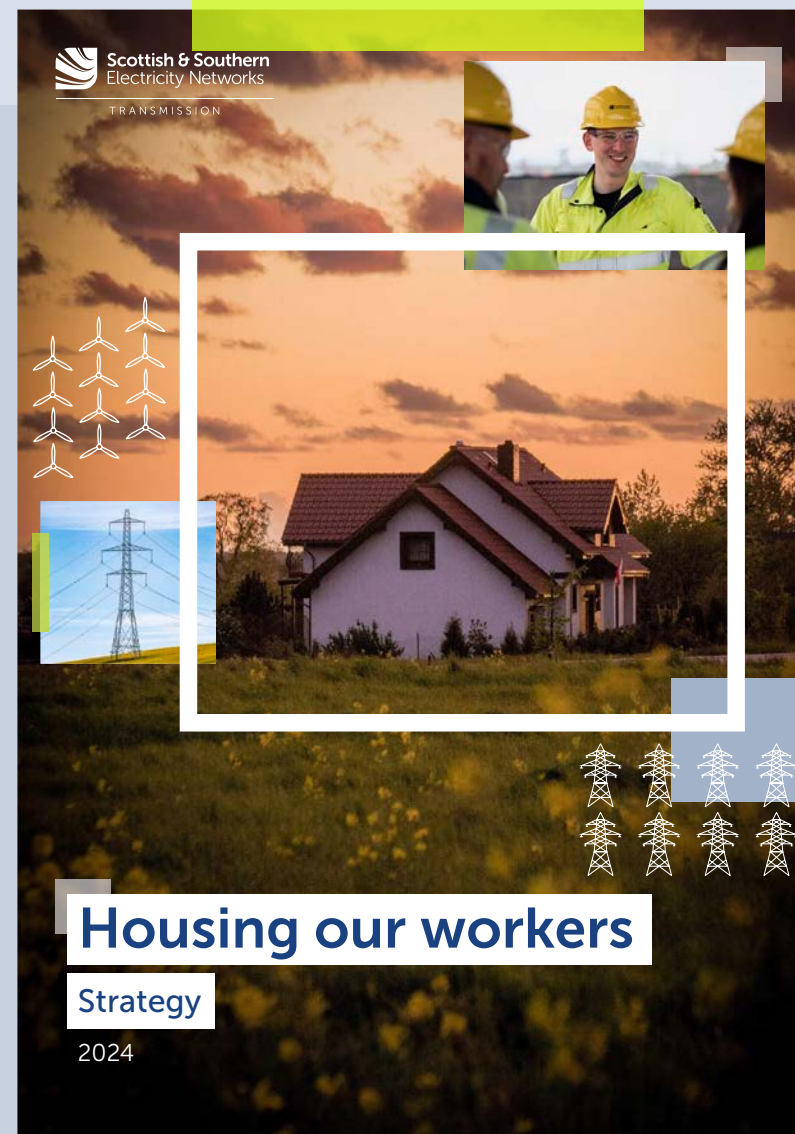


I welcome the innovative approach being taken by SSEN Transmission to support the delivery of an additional 1,000 new homes across the north of Scotland. These homes will initially be for workers upgrading the local energy infrastructure to support Scotland's net-zero targets and will support a longer-term legacy across the region.

"We will work with SSEN Transmission and other partners to ensure that the right homes are delivered in the right place, to benefit local communities for generations to come.

"Good quality housing is essential to attract and retain people in our communities. We remain focussed on delivering 110,000 affordable homes across Scotland by 2032, with at least 70% for social rent and at least 10% in our rural and island communities supported by our Rural and Island Housing Action Plan."

The Scottish Government's Housing Minister,  
**Paul McLennan**



## Housing Strategy

### What?

- Housing Strategy for our transient workforce, using a mix of temporary and permanent accommodation solutions, costing less than the traditional solution.
- Sites are identified in collaboration with local authorities, registered social landlords, supply chain partners, and housing developers.
- Where appropriate, Principal Contractors lease new-build homes from stalled projects, unlocking further investment.
- Supporting 1,000 permanent homes to house 2,000 workers by 2030 and rural housing needs through development of stalled sites allocated to housing.

### Why?

- To address the challenge in attracting and mobilising the huge workforce required for our projects, the majority of whom will be transient.
- To provide additionality and avoid displacement to local housing provisions.
- To enhance worker safety, health, and wellbeing with high-quality housing, addressing supply chain issues.
- To improve project efficiency and reduce cost to the consumer.
- To meet community wealth building requirements of Scottish planning regulations.
- To create a meaningful positive legacy in host communities, addressing rural housing shortages.

### Ambition

- Less expensive than the traditional approach.
- Innovative legacy approach blends temporary needs with permanent housing benefits, that can be replicated across GB as best practice.
- Developed in collaboration with consent decision makers, local authorities and registered social landlords, our supply chain partners and housing stakeholders.
- Bespoke, community-by-community approach tackles rural housing shortages, leaving a lasting impact.
- Cost-effective and sustainable and sets a new industry standard for responsible, scalable workforce housing.



# Making a Tangible Difference to People: Economy



## Delivering Sustainable Economic Growth

Our RIIO-T3 Plan is one of the largest investment programmes in Scotland and is set to drive significant economic growth while connecting new low carbon energy sources essential for energy security and net zero. It will not only support Ofgem's new economic growth duty but will foster sustainable outcomes in the energy sector.

In February, the Energy and Climate Intelligence Unit and CBI Economics **reported** that the 'Net Zero Economy' grew by 9% in 2023, compared to less than 0.5% for the overall economy. Our investment programme is at the forefront of this vital sector, positioning it as a key driver of economic growth in both Scotland and the UK. By delivering this Plan, we are investing in a sustainable future and leading the transition to a low carbon economy.

This programme will significantly boost the Scottish and UK economies by increasing Gross Value Add (GVA), supporting jobs, and enhancing local spending.

The impacts are summarised, over the page.

## Direct Investment

With the right planning and regulatory regime, we could invest over £30bn in the north of Scotland's transmission network during the RIIO-T3 period. Of this, around two-thirds (£18.5bn) will be invested directly in the UK, specifically in Scotland. While some investment will go abroad for specialised assets, this supports global decarbonisation efforts. As a result of our preferred bidder status for the Shetland 2 project, Sumitomo Electric is building a £350m cable manufacturing facility at the Port of Nigg, in the Scottish Highlands, creating numerous jobs and showcasing successful public-private partnerships. Sumitomo's investment in this new cable manufacturing facility has been enabled by the second HVDC link connecting Shetland, demonstrating the significant value to local and national economies our investments are supported.

## Employment

Our Plan will support a significant number of jobs, both directly in construction, refurbishment, and maintenance, and indirectly through the supply chain. It is expected to support around 8,400 in the north of Scotland, an additional 9,000 across the rest of Scotland, and 19,500 in other parts of the UK, totalling around 37,000.

This will be a major employment boost, supporting thousands of well-paid, high-skilled workers. With an average salary of approximately £40k per year (ONS labour market data <sup>1</sup>), this workforce will generate around £300m annually in direct tax receipts for the UK government, not including additional discretionary spending.

Further, we will expand our internal workforce, creating c900 new jobs, including 210 "earn as you learn" opportunities like graduate roles and apprenticeships. See Section 6 Team Transmission for more information.

## Gross Value Add (GVA)

Our investment plans and employment to support it will significantly boost the UK economy, generating over £15bn in GVA. This includes £3bn in the north of Scotland, an additional £4bn across the rest of Scotland, and £8bn throughout other parts of the UK.

## Stimulating Local Enterprise

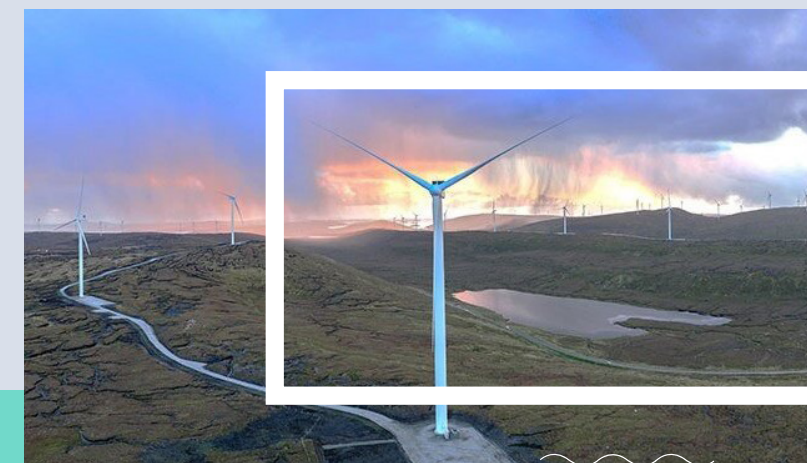
SSE has been a cornerstone of the Scottish economy for 80 years, originating as the north of Scotland Hydro Electric Board in 1943 to boost economic opportunities in the Highlands. Today, as proud custodians of the north of Scotland transmission network, we continue this legacy

by partnering with local enterprises, stimulating demand for their services in our network construction and operations. Our investments typically involve local procurement for site surveys, ground preparation, road access, plant hire, transport hire, and facilities management.

A prime example of our commitment is the Shetland HVDC project, where we spent over £45m on local suppliers. For example, we awarded a multi-million-pound contract to Tulloch Developments for civil and marine engineering services, showcasing our dedication to supporting local businesses.

Across the RIIO-T3 investments we will continue to work with hundreds of local businesses across the north of Scotland; ensuring that the growth experienced in the sector is shared with them in a sustainable manner.

<sup>1</sup> A01: Summary of labour market statistics - Office for National Statistics





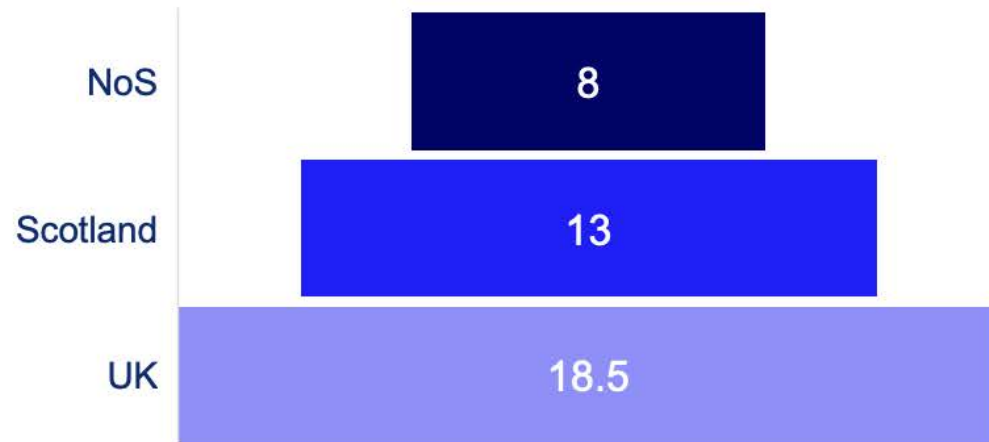
# RIIO-T3 (2026-2031) Economic Impact Assessment

Scotland's single largest infrastructure investment plan

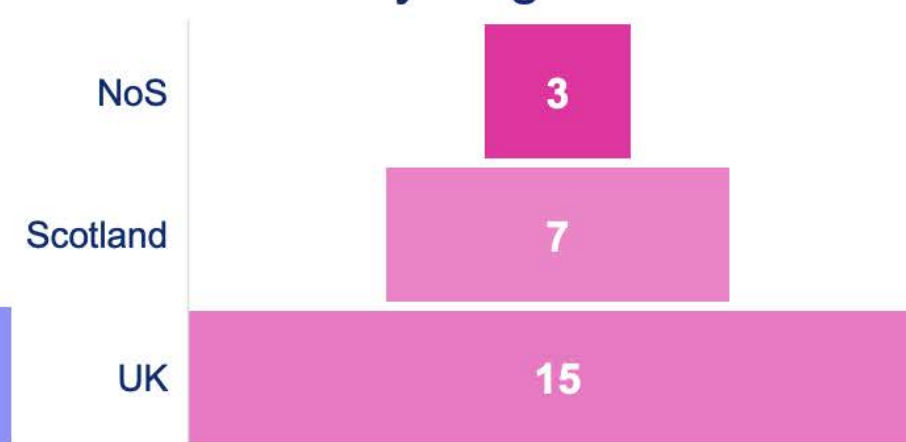
Peer Review Completed from:



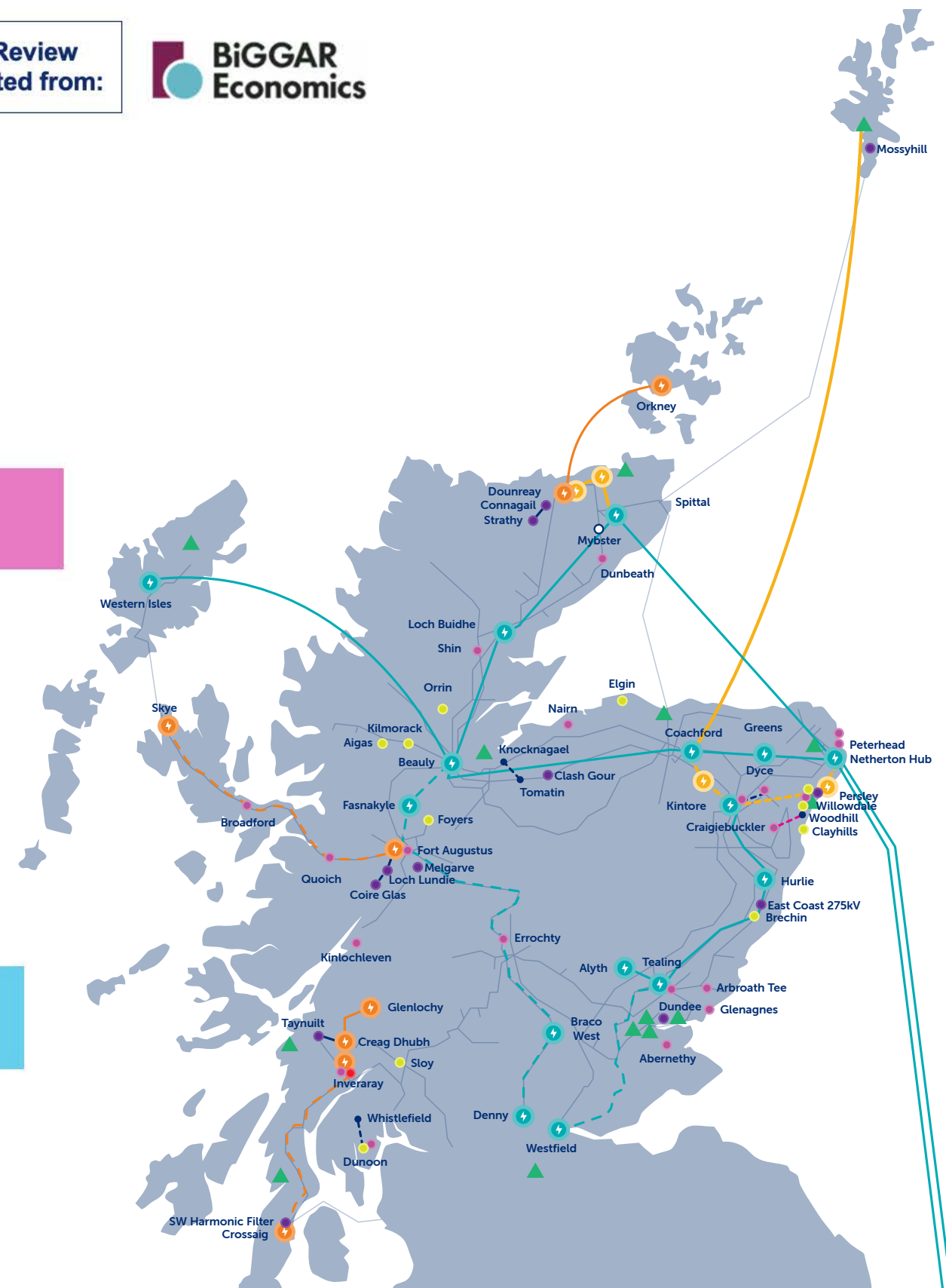
### Spend by Region £bn



### Gross Value Added by Region £bn



### Jobs Supported by Region





# Making a Tangible Difference to Climate and Nature

## We will take a nature positive approach, to protect and restore nature

We are privileged to operate in the unique natural environment of the north of Scotland and its islands, and this has motivated our commitments to protect biodiversity and restore nature.

In RIIO-T2 we made a commitment to transition from "no net loss" of biodiversity to delivering Biodiversity Net Gain (BNG). We accelerated this by two years in RIIO-T2, embedding BNG into all of our major projects, helping to secure the essential planning permission and accelerate delivery, while leaving a positive impact.

In RIIO-T3, we will not only continue to deliver BNG (now a planning requirement) but commit to:



Deliver at least **10% biodiversity** net gain and leave a positive legacy for nature

And expand our effort into the marine environment to:



Be **industry leaders** in marine habitat monitoring and restoration by 2030

This will allow us to deliver our projects at pace and to invest in the workforce and research capabilities to meet anticipated demands of local and Scottish Government for marine restoration. Beyond meeting BNG standards, we are dedicated to implementing additional conservation that will support species and habitats to thrive. By doing so, we will be positioned a global business leader in nature restoration, demonstrating our unwavering commitment to nature stewardship.

## We will enhance data, processes and assessments based on world-leading best practice

Achieving our sustainability mission to deliver a network for net zero in a fair and sustainable way requires excellent systems, processes, and data to enable us to better understand our impacts, to monitor and measure our performance, and to refine how we deliver against our goals.

We have a strong track record as leaders in sustainability as the first network company in the world to set a science-based target to cut our emissions in RIIO-T2. As we move into this next phase of our sustainability journey, following advice from experts at the University of Strathclyde, we are committed to continuing to be leaders, through strong delivery against our ambitions, and through alignment with global best practice.

To continue to be world leading we make a commitment that:

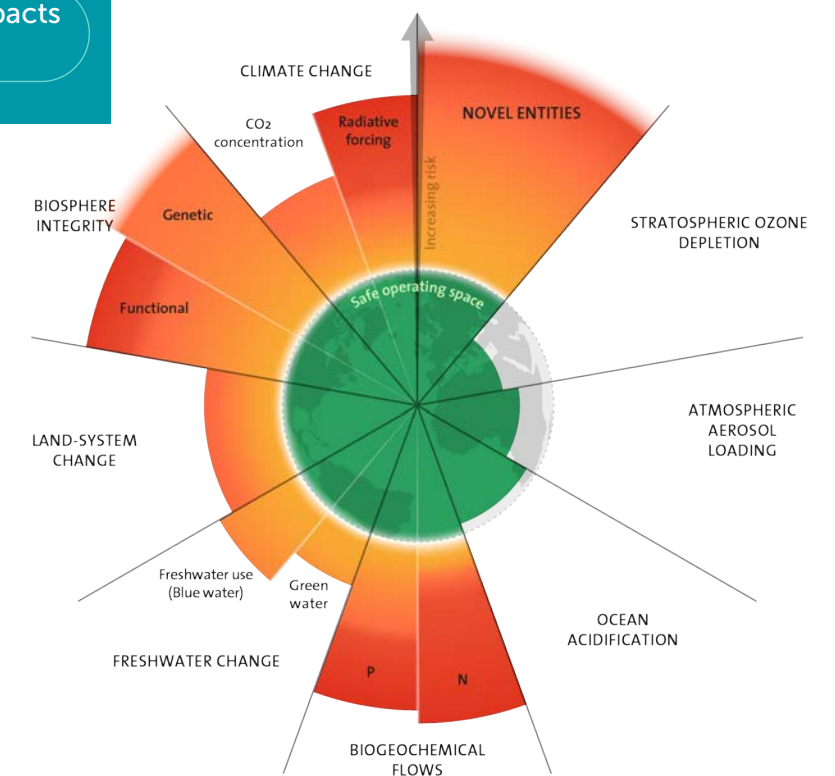


By 2030, we will assess our impacts on planetary boundaries

Planetary boundaries are the essential processes that sustain life on Earth, defining the limits of what the Earth can endure, including in relation to climate change, freshwater depletion, and impacts on biodiversity. Recognising their importance, we are committed to partnering with experts to quantify a fair budget for SSEN Transmission and to thoroughly assess and mitigate our impacts on these critical planetary boundaries.

We are proud to be one of the first companies in the world to assess our impacts in this way, setting an example for others to follow. By leading the way, we aim to inspire broader industry action and contribute to a sustainable future for all.

Figure 11: The 2023 update to the Planetary boundaries



Licensed under CC BY-NC-ND 3.0. Credit: "Azote for Stockholm Resilience Centre, based on analysis in Richardson et al 2023"



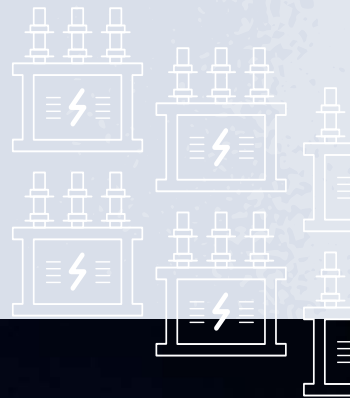
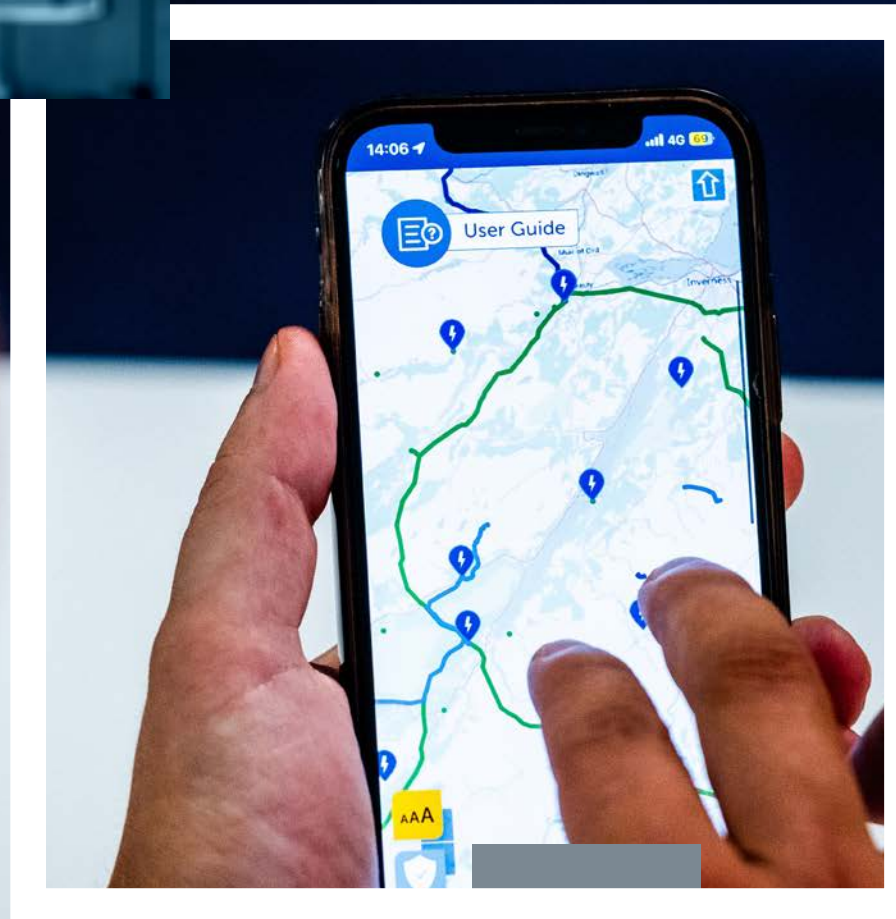
# 5. Data, Digital and Cyber

## Our digital ambitions are essential in delivering all three 2030 Goals

Across the globe, there is a revolution in using the power of modern technology to transform how we do things and bring new benefits to society. The future energy system will be safer, cleaner and smarter, and we have a critical role in making that a reality.

We take a systematic and intentional approach to using modern technology. Data is the starting point: accurate, available and accessible. This data can be used by digital tools to improve performance and value in our business activities – from back-office functions to stakeholder engagement. Communication is critical to system operation and real-time monitoring of asset condition and performance.

As we grow the network, we will efficiently modernise our data, digital and communications capabilities. All of this will be done under the strictest standards for cyber security.





# Modernising our Network and Our Business

## Our digital pathway to net zero

At SSEN Transmission, we see **digitisation** – the process of converting physical information into digital formats - and **digitalisation** - the use of digital technologies to transform business processes and models - as essential to achieve UK and Scottish Government targets for energy security and net zero. These processes are also crucial for delivering on stakeholder expectations and meeting all three of our 2030 Goals.

During RIIO-T2, we executed the first stages of our long-term digital strategy (see Figure 12), investing in platforms and services that have enhanced business performance while aligning with the published [Data Best Practice Guidance](#). These foundational investments are crucial, providing the springboard for continued investment in our RIIO-T3 Digital Strategy and the ongoing improvement of the products and services by the end of RIIO-T2.

Data is a central focus for our business, with a vision to become a data-driven leader

in electricity transmission. We recognise the critical role of data in driving future business performance and the increasing need for data sharing and collaboration across the energy ecosystem to achieve net zero and longer term industry goals.

We have reset our Digital Strategy for RIIO-T3, which will replace our current strategy. We will continue to update and publish our [Digitalisation Action Plan](#) every six months, with the focus shifting from RIIO-T2 to RIIO-T3 over the next year. Our strategy is summarised in our [IT & Telecoms Strategy](#) and a full version of our RIIO-T3 Digital Strategy is available on request.

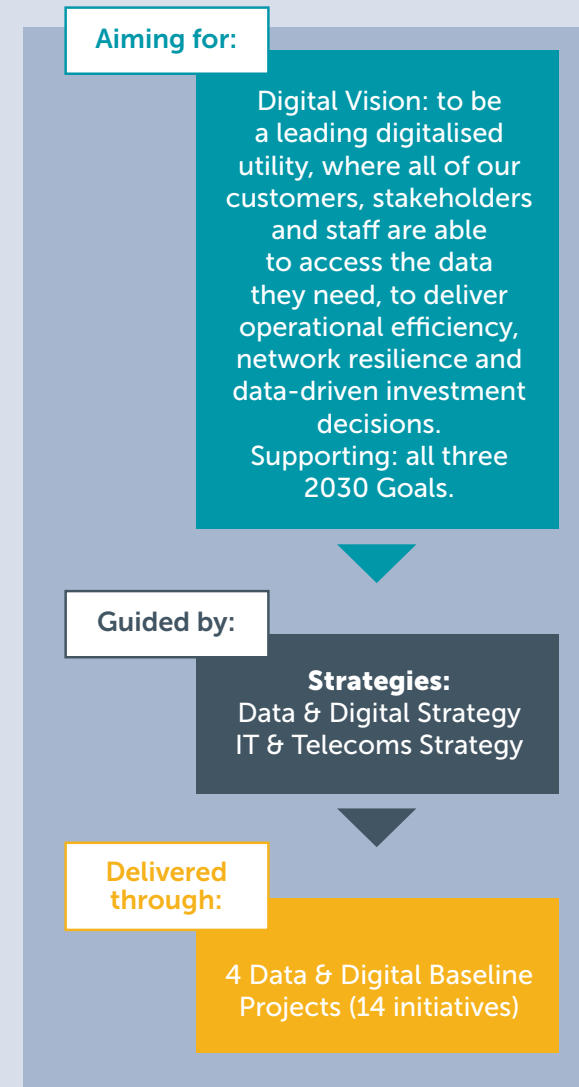
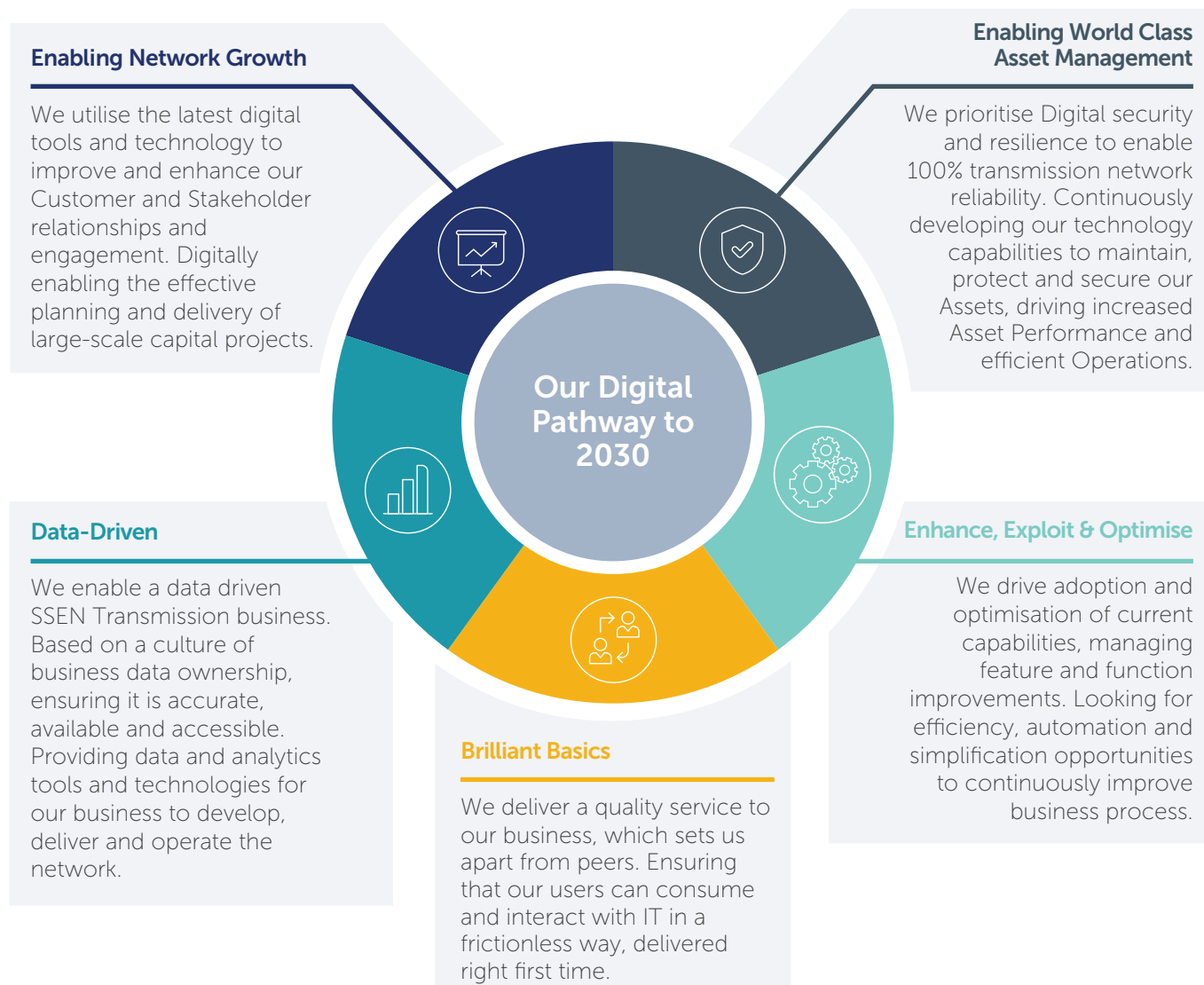
Our RIIO-T3 digital ambitions are driven by clear objectives: to support the delivery of net zero investment, to accommodate our growing business, to drive efficiencies, and to meet Ofgem and Government requirements for a digitalised energy system.

In response to these drivers, we aim to achieve outcomes that benefit consumers, customers and stakeholders, particularly by improving our ongoing engagement and interaction through digitisation. Additionally, we target digitalisation outcomes to transform our core business processes and models – from the investment planning to capital project delivery to the management of assets once on the network. This will help us meet the expectation of project stakeholders, including our supply chain and customers, and further enable efficient on-time delivery.

Beyond this, we will enhance IT of all the supporting functions of our business, from finance and regulation to procurement and HR, all of which support network planning, asset management and project delivery.

This is summarised in the accompanying infographic, over the page.

Figure 12: Our digital ambitions and RIIO-T3 investment themes





## Investment Drivers

**Delivering Net Zero:**  
Digitalisation is the fastest way to Net Zero.

**Supporting our growing business:**  
Our front office and back-office processes and systems need to transform to support a growing number of people

**Efficiency:**  
Data and Digital is a key enabler for the wider efficiency targets of the business, and will support the efficient growth of the organisation.

**Digitalised Energy System:**  
Increased interoperability and sharing of data are objectives of Ofgem and Government.

## Digital Ambitions

### Enabling Network Growth

We propose 4 initiatives in RIIO-T3 to meet targeted outcomes associated with network growth.

### Data Driven

We propose 4 initiatives in RIIO-T3 to meet targeted outcomes associated with data driven decision making

### Enabling World Class Asset Management:

We propose 3 initiatives in RIIO-T3 to meet targeted outcomes associated with asset management

### Brilliant Basics:

We propose 3 initiatives in RIIO-T3 to meet targeted outcomes associated with data quality and user experience.

### Enhance, Optimise and Exploit :

Covered in our CAI allowance.

## Targeted Outcomes

### Customers and Stakeholders:

- Implement a new Stakeholder Management System
- Re-platform our web presence to allow better interactions with customers
- Streamline our Connections Management Process

### Projects and Capital Delivery

- Deliver an Integrated Project Management System (see case study)
- Enhance and digitise our Building Information Management System (see case study)

### Network Planning and Commercial

- Deliver tools to enhance insights into network performance
- Provide timely and relevant information to consumers connecting to our network

### Asset Management and Operations

- Improve our use of Real Time Data
- Develop a Digital Twin of our network (see case study)

### Enabling IT and Business Functions

- Create cross cutting capability improving data quality
- Deliver data and analytics tools and technologies for our business





## CASE STUDIES:

### Digitising to Deliver World Class Asset Management

In RIIO-T3 we will digitalise more of our asset management systems and processes building on the progress already made in RIIO-T2. This will provide staff with timely access to data to enhance operational efficiency and network resilience, and support data-driven investment decisions.

We expect our investments in this area will deliver long-term benefits for consumers:

- **Asset Management and Operations:** Over a 10-year period post implementation we expect a future cost avoidance of c£114m by optimising our asset management and operations.
- **Investment Optimisation:** An expected 10% efficiency saving across RIIO-T4 asset replacement and maintenance plan, resulting in a projected £80m efficiency benefit.

#### Example - Digital Twin

A prime example of where we are investing in RIIO-T3 is our Digital Twin initiative. A Digital Twin is a digital replica of real-world infrastructure; for us, this means a virtual representation, or model, of our assets and systems. Once established our models will be constantly updated with the latest available information, such as inspection and maintenance data.

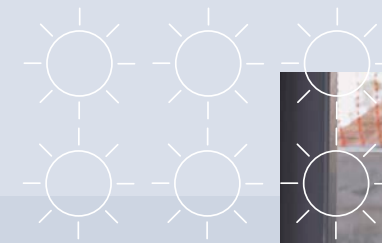
With our Digital Twins we aim to eliminate information-sharing barriers and enhance collaboration. In doing so we will provide

our asset management teams, control room operators, and project delivery teams with specific data and insights tailored to their roles.

#### Key benefits include:

- **Tailored views and solutions:** Customised interfaces for different user groups, ensuring access to relevant data and insights.
- **Remote accessibility:** Digital solutions that are accessible to remote workers via tablets and mobile devices, enabling field teams to access critical information anytime, anywhere.
- **Enhanced collaboration:** Facilitating seamless collaboration with third parties, by providing access to relevant data, and in doing so supporting broader network optimisation and resilience efforts.
- **Empowered decision-making:** Enabling asset management teams to quickly identify underperforming assets and make data-driven decisions to optimise performance and maintenance schedules.

Through the benefits above, we hope that investment in Digital Twins will drive efficiency gains, and safety improvements, across our projects' design, execution, and operational lifecycle. For more information see [Digital twins for the built environment](#).



### Digital Capital Delivery

In RIIO-T2 we invested in foundational digital capabilities for capital delivery through Building Information Management (BIM) and Integrated Project Management (IPM). In RIIO-T3, we will build on these foundations to support delivery of our multi-billion capital delivery programme on time and on allowance.

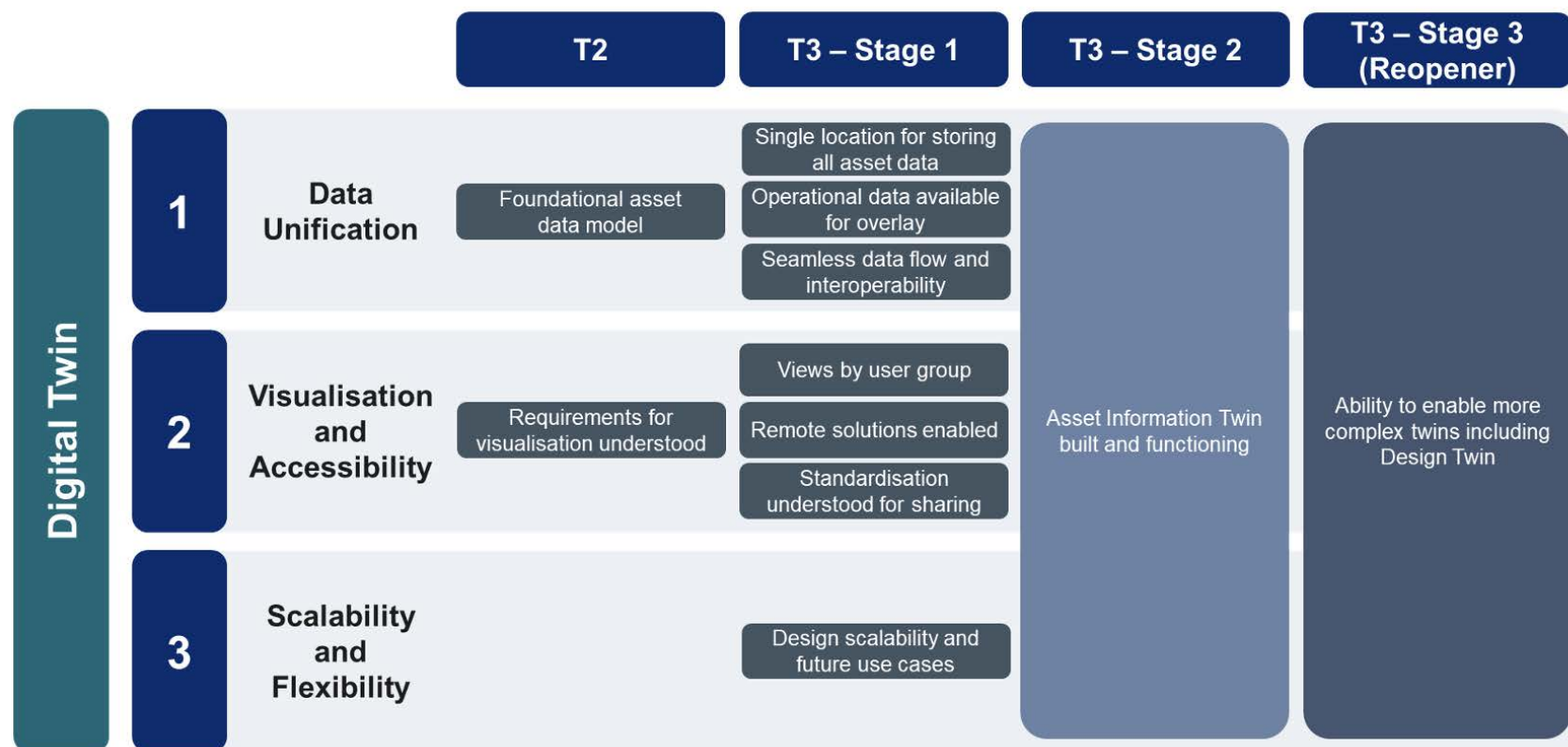
#### Key investments:

- **IPM:** Building out our IPM for deeper programme delivery risk analysis, scenario planning for schedule management, data sharing with and across teams. This will drive data-led decisions and improve reporting and analytics.
- **BIM:** Achieving BIM Level 3 maturity, across both project delivery and asset operations, adding Cost and Sustainability dimensions to our existing 2D and 3D design and scheduling information.

#### Benefits:

- **Enhanced collaboration and smooth information exchange:** Improved data sharing within SSEN Transmission and with third parties including supply chain and contractors
- **Increased visibility of live projects:** Better risk management, reduced delays, and more accurate cost and schedule forecasts.
- **Improved stakeholder engagement and management:** Timely updates and strong communication to boost trust and satisfaction.
- **Cost efficiency:** Anticipated resource efficiency through productivity improvements in our resourcing.

Digitised capital delivery will maximise consumer value by ensuring efficient and timely project completion, across all RIIO-T3 investments. Enhanced BIM maturity will also smooth the transition from capital projects to live operations, leading to long-term operational efficiencies.





# Protecting our Network and Our Business

## Driving responsible cyber resilience in a digital age

### Cybersecurity

Under the Network and Information Systems (NIS) Regulations 2018 we are designated as an Operator of Essential Services (OES). This designation brings with it a statutory responsibility to manage cybersecurity and cyber resilience effectively to minimise risks. In compliance with the NIS Regulations, we adhere to the National Cyber Security Centre Cyber Assessment Framework (CAF) and report our status bi-annually to Ofgem.

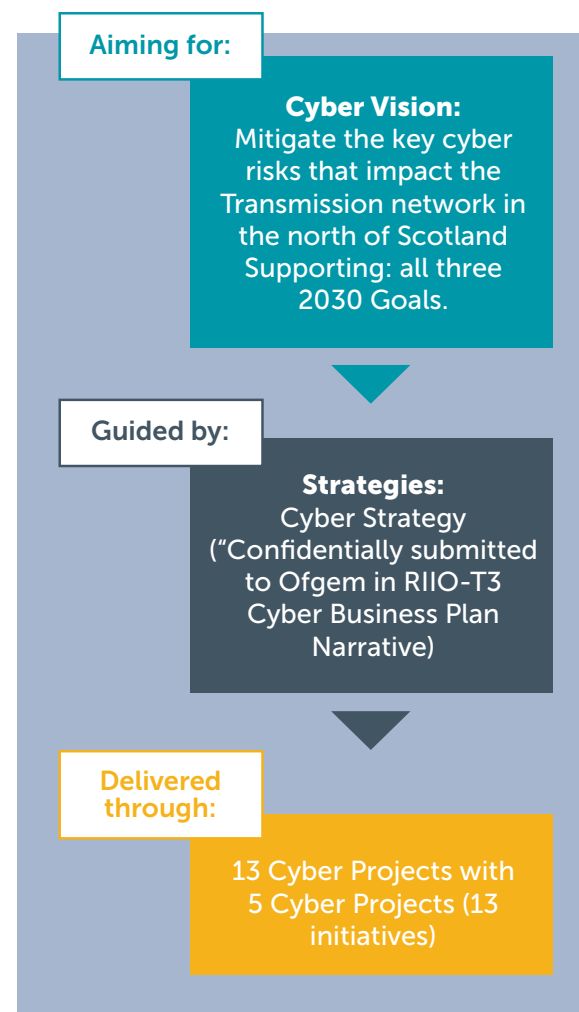
Our approach to cyber resilience is guided by our comprehensive Cyber Strategy which has been informed by experts, detailed in the confidential "RIIO-T3 Cyber Business Plan Narrative".

Our aim is to:

Mitigate the key cyber risks that impact the transmission network in the north of Scotland."

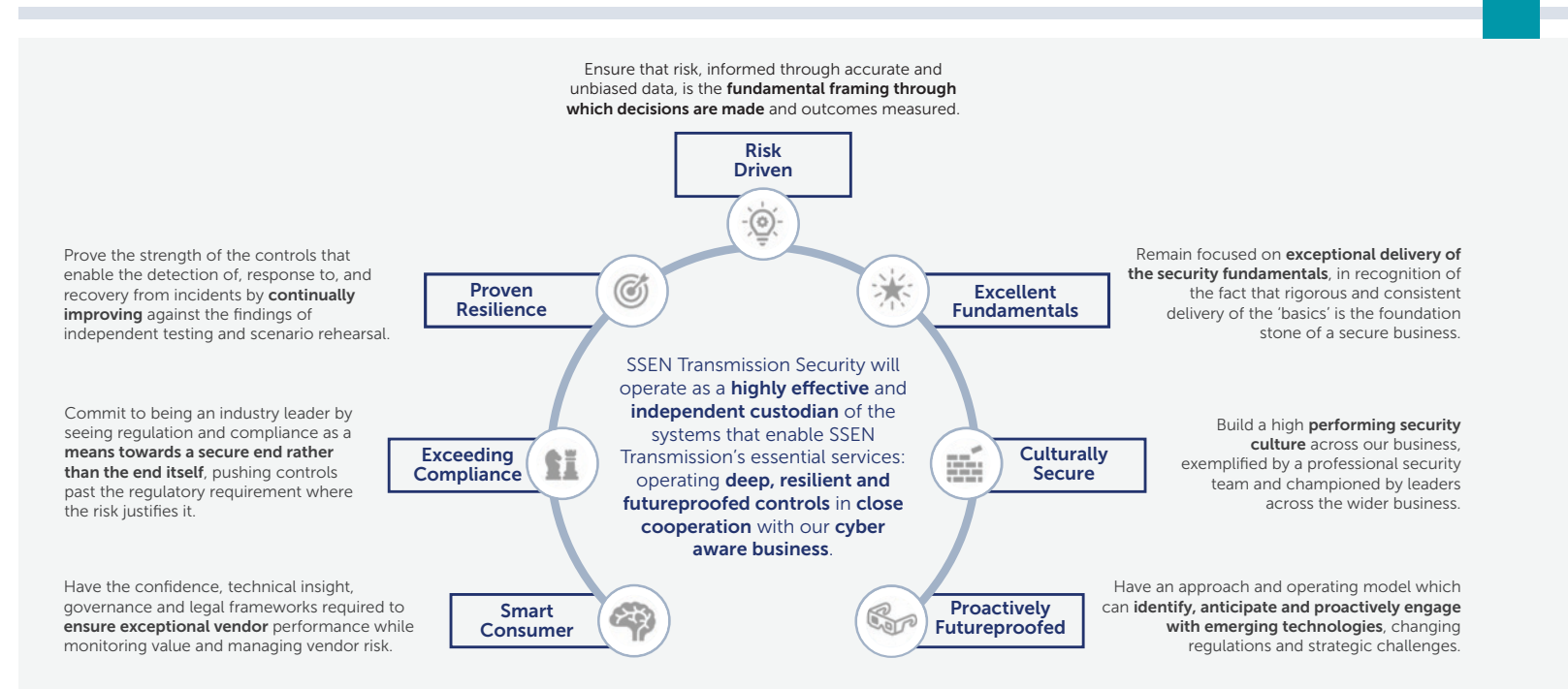
Achieving this requires not only compliance with the Enhanced Profile of the CAF, but also goes beyond compliance when our risk assessments justify it. This proactive stance ensures the robust protection of our network.

[Read more about the NIS Regulations here](#) and [CAF here](#).



## Cybersecurity Strategy

Figure 13: Cybersecurity Strategy



## Driving Cyber Resilience in a Digital Age

As our business continues to grow, so does our investment in cybersecurity. The evolving nature of our operations means that the consequences of a cyber-attack are now more significant than ever. A disruption could impact not just consumers, communities and the economy in the north of Scotland, but across GB.

With a more digitalised network, new threat vectors are emerging, and cyber-attacks are becoming increasingly targeted and sophisticated. Both Ofgem and consumers are demanding greater cyber resilience.

To address these challenges, we have developed a comprehensive, risk-based, and action-led strategy focused on four key response areas: security processes, security services, substation security and the separation of network.

This is illustrated in the infographic, over.



## Our Growing Business

Growing connected renewable generation from 10.6GW now to 26GW by the end of RIIO-T3 to over 40GW by 2050

Accelerated network growth and revised net zero targets

30+ new substations anticipated across RIIO-T3, via ASTI and RIIO funding

Almost double the B4 Boundary Transfer by the end of RIIO-T3

Scottish Economical National Power Outage costs of £1.2 bn per day

## Our Changing Business

Our business' tolerance for incidents affecting our critical services is reducing significantly

The regulator is enforcing more stringent requirements for our security across critical services through the NIS Regulations

Expanding our supply chain to take advantage of the best services and technologies is increasing our reliance on our vendors

## Escalating Threats

More sophisticated attacks utilising new technologies like Deepfakes, Artificial Intelligence and Quantum computing

Rising geopolitical tensions in Europe and the Middle-East, with many examples of state-sponsored cyber attacks on CNI

## What it means for Cyber in RIIO-T3

Our business is bigger and more critical

The regulator and consumers are requiring better resilience

Our business is becoming more digital

Threats are more sophisticated and more targeted

## How we are responding: our RIIO-T3 Cyber Resilience Portfolio

### Security Processes

- Better tracking of external threats to proactively protect the business as new and augmented risks materialise
- Strengthening vendor security and ongoing assurance to manage the risks across our expanding supply chain
- Carrying out detailed research and development into new technologies to control and govern their usage, enabling the business to benefit from their value
- Training Field Services teams to better identify and manage the increasing cyber risks across substations
- Improving how we respond to security incidents to reduce the impact of events occurring within our critical services

### Security Services

- Better, robust asset information, vulnerability tracking and patching to enhance the foundational controls we rely on
- Establishing comprehensive monitoring for security events across all systems and networks
- Expanding our Cyber Test Centre to assure the technology in critical environments like control rooms and substations

### Substation Security

- Segmenting the network across our substations to control communications across our OT Network, limiting the blast radius of isolated incidents
- Implementing security tooling at our substations, orchestrated through centralised services, to protect, monitor, and respond to threats across our substations
- Increased physical security across SSENT critical sites

### Network & Domain Separation

- Separating Transmission's operations and IT networks from other businesses to give us better control of the critical systems we rely on

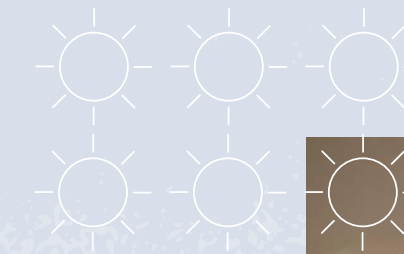
Detailed justification is provided in Cyber Justification Papers T3BP-CYB-001 to T3BP-CYB-013.



# 6. Team Transmission

It is people that will make the Pathway to 2030 happen and unlock the legacy of the energy transition.

As we have built our Business Plan, we have carefully considered the skills we need for efficient delivery. From this, we have acted to put in place detailed workforce resilience plans for SSEN Transmission and supported our critical supply chain partners to do the same.





# The Pathway to 2030 workforce

The Pathway to 2030 requires a significant change in the electricity transmission workforce in the north of Scotland and beyond, continuing the journey we started in 2020.

The workforce will continue to need to grow – to build and then to operate a larger grid that is increasingly important to people's daily life as we transition to clean power. The growth in the workforce will be required both for SSEN Transmission – our directly employed colleagues – and in our partner organisations particularly the manufacturing and construction supply chains.

The workforce will continue to need to change – as the electricity system becomes more flexible in its operation, requiring new grid technologies to be built and maintained, and data and digital tools are adopted. These changes will impact upon the skills required in the workforce – impacting both future employees (perhaps transitioning from the high carbon sector) and colleagues that are already working.

As an employer, we also continue to need to change. We need to support our workforce and to adapt to the changing expectations of the workplace. This means a continual effort to listen to our colleagues and maintain an inclusive, diverse, welcoming and engaged workplace where differences of opinion and thought are encouraged.

The growth of the workforce requires more than recruitment, it requires a focus on retention, training and development, upskilling and reskilling, leadership programmes, early careers pipelines, employee voice, workplace inclusion ... a comprehensive strategy to achieve A Healthy, Happy and Safe Workplace.

Our **Workforce Resilience Strategy** sets out detailed action plans across our four People Ambitions for RIIO-T3:



A Healthy, Happy and Safe Workplace



One Inclusive and Engaged Team



Right People, Right Skills



Empowered Inspirational Leaders

## Strategic Workforce Planning

Strategic workforce planning starts with a thorough understanding of the future work programme across all business activities and the uncertainties that might impact that programme.

During the RIIO-T2 period, we have developed an integrated strategic workforce planning tool upon which this Business Plan is based. Leveraging Power BI, the tool forecasts resources required based on our committed and forecast capital investment programme, historic business metrics and a database of role profiles. From this, we can derive forecast skills requirements adjusted for staff turnover rates and conversion from our pipeline programmes.

The output of this tool is developed through monthly performance reports and regular directorate discussions that, in turn, builds in productivity changes (for example, due to the digital programme). Key insights from the tool are:

**Timing** of skills needs whereby planning and design expertise is required several years in advance of construction and operational requirements. Back-office function growth also happens in advance of asset growth.

Potential **skills shortages** in HVDC Engineers, Protection & Control Engineers, Power System Engineers, Land Management Specialists, Consents and Environment Advisors, Mega Project Managers, Site Managers, and Digital and IT professionals.

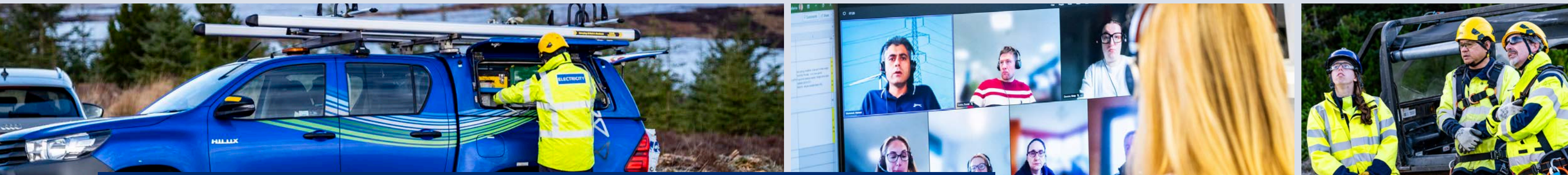


Ofgem defines our people-related costs as two types:

**Closely-Associated Indirects (CAIs)** are for employees and their related expenditure that support the planning and development of the network. This includes the people involved in construction.

**Business Support Costs (BSC)** are for back-office functions such as Finance; Risk, Audit and Assurance; Legal; Regulation; HR; IT; Corporate Affairs; Property Management; Telecoms; and IT. As part of the SSE plc Group, we use central SSE Group BSC services which allows us to benefit from economies of scale and gain access to expertise as and when required at a reduced cost.





# A Resilient Workforce Fit for the Future

## Right People, Right Skills

Our action to establish a resilient workforce for the Pathway to 2030 is already well underway. In 2019, we undertook a major organisational design review and refreshed this in 2023-24. Through this, and using insights from our Strategic Workforce Planning tool, we have invested to grow our workforce from around 700 at the start of RIIO-T2 to around 3,000 by the end (Figure 14). At the same time, we established more than ten programmes for new recruits – from early careers (graduates, apprenticeship, trainees) to reskilling programmes (STEM returners, oil & gas transition) – and more than tripled expenditure on learning and employee development across all disciplines and at all stages in employees’ careers.



In September 2024, our employees gave us **89%** favourable rating as a Great Place to Work, 8% higher than the utility sector norm.

Our RIIO-T3 [Workforce Resilience Strategy](#) continues this journey. We expect to grow our employees by another 1,000 people and take another step-up in training and development with our Transmission Training School. Our workforce focus during RIIO-T3 will be in construction, as well as ensuring we have the skills for future safe operations. By the end of RIIO-T3, our people-related costs will be the same proportion of our asset value as it was in RIIO-T1 (Figure 15). We remain closely engaged with key partners – our supply chain, other TOs, trade unions and academic partners, alongside Government – to stay ahead in planning for the workforce of the clean power grid.



## Working with our Supply Chain Partners

Early engagement and contracting with the supply chain has been central to our approach to delivery of the Pathway to 2030. For many of the investments set out in our RIIO-T3 Plan (including ASTI) we already have secured supply chain agreements. By reaching early agreement we have unlocked the supply chain ability to confidently invest in the people and skills needed for delivery. Joint forums are in place to maintain a co-ordinated effort across all parties.

Figure 14: Headcount T1 to RIIO-T3

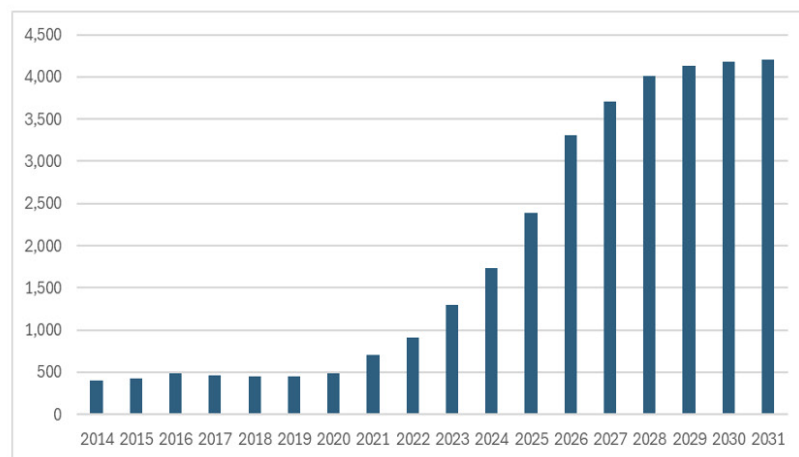
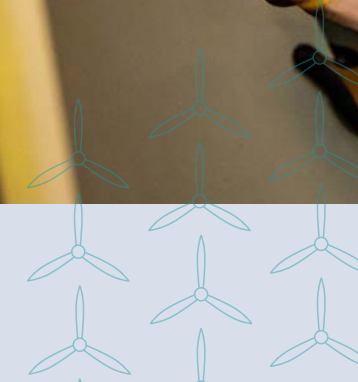
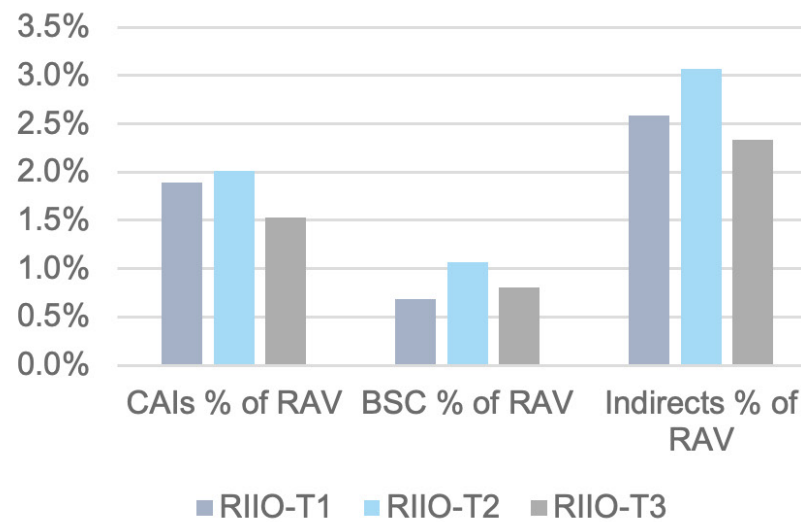


Figure 15: Overheads as % of RAV





# Case Studies: Developing our Pipeline and Strengthening our Skills



## The 5% Club

The 5% Club is an organisation of employers that aspire to achieve 5% of their workforce in 'earn and learn' positions (including apprentices, sponsored students and graduates on formalised training schemes) within five years of joining.

The annual Employer Audit undertaken by the 5% Club analyses our graduates, apprentices and trainees data, and examines our approach to quality, social mobility, diversity and inclusion. The Audit informs research and benchmarking, from which we gain valuable insight on our approach to workplace learning.

Our commitment to the 5% Club is part of our People Strategy ambition: **Right People, Right Skills**. Investing in the skills of future generation is essential to achieving the energy transition.



[Read more about The 5% Club here](#)

## Transmission Training Centre

We need skilled professionals to safely and efficiently build, operate and maintain the GB transmission network. As the network grows on the Pathway to 2030, the number of people working will grow. In addition, the tasks will change as new grid technology is deployed and we digitise our operations.

During the RIIO-T3 period, we will establish a new state-of-the-art facility to deliver bespoke training programs that authorise staff to work on our network assets and train our staff on technical and operating procedures and health and safety protocols. This facility will serve as a centralised hub for our employees and supply chain partners ensuring we are ready to deliver our 2030 Goals.

The Transmission Training Centre is part of our People Strategy ambitions: **Right People, Right Skills and One Inclusive and Engaged Team**. It will sit alongside our existing specialist training capability at the National HVDC Centre.





# 7. Working With Our Stakeholders

**One of our five strategic focus areas set out in our Business Strategy is “Working with our customers and stakeholders”, where we aim to be at the forefront of stakeholder engagement practices and the transmission owner of choice for low carbon developers in the UK.**

A thorough understanding of stakeholder needs and expectations of us and our network has been gathered through ongoing relationship-based engagement and gathering of insight and feedback in the development of strategies that will apply during the RIIO-T3 period and beyond.

Our stakeholder-led strategies have defined our plan’s content, with expert challenge and benchmarking ensuring ambitious and efficient targets and outcomes.

Given the scale of infrastructure to be delivered in the RIIO-T3 period, we are necessarily adopting new approaches in our engagement, digitally enhancing the customer and stakeholder experience, and increasing partnership approaches.

## Statement from the Independent Stakeholder Group (ISG)

The Independent Stakeholder Group (ISG) has been operating throughout the period of the development and preparation of the RIIO-T3 Business Plan. We have held regular meetings with the senior leadership and executive team members. We have also met with the SSEN Transmission Board members, in particular the Chair and the Non-Executive Director with a specific focus on customer and stakeholder engagement. We have had ready access to business information, stakeholder engagement feedback and independent sources of information to verify the data used in the plan in support of service, cost and performance information. We have also undertaken site visits. In all aspects, we have been able to fulfil the scope and purpose of the ISG as set out in our Terms of Reference.

The Business Plan, in our view, meets the conditions set out in the Ofgem RIIO-T3 Business Plan Incentive, Stage A (minimum requirements). The current delivery profile of RIIO-T2 business plan outputs provides confidence that the commitments and performance outputs set out in the RIIO-T3 plan are targeted and deliverable. Our engagement with the company has been a positive, well informed experience with open dialogue across a range of topics that tested the robustness of the business planning process.

The basis of the Business Plan is to enable delivery of FES 2024. Furthermore, this plan details ambition to enable the additional investment required to continue delivery of decarbonisation and energy security requirements beyond 2030. The Plan also sets out environmental performance commitments which the group views as ambitious.

Our detailed feedback on the Business Plan, in particular those elements referred to in the Business Plan Incentive, Stage C, will be set out in our response to Ofgem’s Call for Evidence.







# Our Approach to Stakeholder Engagement

**Aiming for:**

Keeping stakeholders at the heart of our business and decision making

**Guided by:**

Stakeholder Engagement Strategy

**Delivered through:**

**Tailored and meaningful engagement:**

- As our business has scaled up to enable us to deliver in line with accelerated timelines required to meet the UK Government's net zero and energy security targets, so too has the need for even more effective and impactful stakeholder engagement.
- Our **Stakeholder Engagement Strategy** sets out our approach in detail and is assured on an annual basis against AccountAbility's AA1000 Stakeholder Engagement Standard where we are in the top advanced category for all pillars. Our approach is fully aligned with the AA1000 principles of 'Inclusivity', 'Materiality', 'Responsiveness' and 'Impact'.
- This Strategy is integrated into our everyday activities to build meaningful two-way engagement and long-term relationships to guide decision-making. This takes place through a continuous, iterative process of engagement as well as hosting structured stakeholder events
- We regularly undertake Stakeholder Mapping against an influence/impact matrix to ensure wide-ranging inclusive stakeholder participation is achieved. Our key stakeholder groups are listed on this page.
- In addition to one-to-one and relationship-based engagements, we undertake multi-party engagement activities which are promoted extensively through a variety of channels to increase accessibility and to encourage stakeholder participation and feedback. This includes workshops, working groups, briefings, media campaigns, community and business events and forums, topic-based public engagements and consultations, surveys, newsletters and subject-focused webinars.
- We deliver engagement at scale across our network area with over 50 ASTI and 22 RIIO-T2 project consultation events undertaken as early and pre-consent engagement for projects entering consenting in 2025, with around 4,500 attendees attending these events.



	<p><b>Communities</b></p> <ul style="list-style-type: none"> <li>Local residents</li> <li>Businesses</li> <li>Community organisations</li> <li>Schools and colleges</li> <li>Emergency and healthcare services</li> </ul>		<p><b>Industry, suppliers and partners</b></p> <ul style="list-style-type: none"> <li>Transmission system operators and owners</li> <li>Distribution network operators and owners</li> <li>Supply chain including contractors and original equipment manufacturers</li> </ul>
	<p><b>Government bodies and Statutory Consultees</b></p> <ul style="list-style-type: none"> <li>UK and Scottish Governments</li> <li>Local authorities</li> <li>Elected Members</li> <li>Industry regulators</li> <li>Statutory consultees</li> </ul>		<p><b>Customers</b></p> <ul style="list-style-type: none"> <li>Energy generators and producers</li> <li>Large demand customers and battery storage developers</li> <li>Distribution network operators</li> </ul>
	<p><b>Traditional and Digital Media</b></p> <ul style="list-style-type: none"> <li>Local and national media outlets and audiences across social media platforms</li> </ul>		<p><b>Internal stakeholders</b></p> <ul style="list-style-type: none"> <li>Employees</li> <li>Embedded contractors</li> </ul>
	<p><b>Investors</b></p> <ul style="list-style-type: none"> <li>SSE plc shareholders</li> <li>Ontario Teachers' Pension Plan Board</li> <li>Debt Providers</li> </ul>		<p><b>Special interest groups</b></p> <ul style="list-style-type: none"> <li>Landowners</li> <li>Think tanks and research institutions</li> <li>Environmental NGOs</li> <li>Consumer advocacy groups</li> <li>Housing organisations</li> </ul>





# Approach to Stakeholder Engagement: Business Plan

Engagement, collaboration and information sharing with our stakeholders as we developed our Business Plan, ensures our decisions are well-informed and aligned with stakeholder needs and expectations

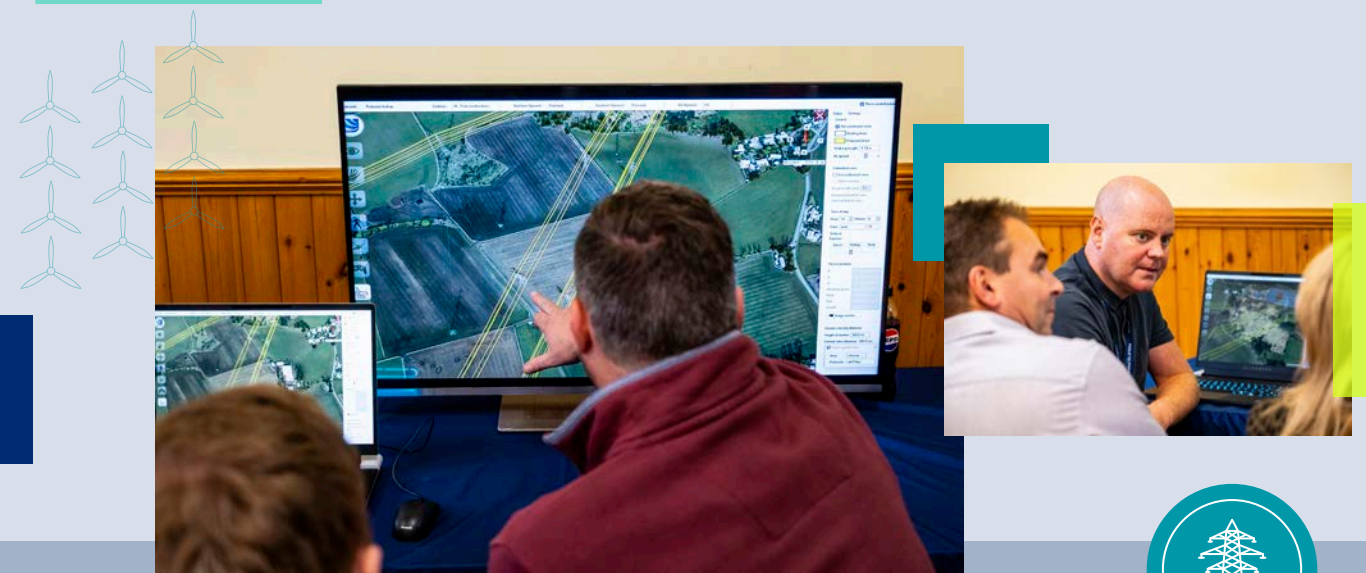


- The **policy and regulatory landscape** have significantly changed since RIIO-T2, driven by the push for energy security and acceleration of net zero. Most of our planned investments during RIIO-T3 are now approved outside the traditional Price Control framework, aligned with these targets and goals. The engagement associated with those approvals also happens outwith the business plan process.
- **Stakeholder engagement and feedback** has informed the development of the strategies which have underpinned the development of our RIIO-T3 plans. These strategies respond to evolving contexts, stakeholder needs, expectations and standards and have then been applied to decisions on investments and projects.
- Engagement and **collaboration with industry experts**, including benchmarking and insight for setting metrics, helped test our level of ambition and shape our commitments. This includes specialist areas such as Cyber Resilience and Sustainability, and customer insights applied in our **Load Strategy**.
- **Public engagement has focused on informing and communicating** given the context of network transformation and the fact that the approval of need for most of the planned investments during RIIO-T3 falls outside the traditional Price Control framework. Due to the current stage of project development, engagement on specific projects included in the RIIO-T3 plan will mostly be taking place from 2025 in line with our Project Development Process.
- We **track our engagement** as part of established business processes, and quarterly engagement with our 75 highest influence/impact stakeholders has been at least 98% every month throughout the development of our RIIO-T3 plans, with T3 related topics included in these discussions.





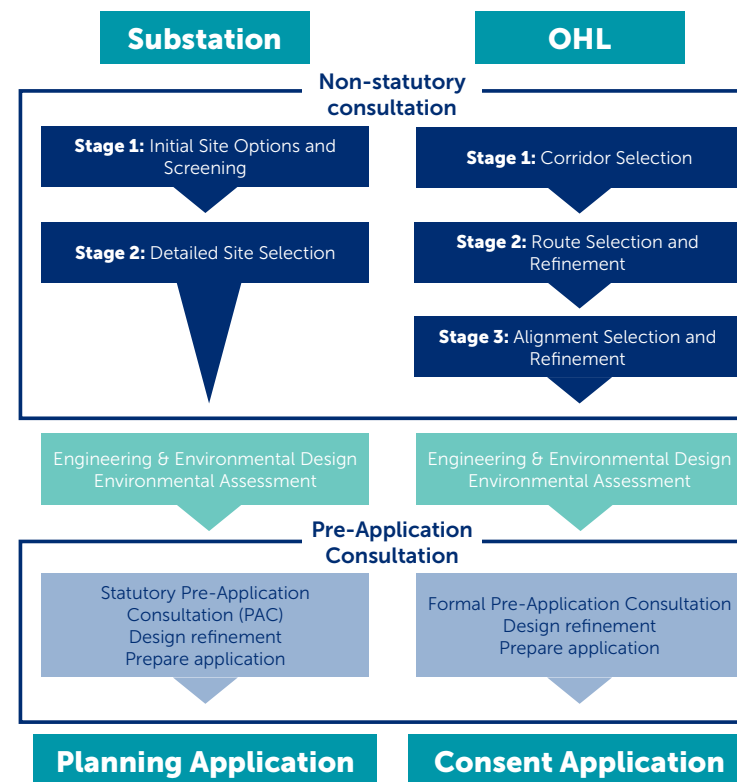
# Approach to Stakeholder Engagement: Projects



- **Clean power ambitions drive project need for load related investments:** Our stakeholder-led **Load Strategy** determines what is required to meet this need for increased capacity and to ensure safety, reliability and resilience on our existing network. We do not consult on the need for strategic projects as this is determined by NESO, with no scope for stakeholders to influence need decisions by the stage projects are handed over to us by NESO.
- **Investments are informed by customer need:** Our Customer Experience Team engages regularly with customers on new infrastructure (Load) and resilience (Non-Load) projects, ensuring that projects developed reflect the latest customer requirements. During project development and delivery, the Customer Experience team provide a consistent interface for customers.
- **Non-load requirements are influenced by our stakeholder-led Asset Management Strategy:** We do not consult on the need for non-load related projects as the need is determined by stakeholder expectations of safety, reliability and resilience, applied through our [Network Asset Management Strategy](#).
- **Project engagement:** Once the need is confirmed, our approach to stakeholder engagement on projects follows our existing Project Development Process which applies to all projects, not just RIIO-T3 projects.
  - **Establish the scope and influence** available to stakeholders by first establishing whether a project has a material impact. A material change, such as new infrastructure or a substantive change to existing provision, requires engagement with stakeholders at the appropriate time in the project development process.
  - **Engage at the earliest opportunity** with potentially affected stakeholders including landowners and other stakeholders to identify options.
  - **Create open and constructive dialogue** with stakeholders to adapt our plans and strategies to minimise any adverse impact and maximise benefits. We strive to achieve mutually agreed outcomes while balancing technical and environmental constraints by building trust, and by understanding the local social, environmental and economic impacts from our projects.
  - **A tailored approach to project engagement** is taken depending on project's specific needs, location and audience. RIIO-T3 projects currently in development will begin **public engagement in early 2025**, undergoing a significant amount of pre-application engagement and consultation prior to entering into the statutory planning process. The UK Government is currently consulting on making pre-application engagement a requirement of the planning regulations in Scotland, formalising the requirement to undertake this early engagement to achieve consent.

Figure 16: SSEN Transmission project development process

## Project Development Process Stages



## Approach to stakeholder engagement at each Project Development Process Stage



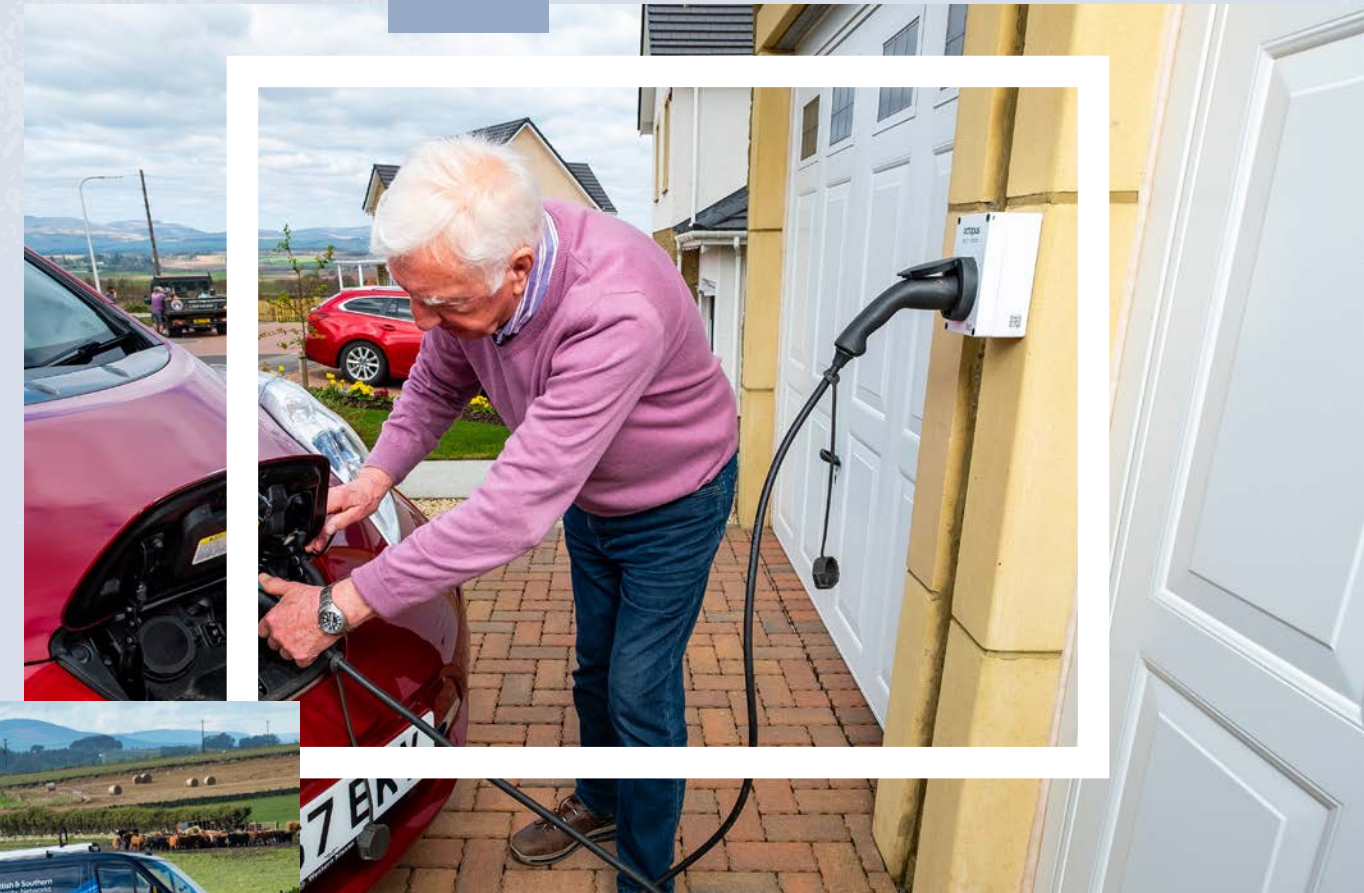


# 8. Consumer Energy Costs and Value for Money

The energy transition holds the opportunity to protect consumers and businesses from the volatility of expensive imported gas and reduce energy costs, and there can be no transition without transmission.

We aim to accelerate the transition and these benefits through swift project delivery.

We also aim to create a lasting positive legacy, and to innovate to drive competitive advantage. By doing so, we strive to provide exceptional value for money for consumers throughout this vital transition.





# Delivering for Consumers

## Our plan is aligned to government climate policy and delivers value for consumers

As a sustainable network operator, part of the SSE plc Group, we seek to deliver for consumers and create value for society through our strategy to enable the UK's energy transition. Underpinned by a long-term commitment to the principles of Fair Tax and a real Living Wage, our focus on communities and stakeholders, has earned us recognition for our industry-leading sustainability credentials.

Furthermore, we believe that addressing the energy trilemma – balancing energy security, affordability and climate action – is critical. Our RIIO-T2 Plan has set us on that path and our RIIO-T3 Plan, along with other investments, continues our journey towards net zero, but also enhances energy security and resilience, which in turn are supporting consumer affordability.

We have assessed the impact of our investments over the RIIO-T3 period on the transmission element of consumer bills up to 31 March 2031. However, the transition to net zero extends beyond the RIIO-T3 period into the 2040s. Therefore, we have undertaken extensive analysis of total consumer energy costs through to 2060.

This analysis, illustrated in Figure 17, incorporates Ofgem's price cap calculation, the regulatory calculations for electricity transmission and distribution, gas transmission and distribution, and future wholesale costs, and the NESO's Future Energy Pathways. We have utilised the Holistic Transition Pathway as the basis for modelling the impact on consumer bills.

**This modelling calculates the total cost of energy for GB divided by the number of domestic consumers i.e. it is the average cost of energy, and consumer bills will vary by consumer and over time. We refer to this as average consumer energy costs throughout this section <sup>1</sup>.**

It is based on a potential scenario for all the inputs associated with energy costs to consumers. Importantly, it includes transport costs i.e. petrol/

diesel costs. In the Holistic Transition Pathway, it is assumed electric vehicles will come to dominate, so including transport costs is necessary to compare energy consumers and energy costs on a like-for-like basis.

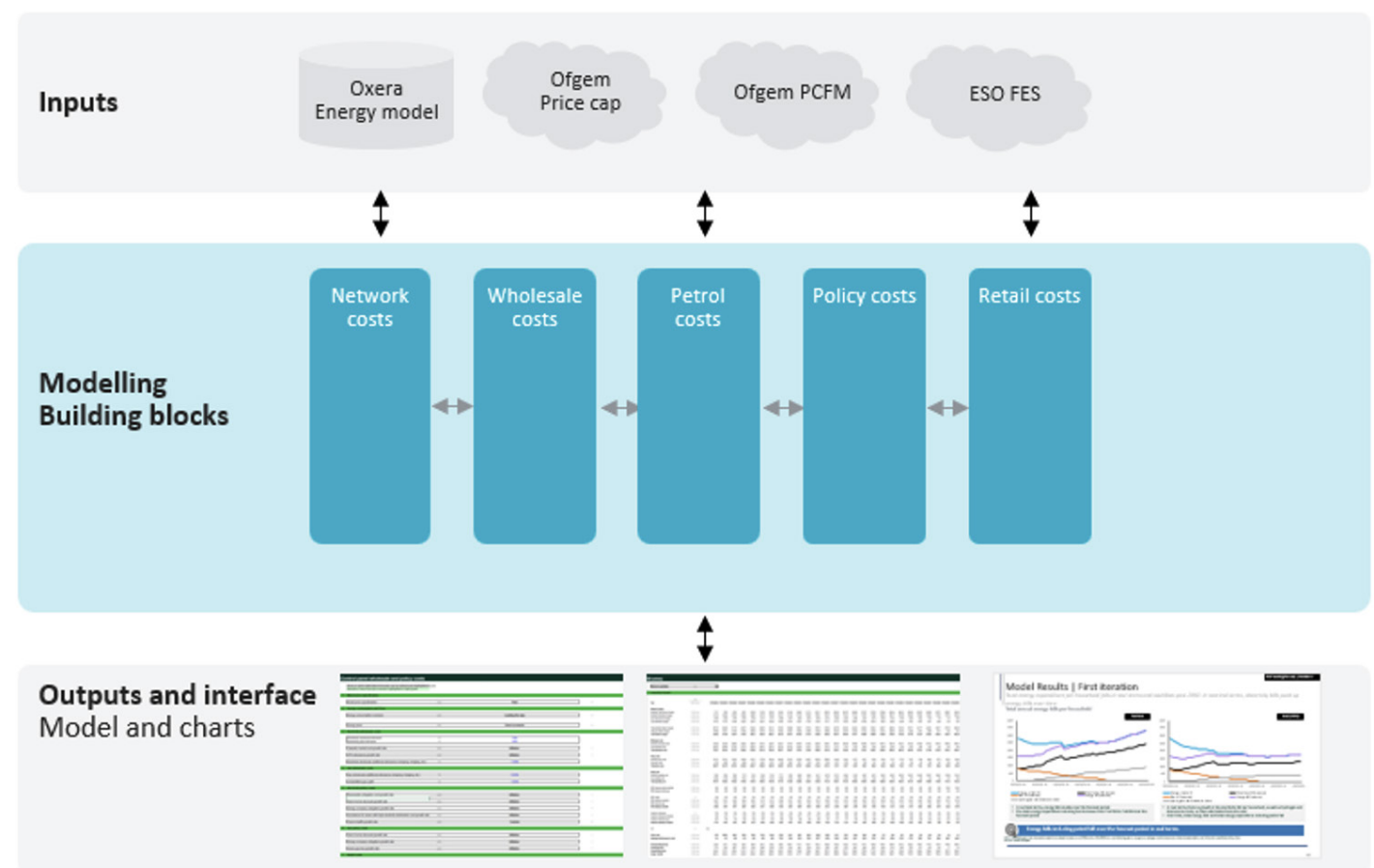
These building blocks of the model are used to understand the trends in average consumer energy costs over time including transport fuel costs. This analysis excludes constraint costs, which adds to the average electricity consumer bill, although the value varies annually. It is clear from analysis by the NESO in its Clean Power 2030 pathways <sup>2</sup>, that the benefit from delivering planned network investment in terms of reducing constraint costs will be significant. It is therefore highly likely that the consumer energy costs will in reality be lower than is implied by our analysis.

Note that we are not advocating for specific energy policies and the model is not intended to imply otherwise. Nor have we sought to predict potential changes to power prices as a result of energy market reform or wider policy changes.

<sup>1</sup> We have chosen to refer to this as "energy costs" rather than "energy bills" because it represents the total energy costs averaged across consumers. Our calculations have been calibrated against the Ofgem price cap for October 2024 to ensure they accurately reflect what the average consumer charges might be. Since each consumer has different consumption patterns and energy mixes, individual charges will vary.

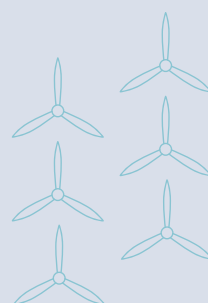
<sup>2</sup> [Our Clean Power 2030 advice to Government | National Energy System Operator](#)

Figure 17: Consumer energy costs modelling framework



We have modelled consumer costs based on the following headline assumptions:

1. Investment across electricity and gas networks.
2. Proposed financial parameters over RIIO-T3 continuing into future price controls.
3. Gas network assets being fully written off by 2050 in line with the FES 2024 Holistic Transition Pathway.
4. Policy costs remaining static based on Ofgem's October 2024 price cap calculations.
5. Retail costs remaining static based on Ofgem's October 2024 price cap calculations.
6. Other assumptions on demand and generation are based on the Holistic Transition Pathway only.
7. Accounting for inflation using CPIH but also calculated energy costs ignoring inflation.



# Achieving Net Zero Could Reduce Consumer Energy Costs by over 30% in the Long-term

Based on the NESO Holistic Transition Pathway, consumer energy costs could be over a third less in the long-term than today based on reasonable assumptions

Our analysis details potential changes to energy costs over several decades.

Figure 18 illustrates the long-term trend in consumer energy costs based on the above assumptions as we transition to net zero. The exact development may vary due to factors such as consumer demand, government policy, power prices, the scale of investment, technology, and regulatory decisions.

When considering various factors, the profile of energy costs and the end point in 2050-2060 could vary significantly. As a result, we have tested the sensitivity of the modelling to power prices, gas prices, consumption, technology efficiency, network investment, and regulatory factors such as the cost of capital (see page 55). Our analysis shows consumer energy costs, in real prices, could be as much as 50% lower than today by 2050. However, given the uncertainty around all factors, we believe that consumers' energy costs should fall by at least 30%.

Figure 18: Consumer energy costs over the period to 2060 (real prices)

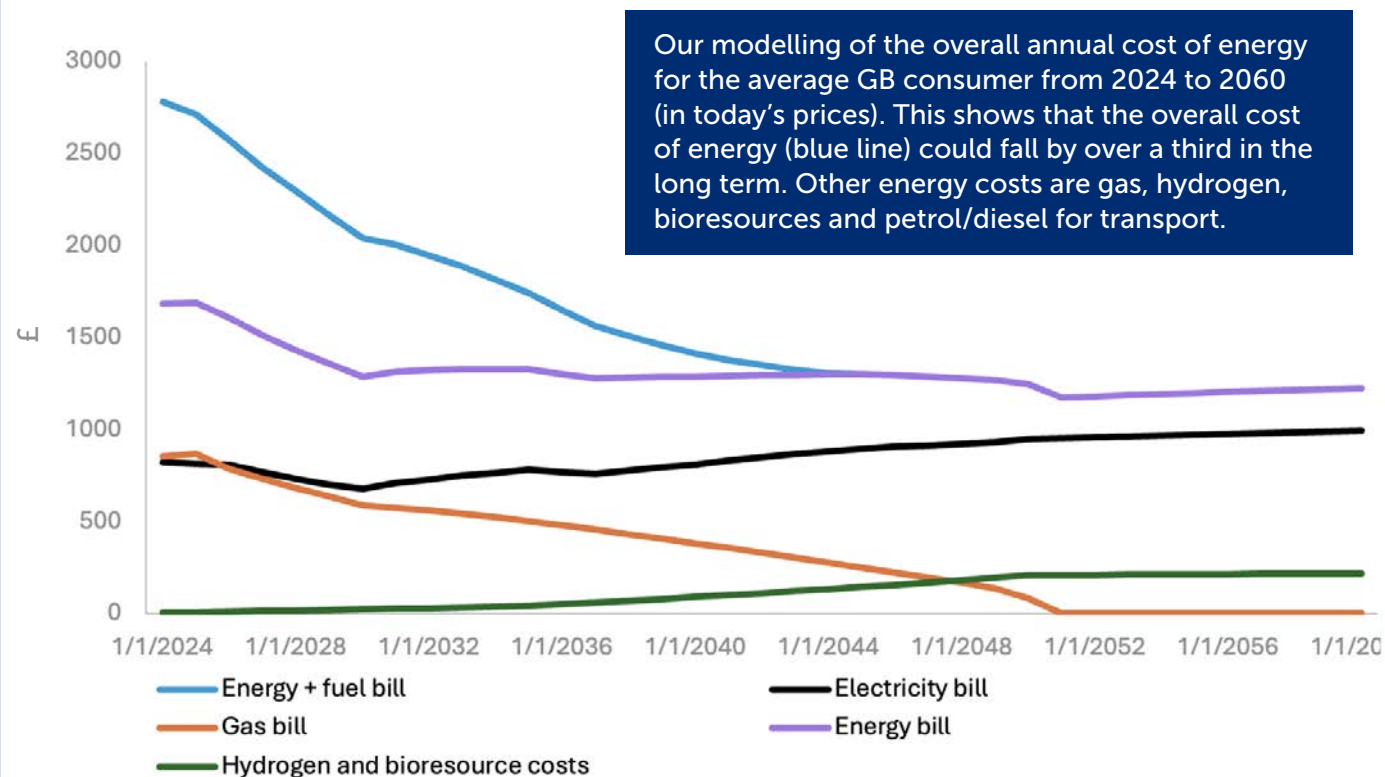


Figure 18 does not account for inflation increases over time (i.e. it is in real prices), although we have considered it using the Bank of England targets as part of our modelling to understand future energy costs after accounting for inflation<sup>1</sup>. When modelled, the long-term impact of the energy transition on consumer energy costs appears as a smooth trend line, however in practice, it may be experienced less evenly. Those consumers who switch to electric vehicles and electric heating may experience a quicker transition, assuming stable energy bills without fossil fuel volatility. We have not modelled prolonged spikes in energy wholesale prices as we observed in recent years.

This analysis assumes that all consumers will eventually switch away from (methane) gas<sup>2</sup>, and hydrogen becomes a part of the energy mix alongside the increase in electrification. This will create distributional differences between consumers who remain on gas for longer instead of electricity. With fewer consumers using gas, the costs will be spread over a smaller base, increasing the cost for those still using gas boilers once most of the UK has transitioned to electricity.

## Policy adaptations required to predict and pre-empt unintended consequences

This analysis can inform Government policy and charging reforms by examining the overall impact on consumers and each cost component of their energy consumption. While we do not propose specific measures for the Government and Ofgem to address these distributional effects at this time, we recognise this is important to consider, especially for vulnerable consumers. We believe this discussion is essential to ensure a just and fair transition.

The displacement of higher-cost fossil fuel production with lower-cost renewables sources relies on generators, network operators, and technology suppliers to deliver investments supported by government policies and industry regulation. Accelerating the transition to net zero benefits consumers and addresses the energy trilemma. Ensuring a just and fair transition is crucial, alongside fostering economic growth, creating new jobs, and leaving lasting community legacies.

We are acutely aware that looking beyond the average matters, and consider different consumer archetypes, such as those consumers who can switch to electrification compared to those who cannot, and identify how we adjust to ensure the transition to net zero is efficient and fair and there are adequate protections for vulnerable consumers. "Who pays" matters. Resolving this requires careful thought, engagement, and policy development, including energy charging reform. We have not proposed specific policy adaptations to address these distributional and timing challenges on consumers but continue to advocate for consideration of a wider review of energy charging and other energy policies that can balance these charges.

<sup>1</sup> When assuming a steady state inflationary increase in line with the Bank of England targets for CPIH, the nominal cost of energy averaged over total consumers is around 10% lower in 2050 compared to today.

<sup>2</sup> Any reference in this section to consumers moving away from gas means methane gas.



# There is No Transition Without Transmission

## Transmission network costs increase over the period to 2031 but enable a reduction in constraint costs and enable lower energy costs in the long-term

Achieving net zero globally will require hundreds of billions in electricity transmission and distribution investments. This investment enables renewables to be transported across the UK, and the scale of investment will run into tens of billions, inevitably impacting consumer electricity bills. Over time, electricity transmission costs will increase and become a larger proportion of these bills. Figure 19 illustrates potential changes in electricity and gas network costs based on the Holistic Transition Pathway.

**Total GB electricity transmission costs are expected to rise from around £45-50 to £110-130 per consumer per year in the early to mid 2030s.** This increase, driven by significant investment and factoring in inflationary increases, will displace higher fossil fuel production costs and therefore the net impact on consumer bills will be lower and over time, result in lower energy costs to the consumer. As outlined above, although not modelled here, this benefit is even more pronounced when considering the displacement of constraint costs, which currently cost consumers billions of pounds per year <sup>1</sup>.

Our assumptions are balanced, and we welcome feedback from stakeholders, including consumer and industry representatives, Government and Ofgem. A fully evidenced debate will support a clear understanding of consumer costs and the distributional impact over the long term.

Figure 20 shows the potential changes in electricity bills noting that consumers no longer have costs for gas or for fossil fuel transport as those costs have transferred into their electricity demand. The rise in costs is driven by consumption not the unit cost of energy. This average includes all consumers, with the Holistic Transition Pathway assuming a proportion of consumers use other fuel sources rather than solely electricity as their energy source.

Despite the significant investment in network infrastructure, our modelling shows consumers will see a material saving on their total energy costs over the longer term. Increased electricity demand from electrification offers a cleaner energy course than combustion, and with lower-cost renewable energy, domestic electricity bills are expected to remain relatively flat over the period. This demonstrates the value to consumers of transmission investment, and the displacement of higher fossil fuel powered generation costs with more affordable low carbon, renewable generation costs this investment enables.

<sup>1</sup> [Our Clean Power 2030 advice to Government | National Energy System Operator](#)

Electricity bills are driven primarily by **increases in consumption** from electrification whereby the price per MW/h falls slightly before being relatively flat over the period to 2050. This reflects the shift from fossil fuels for domestic energy consumption and for transport.

Figure 19: Potential energy network costs (real prices)

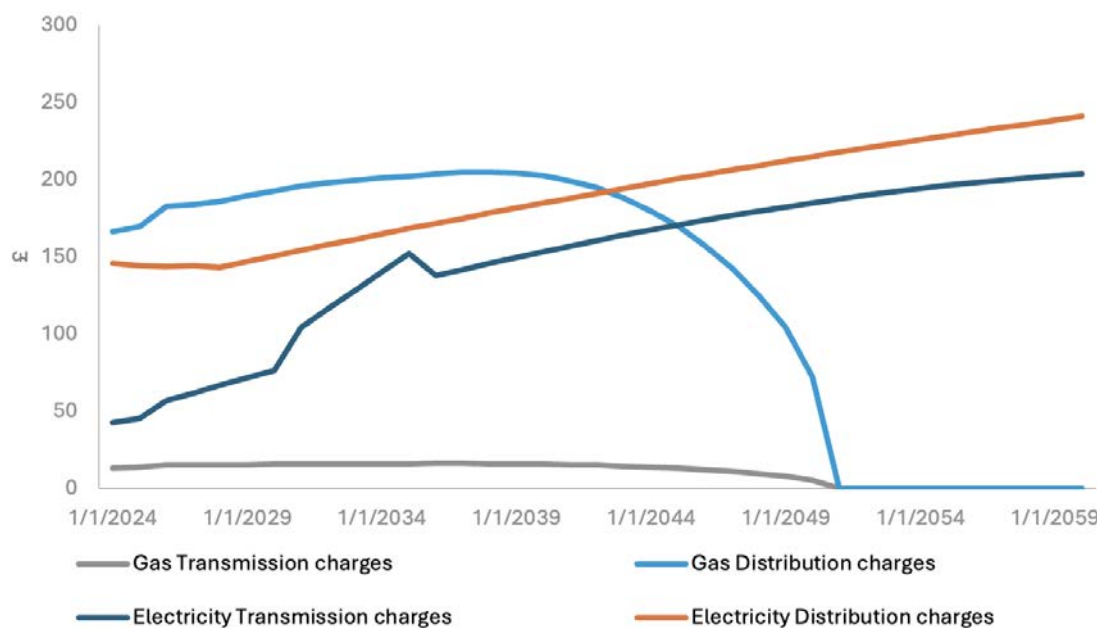
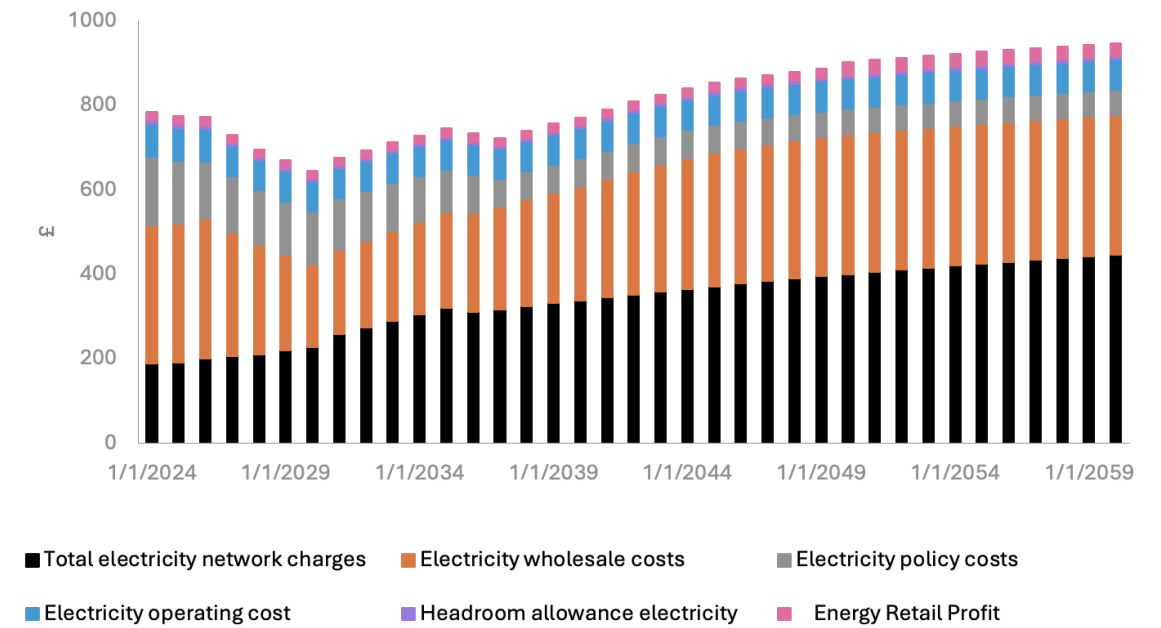


Figure 20: Breakdown of consumer electricity costs (real prices)





# Energy Costs are Likely to be Lower Under a Range of Scenarios

Energy costs are robust to relatively material changes in cost inputs, including power prices, network investment, and consumption patterns

To stress test the model, when reviewing all the potential inputs, instead of proposing alternative scenarios of investment or wholesale costs or indeed creating a new FES, we examined the impact of a 20% increase in each input over the long-term. This covered factors such as investment costs of electricity transmission or distribution, and wholesale energy prices. Figure 21 illustrates what the net impact on energy costs from each factor from that 20% increase. We have only shown the largest factors which affect total energy costs by more than 1.5%.

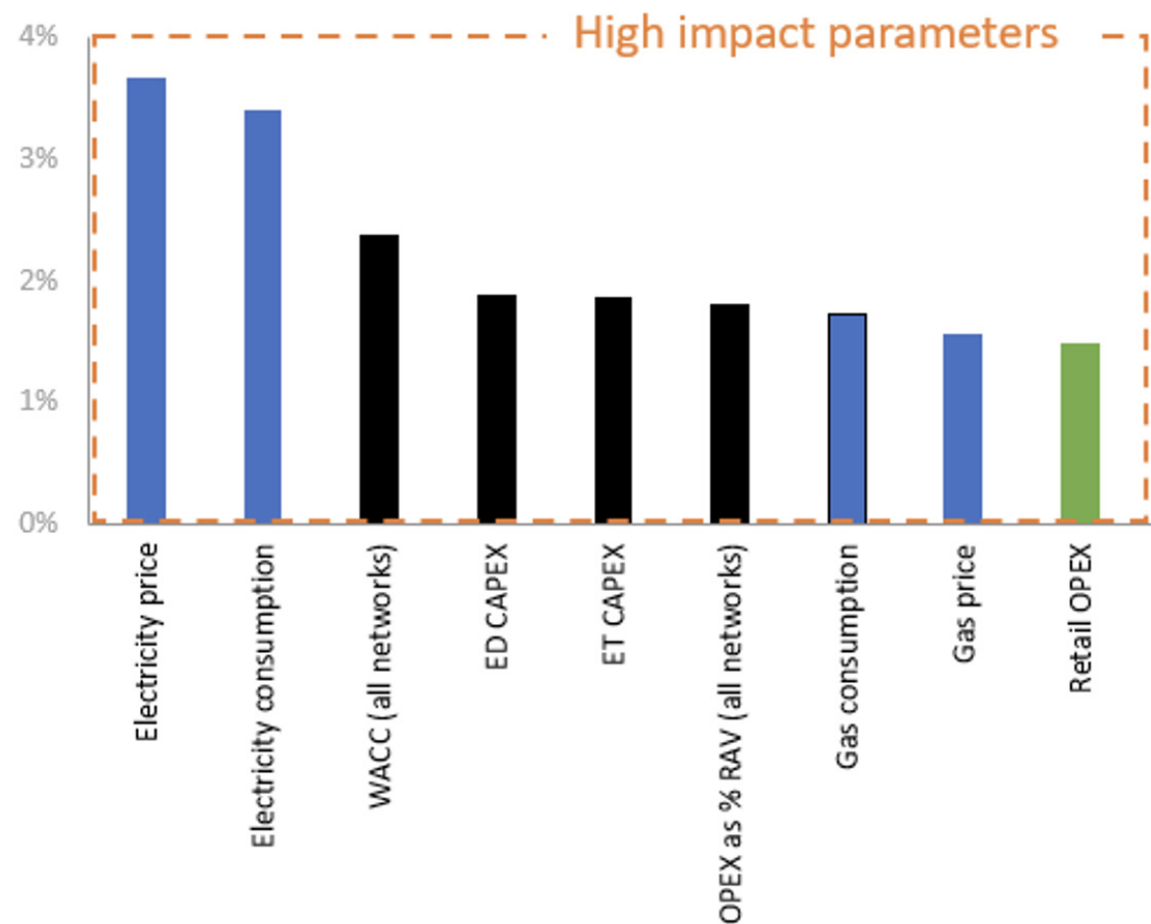


Figure 21: Sensitivity testing of input assumptions (% impact on consumer energy costs)



The modelling shows that wholesale prices, electricity efficiency, hydrogen consumption and costs, and the investment in electricity networks has the most material impact on total energy costs. Figure 21 shows there would need to be a significant increase in all or many of these factors, to materially change the resulting average consumer energy costs. Even in this event, consumer energy costs would still be lower than they are compared to their costs today (in real prices).

**This analysis suggests that by getting on with the enabling investments the electricity industry can deliver real savings on consumer energy costs, meet government energy security objectives, and decarbonise the energy system, achieving all three elements of the energy trilemma without compromising any element of the trilemma.**







# Value for Money



## Our legacy

The economic, social and environmental benefits of our investment



## Doing things differently

Through our innovation digital and modernisation programmes



## Strategic supply chain engagement

Harnessing global markets with a proactive, adaptive strategy to drive competitive advantage



## Accelerating net zero

Clean power production is cheaper and less volatile than oil and gas

At every stage of our investments, we are committed to driving value for money. As we develop and deliver our projects, and operate our network, we focus on overall cost efficiencies, timely programme delivery, and outcomes that communities and stakeholders truly value.

The legacy that we will leave is well documented in the pages above in Section 4. We strive to deliver our projects the right way, providing value that consumers and stakeholders deem important while maintaining efficiency. Our Housing Strategy in the north of Scotland exemplifies our approach.

Across all our RIIO-T3 investments, we continuously challenge ourselves to do things differently and to deliver exceptional value.



That is why our ninth Business Plan Commitment is:

**to realise long term consumer value through targeted innovation, strategic supply chain partnerships and accelerating the transition to clean power.**





### Doing things differently

Through our innovation digital and modernisation programmes

# Value for Money: Doing Things Differently

We have a culture of continuous innovation and operational improvement

## Our Innovation Strategy is:

- 1. Quick and agile:** using a Network Innovation Allowance of £5m p.a. with half of this on our strategic focus 'faster'.
- 2. Value-driven:** by translating innovation to BaU with a targeted roll-out mechanism
- 3. Leading:** using partnerships and competitive funding to drive forward technology of the future, especially offshore and HVDC systems

## Innovating whenever possible

Innovation is at the heart of delivering exceptional value for money to consumers and stakeholders through our day-to-day activities. Our innovation projects are designed to identify improvements that seamlessly integrate into our BaU operations. We rigorously assess these projects for their potential benefits and cost-saving opportunities, such as reduced operating expenditure.

Our strategic approach to innovation in RIIO-T3 is built upon the foundation of our successes in RIIO-T2, and as of this point in time, we have initiated 38 innovation projects, positioning us to deliver over £190m of potential benefits by the end of RIIO-T3. As we progress, we are focused on accelerating our innovation efforts to promote network growth while maintaining a safe and reliable infrastructure that supports our net zero ambitions.

We are confident in delivering on our RIIO-T3 target of a 1:2 baseline expenditure-to-benefits ratio through our investment in innovation. This commitment will ensure that our operations remain efficient, cost-effective, and beneficial for all stakeholders.

For more details, please refer to our [RIIO-T3 Innovation Strategy](#) and wider SSEN Transmission [Innovation Strategy](#).



**Annual Innovation Summary Report found here**



## Digitalising

Our [Digital Strategy & Action Plan](#) aims to ensure our digital systems are optimised for a net zero world, enabling rapid network growth and world-class asset management. The strategy will drive efficiency across our business by equipping our people with the necessary tools, technology and data to excel in their roles.

We are continually exploring ways to lever digital technologies to achieve efficiencies in our daily operations and internal processes. Over, we showcase where we have used AI technology to improve our project development processes and realise efficiencies related to options appraisal for overhead line (OHL) routing, and in stakeholder engagement. We also provide further examples of efficiencies that will be achieved through our Digital Strategy in **Section 5**.

Through our digital programme, we will enhance efficiency and productivity during the RIIO-T3 period.

We have been recognised at the UK Consumer Experience Awards (2024) for use of new technology to improve the efficiency and quality of our service. As we set out in the case study over, our new cutting-edge AI-powered tool is helping us analyse stakeholder feedback at pace, combining the strengths of AI with the invaluable expertise and human intelligence of our people.



# AI Technologies: Driving Efficiencies...

## ...in the development of capital projects

We are now using an AI-powered routing software to enhance our initial options appraisal process for capital projects. This software, which is supported with traditional desk based and field based optioneering, can analyse millions of route options, improving route identification efficiencies. It has been employed on the development of our ASTI programme. The software:

- assesses all route options simultaneously against environmental, social, engineering and cost factors from the project's inception
- performs rapid iteration and refinement of route options
- enables dynamic engagement with external stakeholders by demonstrating constraints and opportunities, and
- updates data and parameters from site investigations, stakeholder feedback and community engagement to refine routes and update the analysis.

Significant benefits have been observed in the development and design of our ASTI programme. This has led to reduced time in refining route options, ultimately lowering costs for consumers and accelerating delivery to meet the required service dates.

This software is now BaU on our projects, and savings will be embedded in our ongoing projects, including those in our RIIO-T3 Baseline.

Figure 22: AI routing software example



## ...in stakeholder engagement

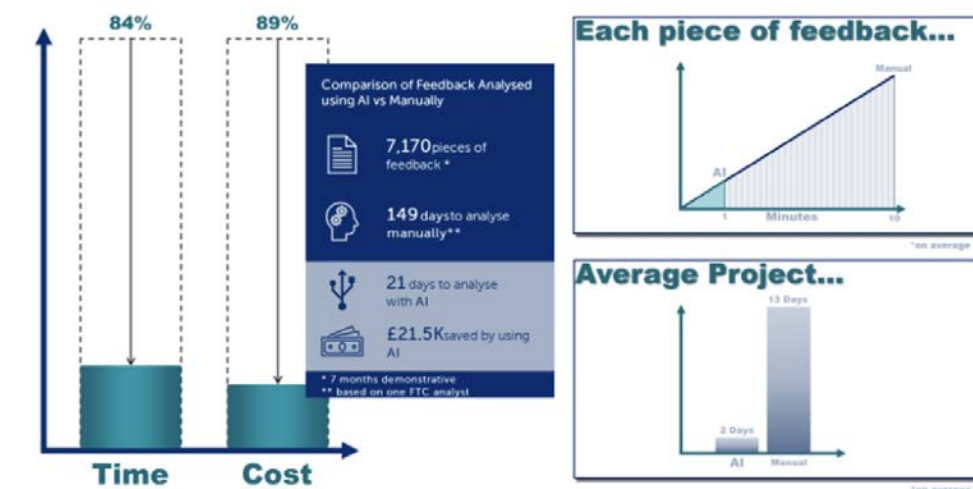
We have seen significant growth in the volumes of stakeholder feedback gathered during important consultations for our ASTI and energy security projects. Previously, managing this data was manual, time consuming and costly; leading to delays in sharing insights with decision-makers and responding to our stakeholders.

By leveraging cutting-edge AI technology, we have implemented an automated solution that works alongside our communities teams, land and consents colleagues and project teams. This innovative approach minimises the need for manual processing, significantly reducing lead time and costs when analysing valuable feedback. Consequently, it brings immediate benefits to both those using the solution and those receiving the outputs.

As illustrated, manually processing over 700 pieces of feedback per project previously took over 100 working hours. With AI, this has been reduced to around 17 hours, allowing our teams to focus on delivering value for project decisions and responding promptly to stakeholders.

With ongoing human review for quality and continuous improvement, we are already witnessing substantial benefits in avoided resource costs and the pace of decision making.

Figure 23: Benefits realisation of AI in stakeholder engagement





**Strategic supply chain engagement**

Harnessing global markets with a proactive, adaptive strategy to drive competitive advantage

# Value for Money: Costing Efficiently

Targeted cost efficiencies are embedded throughout our Business Plan

Our confidential Cost & Benchmarking Annex summarised in Figure 24, details how we continue to secure value for money for consumers and where this is evidenced within our Plan. Here we focus on four examples that illustrate how we adapt a traditional cost efficiency strategy to capture that value within rapidly changing market conditions.

**Strategic supply chain engagement**

Our [Supply Chain Resilience Strategy](#) is foundational in securing long-term capacity to deliver and maintain maximum competitive tension within the supply chain. Our supplier relationship management (SRM) enables us to meet our ambition to be the “customer of choice”. Consumer value is created where our supply chain relationship allows us to commit to deliver consumer outcomes on time, while also enhancing our competitive edge and so drive efficiencies for consumers. Sometimes competitive tendering is not feasible for projects (e.g. direct allocation at low scope definition to secure capacity and meet project deadlines). Even here we employ practices like open book pricing to maintain competitive pressure. This is detailed on the next page.

**Competitive procurement processes**

Building on a strong relationship with our supply chain, we then seek to extend the use of competitive procurement processes wherever possible. We are committed to ensuring that at least 80% of our capital programme expenditure is subject to competitive market practices, whether through one-off tenders or framework agreements. This ambitious target aligns with our RIIO-T2 target and is now increasingly stretching given current supply chain constraints.

**Operational programme efficiency**

Over the decade to 2030, our business has to grow fourfold, delivering new network faster than ever before and safely operating that system to our existing very high standards. Our growth plan has been created and rigorously tested on a line-by-line basis to secure controlled, efficient expansion.

Our aggregate benchmarking shows very strong performance against industry standards. The International Transmission Operations and Maintenance Study (ITOMS), an assessment of service levels against cost of delivery, recognises our operations activities as upper quartile, one of three companies on the frontier out of 25 of our peers.

Our operational expenditure and overhead costs show improved performance in RIIO-T3 against previous price controls when measured against the size and scale of our business, the Regulatory Asset Value. Our network operating costs will fall from around 0.6-0.7p to 0.2p per ERAV, while our overheads reduce from around 3.5p to 2.5p per ERAV from RIIO-T2 to RIIO-T3. We are successfully growing our capability while securing economies of scale.

**Returning more savings to consumers**

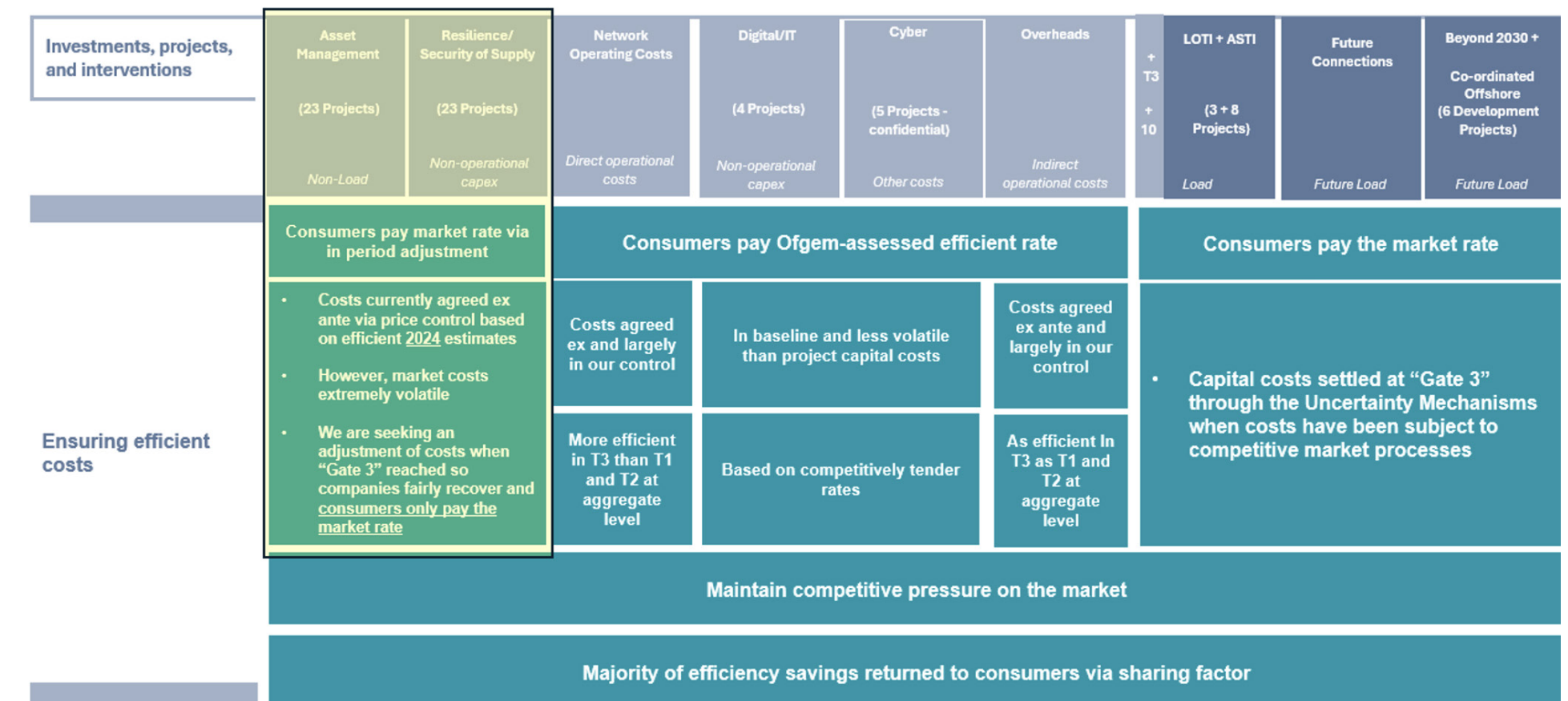
The final layer of driving efficiencies for consumers, is ensuring that most efficiency savings are returned to them. As detailed in the Regulatory Framework Section, we are seeking a sharing factor under the Totex Incentive Mechanism (TIM) of 10% to ensure that 90% of efficiency savings are returned to consumers, compared to 64% under our RIIO-T2 settlement and 50-80% as currently proposed under Ofgem’s SSMD.

Since the start of the current price control, RIIO-T2, market conditions have changed dramatically. Supply chain constraints and macro-economic factors have and will continue to drive above inflation cost increases. The core of our Plan, the shaded area in Figure 24, includes our 56 Baseline asset management and resilience capital projects, estimated to cost £2.4bn. Our costs are built on latest unit rates as of September 2024 and we are confident these are the current efficient market position. However, while we strive to maintain competitive pressure, we acknowledge that as a small player in a global market, we cannot influence global market capacity and prices. By the time

change and, based on the evidence from 2022-2024, that volatility cannot be predicted by traditional price control cost assessment tools.

We propose a solution in the Regulatory Framework Section to accommodate this volatility, protecting consumers and the delivery of core network infrastructure. Our recommended solution would adjust current day efficient costs to prevailing market rates once we reach the contracting stage, known as “Gate 3”. Alternatively, we could add an allowance to our baseline expenditure to accommodate forecast cost increases based on observed trends observed over the past 24 months, a “Market Capacity Adjustment”. We believe the first option is optimal for consumers. This ensures that our costs remain efficient and reflective of actual market conditions, providing the best value. This will also align Ofgem’s assessment of asset management and resilience capital expenditure with the load related expenditure programme. Should Ofgem choose the alternative option, our costs would still be efficient with the associated adjustment, but less optimal for consumers.

Figure 24: Efficiency approach across the Plan



we reach the final stages of market tendering these costs are likely to



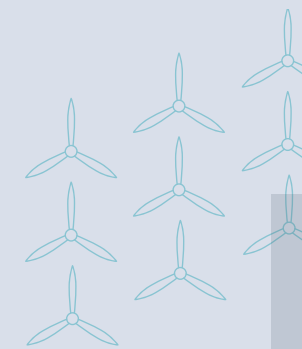
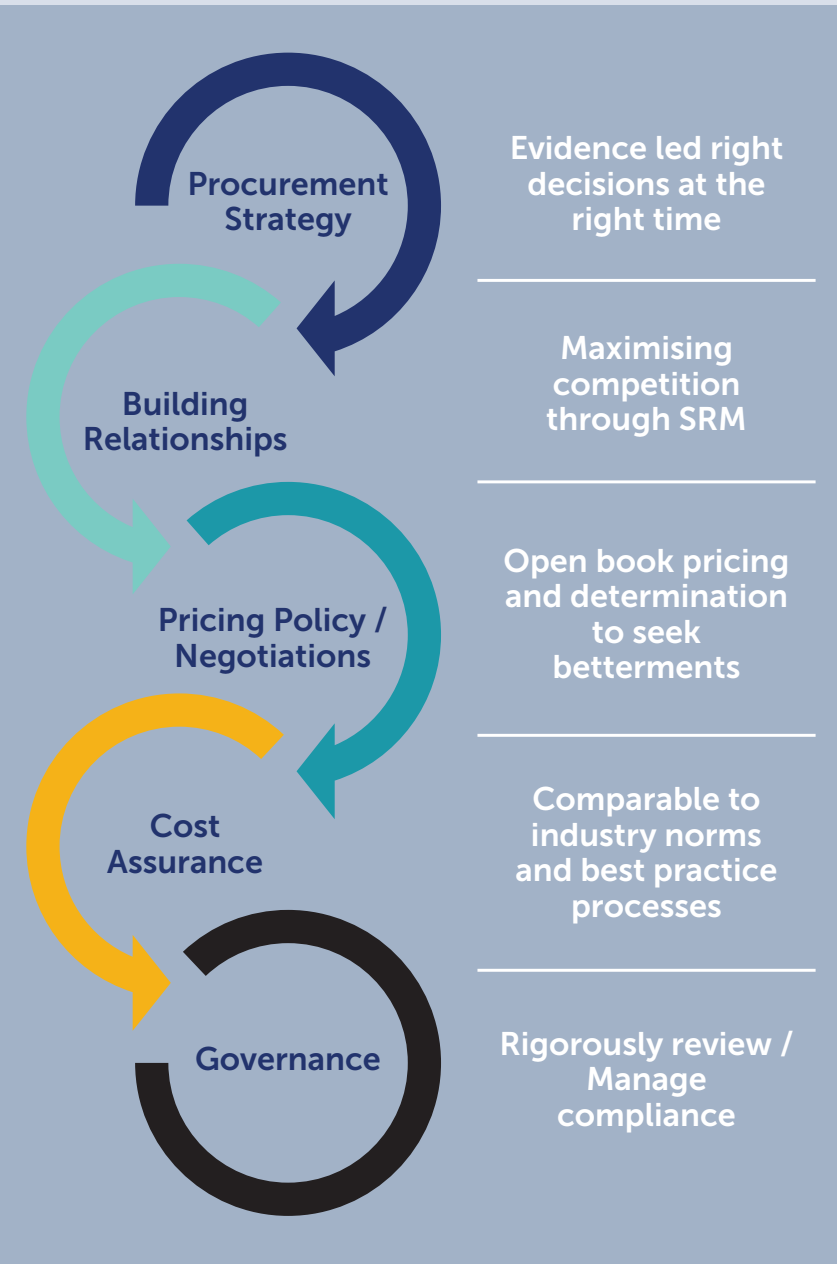
# Value for Money: Supply Chain Engagement

Through supplier relationship management we can optimise efficiency as we maximise competitive pressure



## Strategic supply chain engagement

Harnessing global markets with a proactive, adaptive strategy to drive competitive advantage



We understand that building long-term capacity and delivering efficiently rely on fostering strong relationships at every level of the supply chain. This is even more critical in current market conditions where we do not have the power to influence global markets.




Our Supplier Relationship Management (SRM) function is crucial to our [Supply Chain Resilience Strategy](#). It ensures we build and nurture long-term relationships with delivery partners in a focused and controlled manner, ensuring stability and reliability in our supply chain.

Despite our relatively low demand in a high-demand market, SRM has positioned us as a leading global TO and the preferred 'customer of choice'. We have demonstrated the value of this by our success in already securing the supply chain to deliver our entire SSEN Transmission ASTI portfolio, with tendering for the remaining jointly delivered project underway. In a continuously changing market, and looking ahead to GB 2030 ambitions, we remain proactive and continuously strive for improvement.

We are now advancing SRM to cultivate and strengthen industry-wide relationships to support the successful procurement and delivery of all projects within RIIO-T3, including our Baseline projects. Our plans include:

- 
**Focusing on Supply Chain Growth:** Developing a resilient workforce plan and fostering multi-party collaboration to achieve the common Pathway to 2030 goal through a Supply Chain Forum and appointing a full-time Transmission Engagement Manager.
- 
**Safeguarding Supply Chains:** Our Executive Directors meet with strategic partners and suppliers to discuss and address material issues. This is achieved through a Supplier Engagement Strategy for each contractor, focused on performance through gold, silver, and bronze categorisation within SSE Group and SSEN Transmission.
- 
**Supplier Performance Management:** Continuously monitoring and managing supplier performance against new delivery targets and evolving business requirements, including growth, innovation, and sustainability. This enables us to intervene and make informed decisions to efficiently manage our portfolio of programmes and projects.

It is through our SRM and becoming the customer of choice that we can then work with our supply chain to drive efficiencies through:

- 
**Pricing Policy:** Our Open Book Pricing Procedure (OBPP) fosters collaboration in preparing cost estimates and developing contract prices, ensuring accurate cost forecasts, early identification of potential escalations, and greater cost control.
- 
**Cost Assurance:** We align pricing procedures and project costs with industry best practices and benchmarks. Our OBPP mandates benchmarking and justification for deviations from supply chain partners.
- 
**Governance & Performance:** The establishment of a new role to oversee efficient expenditure, and address performance issues as they arise.



# Value for Money: Accelerating Net Zero



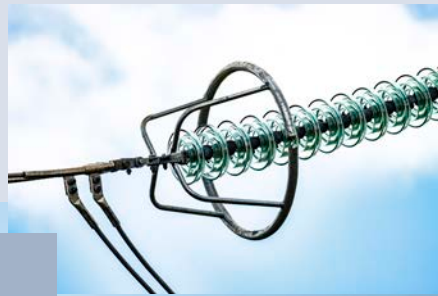
## Accelerating net zero

Clean power production is cheaper and less volatile than oil and gas



Our consumer energy cost analysis above reveals that the energy transition could reduce average customer energy and fuel costs by one third compared to today. The faster we achieve this transition, the sooner we can realise these savings, while also achieving domestic energy security and net zero emissions. We recognise our critical role in this transformation.

Therefore, we are committed to accelerating delivery wherever it is efficient to do so, ensuring we are never a barrier to progress. By doing so, we aim to unlock these benefits swiftly and effectively for all.

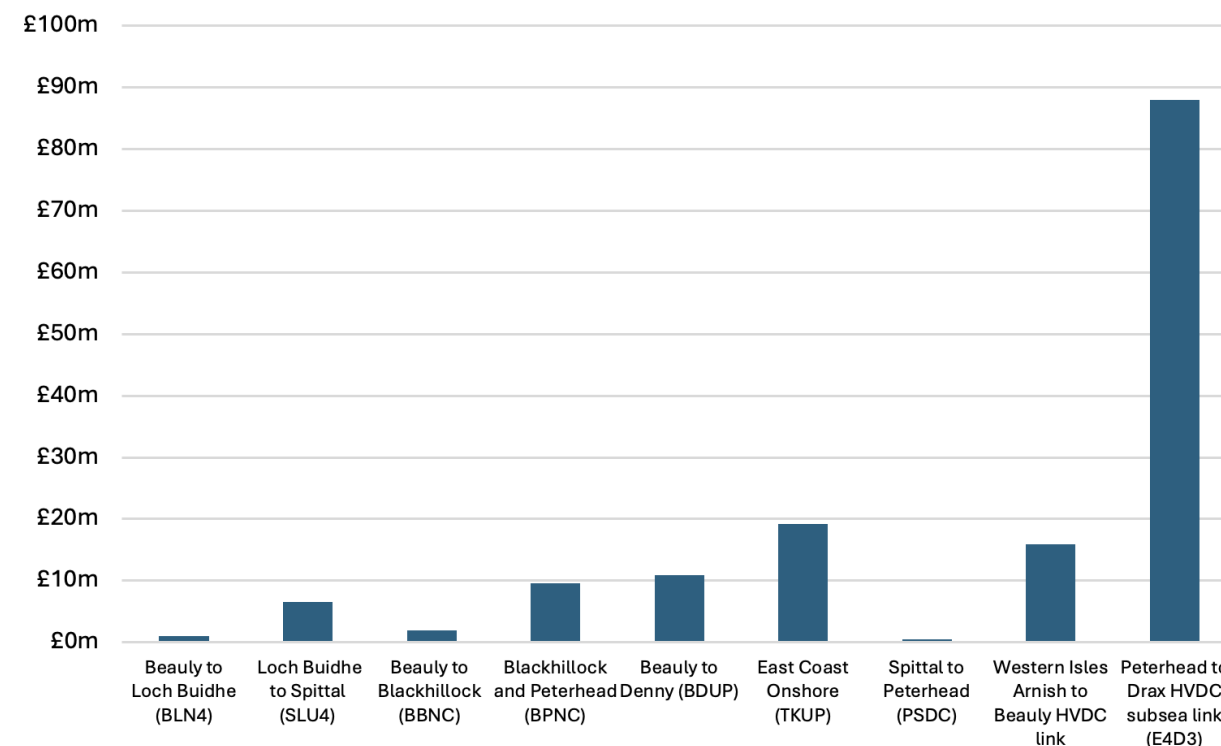


## Taking swift and accelerated action to help deliver cost reductions sooner

The rapid evolution and reform of energy and industrial policy alongside momentous macro-economic and geo-political events have introduced unprecedented regulatory challenges within the RIIO framework. The Regulator's decision to introduce pragmatic regulatory flexibility has been instrumental in addressing these. At times, we have chosen to go even further, investing ahead of regulatory certainty of allowances to maintain network security and deliver net zero pathway outcomes at pace. Here are a few examples:

- The SSE Plc Board gave early approval to enter contracts to secure the cable, converters, and enabling works for the Eastern Green Link 2 (EGL2) project. With a liability of approximately £1bn this was ahead of regulatory early construction funding (ECF) approval.
- The Board approved c£2bn of contract placement for two of our LOTI projects - the Argyll and Kintyre 275kv Reinforcement and Orkney Island Reinforcement. The decision was taken based on the confirmed regulatory need and driven by an ambition to preserve earlier delivery programmes and connect much needed renewable generation. This expenditure far exceeded Ofgem approved pre-construction allowances and commenced well in advance of final Project Assessment submission and approval. We remain committed to ensuring clean power is delivered as early as possible to GB consumers, and remain confident in the efficiency of our procurement and delivery strategies.
- Across a portfolio of our ASTI projects, we have spent £150m more than the initially allocated pre-construction allowances to progress projects to their development pathway (Figure 25).
- We committed early funding to help unlock the Sumitomo Electric Industries investment in a new manufacturing facility in Nigg, Scotland. This is the first HVDC cable manufacturing facility in the UK, providing much needed cable production capacity and supporting hundreds of skilled jobs in the region.

Figure 25: Additional PCF ahead of approval



These proactive decisions allow our project teams to secure critical global supplies, accelerate net zero initiatives and generate cost and programme efficiencies, alongside supporting local and national economies.

This culture of swift action is embedded in all that we do, and we are committed to sustaining momentum for these projects that will be delivered in RIIO-T3, as well as additional projects in this Plan.

However, continued support (funding and financial) from Ofgem and confidence in the regulatory framework are critical (Section 9). This support will enable us to continue taking considered and strategic risks, driving forward our ambitious portfolio of projects, and playing our vital role in the transition.



# Value for Money: Accelerating Net Zero

Co-ordination of activities to drive efficiencies



## Accelerating net zero

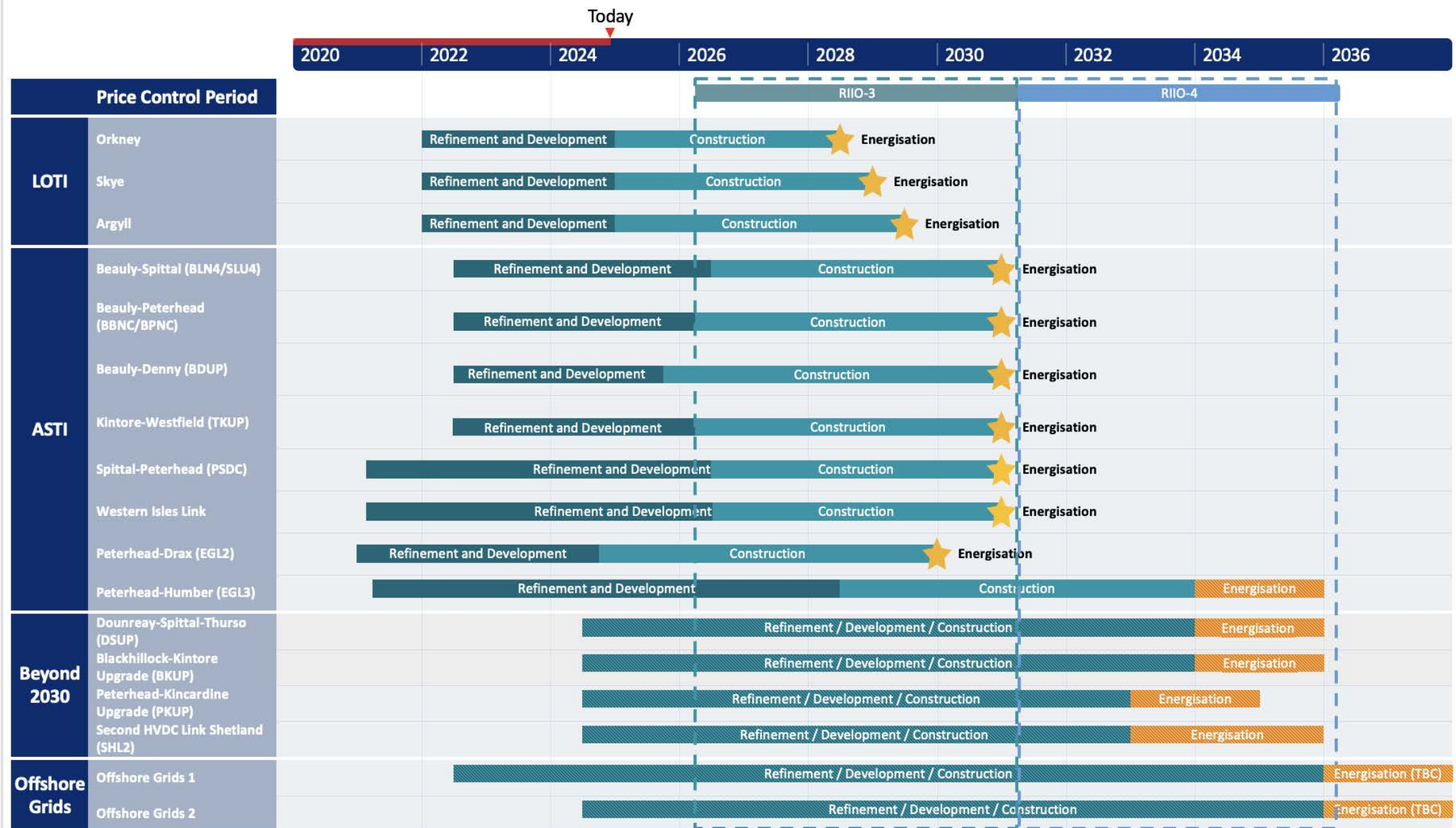
Clean power production is cheaper and less volatile than oil and gas



The figure outlines our strategic projects planned for 2030 and beyond. Rather than approaching each project individually, we adopt a holistic portfolio approach. This method allows us to deliver greater efficiencies and cost savings for consumers, and co-ordinate our engagement efforts. It also helps our communities and stakeholders understand the scale of network developments planned, addressing one of their key priorities and expectations.

Managing our projects collectively optimises resources, streamlines processes, and ensures each project contributes to our overall strategic goals. Given the scale of our strategic portfolio, we expect this coordinated approach to deliver substantive consumer efficiencies. An example of this can be seen in the case study which follows.

Figure 26: SSEN Transmission strategic national and regional projects



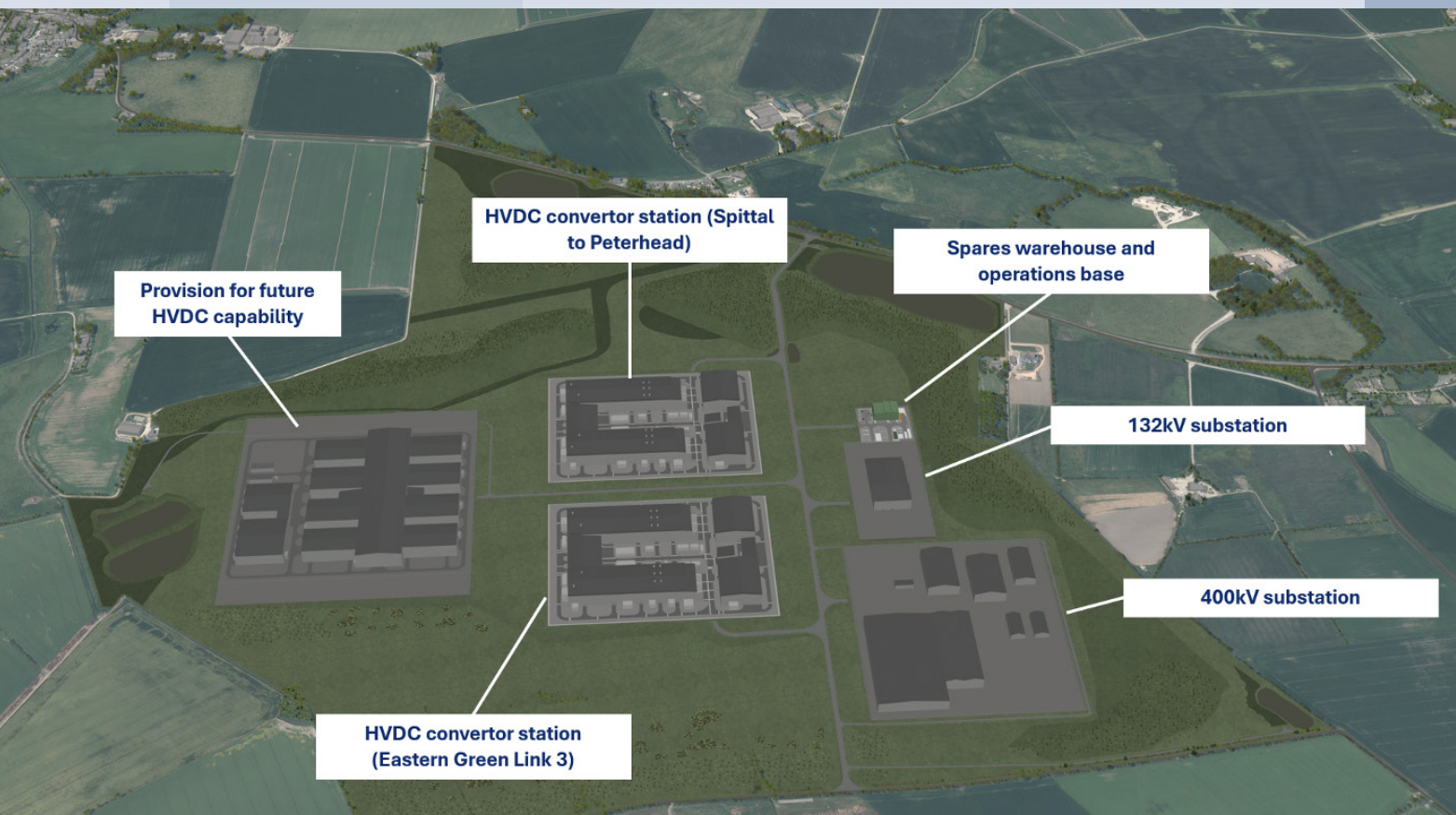


# Case Study: Netherton Hub



## Accelerating net zero

Clean power production is cheaper and less volatile than oil and gas

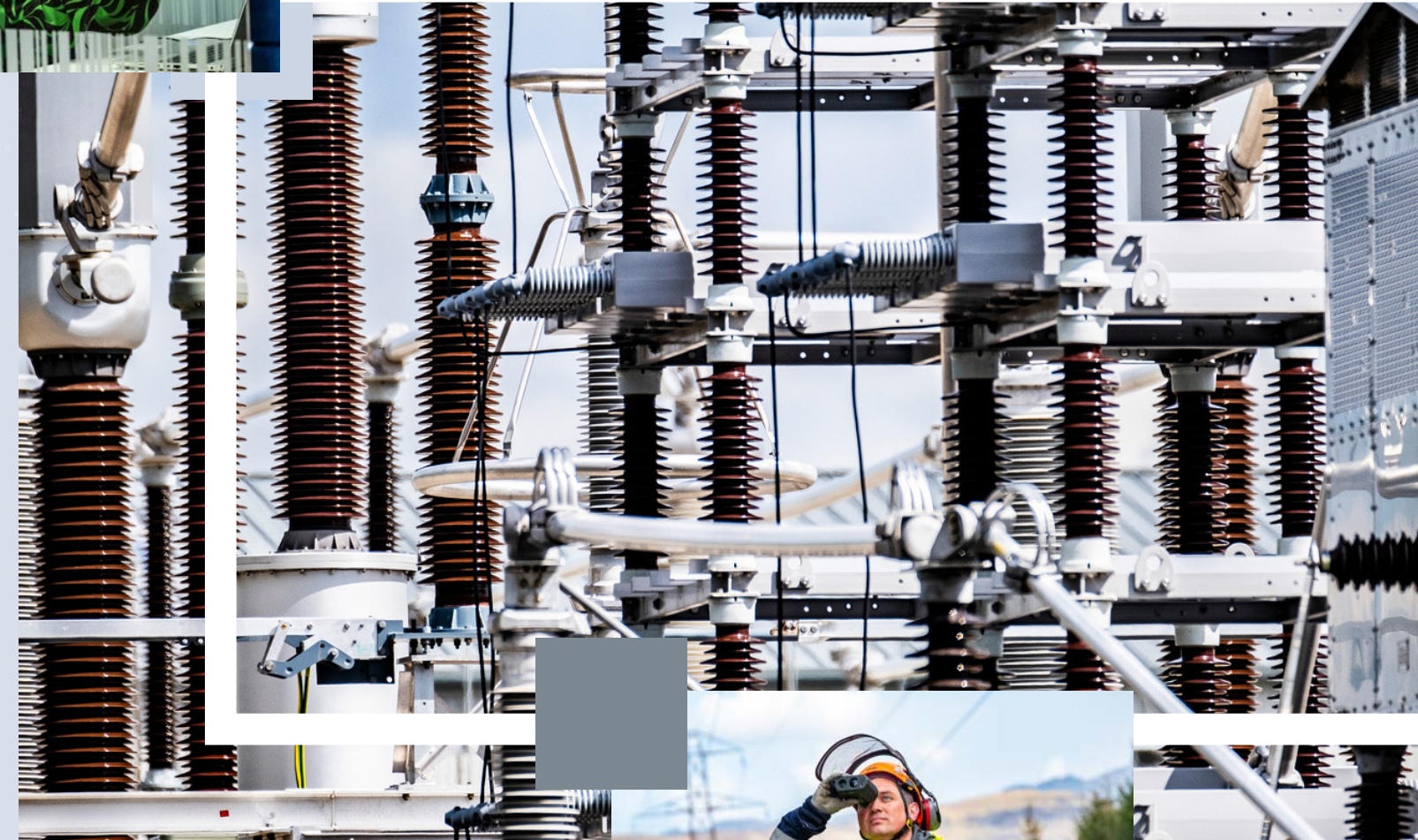


Our portfolio approach to project development and delivery has led to the introduction of Strategic Hubs, securing on-time and efficient delivery of strategic investments, such as Fanellan (Beauly), Banniskirk (Spittal), and Netherton (Peterhead, adjacent graphic). These hubs allow multiple ASTI schemes to follow a holistic approach to share common infrastructure, managed by a single project team and avoid duplicated efforts and costs. This strategy has proven effective, as seen with the recent planning application for the **Netherton Hub**. This hub will bring significant economic benefits to the local community and includes extensive AC, DC, and operations infrastructure. The planning application followed two years of development and extensive community engagement, including four rounds of face-to-face consultation with over 400 attendees and more than 100 formal responses to our proposals, to address concerns about visual impact and potential flooding through careful site planning.

To support portfolio delivery, we have developed programme-wide strategies, including new forums and working groups for cross-programme coordination and well-established processes for capturing lessons learned from both ASTI and non-ASTI projects. Specific programme wide strategies include:

- **Accelerated procurement approach:** To accelerate our ASTI programme, we established clear objectives for all procurement events. We tendered new Framework Agreements, allowing us a holistic view to allocate work based on:
  - **Supplier Capacity:** Matching larger suppliers with bigger packages and newer entrants with discrete packages to support a resilient supply chain.
  - **Technical Capability:** Assigning projects based on suppliers' experience in challenging locations.
  - **Synergies:** Using a single main contractor per hub to reduce risks, streamline resources, and optimise planning and earthwork strategies.
- **Efficiency in standardising design:** We engaged a Civil and Building design consultant to create a standardised HVDC converter station design for the Western Isles and Spittal to Peterhead projects. This approach, from RIBA (Royal Institute of British Architects) stage 2 to 7, ensures efficiency across all four convertor stations. Collaborative workshops with the consultant and contractors will further enhance construction sequencing, programme certainty, and risk management.
- **Innovative digital tools:** We implemented route optioneering software across the ASTI programme, enabling rapid prototyping and efficient corridor routing, and substation site selection. This tool enhances discussions with stakeholders, visualises designs on mobile platforms, and results in overall cost efficiencies despite higher initial development costs. See page 58.





# 9. Regulatory Framework

Our highly ambitious plan requires the right regulatory framework to enable accelerated delivery and to balance risk and reward for consumers and companies.



# Regulatory Framework

Adapt the framework while retaining the principles of RIIO



## Successful RIIO Framework

A stable regulatory framework is crucial for investors and consumers. The RIIO framework has supported long-term investments, improved network performance, secured better consumer outcomes, and delivered efficiency. We need to continue that evolution, adapting to enable network growth and navigating supply chain challenges (e.g. ASTI regime). While evolving global conditions necessitate further change, we will not lose the core benefits of the RIIO regime.



## Market Shocks

## Changing Policy Environment

## Scale of Investment

Macroeconomic factors are impacting the supply chain, flowing through to material, above inflation, price increases. Our network expansion faces global competition for assets and skills, yet we are of a modest scale compared to other market players. Key challenges include:

- **Market shocks:** events such as Brexit, Covid-19, the war in Ukraine and the energy crisis, have led to economic disruption, geopolitical uncertainty, trade changes, supply chain issues, inflationary pressure and rising costs.
- **Policy changes:** these include Connection Reform, Strategic Spatial Energy Plan (SSEP), Clean Power 2030 and the Review of Electricity Market Arrangements (REMA).
- **Net zero race:** substantial global investment needed for low-carbon technologies and electricity grid upgrades. Our investments alone are part of the £200+ billion required for the electricity grid by 2050 to meet this net zero ambition.



## Supply Chain

## Cost increases and volatility

Collectively, these factors adversely impact supply chains and increase costs affecting both the timing and the ability to invest. We have observed that the supply chain is becoming more selective about the contracts and projects it bids for, driven by the abundance of work available globally. Feedback and evidence from the supply chain indicates that the cost of tendering project bids has risen significantly. In many cases, contractors are either unable or unwilling to bid competitively due to unknown risks.

To quantify these effects across various asset classes and project costs, we have isolated CPIH (Consumer Price Index, including owner occupiers' housing costs) and Real Price Effects (RPEs) indexation leaving only the residual market premium cost movements. The results are stark. Some asset costs have doubled in a two-year period. Our evidence shows this increase cannot be explained solely by indexation; it must be attributed to market constraints. This has in turn broken the ability to use historical data and techniques to estimate future market costs; this is now unreliable and unpredictable.



1. A baseline to deliver our ambitious outputs with flexibility

2. Within price control flexibility & incentivisation

3. Consumer & company cost volatility protection

To create an equitable funding solution for RIIO-T3 and address these challenges, we believe the RIIO regime should provide flexibility in setting funding allowances within the price control period. This will protect both consumers and companies from cost volatility, while maintaining the strong foundations of RIIO. Our view is summarised in the infographic over and detailed in the next few pages.

Further detail is in the Cost and Benchmarking Annex.



**Objective****Principles****Ask**

1. A baseline to deliver our ambitious outputs with flexibility

Rewarding ambition while holding companies to account

1. Reward our ambition via Business Plan Incentive (BPI)  
2. Strong accountability via Business Plan Commitments (also reflected in ODIs)

2. Within price control flexibility & incentivisation

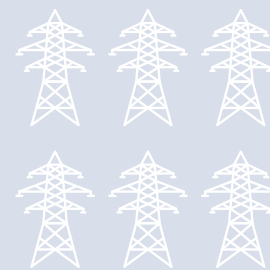
Speed, simplification and agility to accelerate delivery

1. New Load Related UIOLI allowance for projects <£50m  
2. Pay as you Go Volume Driver  
3. Four critical new reopeners – Non-Load, Workforce/Industry reform, Estates and Buildings, Carbon Border Adjustment  
4. Lower Totex Incentive Rate to 10%  
5. Retain and reshape the RIIO-T2 financial and reputational incentives

3. Consumer & company cost volatility protection

Protection from cost volatility outside of our control, driven by market and supply chain constraints

1. Advanced Procurement Mechanism  
2. Indexation (RPEs)  
3. Outturn Cost Protection



# Incentives

Our RIIO-T3 Plan is ambitious. We are continuing to lay the foundations for net zero while striving for improvements in outputs at minimal cost to consumers in a period when the electricity transmission sector is managing unprecedented infrastructure delivery for consumers.

The outputs we will deliver offer value for money targeting deliverable improvements in network reliability and environmental performance.

The changing environment means the incentive regime from RIIO-T2 needs to be rebalanced to reflect the scale and associated risk of investment for the RIIO-T3 price control. We have proposed the necessary changes across the full incentive package - the Business Plan Incentive (BPI), Output Delivery Incentives (ODIs), and the Totex Incentive Mechanism (TIM). With these recalibrated incentives we ensure an increased focus on project delivery while maintaining strong network reliability and consumer value.

## The Business Plan Incentive (BPI)

Ofgem has outlined a three-stage process as part of the SSMD to determine the reward or penalty companies will receive under the Business Plan Incentive (BPI): Minimum Requirements, Costs, and Quality & Commitments. Our Plan provides the necessary evidence for Ofgem’s assessment and demonstrates considerable value for consumers.

We believe that our highly ambitious plan merits the maximum incentive.

**Stage A - Minimum requirements:** Our plan meets Ofgem’s guidance across the board and builds on our exceptional track record.

**Stage B - Costs:** Despite the challenges of a volatile global market, we have shown leadership in supply chain engagement and benchmark well.

**Stage C – Quality and Commitments:** In areas where we already show leadership, and where our stakeholders expect more, we aim to excel further in RIIO-T3 with our nine highly ambitious Business Plan Commitments. These commitments will deliver additional value for consumers compared to previous price controls. They are sector-leading, well-justified, and measurable. We also present a clear Plan with a common thread that connects our Strategic Objective, our three 2030 goals, business strategies, and the details of our Investment Decision Packs (IDPs). Every element of our Plan has its place.

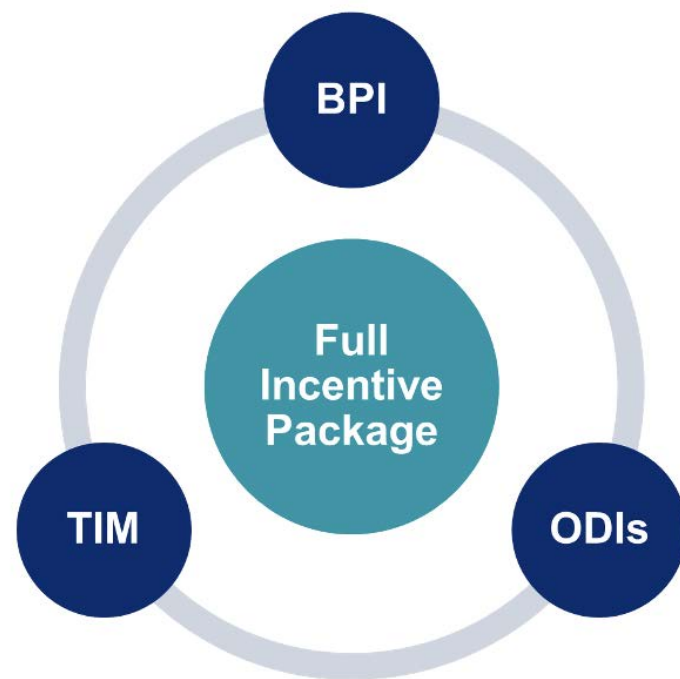


Table 4: Compliance with Ofgem’s Business Plan Incentive

BPI Stage	Commentary	Evidence
<b>A</b> Minimum Requirements	Our plan contains information required for Ofgem to set the price control effectively	Appendix 3 Section 1 on Track Record
<b>B</b> Cost	Our costs are efficient in a 2024 market and our bespoke costs are well justified	Cost and Benchmarking Annex Section 8
<b>C</b> Quality and Commitments	Our Business Plan has a common thread from Strategy to Investments providing transparency on what we are delivering	Page 8
	Our Business Plan commitments clearly demonstrate substantial consumer benefit and industry best practice	Appendix 1 and 2 Section 8
	Our Business Plan commitments are aligned with Ofgem’s Strategic Objectives for RIIO-T3	Appendix 4



# Incentives

## Totex Incentive Mechanism (TIM)

Sharing of allowance outperformance with consumers through the Totex Incentive Mechanism (TIM) has historically been the most powerful incentive in the RIIO framework, prior to the introduction of the ASTI ODI. The TIM rate has been set to drive efficiencies within a stable operating environment and a readily available supply chain. In the RIIO-T3 period our total expenditure could exceed £30bn. This means a small percentage of over or underspend with too high an incentive rate, will translate into significant amounts, exposing consumers and companies to windfall gains and losses. This becomes more likely during a period of unstable supply chain prices.

Our view is aligned with that of Citizens Advice; "In our view, the key principle of sharing factors is that they should be set at the rate which provides consumers with the greatest value for money when underspends occur without eroding the company's actual incentive to be efficient. By actual incentive we mean whether the company would actively choose not to seek efficiencies because the revenue it could earn is lower than an alternative." <sup>1</sup> We believe that a lower incentive rate will encourage the correct efficiency behaviour.

**Key Ask:**

A lower Totex Incentive Rate of 10%.

**Consumer Benefit:**

90% of underspend will be returned to consumers, and they will not overpay for infrastructure.

## Output Delivery Incentives (ODIs)

Our Output Delivery Incentives (ODIs) include both financial and reputational incentives common to all TOs and are set out in Ofgem's SSMD. These are detailed in Table 5 below. Ofgem is yet to determine the structure and calibration of the common financial incentives under RIIO-T3 and there is a large amount of development work still to be carried out.

The RIIO-T2 ODIs (excluding the TIM and ASTI ODI) had a total impact of +0.3% to -0.7% on RoRE. Ofgem has indicated that it will maintain the focus on incentivising service quality and environmental performance but will consider strengthening the new connections incentive.

Table 5: Incentives in RIIO-T3

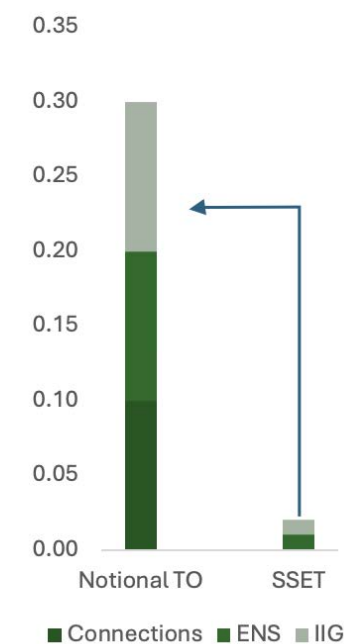
Output Delivery Incentive	Incentive Financial Strength
<b>Energy not Supplied (ENS):</b> An incentive to take additional actions to reduce instances of energy lost to outages and interruptions.	Low
<b>Insulation Interruption Gasses (IIG):</b> An incentive to reduce the leakage of insulation and interruption gasses that contribute to climate change.	Low
<b>Connections Incentive:</b> An incentive to drive faster connections times and a more effective overall connections process.	Unknown
<b>SO:TO Incentive:</b> An incentive to provide solutions to the NESO to help reduce constraint costs.	Low
<b>Project Delivery ODIs:</b> Project delivery incentive for ASTI to incentivise timely delivery of strategic projects.	High

<sup>1</sup> Citizens Advice response to RIIO-3 Sector Specific Methodology for the Gas Distribution, Gas Transmission and Electricity Transmission Sectors - Citizens Advice

There may also be Project Delivery ODIs for Central Strategic Network Plan (CSNP) projects. Like ASTI, they will be calibrated to individual projects and the value of timely delivery for consumers. Full calibration of the incentive will not be possible until the pipeline of CSNP projects is understood.

Ofgem must recognise the risks and challenges associated with delivering a such portfolio of very large projects, and in the context of our current committed deliverables such as ASTI, and ensure that TOs are not put at significant financeability risk.

Figure 27: Incentive gap in RIIO-T3



In the SSMD, Ofgem proposed that the incentive potential, excluding ASTI, would be 0.3% of RoRE, retaining strong RIIO principles.

Given our frontier performance on incentives to date and our proposed leading targets for IIG and ENS, the upside incentive potential is in fact very low. This is because the calibration of these two incentives cannot exceed the value provided to consumers. For ENS this is bound by the Value of Lost Load, while for IIG, it is based on the comparative cost of carbon (tCO<sub>2e</sub>).

When our ambitious targets are combined with the new undefined connections incentive, an incentive gap emerges, as shown in Figure 27.

Simple target-based performance incentives tend to over-reward lagging companies. In our Plan, we have highlighted our strong track record and we should be rewarded based on our relative performance compared to other network companies, rather than against pre-set targets. We believe Ofgem can achieve this and tackle the incentive gap via the BPI.

There are also three reputational ODIs under our incentive framework, which we are committed to excelling in:

**New Infrastructure Stakeholder Survey:** We support the decision to continue to survey stakeholders impacted by new infrastructure projects on their experience in engaging with us.

**Annual Environmental Reporting (AER) and Business Carbon Footprint (BCF) (ODI-R):** We endorse Ofgem's decision to retain the AER, which will

report on the Business Plan commitments set out in our [Sustainability Action Plan](#) (SAP), and to consolidate the reporting framework to now include BCF. We will continue collaborating with Ofgem to develop the AER and the KPI framework to ensure these deliver the information both Ofgem and stakeholders want to see.

**Community Benefit Fund (ODI-R):** Our network in the north of Scotland will play a leading role in the clean energy transition, connecting and transporting renewable electricity from wind, hydro and marine generation. The Community Benefit Fund will allow a share of the benefits to go directly to those communities hosting this new and uprated infrastructure. The final design of the fund awaits the outcome of the government consultation. Under this ODI-R we will report annually on the implementation and operation of the fund. Read more about our Community Benefit Fund [here](#)



# Incentive Target Setting

## Energy Not Supplied

Our performance demonstrates we are dedicated to ensuring our network users can rely on their energy supply with consistent and improving energy not supplied (ENS) outputs. Over the next price control, as a result of the growth in renewable connections and introduction of multiple HVDC and HVAC circuits, the transmission system will experience the largest number of planned network outages and interventions ever, significantly above what was required in RIIO-T2.

Our RIIO-T3 ENS target should therefore reflect this tension between improved performance and increased risk and challenge. We believe continuing with our RIIO-T2 target of 102MWh remains an ambitious target, in consideration of the increased level of planned works.

This target reflects the natural improvement factor that will be applied to the incentive reflecting the level of network growth and increased access requirements. The increasing demand profile at our GSPs and the potential for increased transmission connected demand means that the impact of any ENS event could be greater, and the incentive needs to adequately reflect and reward the additional effort needed across the network.

We believe that setting an appropriately sized target is the best way of achieving this. The alternative would be to change the overall methodology and approach of how the ENS is structured and calibrated to a different metric than MWh. Therefore, we have set an ambitious target of 102MWh for RIIO-T3.

## Insulation Interruption Gasses (IIG)

This is a upside and downside incentive based on tCO<sub>2</sub>-e emissions from leakage of SF<sub>6</sub> and other IIGs. The baseline target is our annual leakage of SF<sub>6</sub> and other IIGs (in kg) multiplied by the relevant kg-to-tCO<sub>2</sub>-e conversion factor for each IIG. We acknowledge that Ofgem will calibrate the IIG Incentive as part of the Draft Determination Decision for RIIO-T3 but have provided our initial view on how the incentive could be structured and calibrated.

IIG is an important incentive to drive improved behaviours to better monitor and manage leakage. The key points of our approach are:

**Ambitious Target:** An IIG incentive baseline target of 0.26% of installed volume, based on our historic industry leading performance, accounting for embedded performance, and reflecting the challenges of network and resource growth.

**Incentive Neutrality:** To reflect our frontier performance against industry benchmarks and our extremely ambitious baseline target for RIIO-T3, we propose there is incentive neutrality (no penalty) between the regulatory baseline target and an industry average. This reflects the asymmetric nature of our challenge; continue to deliver industry leading performance with a small reward potential versus exposure to significant penalties should our frontier baseline target be reduced further. Our initial proposal is a value of 0.4% as an industry standard, but we are open to discussion with Ofgem through the development process. This reflects the challenges with measurements in the metric under the current refill approach.



## SO:TO Optimisation

The SO:TO incentive has delivered significant benefit to consumers in the form of the reduction in constraint costs through standalone solutions or additional works to minimise the impacts of outages on consumers. We agree with Ofgem's position of continuing to incentivise above BaU activities to deliver projects which reduce constraints. We have delivered significant savings to consumers through the delivery of projects through the RIIO-T2 period.

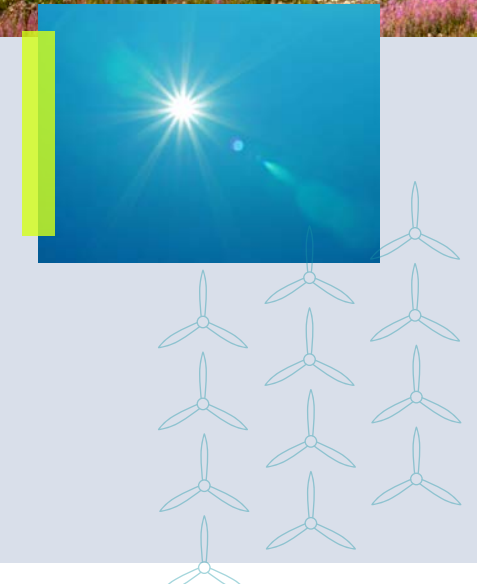


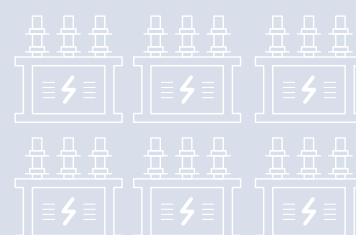
Table 6: SSEN Transmission SO:TO incentive in RIIO-T2 examples

SO:TO Project	Constraints costs saved to date (£m)
Tealing and Alyth 275kV By-Pass Configurations (Installed in 2022/23)	£60.4
Errochty – Killin 132kV Overhead Line (ELW) Protection Overload Scheme (Installed in 2021/22)	£216

While we support Ofgem's decision to continue with the same incentive structure and strengthen from RIIO-T2, there needs to be an agreed process to transition from one off interventions to BaU. We will work with Ofgem, the other TOs and the NESO as part of the incentive development to create an appropriate methodology.



For ENS we propose an ambitious target of 102MWh for RIIO-T3.  
For IIG we propose an ambitious target of 0.26% of installed volume.





# Connections

The ongoing, industry wide, Connection Reform will fundamentally alter how we plan for and deliver customer connections from 2025 onwards. The Government's Clean Power 2030 Action Plan will shape the connections being delivered in RIIO-T3 to align with strategic clean power pathways, and both will continue to evolve and change over the coming year. This means that as we publish our RIIO-T3 Plan our commitments cannot be firm and these will have to adjust during 2025 as the wider industry change is confirmed.

This Plan assumes a continued focus on quality, customer satisfaction and connection customer benefit. We have also assumed that regulatory obligations will remain targeted at making connection offers and not replicate commercial terms in connection agreements. We are fully engaged in developing a connections framework which supports customer and consumer need and will respond in full to the ongoing NESO and Ofgem consultations.

## Quality of Connections

Connection reforms will profoundly change the connection process and journey for customers. We believe it is crucial that we continue providing an enhanced experience throughout this journey. Therefore, quality and customer satisfaction should be integral to the incentive alongside a strong regulatory framework to deliver capacity in the right areas at the right time to enable timely connections and ensure a connection-ready network while minimising the cost of constraints.

Acknowledging the extensive change that will come from the Connection Reform workstream we see a key role for an evolved Quality of Connection Survey (QoCS) metric to capture that customer experience and to provide a strong reputational incentive.

This could be in the form of a balanced scorecard focussing on key topics impacting the experience of connecting customers. Given the timeframes of the connection reform process completing, we propose that the Quality and Customer Satisfaction component of the incentive is trialled in the first year as a reputational incentive with a recalibration window to adjust the incentive as reforms complete.

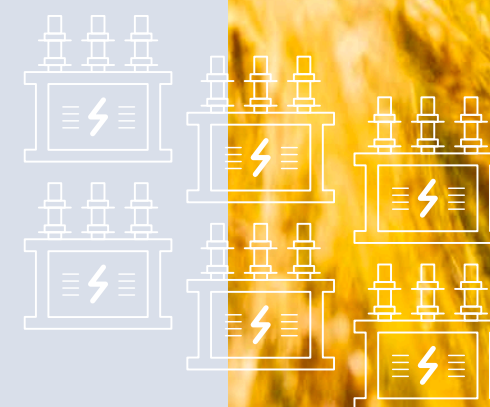
## Connection Customer Benefits

We are already creating an ambitious level of capacity for the north of Scotland through the strategic and regional infrastructure investments set out in this Plan (based on FES24 Holistic Transition). The national Clean Power 2030 targets further increase that infrastructure requirement and we are working closely with Government and NESO to develop solutions for this and will update our Plan in Q1 2025. Revised connection incentives should be targeted to support delivery during this period of historic infrastructure investment.

We will continue to develop incentive options which we will set out in our response to the current consultative process. As an illustration of our emerging thinking, we have considered how to incentivise networks to identify economic and efficient solutions that bring forward capacity or reduce constraint costs. Such an incentive could be calibrated to share a proportion of the customer benefit created by our actions.

However, until this new connection regime is fully developed and understood, it is difficult to commit to a substantive ODI. Given this intensive period of change we would propose a phased or staged approach to new incentives across RIIO-T3 and RIIO-T4.

We will engage with Ofgem to develop the appropriate incentive framework to support connections ahead of Business Plan Determinations. We support the need to incentivise the aspects of connections that are most important to stakeholders including Government (delivery of capacity for 2030 goals), consumers and communities (getting the most from the current system) and customers (enhanced experience).





# Uncertainty Framework

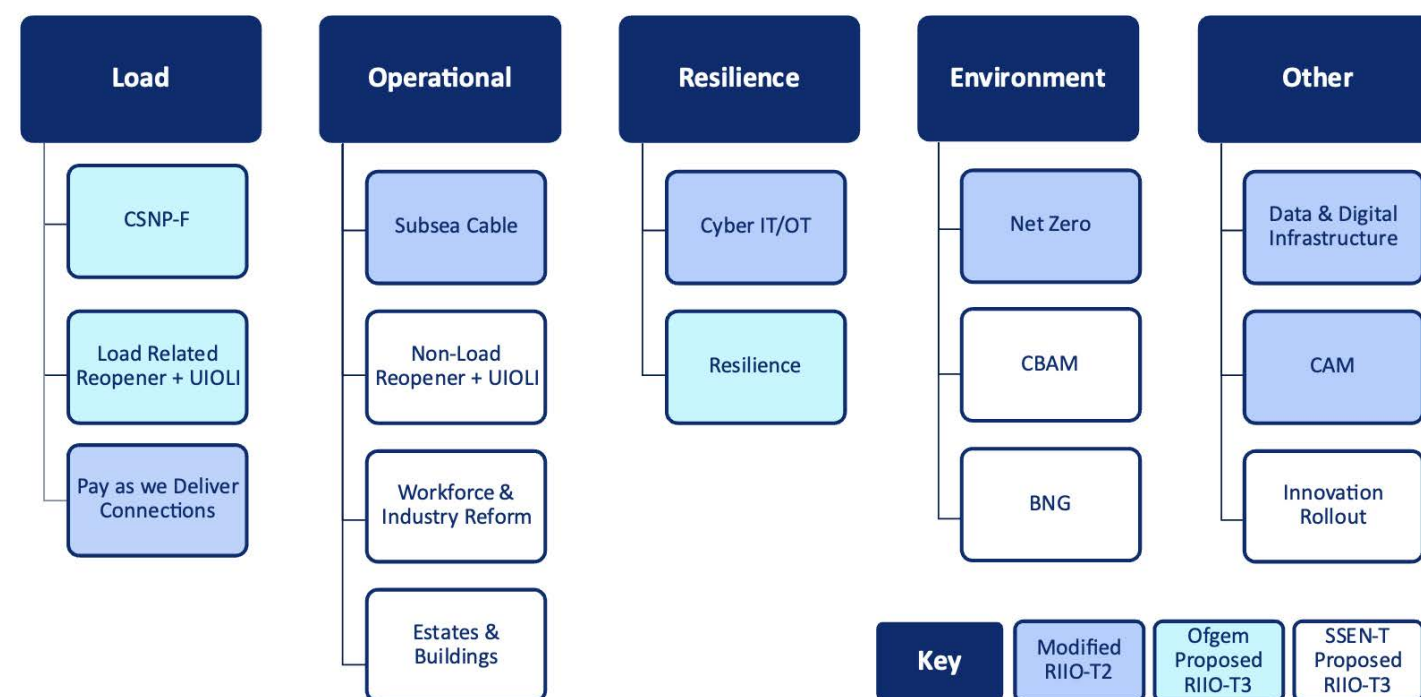
The introduction and adaptation of new uncertainty mechanisms in the RIIO-T2 period have delivered material benefits for consumers. Since the establishment of RIIO-T2, the energy landscape has been transformed by rapid, ongoing, changes in industry policy and reform, as well as macro-economic and geo-political events. Despite these significant delivery challenges, uncertainty mechanisms have enabled our business to increase delivery, improve outputs, and accelerate several substantial projects by adopting increased risk (see page 61).

To sustain and further accelerate our efforts, we believe that enhancements should now be made to the uncertainty mechanism framework. These improvements will ensure we can recover efficient and economic costs while still protecting consumers and include two overarching features:

- **Proportionate regulatory oversight** to ensure timely delivery of all projects, including those required for accelerated Clean Power 2030. Features include cost-only pathways where need is confirmed through the NESO, and automatic funding mechanisms where materiality of costs is low.
- **Responsiveness to real-world market conditions** to fairly reflect risk to both the company and consumers. This includes responding to policy changes and protection from increasing costs.

Figure 28 sets out the uncertainty mechanism proposals for RIIO-T3 which we believe are fundamental to successful delivery within the price control. The framework will require review following the outcome of Clean Power 2030.

Figure 28: Uncertainty Mechanism proposals for RIIO-T3



## Load Mechanisms

In our Plan, we are requesting need approval for 10 load-related projects with a current estimated cost of £1.4bn. Where need approval is granted, these projects will then progress via the cost-only assessment track. We are seeking an efficient cost assessment process for these via the Load-Related Reopener (LRR) and the approval of development funding.

Looking beyond the baseline Plan and into the RIIO-T3 period, categorising our projects into "Strategic-investment determined at the GB level" and "Regional investment in the north of Scotland" (see Page 25), we require the following:

- **Strategic investment:** A cost-only reopener for projects or other material impacts on network requirements confirmed via the CSNP and SSEP. This includes appropriate development funding and access to early construction funding (see our points on the Advanced Procurement Mechanism (APM) below). This is via the **Central Strategic Network Planning – Financial (CSNP-F)** mechanism.
- **Regional investment:**
  - Efficient need approval and cost assessment process for shared-use, strategic and operability investments >£50 million, via the **LRR mechanism**.
  - **A use-it-or-lose-it (UIOLI) pot** for smaller, less than £50m shared-use projects to improve network utilisation, and to maintain stability and operability of the network with a pot value of £200m, with an opportunity to resize the pot if required.
  - Pass-through for smaller shared-use schemes and sole-use connections infrastructure that is part of a "Gate 2 connection agreement", via a **Pay as we Deliver Connections** mechanism which will replace the RIIO-T2 volume driver



**Key Addition to Ofgem SSMD proposals: A pay as you go model for delivering connection projects with ex post regulatory scrutiny**

### Consumer Benefits

1. **Cost Reflectivity:** This approach fundamentally ensures that consumers do not pay more than they need to through the delivery of connection infrastructure.
2. **Simplification:** Simplify the mechanism and provide transparency over costs of connecting

## Pay as we Deliver Connections

The volume driver mechanism predetermines unit cost allowances for different types of projects (new builds, extensions, etc.) and varying generator sizes. The total cost allowance for a project is based on these unit costs. The key benefit of the mechanism has been the ability of TOs to deliver connection projects without delay from a regulatory need approval process, allowing for progress at the required pace.

The continuation of such an automatic mechanism for sole-use and smaller shared-use connection schemes is essential for meeting our net zero targets. However, the challenges in setting unit costs ex ante are insurmountable.

Our network's configuration across a geographically diverse operating region and wide range of terrains leads to significant variation in project costs that ultimately deliver similar outcomes. Factors like ground conditions, altitude, and the length of assets mean that unit costs cannot easily capture the diverse nature of our work. Yet, Ofgem's criteria for volume drivers assume projects are repeatable with similar scopes and predictable costs.

Additionally, the well-documented evidence of cost volatility due to global supply chain constraints means that setting accurate ex ante unit costs is no longer achievable. Yet, progressing connections at pace has never been more vital.

To minimise regulatory risk, we propose that Ofgem should move to a pay-as-you-go model with ex post regulatory scrutiny.





# Other Reopeners

## Other Significant Reopeners

**Non-Load Reopener:** A reopener and UIOLI mechanism to address non-load driven activities that emerge in-period that mirrors the load related reopener. This would take the form of a UIOLI pot (£150m) for smaller-scale non-load projects such as non-NARM assets, type fault issues, and lower-value atypical NARM projects\*. The reopener will also adjust project costs and outputs for NARM projects\* where the NARM mechanism does not adequately fund the projects or delayed projects which span price controls. Additionally, due to the timelines of the proposed NARM changes, significant clarification is required from Ofgem before a comprehensive set of costs can be provided.

**Workforce & Industry Reform:** Learning from RIIO-T2, we propose a reopener to allow adjustments in business support cost (BSCs) allowances (e.g. head count) due to sector growth, policy changes and industry reform (e.g. connections reform, competition). The reopener window should align with policy decisions such as the release of the CSNP or other industry reform decisions.

**Estates & Building Reopener:** A reopener to recover the construction costs needed for new operational (Depots and Operations Centre) and non-operational (Training School) buildings to support network growth through the ASTI projects and future strategic projects as we deliver a network for net zero. Given that delivering these type of projects is different from delivering network infrastructure, and we are continuing to develop our expertise and supply chain, we have submitted need-only justifications as part of the baseline.

This will allow us to submit a cost assessment proposal for the final construction costs following the Royal Institute of British Architects (RIBA) development process. Given this will relate to specific projects, we believe this should be a flexible reopener without specific windows. This reopener will be a route to progress additional operational needs that materialise during the price control.

**Resilience Reopener:** A reopener mechanism for managing risks in light of the changing government or NESO resilience requirements. This would cover mitigation work for risks that are included in the National Risk Register (NRR) such as flooding, enhancing the physical security of CNI sites and changes to emergency measures or protocols to mitigate the impacts of Electricity Supply Emergency Code.

**Carbon Border Adjustment Mechanism:** An adjustment mechanism to modify baseline allowances driven by the UK Government's announcement to introduce a carbon border adjustment mechanism (CBAM) in 2027. This ensures highly traded, carbon-intensive goods from overseas face a comparable carbon price to those produced indigenously. These carbon border costs have not been considered as part of our ex ante baseline ask due to uncertainty.

**Low Carbon Construction and Biodiversity Net Gain (BNG) UIOLI:** These use-it-or-lose-it funds will facilitate the purchase of low-carbon materials for capital projects, leading to Scope 3 emissions savings compared to carbon baselines. The funds will support the acquisition of both established emissions reduction options, such as low-carbon concrete, and the market stimulation of emerging alternatives, like low-carbon conductors. Additionally, the BNG component will promote nature restoration beyond the strict criteria required for meeting BNG standards.

**Innovation Roll Out:** A reopener mechanism to support the rollout and deployment of innovative solutions that carry additional risks when scaled or implemented. The mechanism would allow network companies to request additional funding if the successful deployment of innovation into BaU proves more costly or complex than anticipated.

\*Network Asset Risk Metric (NARM), this is the primary measure for setting the outputs and targets associated with reducing network risk.





# Protection from Volatile Costs

The cost volatility we have experienced and continue to face within the price control is likely to continue into RIIO-T3. Predicting whether costs will remain stable at current rates or materially change is extremely challenging. In this environment the regulatory solution needs to offer a layered and flexible consumer and company cost protection framework. This should comprise existing regulatory mechanisms that are structured and calibrated to better protect consumers and networks.

## Key Ask:

Protection from cost volatility outside of our control, driven by market and supply chain constraints.

## Why

- Delivery:** This allows us to maintain delivery at pace, and continue to act ahead of regulatory need, managing the risk under our control.
- Consumer Protection:** Where costs fall, a symmetrical mechanism will ensure that consumers do not overpay for network infrastructure.



## Advanced Procurement Mechanism (APM)

We have been engaging with Ofgem on the design of its Advanced Procurement Mechanism (APM). We want to build on the lessons and successes with our procurement approach for ASTI, applying these to subsequent investments required for the RIIO-T3 period and beyond. Early clarity on investment pipelines and access to early construction funding (ECF) were the key enablers of this success. The APM should be designed to achieve similar outcomes for projects outside the ASTI framework, such as securing the supply chain early. As a live consultation at the point of Business Plan submission, we will be responding separately and encouraging a more reflective calibration of the APM to current supply chain and project delivery needs.

## Indexation (Real Price Effects RPEs)

Real Price Effects (RPEs) represent the difference between a TO's input prices (e.g. wages and materials) and general price inflation (CPIH). In RIIO-T2, even with an RPE mechanism in place, we believe all TOs were and are still exposed to significant cost pressures that are largely beyond their control. This pressure includes material price movements due to macroeconomic commodity and inflationary pressure, supply chain constraints and general demand for equipment across the EU. For example, costs have more than doubled and indexation is part of the toolkit necessary to address the issue.

An evolved indexation approach should be structured to protect both consumers and TOs, ensuring that cost increases and decreases are shared. It should reflect the current economic environment and consider the limited availability of key skills and contractors.

Recognising that setting an effective RPE mechanism ex ante exposes TOs to calibration risk, we propose that the indices and weighting are subject to an annual true up approach to minimise under recovery. We expand and provide evidence for this approach in the Cost and Benchmarking Annex.

## Staged Cost Assessment

Ofgem has developed several processes that allow for the approval of allowances in stages for qualifying projects. This approach has been applied successfully to ASTI and LOTI proposals. The first stage typically provides certainty of need and early construction funding before planning permission is granted, while the second stage involves a full project cost assessment after planning permission is secured. This means the pace of delivery can be maintained.

To manage a constrained supply chain, we need staged assessment of costs for ex ante baseline projects. We propose an adjustment mechanism at Gate 3 in our project lifecycle, where the project design is finalised for delivery, and we engage with the supply chain. A staged approach allows us to respond to supply chain price fluctuations, ensuring that delivery timelines are maintained and minimising the regulatory burden associated with price control closeout and regulatory uncertainty.

## Outturn Cost Protection

The ASTI process has introduced a mechanism to adjust allowances for actual costs, aiming to protect both consumers and TOs. ASTI projects face greater cost uncertainty compared to those under the RIIO-T2 environment, due to factors like supply chain issues and variable prices. This uncertainty can lead to unexpected profits or losses for TOs, which can be addressed with post-project adjustments.

Looking forward, supply chain challenges and price fluctuations affect all investments during the RIIO-T3 period, not just ASTI projects. Therefore, we propose that the allowance adjustment mechanism, including risk reduction initiatives, should apply to all projects, and not only load related projects.



# 10. The Financial Framework

**A fair, flexible and transparent financial framework settlement for RIIO-T3 is critical to the achievement of national clean and secure energy ambitions at the lowest cost to consumers.**

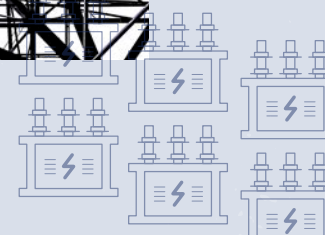
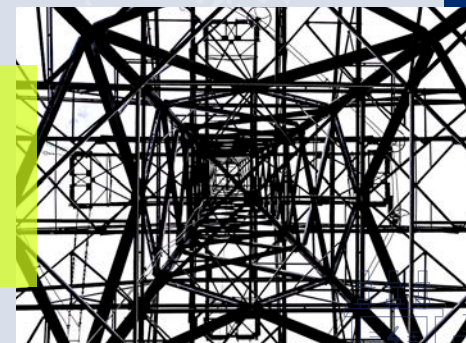
We are delivering unprecedented investment to upgrade the network infrastructure across the north of Scotland between now and the early 2030's as the region plays a leading role in the clean energy transition. It is essential that our business is not only financeable but investable.

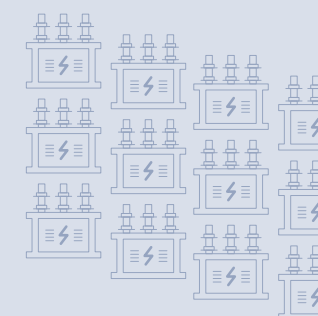


## SSEN Transmission Board Assurance

In line with the requirements of the Business Plan Guidance, our Board of Directors has provided Ofgem with an Assurance Statement. Included in this statement is our assessment of investability and financeability alongside our confidential Finance Annex. It notes we believe our Business Plan will be investable and financeable on the basis of our proposed Financial Framework for the notional company. We have not secured all the necessary financing for the Business Plan such as debt funding and any equity funding requirements at this stage, and therefore this is dependent on market conditions at that time. We believe Ofgem's proposed Financial Framework, in particular their proposed Cost of Capital range, is likely to be insufficient for our Business Plan to be investable and financeable over the RIIO-T3 period.

However, on the basis of the recommendations we make in the following pages, we have submitted our RIIO-T3 Business Plan. This Plan has been approved by the Board of SSEN Transmission and SSE plc. It is fair value to consumers and supports the timely delivery of UK energy security and net zero targets.





# How We Receive and Spend Our Revenue

As a regulated monopoly, Ofgem agree a Regulatory Finance Framework to calculate our annual revenue based on the financial parameters set out in each Price Control Period. All TO charges are socialised across all users of the Transmission network, known as Transmission Use of System Charges (TNUoS). They are collected by the NESO from both electricity generators and retail energy suppliers and generally make up part of the daily fixed charges element of an end user electricity bill.

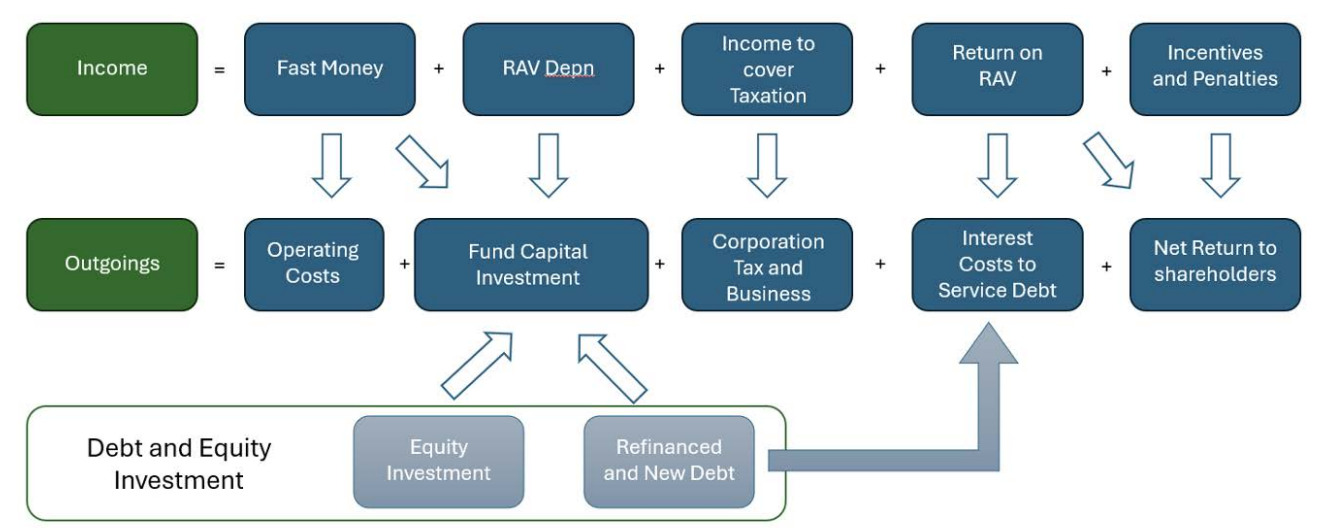
Our revenue covers all key investment components and is determined by a price control formula set out in **Figure 29**. We collect revenue through:



- Fast Money:** Covers in-year operating costs and a portion of capital investment.
- RAV Depreciation:** Revenue to recover the bulk of previous investments, similar to mortgage repayments.
- Pass-Through Costs:** Includes corporation tax and business rates, ensuring we only collect what we incur.
- Return on RAV\*:** Used to pay interest costs and returns to shareholders on their investment in the Regulatory Asset Value (RAV).
- Incentive Revenue:** Below 1% of revenue on average, for exceeding performance targets with most efficiency savings returned to consumers, reducing bills.

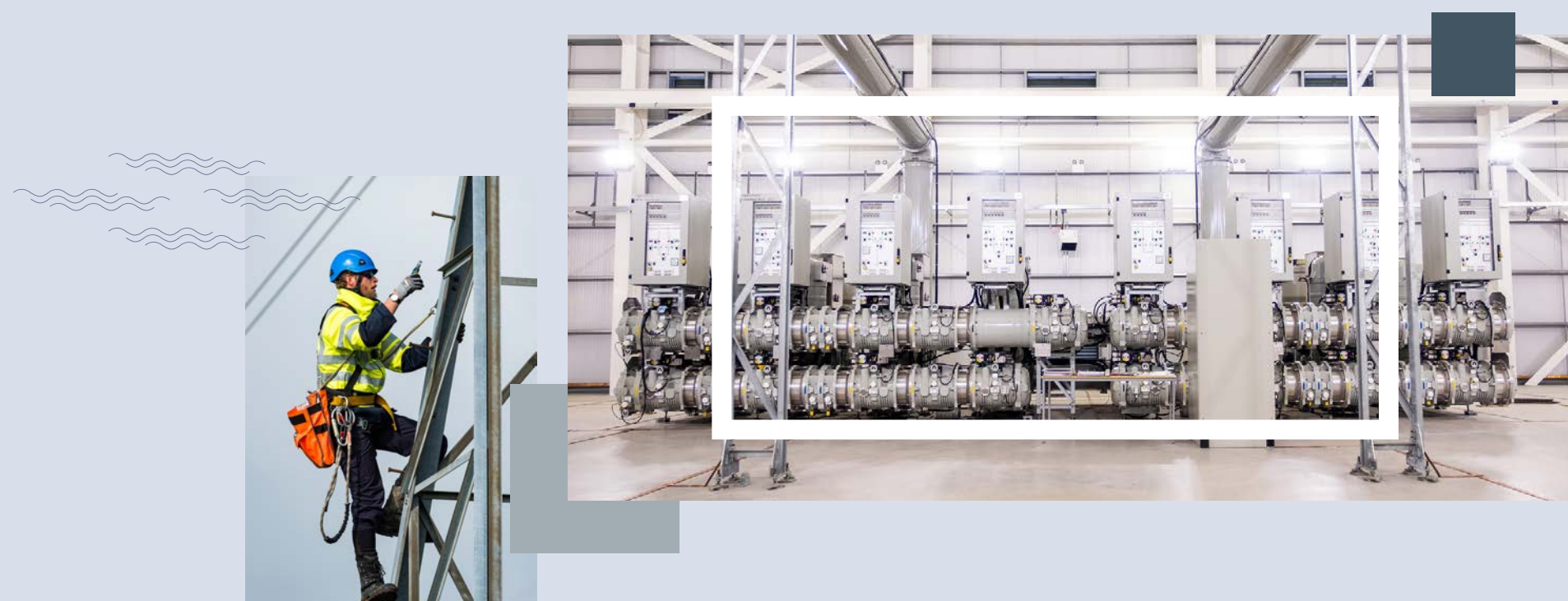
\* The RAV is a snapshot of the value of the existing assets, which the business has invested in and still needs to be recovered via charges to customers

**Figure 29: Revenue sources and uses**



## Fair Tax

In October 2024, SSE marked a decade of Fair Tax Mark accreditation, demonstrating our enduring commitment to the fair tax principles which has been a cornerstone of our approach to sharing value with society. We also maintained our accreditation under the Fair Tax Foundation's Global Multinational Business Standard for the third consecutive year.





# Setting the Right Financial Parameters...

...will ensure investment to support UK's energy security and net zero objectives

For SSEN Transmission, in RIIO-T2 our totex is expected to be over £7bn (nominal prices). For RIIO-T3, we forecast that our totex will be substantially higher. It is intuitive that the financial framework for the two periods cannot be assessed on the same fundamentals. This is before we consider the impact of the entire globe pursuing the energy transition simultaneously with consequent pressures on the competition for capital and returns, and against a backdrop of volatile macro-economic conditions, as the world continues to recover from the shocks of the past decade and faces increased protectionism in trade. We make the case for a balanced financial framework, grounded in current market evidence and forecasts, where stability, certainty and fairness act to attract the necessary capital with a minimal risk premium.

## Financial Parameters

A crucial element of the regulatory framework is establishing a robust Financial Framework to achieve the UK's strategic and regulatory objectives. Given the significant capital intensity of large infrastructure businesses like TOs and the unprecedented levels of investment required for the RIIO-T3 period, the primary goal of the Financial Framework is to ensure we are **financeable** and **investable**:

- **Financeable:** The ability to raise debt financing.
- **Investable:** The ability to raise and retain investment from existing shareholders or new equity investors.

The Financial Framework must also ensure there are **cashflows** to support the significant levels of investment while balancing consumer charges. We believe our Business Plan ensures these objectives are achieved fairly.

By investing in the electricity transmission network, we will significantly contribute to the UK's energy security and net zero goals. This investment will lower consumer energy costs (see Section 8) by reducing constraint costs and facilitating the switch to clean power where energy production costs are cheaper and less volatile than fossil fuels. Getting the financial settlement wrong risks delaying required investment and increases the cost of investment, with adverse impacts on consumer energy costs. A 'tight' financial framework, based on historic parameters, is inappropriate given the scale of capital investment, the policy imperative to accelerate delivery and the global competition for capital as the world pursues the energy transition.

To ensure our plan is both financeable and investable, benefiting consumers and meeting government targets, we have proposed

RIIO-T3 financial parameters that are correct, balanced, and grounded in market evidence which reflects the risks borne by investors. This section outlines the key elements of the financial framework and is supported by detailed evidence in our Business Plan's Finance Annex. Due to commercial and financial confidentiality, the Finance Annex is not published, but we provide a summary of the key elements in this section.

## Funding to fulfil the investment programme is vital

The upcoming period's unprecedented capital investment (see Page 9) means that income received from consumers via NESO will not fully fund all investments. As detailed above, the income we receive is intended to fund operating expenditure, interest costs from borrowings, taxation costs, and a proportion of capital investment. The remaining balance requires funding from debt and equity investment, with the residual, if any, used to compensate equity investors.

Therefore, the RIIO-T3 financial framework must be investable, and offer acceptable returns for investors. It should reflect macro-economic conditions, market evidence, be globally competitive, and reflect risks.

Ofgem has stated it wants to ensure the sector is investable given the scale of capital investment required. A key pillar of this is sustaining adequate cashflow to maintain a strong investment grade credit rating (at least BBB+/Baa1). This supports debt financing, reduces the scale of required equity investment, and ensures healthy company liquidity.

**Table 7** outlines the financial parameters for RIIO-T3 based on Ofgem's SSMD compared to our proposed Financial Framework. It includes the Capitalisation Rate, Asset Lives for new assets, the Cost of Debt mechanism, notional gearing (proportion of our business funded by debt), and the Cost of Equity. When combining the Cost of Debt, gearing and the Cost of Equity, this creates the Weighted Average Cost of Capital (WACC). This constitutes the return on capital that is earned over the regulatory period, which is intended to fund the interest costs, and the return required for investors.

Our Financial Framework proposals are broadly aligned with previous regulatory periods such as capitalisation rates in RIIO-T2 or in the case of returns only marginally higher than what Ofgem is proposing at the top end of their range. Ofgem uses a notional company model to set price controls rather than the actual company. This is because Ofgem use the actual companies to set an approximate definition for the notional company to test the price control Financial Framework.



Table 7: Financial Framework for RIIO-T3

	Ofgem SSMD	RIIO-T3 Business Plan
Capitalisation Rate (slow: fast money)	Natural rate	No higher than 80%
Asset Lives	45 years for new assets	35 years for new assets
Cost of Debt	3.38% 14 year Utilities Index, RAV Weighted	3.38% 14 year Utilities Index, RAV Weighted + premium
Gearing	55%	60%
Cost of Equity	4.60% - 6.36%	6.50%
WACC	3.87% - 4.57%	4.63%

Note: the Cost of Debt, Cost of Equity and WACC are quoted in CPIH-real terms with the Cost of Equity quoted using 60% gearing whereas Ofgem has proposed 55% for Electricity Transmission.



# Cost of Capital and Cost of Equity

## Ensuring we are financeable and investable

The WACC is crucial for ensuring we are financeable and investable. It should be based on robust and reliable market evidence and calibrated to efficiently finance the notional company. This involves:

- **Cost of Equity:** Must reflect market evidence and forward-looking risks to ensure investors are adequately compensated. If set too low, it will leave investors under-compensated for the risk they are taking, making the notional company un-investable.
- **Cost of Debt:** Must cover interest costs due to debt holders under a range of scenarios, to avoid financeability challenges.

The WACC should enable the company to raise and retain the necessary finance to deliver the scale of future investments. Ofgem should consider long-term financeability and investability, given the long-term nature of the investment and ever-increasing capital investment in the coming decades to deliver Government energy security and net zero targets. Our views on the Cost of Equity and Cost of Debt are summarised accordingly.

### Cost of Equity

#### Why setting the CoE of at least 6.5% is required

The sheer scale of investment means that significant equity injections in UK TOs is inevitable, with debt financing limited to that appropriate to maintain a strong investment grade credit rating i.e. BBB+/Baa1. The CoE must be attractive enough to persuade investors that the sector is investable and our proposed CoE accounts for the following key elements:

- **It accounts for macro-economic conditions, when electricity transmission is exposed to the global trading environment:** Given the change in macro-economic conditions and global competition for capital, the CoE should be in the top half of the Oxera <sup>1</sup> range of 5.70% to 6.83% (real). To attract the unprecedented level of investment, RIIO-T3 must offer competitive returns along with adequate cash measures to ensure the companies remain liquid. **It is assessed in the context of a global competition for capital**, where other jurisdictions such as the USA have returns in excess of 10% nominal.
- **It is based on the risk profile of electricity transmission in RIIO-T3, not the historic risk of the past five years or of other utilities:** Evidence based on the CAPM methodology and cross checks, noted in the following pages, supports our proposed CoE of at least 6.5% rather than Ofgem's mid-point of 5.45%. Forward-looking risk estimates show Ofgem has not reflected the change in risk profile from RIIO-T2 into RIIO-T3.

<sup>1</sup> Oxera, RIIO-3 cost of equity—CAPM parameters, prepared for the ENA (November 2024), confidentially submitted to Ofgem.





# Cost of Equity: Investor Returns

A CoE of at least 6.5% is crucial to attract and retain investment in essential electricity infrastructure

The Capital Asset Pricing Model (CAPM) is the most appropriate means for calculating and setting the CoE for a regulatory price control, as it is based on widely accepted finance theory components as set out in Figure 30.

Figure 30: Capital Asset Pricing Model (CAPM)

$$\text{Cost of Equity } (k_e) = r_f + \beta (r_m - r_f)$$

$r_f$  → Risk-Free Rate

$\beta$  → Beta

$r_m$  → Market Return

$(r_m - r_f)$  → Equity Risk Premium (ERP)

Setting the correct Risk Free Rate (RFR), Beta, and Total Market Return (TMR) is crucial. **Table 8** summarises these components and our evidence to Ofgem, highlighting why Ofgem's CoE range in the SSMD is insufficient.

CoE should be set towards the top of a range to ensure that investment is secured during this critical period, and that the CoE in RIIO-T3 is set above the top end of the Ofgem range in the SSMD. It is a well-established regulatory and financial principle that setting the CoE at this level prevents consumer harm by avoiding underinvestment and results in a marginal increase in consumer bills compared to Ofgem's SSMD proposal. Given the significant detrimental impact underinvestment or investment delays would have on consumers, it has never been more important to set the right CoE.

Ofgem's proposed 'early view' of 5.45% midpoint CoE does not enable us to maintain our current financial resilience and reduces our ability to attract and retain the capital required to deliver the unprecedented scale of investment in the RIIO-T3 period and beyond. Evidence from Oxera and Frontier Economics demonstrates that the CoE range should be between 5.70% and 6.83% which is materially higher than Ofgem's range. In essence, this is the base CoE range before considering cross checks and forward-looking risk which is set out in the following sections.



Table 8: CoE components

CAPM Terms	Evidence that a higher CoE is fair and justified
Risk Free Rate (RFR)	The RFR represents the return an investor can expect from holding an asset with zero risk. We agree that Index Linked Gilts (ILGs) are an acceptable starting point, but sole reliance is not appropriate, and we support the application of a Convenience Premium to reflect the exclusivity of government bonds in the estimation of the true RFR. Ofgem has proposed to maintain reliance on ILGs only, however the absence of any form of adjustment to take account of unique features of government debt will not in practice represent a true RFR available to the majority of investors.
Total Market Return (TMR)	TMR represents the return an investor can expect on the equity market portfolio. As investors' expected market return is not directly observable, Ofgem has to estimate the TMR. We believe Ofgem's working assumption estimate must be uplifted to reflect latest market conditions. The TMR should be cross-checked against market evidence which informs that only a minimum TMR of 7.0% (CPIH-real) can reflect the scale of interest rate movement since RIIO-T2.
Beta	Beta represents the systematic risk of a portfolio compared to the wider market. We present evidence to demonstrate that the risks faced by SSEN Transmission are expected to be higher in RIIO-T3 than in RIIO-T2, even after considering the impact of any mitigations within the regulatory framework. This is evidenced in our Mega Project case study on the following pages. The impact of future risk exposure is not yet observable within the Beta value.  Our Finance Annex sets out the case for an upwards adjustment to Beta to reflect increasing risks on a forward-looking basis. Our review of risk also demonstrates that risks are likely to be asymmetric, which should also be accounted for in setting the regulatory framework for RIIO-T3, thereby ensuring investors are compensated fairly.





# Cross-Checks Provide Valuable Market Evidence to Set CoE

## Cross Checks Provide Market Evidence that a CoE of at least 6.5% is Fair and Justified

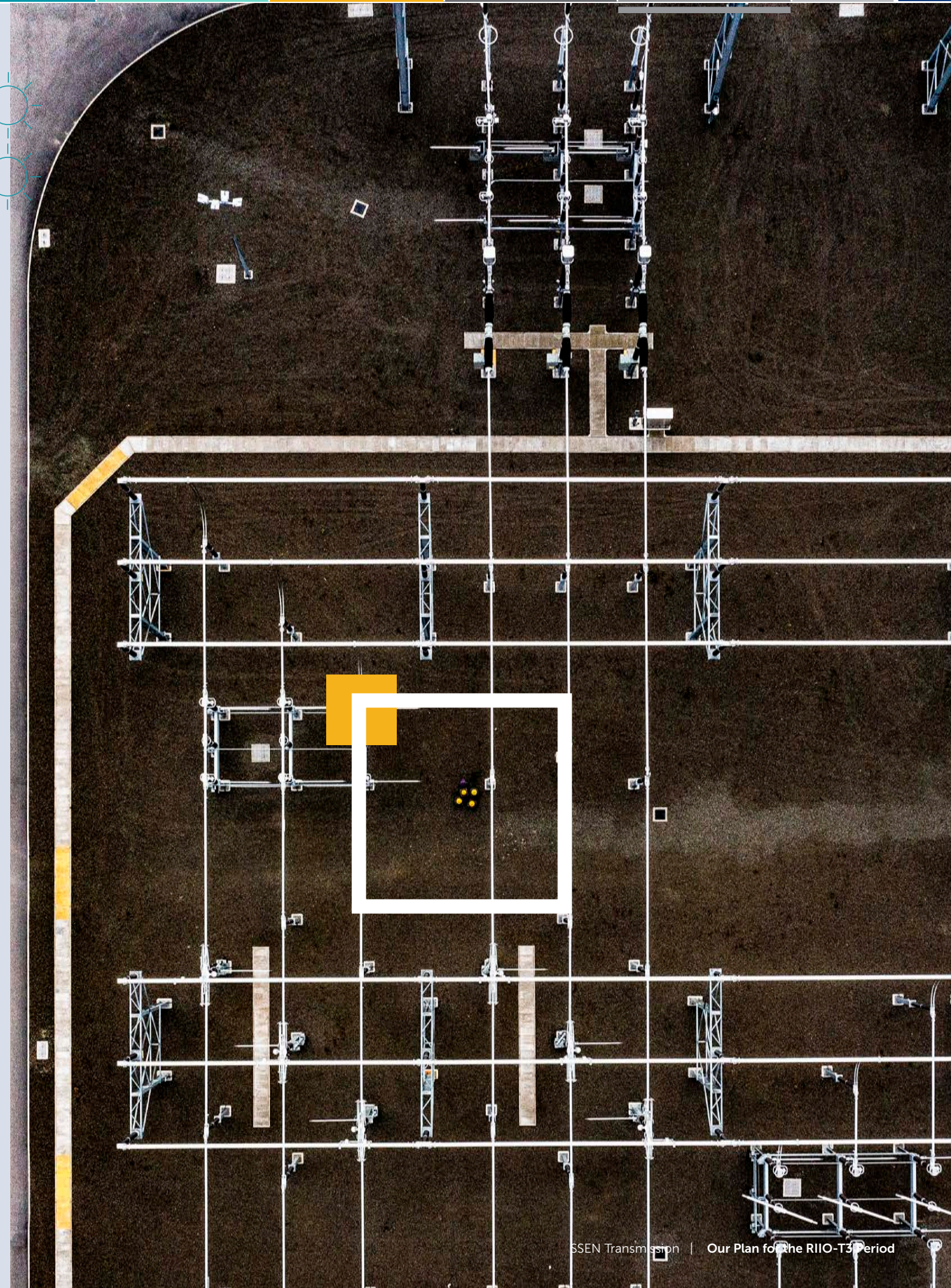
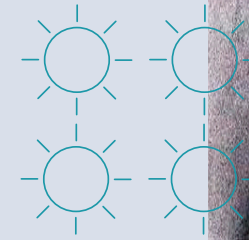
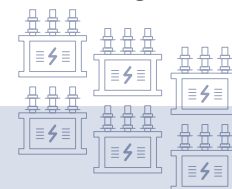
Beyond the CAPM, Ofgem and other regulators consider cross checks evidence when setting a real world CoE. This includes cross checks such as infrastructure fund returns, investment manager returns, Market to Asset Ratios (MARs), and various debt cross checks. These metrics provide valuable market evidence of the returns investors require for a given level of risk. In summary:

- **Infrastructure Fund and Investment Manager** returns have materially increased due to macro-economic and other circumstances since RIIO-T2 financial parameters were set. Current market evidence indicates required and targeted returns have increased by over 2% on average. However, Ofgem's proposed increase from RIIO-T2 to RIIO-T3 is only around 1%, which materially understates the required return when comparing similar asset investments to electricity networks.
- **Debt cross checks** provide a market-based estimate for the CoE by examining how investors price hybrid debt, which includes both equity and debt components. They also include the differential between the asset risk and debt risk, using publicly traded utility bonds to estimate

the additional return equity investors require over debt investors, who are guaranteed a return through interest payments. These estimates are supported by evidence from Oxera and Frontier Economics that the CAPM range should be set between 5.7% - 6.83%, materially higher than Ofgem's range.

- **Market to Asset Ratios (MARs)** are often used by regulators, including Ofgem, to justify how they set returns. However, a thorough evaluation shows that over-reliance on MARs is unjustified. Our analysis shows that this evidence has been misinterpreted and it would be inappropriate to use headline comparisons of transaction prices to the RAV of regulated networks as a means to justify a lower allowed return on equity. There is superior more reliable market evidence where the majority of weight should be placed.

Therefore, our assessment of available cross checks shows that the Oxera/Frontier Economics CoE range is more justifiable than Ofgem's CoE range; especially when considering the evidence to support the upper half of Oxera/Frontier range.







# Case Study – Mega Projects

## Measuring Forward-Looking Risk

The CAPM does not provide forward-looking evidence for the risk-return relationship, as its measure of risk, Beta, is backward-looking and can only be reasonably relied upon if the future mirrors the past. This is not the case for electricity transmission and RIIO-T3, which requires unprecedented investment and simultaneous delivery of Mega Projects.

To assess forward-looking risk, we compared the risks in RIIO-T2 with those in RIIO-T3. This involved evaluating our RIIO-T2 investments and regulatory mechanisms against those planned for RIIO-T3. Given the scale and complexity of the capital investment programme, we reviewed evidence of Mega Project delivery, and its associated risks compared to traditional capital projects. We also considered evolving operational risks including the change in the complexity of network operations, such as new technology, and concurrent delivery and commissioning of multiple projects. This comprehensive assessment highlights the increased risks in RIIO-T3 compared to RIIO-T2.

## What are Mega Projects and why are they important?

According to Professor Bent Flyvbjerg <sup>1</sup>, Mega Projects are



...large-scale, complex ventures that typically cost more than 1 billion US Dollars, take many years to build, involve multiple public and private stakeholders, are transformational, and impact millions of people. They are a completely different breed of project in terms of their objectives, lead times, complexity, and stakeholder involvement."

Flyvberg notes that Mega Projects are highly risky and exhibit the following characteristics:

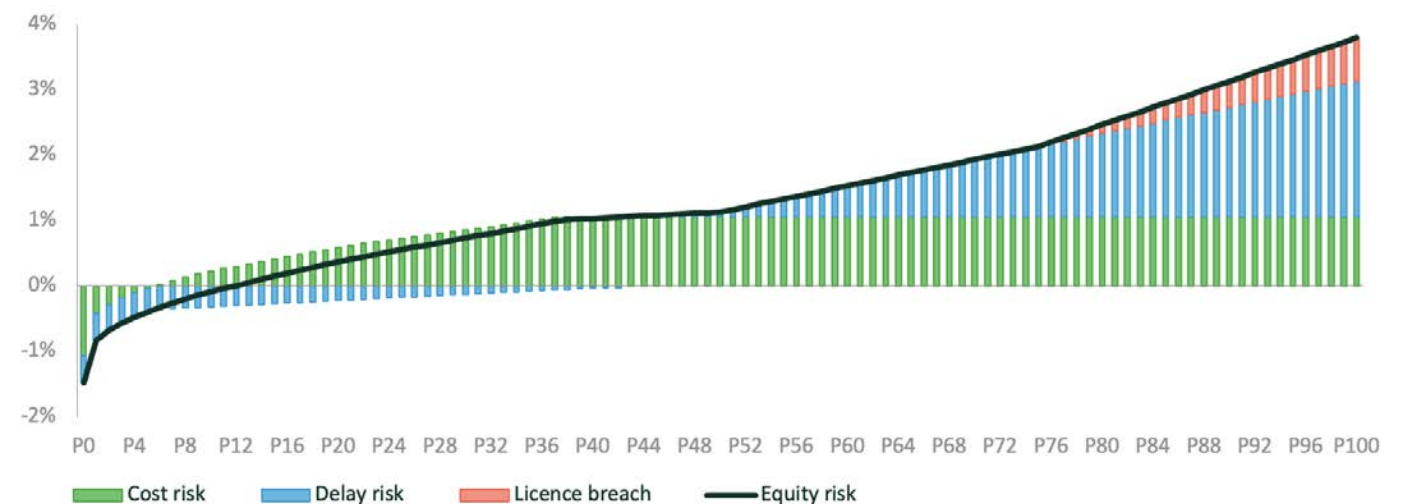
- Cost overruns and time delays which have remained high and constant for the 70-year period for which a comparable data exist.
- Nine out of ten Mega Projects exceed their budget, with overruns above 50% not uncommon.

This context is crucial for RIIO-T3, as we will deliver over 10 accelerated interdependent Mega Projects under the ASTI and LOTI frameworks.

An independent review by Gardiner & Theobald confirmed these projects display the characteristics of Mega Projects, representing a material shift from the type of projects being delivered in RIIO-T2. To assess the impact of these Mega Projects on RIIO-T3 risk, we evaluated the quantifiable financial risks,



Figure 31: Modelled equity risk outcomes



including cost and schedule overruns, and considered how regulatory mechanisms will mitigate these risks. Our analysis shows a significant increase in equity risk for RIIO-T3 compared to RIIO-T2, with almost 90% of outcomes indicating statistically higher risk.

Figure 31 represents the distribution of potential outcomes following this methodology which utilises best practice in risk management for project delivery. This quantifies the contribution given by each risk and regulatory mechanism to RIIO-T3 equity risk over the full modelled range of probability.

Even if one were to accept Ofgem's proposed CoE range (which we believe is incorrect), this is based on a roll forward from RIIO-T2 reflecting changes in macro-economic factors such as increasing interest rates. It does not compensate for forward-looking risk. Our analysis shows that Ofgem will need to significantly increase its CoE range and point estimate to reflect forward-looking risk, by at least 1-3%, especially when considering the concurrent delivery of multiple Mega Projects and associated operational, commissioning, and outage management risks.

<sup>1</sup> Flyvbjerg, B. (2014). Project Management Journal 45(2), What You Should Know about Mega Projects and Why: An Overview





# Cost of Debt

## Ensuring financeability with an adequate CoD allowance during unprecedented network investment

Debt forms a large portion of a TOs capital structure and is critical for funding RIIO-T3 investments. The CoD allowance (i.e. interest cost) is calibrated based on a chosen benchmark index, cross checked against the average CoD of embedded and new debt for planned expenditure, and is updated annually to account for outturn market movements.

An efficient CoD allowance should reflect the risk profile of the network, cover additional borrowing costs, incentivise TOs to manage financial risk, and not favour the financing preferences of larger TOs. This helps ensure the financeability of the extensive growth and capital investments required to achieve net zero.

While the specifics for the RIIO-T3 CoD calibration are yet to be decided, Ofgem's proposed methodology is outlined in the SSMD. Our Finance Annex submitted together with this business plan emphasises the need for a more accurate CoD calibration that reflects the diverse financing profiles of TOs and aligns with market conditions and RIIO-T3 investment needs.

Table 9 summarises of our view on CoD, highlighting the need for Ofgem to ensure TOs can secure debt financing under a range of interest rate scenarios, especially high interest rates. Setting CoD too low risks a material financeability problem at a time when investment has never been more critical. We recommend that Ofgem must provide sufficient transaction costs and calibrate the mechanism to allow for that high-interest rate environment. **This would mean either adjusting the mechanism design or adding a premium to the 14-year Utilities Index similar to what Ofgem implemented for RIIO-ED2 when interest rates increased rapidly.**

Ofgem's SSMD proposes a fixed nominal CoD allowance, for at least a proportion of the debt used to finance TOs. We believe this should reflect the company's actual debt structure split of fixed nominal debt compared to index linked debt i.e., debt linked to inflation. This allows flexibility in debt raising decisions by companies while fully implementing Ofgem's policy of avoiding a disconnect between a company's exposure to inflation linked debt compared to fixed nominal debt.

Table 9: Setting the right Cost of Debt

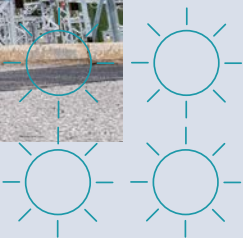
Aspect	Ofgem SSMD RIIO-T3 Assumptions	Our view on RIIO-T3 Assumptions
Calibration and Design	RAV weighted trailing average, including refinancing of RAV additions. A sector specific calibration based on a TO only cohort and possible addition of ED operators to avoid outliers. Specifics of the calibration to be determined at final and draft determination level.	A 14-year trailing average of iBoxx GBP Utilities 10+ index more accurately reflects the actual CoD of an efficient network operator. We also support the use of a RAV-weighted indexation based on individual company's RAV profile. The calibration should be company specific to account for varying RAV growth rates and financing profiles of TOs, thereby preventing the skewing of the allowances towards the largest TO. Including ED companies in to the TO cohort is inappropriate due to the differing risk profiles and growth expectations. An additional premium is required to ensure the CoD allowance is sufficient if interest rates were to rise to levels seen in the past two years (or higher).
Additional Borrowing Cost	Specifics to be determined at final and draft determination level.	Our view aligns with the analysis conducted by NERA on behalf of the ENA, which recommended an increase in additional borrowing cost from 25 basis points in RIIO-2 to a range of 54 – 59 basis points.
Inflation Treatment	A nominal allowance for Fixed Rate Debts (FRD) and remove the indexation for the respective RAV portion funded by FRD (Option 1). Ofgem intends to implement this in line with the notional capital structure assumptions.	Ofgem's assessment of the alleged leverage effect is flawed, as it fails to account for the diverse capital structures across TOs and investor preferences.  Implementing Option 1 with a notional capital structure will still lead to inflated RAV growth, and Ofgem's definition of an alleged leverage effect; potential for "unearned returns". Therefore, this approach conflicts with the fundamental objective of the remedy. Instead, the implementation should be based on the actual company portion of Index Linked Debt.

[1] NERA (2024) 'Additional Cost of Borrowing for the RIIO-3 Price Control', February 2024.



# Other Financial Parameters

Balancing investment needs and consumer charges with essential cashflows to support unprecedented levels of investment



## Setting Capitalisation Rates

The capitalisation rate is the percentage split of totex between RAV additions i.e. slow money, and operating costs i.e. fast money. In previous price controls (RIIO-T1 and RIIO-T2), this rate was based on the split between capital and operating expenditure, the natural rate.

In RIIO-T1, Ofgem set a single capitalisation rate lower than the natural rate to support a significant £3bn investment programme. In RIIO-T2, Ofgem again set the capitalisation rate lower than the natural rate to avoid “over capitalisation, as this could result in less fast money than might be reasonable, which could hamper company investment and consumer interests.” The rates were 77% for ex ante baseline totex and 85% for Uncertainty Mechanisms, averaging 80% over the price control. Totex in RIIO-T2 is now expected to exceed £7bn.

Our assessment of our ex ante baseline expenditure for RIIO-T3 is that a natural capitalisation rate is around 85%. We also have a significant known investment through Uncertainty Mechanisms meaning the total investment is higher than in any other price control period. Therefore, we believe it is consistent with previous price controls and with the need to support equity cash flows as stipulated in

RIIO-T2, that the capitalisation rate is set lower than the natural rate. As a result, it would be appropriate to align the RIIO-T3 capitalisation rates with RIIO-T2 levels. We believe a single rate is required given the scale of known expenditure and therefore propose this should be no higher than 80% (77% would be more appropriate but we have modelled our Business Plan based on an 80% capitalisation rate).

## Reviewing Asset Lives

In RIIO-1, Ofgem changed asset lives for new assets being added to the RAV to 45 years in electricity transmission. We transitioned to 45 years over RIIO-T1 and RIIO-T2 to support cash flows. Initially, asset lives were set based on technical lives of assets and avoiding a “cliff edge” of revenue when assets reached 20 years and were fully depreciated on the RAV.

Since that decision, there has been a need to consider asset lives not simply on technical lives but on an economic basis for investors and for consumers. For example, shorter asset lives benefit consumers by considering the time value of money (see sub-section below). From an investment perspective, shorter asset lives (20-25 years) support better cash flow and quicker payback periods for investors.

We propose depreciating new assets over 35 years instead of 45, balancing economic asset lives, cash flows, and intergenerational consumer impact. This approach is appropriate and does not adversely affect consumers.

## Reduction in asset lives to reflect increasing near shore and subsea assets

Given our expanding asset base of near shore and subsea infrastructure, we can evidence that the economic life of these asset types is approximately 25 years. This is due to their closer proximity to the coast, which exposes them to harsher, corrosive weather conditions. We estimate over 65% of our total totex is likely to fall into these categories of assets, compared to longer life onshore assets.

## Consistency Required Across Transmission Regulatory Policy

In Ofgem’s recent consultation on the Early Competition Model<sup>1</sup> it recommends that asset lives for this class of Transmission assets be 35 years to cover project lifecycles and create an investable vehicle. Given the scale of investment required in incumbent TOs, the need to reduce asset lives to a more “investable level” would be even more appropriate than for competition models. The

decision on what is the appropriate asset lives is therefore not simply down to the technical lives of assets as demonstrated by Ofgem’s policy proposals for the onshore electricity transmission competition commercial framework.

## Intergenerational fairness

While longer asset lives may yield short-term reductions in consumer bills, they increase costs on future consumers due to higher revenue stemming from a larger RAV. This creates intergenerational inequality, benefitting current consumers at the expense of future generations. This impact can be calculated using the HM Treasury Green Book approach.

Ofgem’s RIIO-T2 Finance Annex, paragraph 11.8 and paragraph 5.33 highlight the need to support network financial strength in high totex scenarios linked to net zero investments. “This judgement seeks to support the financial strength of the networks in the event higher totex scenarios associated with high net zero investment materialise.” This situation is expected to be more significant than what was envisaged in RIIO-T2 and it is imperative it is reviewed given the material break from previous price controls.

<sup>1</sup> Ofgem, Onshore electricity transmission Early Competition: Consultation on the first project to be competitively tendered (Dec 2024), and Consultation on the onshore electricity transmission Early Competition commercial framework (Oct 2024)



# Other Financial Parameters Continued

## Treatment of tax

We strongly believe all licensees should be transparent in their tax affairs, ensuring costs passed to consumers reflect only actual taxes paid. As part of the SSE Group, we are assessed under the Fair Tax Mark with October 2024 marking the tenth consecutive year of our accreditation. We also note that due to the scale of capital investment, the amount of taxation paid is significantly reduced due to how capital allowances now operate. Being Fair Tax Mark accredited should provide comfort that we act responsibly with regards to taxation treatment.

For RIIO-T3, we propose that taxation be treated as a pass-through cost if licensees can demonstrate compliance with a tax accreditation standard, or equivalent. This would streamline reporting requirements, reduce administration costs, and provide better value and reassurance to consumers, with a transition period if required.

If Ofgem retains the current treatment of tax, modifications are required in regulatory reporting models and the calculation of the Tax Trigger Event (TTE) value for RIIO-T3. Capital allowance opening balances should also be trued up to align with actual company tax return closing balances. We also believe it would be appropriate, in the spirit of the licence condition in RIIO-T2, for the TTE to include provision for changes in other taxes that affect costs such as Employers National Insurance changes which are material to a company's cost base through directly employed staff and contractor costs.

## Our Dividend Policy

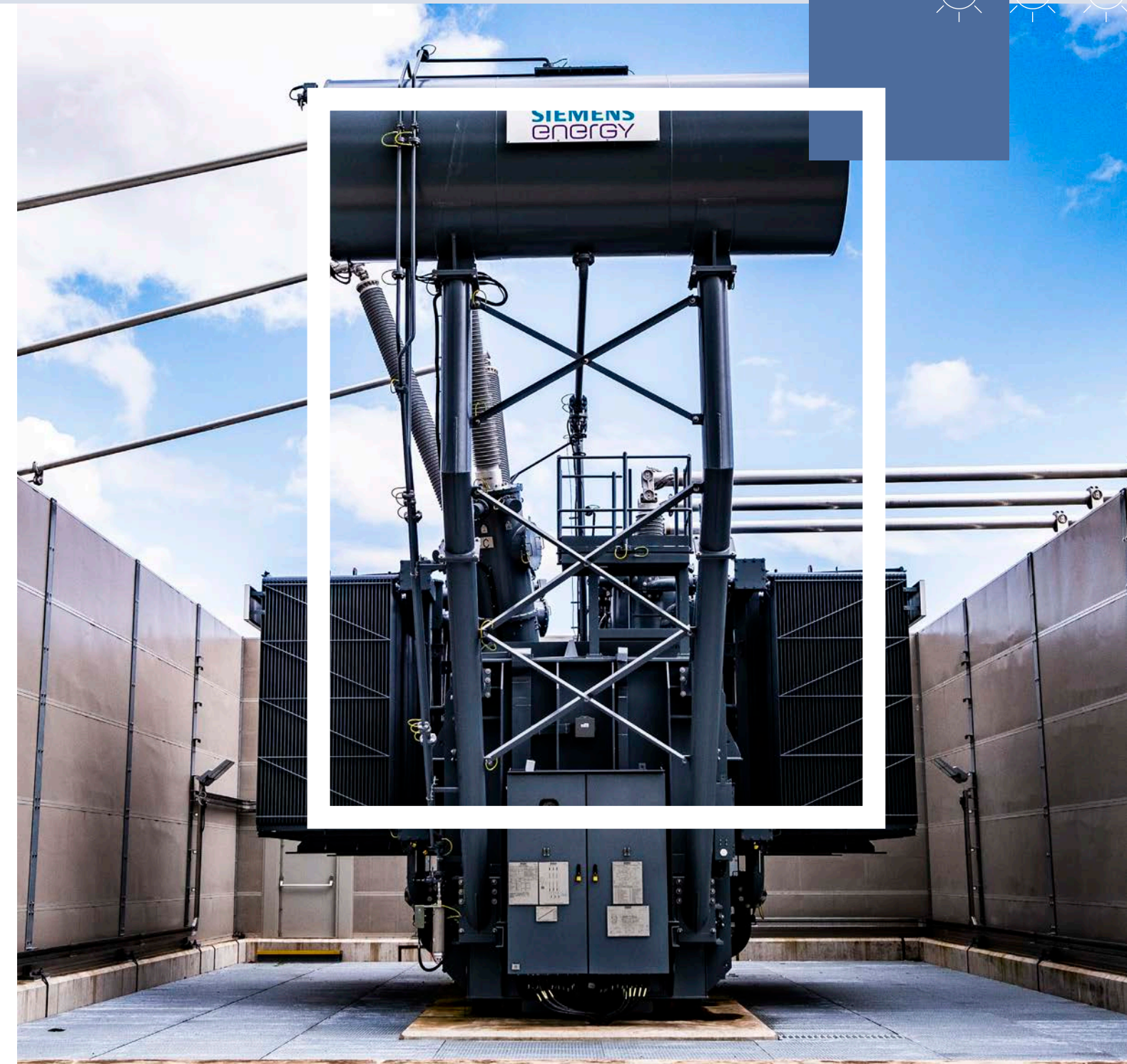
In line with the Companies Act, SSEN Transmission's dividend policy is a Reserved Matter decided by the SSEN Transmission Board of Directors. The Board

considers multiple factors including financing our extensive investment plan, maintaining a strong investment grade credit rating, resource availability, company viability, and consumer impact of paying a dividend while attracting and retaining investment.

TOs need high and stable dividend yields to attract and retain equity investors, balancing consistent dividend payments with share price appreciation. In line with Ofgem parameters, our Business Plan models a reasonable 3% dividend yield per annum, though global evidence suggests 4-5% for similar investments<sup>1</sup>. Ofgem's proposed yield of 1.5% is half the level Ofgem proposed for the notional company in RIIO-T2 which had a lower risk profile than RIIO-T3 and is inconsistent with the need to attract unprecedented levels of capital investment. It is also worth noting that despite the increasing investment across regulated utilities in Europe, there has been no reduction in current or expected dividend forecasts from the average of 4-5%.

## Our Equity Issuance Policy

We consider equity investment where other funding options are considered unsuitable, such as managing annual cash flows, adjusting borrowings (including short- and long-term debt) and restricting dividends. The cost of issuing new equity can be material and Ofgem has adopted a policy of the cost of equity issuance to be 5% of any equity issued. There is evidence that when including direct and indirect costs associated with issuing equity that this could be as high as 7-10%<sup>2</sup>. We believe our proposed Financial Framework will minimise the indirect cost element of equity issuance costs compared to Ofgem's SSMD Financial Framework, and therefore 5% would be appropriate to cover equity issuance costs over RIIO-T3 on this basis.



<sup>1</sup> Oxera, RIIO-3 risks and investability topics, prepared for the electricity transmission operators, 2024

<sup>2</sup> Oxera, Equity Issuance Costs, prepared for SSEN Transmission, Feb 2024



# Financeability and Investability Assessment

Overall, we support the introduction of investability as a core concept and policy for the RIIO-T3 Financial Framework. We believe that this objective, if properly reflected, will ensure returns and cashflows are sufficient for both new and existing equity investors as well as supporting key investability measures. We note Ofgem has not defined what makes electricity networks investable, and we propose it reflects the following factors:

- Equity returns reflecting market evidence and macro-economic factors such as higher interest rates
- Risk-adjusted equity returns to account for forward looking risk
- Globally competitive returns to attract and retain investors
- Efficient and fully financed debt costs, including transaction costs, to withstand higher interest rates particularly given the scale of debt capital required over RIIO-T3
- Appropriately funded costs of issuing equity of at least 5%
- Strong investment grade credit rating (i.e. at least Baa1/BBB+)
- Cashflow measures that do not overburden funding requirements similar to previous price control measures.

Our Finance Annex, as noted previously, has not been published alongside our Business Plan for confidentiality reasons. Therefore, we present a summary of our assessment of financeability and investability considering the range of stress testing scenarios for the notional company in line with Ofgem's Guidance. This is based on the maximum potential totex expenditure detailed in page 9.

## A Strong Investment Grade Credit Rating is Essential

Network operators must have sufficient operational resources available to deliver our licence obligations across the medium term and maintain a strong investment grade credit rating to reassure both debt and equity investors, and wider stakeholders. SSEN Transmission has maintained a strong credit history through financial discipline and strong financial

management. Being able to continue with that strong investment grade credit rating is crucial for attracting necessary and extensive capital, both debt and equity investment.

**Table 10** summarises our debt financeability assessment based on two key credit metrics: Funds From Operations (FFO) to Net Debt (S&P) and Adjusted Interest Cover Ratio (AICR) (Moody's). We have outlined the Red Amber Green (RAG) <sup>1</sup> status in the table with the trajectory of metric declining in all scenarios over the price control period. To manage risk and assess the financeability of our plan, we model various scenarios to assess the financial impacts on our Business Plan Financial Model (BPFM). This includes varying the quantum and timing of capital expenditure, financial parameter movements and the subsequent impact to gearing ratios. We have assumed dividends of 3% in both Ofgem's Financial Framework and SSEN Transmission's Business Plan Financial Framework, as well as the associated sensitivities as required.

We note that the rating agencies consider multiple factors including, but not limited to, the Scale and Complexity of Capital Program <sup>2</sup>. This factor has a material effect on the overall credit rating assessment and therefore the credit metrics alone (which account for around 40% of the overall rating) are not sufficient to conclude on the credit rating in isolation.

We do not believe that based on our risk assessment and balance of incentives/penalties that the opportunity for 10% underspend and 2% upside on RoRE is possible. This is due to the asymmetric nature of the risk being taken to deliver Mega Projects as we set out in our assessment of forward-looking risk, and also because Ofgem set project allowances after the main contract award. There is also an asymmetry in incentives/penalties whereby the maximum upside potential is materially less than 2% whereas the maximum downside is in excess of 2% over the period particularly when considering the impact of the ASTI Output Delivery Incentive (ODI) which occurs in the event of material unapproved delays.

We recommend that Ofgem ensure the Financial Framework, in particular interest costs, are robust to higher interest rates movements which is supported by the assessment in Table 11. Overall, the asymmetric nature of the price control and material change in business risk profile, alongside wider macro-economic conditions means that our

RIIO-T3 Financial Parameters proposals will enable a robust platform to deliver the unprecedented levels of investment required from capital markets.

## Investability Assessment

Our analysis of the investability criteria we have set out above is that our proposed Financial Framework will ensure financial robustness over the period, protect from macro-economic factors, while ensuring incentives to perform are retained. The credit metrics assume that we are able to maintain gearing at the notional level. However, our proposed Cost of Equity is intended to ensure it is possible to compete for global equity capital to ensure the gearing can be maintained.

It will also ensure that cash flows and equity requirements over the period will be more appropriate and balanced compared to Ofgem's proposed Financial Framework. We have considered this based on market evidence and the requirements of investors in detail within our confidential Finance Annex.

On this basis, we strongly believe we have submitted an investable RIIO-T3 Business Plan Financial Framework which is approved by our Board, is fair value to consumers and supports the timely delivery of UK energy security and net zero targets.

**Table 10: Key Credit Metrics over RIIO-3**

Credit Metric	Ofgem SSMD Financial Framework	SSEN-T Business Plan Financial Framework
FFO to Net Debt		
AICR		

<sup>1</sup> Green indicates the metric is above the threshold, Red indicates that the metric is below the threshold. Amber indicates the metric is close to the threshold.

**Table 11: Key Credit Metrics Stress Test Scenarios over RIIO-3**

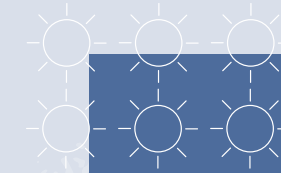
Ofgem Scenario	Ofgem SSMD Financial Framework		SSEN-T RIIO-T3 Business Plan Financial Framework	
	FFO / Net Debt	AICR	FFO / Net Debt	AICR
+2% inflation				
-2% inflation				
+2% interest rates				
-2% interest rates				
10% overspend				
10% underspend				
2% RoRE upside				
2% RoRE downside				

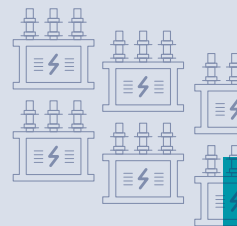
Note: the thresholds used to obtain BBB+/Baa1 is 11% (FFO/Net Debt) S&P and 1.4x times (AICR) Moody's

<sup>2</sup> Moody's, Rating Methodology Regulated Electric and Gas Networks, April 2022



# Appendices





## Appendix 1

**Commitments\***

Commitment	Measurement	Target
1. Zero interruptions in electricity supply to homes and business due to our network	Incentivised loss of supply events	Zero in each full regulatory year (exceeding target)
2. To be world class in asset management and network operations in international benchmarks	Bi-annual ITOMs and ITAMs benchmarking (or equivalent)	Upper quartile (ITOMS, or equivalent) and score >4 (ITAMS, or equivalent) in each assessment cycle
3. To establish 'operations of the future' with an engineering training school, multi-team operational campus and integrated real time digital operations	Investments in: training school, operational campus (including control centre) and digital Infrastructure to support c4000 workers, including 800 field workers with real time data	On time, on allowance delivery
4. Our network will have the capability to meet 20% of the GB demand for clean power	i. Accelerated Strategic Transmission Investments for 2030 ii. Connections strategically aligned with Clean Power 2030	i. On time, on allowance delivery ii. On time delivery**
5. To deliver excellence in customer service and community engagement during the energy transition	i. Quality of connections customer survey ii. AA1000 assurance standard (or equivalent)	i. Exceed target in each regulatory year ii. 'Advanced' performance rating in each assessment
6. To show international leadership in the development and deployment of HVDC technology working with suppliers and through our HVDC Centre	i. Active innovation portfolio for HVDC technology ii. Investment in the HVDC Centre	i. Innovation portfolio has at least two HVDC projects with supply chain and international partners ii. On time, on allowance delivery
7. Drive investment in the energy transition that delivers transformative lasting benefits for local communities, our economy and nature	i. New housing that will be made available to communities ii. Allocation of community benefit funding iii. Greenhouse gas emissions: SF6 leakage rate iv. Biodiversity net gain in the (a) terrestrial and (b) marine environments	i. At least 1,000 homes by 2030 ii. £100 million by 2030** iii. Exceed target in each regulatory year iv. (a) At least 10% by 2030 for terrestrial, and (b) establish marine biodiversity methodology by 2030
8. To demonstrate international leadership in the development of sustainable business practices for post-2030	Impact on planetary boundaries	Complete impact assessment and set action plan by 2030
9. To realise long term consumer value through targeted innovation, strategic supply chain partnerships and accelerating the transition to clean power	i. Innovation benefits ii. Capital expenditure subject to competitive market (one-off tender or framework agreement) iii. Centralised strategic network planning	i. Baseline ratio of 1:2 in expenditure: benefits of innovation ii. At least 80% by 2030 iii. Publication of area network plans for 2031-40 that align with the SSEP, CNSP and RESP

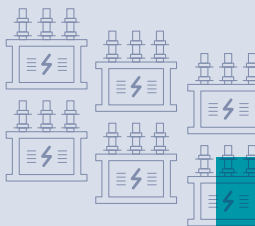
\*Subject to regulatory approval of this Business Plan

\*\*Target to be confirmed following publication of the UK Government Clean Power Plan and Community Benefit Guidance



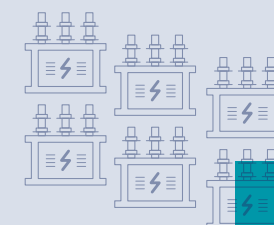
## Appendix 2

# Deliverables



	Deliverable	Target
<b>Safe, secure and resilient supplies</b>		
1	Secure the network and deliver a 102MWh ENS Target.	ODI
2	NARM: A long-term monetised risk benefit of R £1,420.9m, by delivery of our NARM portfolio of non-load works.	PCD (NARM)
3	Adopting a risk-based approach to compliance with the NCSC Cyber Assessment Framework, reducing risks were practicable.	Business Plan Deliverable
4	Deploy Condition Monitoring Equipment to improve asset maintenance and interventions.	Business Plan Deliverable
5	Painting of 770 towers to maintain the life of our assets.	PCD
6	Proactive Insulation Interruption Gas interventions at 8 sites to minimise risk of leakage.	PCD
7	Upgrading our HVDC control systems at 3 sites to ensure future operability.	Business Plan Deliverable
8	Delivery of a Transmission Operational Campus to enable the safe delivery of new infrastructure.	PCD
9	Delivery of a Transmission Training School to upskill our people and meet the net zero challenge.	PCD
10	Delivery of a 6 new Depots to maintain and secure our network.	PCD
11	Improve Flood mitigation at 9 at risk sites to mitigate increased climate risks.	PCD
12	Increasing resilience and system security across our network for Protection and Control Systems.	Business Plan Deliverable
<b>Clean power</b>		
13	Delivery of a HVDC Centre expansion to accommodate approximately 35 upcoming HVDC projects in Great Britain by the end of the RIIO-T3 period.	PCD
14	Maintain our quality of Connections Experience and sector leading performance on customer surveys.	ODI
15	Delivery of 10 regional load related projects, allowing for the connection of up to 2.2GW of new generation capacity.	PCD TBC subject to PA.
16	Develop a Leading Area System Planning Methodology applying sector leading network intelligence.	Business Plan Deliverable
17	Support the delivery of NESO Strategic Spatial Planning Reforms.	Business Plan Deliverable
18	Support the delivery of Government CP2030 Mission.	Business Plan Deliverable
<b>Our legacy</b>		
29	IIG Regulatory target of 0.26% in SF6 emissions, maintaining our performance.	ODI
20	Reduce Scope 1 and 2 GHG emissions by 46% by 2029/30 in line with a 1.5° warming limit.	Business Plan Deliverable
21	Reduce Scope 3 GHG emissions in line with best practice standards.	Business Plan Deliverable
22	Community Benefit Funding Reporting.	ODI-R
23	Environmental Action Plan Reporting.	ODI-R





## Appendix 3

# Minimum Requirements

Minimum Requirement	Commentary	Submission
<b>Load and regional strategies</b>	Our Load Related Strategy sets out our approach for planning our investments including our novel Area System Planning approach for regional investments. This strategy details our alignment with the Future Energy Scenarios and how we will meet our net zero goals.	Load Related Strategy, titled Network Growth Strategy
<b>Secure and resilient supplies</b>	Our core asset management and resilience strategies set out how we will maintain and enhance network resilience to meet our overarching commitment of zero interruptions.	Network Asset Management Strategy Climate Resilience Strategy IT and Telecoms Strategy NIS Self-Assessment and Improvement Reports
<b>Managing uncertainty</b>	Across our Business Plan we have set out how we are managing uncertainty. Our Business Plan sets out the mechanisms to manage delivery, cost and policy risks with project uncertainty covered in each investment proposal.	Business Plan Data Table and Narratives
<b>Quality of service</b>	We have ambitious targets for network reliability and customer service, these will be delivered through investment in the network and our data and digital proposals which will transform our customer and stakeholder engagement and deliver world class asset management. We provide justification for the investment in people, process and support across our plan.	Data and Digital Project Justification Network Operating Costs Justification
<b>Environmental Impact</b>	We have set out our goals and planned activities to mitigate the environmental impact of our network activities alongside our enduring sustainability strategy.	Sustainability Action Plan Sustainability Strategy
<b>Stakeholder Engagement</b>	We have provided a summary of our engagement with key stakeholders (connection customers, consumer groups, local communities) and how it has informed the development of our Business Plan. This builds on our overarching Stakeholder Engagement Strategy.	Stakeholder Engagement Summary Stakeholder Engagement Strategy
<b>Innovation Strategy</b>	We have provided examples and evidence of how our RIIO-3 business plan leverages new technologies or innovative practices, including the deployment of innovative solutions to achieve the overall RIIO-3 outcomes.	Innovation Strategy
<b>Workforce and Supply Chain Planning</b>	Our strategies set out what our workforce and supply chain needs are and how we will manage the challenges presented by the energy transition and associated investment requirements.	Workforce Resilience Strategy Supply Chain Resilience Strategy
<b>Cost</b>	We have set out information on, cost drivers, consideration of options and justification of costs across our plan, this includes our view on efficiency improvements and innovation dividends.	Cost and Benchmarking Annex Business Plan Data Table and Narratives
<b>Engineering</b>	We have developed Engineering Justification Papers (EJPs) which include the information requested and justify the need and delivery approach for our investments.	Engineering Justification Papers



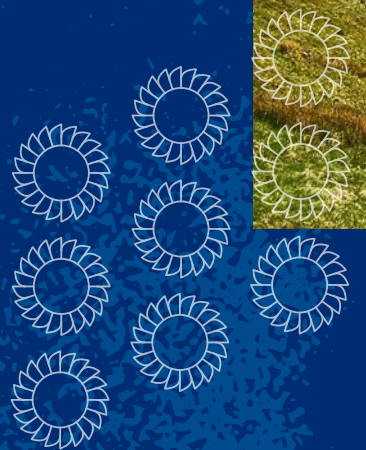
## Appendix 4

# Our 2030 Commitments Mapped to Ofgem Strategic Objectives



Commitment	Measurement	Target	Ofgem Strategic Objective
1. Zero interruptions in electricity supply to homes and businesses due to our network	Incentivised loss of supply events	Zero in each full regulatory year (exceeding target)	Safe, secure & resilient supplies
2. To be world class in asset management and network operations in international benchmarks	Bi-annual ITOMs and ITAMs benchmarking (or equivalent)	Upper quartile (ITOMS, or equivalent) and score >4 (ITAMS, or equivalent) in each assessment cycle	Safe, secure & resilient supplies Efficiency & value for money
3. To establish 'operations of the future' with an engineering training school, multi-team operational campus and integrated real time digital operations	Investments in: training school, operational campus (including control centre) and digital Infrastructure to support c4000 workers, including c800 field worker with real time data	On time, on allowance delivery	Safe, secure & resilient supplies
4. Our network will have the capability to meet 20% of the GB demand for clean power	i. Accelerated Strategic Transmission Investments for 2030 ii. Connections strategically aligned with Clean Power 2030	i. On time, on allowance delivery ii. On time delivery**	i. A low-cost transition to net zero ii. Efficiency & value for money
5. To deliver excellence in customer service and community engagement during the energy transition	i. Quality of connections customer survey ii. AA1000 assurance standard (or equivalent)	i. Exceed target in each regulatory year ii. 'Advanced' performance rating in each assessment	High quality service
6. To show international leadership in the development and deployment of HVDC technology working with suppliers and through our HVDC Centre	i. Active innovation portfolio for HVDC technology ii. Investment in the HVDC Centre	i. Innovation portfolio has at least two HVDC projects with supply chain and international partners ii. On time, on allowance delivery	i. A low-cost transition to net zero ii. Efficiency & value for money
7. Drive investment in the energy transition that delivers transformative lasting benefits for local communities, our economy and nature	i. New housing that will be made available to communities ii. Allocation of community benefit funding iii. Greenhouse gas emissions: SF6 leakage rate iv. Biodiversity net gain in the (a) terrestrial and (b) marine environments	i. At least 1,000 homes by 2030 ii. £100 million by 2030** iii. Exceed target in each regulatory year iv. (a) At least 10% by 2030 for terrestrial, and (b) establish marine biodiversity methodology by 2030	High quality service Efficiency & value for money
8. To demonstrate international leadership in the development of sustainable business practices for post-2030	Impact on planetary boundaries	Complete impact assessment and set action plan by 2030	High quality service
9. To realise long term consumer value through targeted innovation, strategic supply chain partnerships and accelerating the transition to clean power	i. Innovation benefits ii. Capital expenditure subject to competitive market (one-off tender or framework agreement) iii. Centralised strategic network planning	i. Baseline ratio of 1:2 in expenditure: benefits of innovation ii. At least 80% by 2030 iii. Publication of area network plans for 2031-40 that align with the SSEP, CNSP and RESP	i. Efficiency & value for money ii. Efficiency & value for money iii. A low-cost transition to net zero

\*\*Target to be confirmed following publication of the UK Government Clean Power Plan and Community Benefit Guidance



[www.ssen-transmission.co.uk](http://www.ssen-transmission.co.uk)



TRANSMISSION