

Delivering a Network for Net Zero: The Pathway to 2030

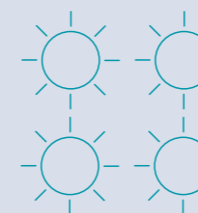
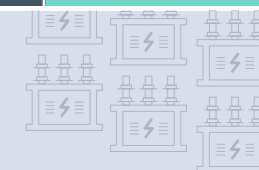
A Summary of our Plan for the RII0-T3 Period

December 2024



Scottish & Southern
Electricity Networks

TRANSMISSION



Net Zero and the Pathway to 2030

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This plan has been prepared in advance of the UK Government's Clean Power Action Plan and reforms to the connection regime. We will provide an update to this Plan on the impacts of clean power and connections reform in spring 2025.



Scotland has made a commitment to reduce its greenhouse gas emissions to 'net zero' by 2045, and the UK has made the same commitment for 2050. Net zero means that emissions from human activity are balanced by removals of these gases.

To achieve these targets, we will need to undertake a transition from high carbon energy sources, such as petrol, diesel and natural gas, to low or zero carbon alternatives, such as renewable electricity, nuclear power and hydrogen gas. At the same time, we need to ensure our energy supply stays safe and reliable.

There are two components to the role of electricity in the national energy transition:



Increasing electricity demand as low or zero carbon electricity replaces high carbon energy sources, such as the shift from petrol to electric vehicles

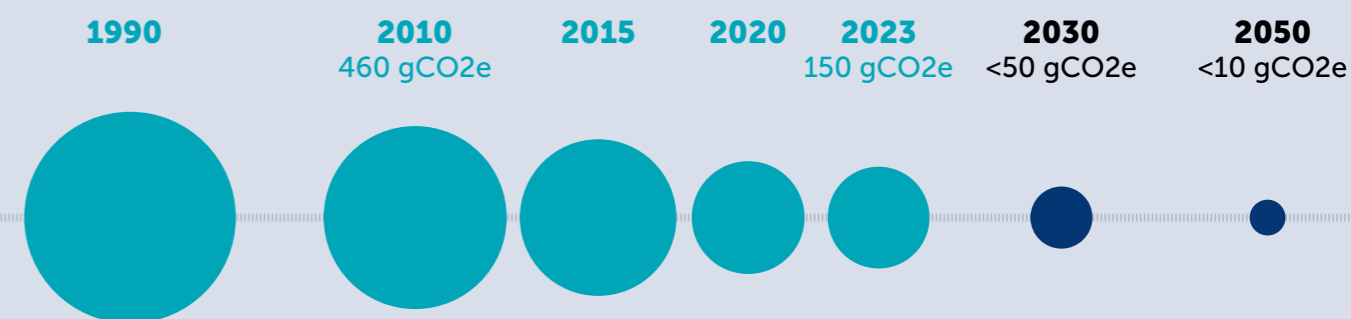


Reducing carbon intensity of the electricity that is produced as coal, oil and gas fired power stations close down

In 2010, the average carbon intensity of electricity was 460 gCO₂e per kilowatt hour. In 2023, this had reduced to 150 gCO₂e. By 2030, the mission is to reduce this to <50 gCO₂e.

The Pathway to 2030 is a critical step on our national transition to net zero and homegrown energy security. This document sets out our plans to ensure the electricity grid in the north of Scotland is at the heart of a fair transition.

Carbon intensity per unit of electricity



Welcome to SSEN Transmission

About us



We are SSEN Transmission, the owner and operator of the high voltage electricity transmission network for the north of Scotland.

We transport that power across a network of underground and subsea cables, overhead lines, wooden poles and steel towers to deliver safe, reliable and secure electricity to homes and businesses across Scotland, the UK and beyond.

From the deep waters of the North Sea to the high mountains of the Highlands, the abundant energy from Scotland's natural resources is being harnessed to produce clean power.



Over £22 billion in committed investment in the RIIO-T3 period to grow the network for net zero



Exceptional track record in operational performance that "keeps the lights on"



Award winning sustainability actions for climate, nature, communities and jobs



The abundant energy from Scotland's natural resources is being harnessed to produce clean power

Our Plan for the RIIO-T3 Period



About the RIIO-T3 period

The electricity transmission network is critical national infrastructure that is essential to the day-to-day lives of millions of people. We are entrusted to ensure that people get the energy they need.

We have a legal obligation to develop the grid in an economic, efficient and co-ordinated way. Our plans to do so must be scrutinised and approved by the energy industry regulator, Ofgem.

On behalf of all consumers, Ofgem makes sure that our plans are justified and that the cost is fair. It sets the rules for doing this every five years through a price control.

RIIO-T3 is the price control for the period from 1 April 2026 to 31 March 2031.



About this document


This is a summary of our RIIO-T3 Business Plan. It is intended to share with electricity consumers and our stakeholders the main things we plan to do, and why, over the coming five years.

The first two sections describe our investments in the north of Scotland transmission system to ensure reliable energy and the transition to clean power. The third section explains how we will do this in a fair and sustainable way.

The fourth section sets out our forecast of how much this will cost and the impact on households' energy costs.

Our full [Business Plan](#) is published on our website.

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.

PG 8-11



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.

PG 12-14

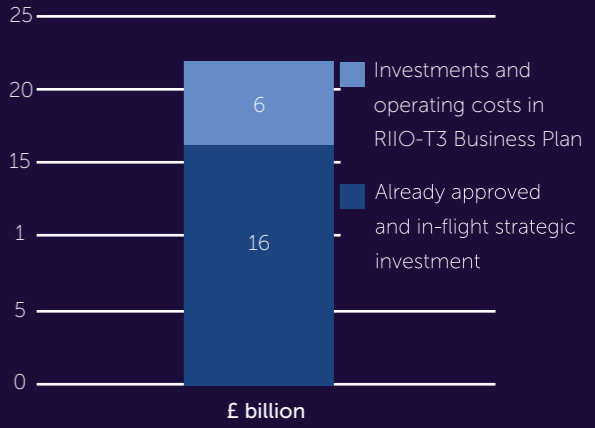


Our Legacy

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. Based on an objective materiality assessment, we have set specific targets for the Pathway to 2030.

PG 15-17



Clear and evidence-based case for total expenditure of **over £22 billion** during the RIIO-T3 period

This cost will be paid through electricity bills spread out over the next four decades.

Our Plan identifies the potential for an additional £9 billion of expenditure, which could bring the total expenditure over the RIIO-T3 period to over £31 billion.

PG 18-19

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

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

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

Our modelling shows that overall energy costs for the average consumer could fall by over a third during the energy transition






Reliable Energy

Building resilience reduces vulnerability

There are around 800,000 end consumers and businesses in the north of Scotland that expect a reliable electricity supply to be able go about their daily lives. Directly connected generators need the network to be available so they can transport their power to those end consumers.

As we grow the north of Scotland transmission system on the Pathway to 2030, we will also invest in the resilience of the network to ensure it is resistant to threats. Our RIIO-T3 Plan has three drivers:

-  **Manage** our existing network by replacing or refurbishing equipment as it gets old or its performance deteriorates
-  **Strengthen** our operational resilience to climate change and train the workforce of the future to run our clean power grid
-  **Modernise** our field operations and maintenance by using new integrated data and digital tools

The track record of the reliability and resilience of the north of Scotland transmission system is exceptional. Over the past five full years, there have been two incentivised loss of supply events that have meant customers lost their electricity supply. As threats increase and our dependence on electricity grows, sustained effort is required to maintain the service that network users expect.



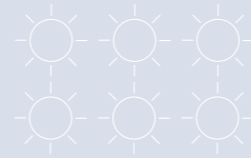
The track record of the reliability and resilience of the north of Scotland transmission system is exceptional

99.998518%
Reliability of supply in 2023/24

95.82%
System availability in 2023/24

0.17%
SF6 gas leakage in 2023/24

>90%
Resilient to falling trees today



Our RIIO-T3 Plan for Reliable Energy

Reliability

Replacing or refurbishing existing equipment when it nears the end of its operational life is essential to network reliability.

Our RIIO-T3 Plan has 23 projects to improve existing equipment at eight substations, four overhead lines, one underground cable and ten other transmission sites. These actions will ensure safe and reliable operation for future generations.

Our operations team will inspect and maintain equipment, repair faults (if required) and manage vegetation such as cutting trees that are close to overhead lines.

Redundancy, Resistance and Response & Recovery

Resilience to threats, and planning for rapid response, is at the heart of our RIIO-T3 Plan. Threats can be natural from the weather or climate change, and from people by physical or cyber attack.

We have 23 projects that are targeted at strengthening the resilience of the grid to all types of threats, supported by our cyber security programme. Our new operation centre, training school and local depots will mean we have skilled people in the right place to protect our communities.

Our 2030 Goal



Zero interruptions in electricity supply to homes and businesses 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.

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



Security of supply for Dunoon

Dunoon substation, which provides electricity supplies to 15,600 local homes and businesses, was built in 1971. After nearly 60 years, the condition of the equipment is such that replacement is required.

During RIIO-T3, we will construct a new substation to modern safety and engineering standards. The existing substation will continue operation during construction to maintain local electricity supplies, then those transmission assets will be decommissioned.

Our Digital Pathway to 2030



A modern energy system

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. Our future energy system will be safer, cleaner and smarter, and we have a critical role in making that a reality.

Our RIIO-T3 Plan for the Pathway to 2030 takes a systematic and intentional approach to using modern technology. Data is the starting point: accurate, available and accessible. These 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.



'Haggis' the Robot

High Voltage Direct Current (HVDC) valve halls are inaccessible to people during operations due to the hazardous environment. We have developed an autonomous robot to monitor equipment status and assess the need for maintenance without causing downtime of the system - saving money, improving safety and reducing outages.

Following a successful innovation project, we will use autonomous robots at all our HVDC sites going forward.



Training the Future Workforce

Our new purpose-built Transmission Training Centre will provide Authorisation Training, Technical Asset Training, Health and Safety Training and Specialist Technical Training through a combination of 'hands on' and classroom settings, ensuring future generations have the necessary skills and knowledge to safely operate our growing network.

This new site will be available to our supply chain partners.

Enabling Network Growth

We utilise the latest digital tools and technology to improve and enhance our Customer and Stakeholder relationships and engagement. Digitally enabling the effective planning and delivery of large-scale capital projects.

Enabling World Class Asset Management

We prioritise Digital security and resilience to enable 100% transmission network reliability. Continuously developing our technology capabilities to maintain, protect and secure our Assets, driving increased Asset Performance and efficient Operations.



Data-Driven

We enable a data driven SSEN Transmission business. Based on a culture of business data ownership, ensuring it is accurate, available and accessible. Providing data and analytics tools and technologies for our business to develop, deliver and operate the network.

Enhance, Exploit & Optimise

We drive adoption and optimisation of current capabilities, managing feature and function improvements. Looking for efficiency, automation and simplification opportunities to continuously improve business process.

Brilliant Basics

We deliver a quality service to our business, which sets us apart from peers. Ensuring that our users can consume and interact with IT in a frictionless way, delivered right first time.

Clean Power

There can be no transition without transmission

The north of Scotland has a vast renewable energy potential. The transmission system provides the means to harness this energy for the rest of the country, transporting clean power to households, businesses and communities across Scotland and beyond.

At March 2024, there was 10.6 GW of generation capacity in the north of Scotland, of which over 9 GW was renewable and low carbon.

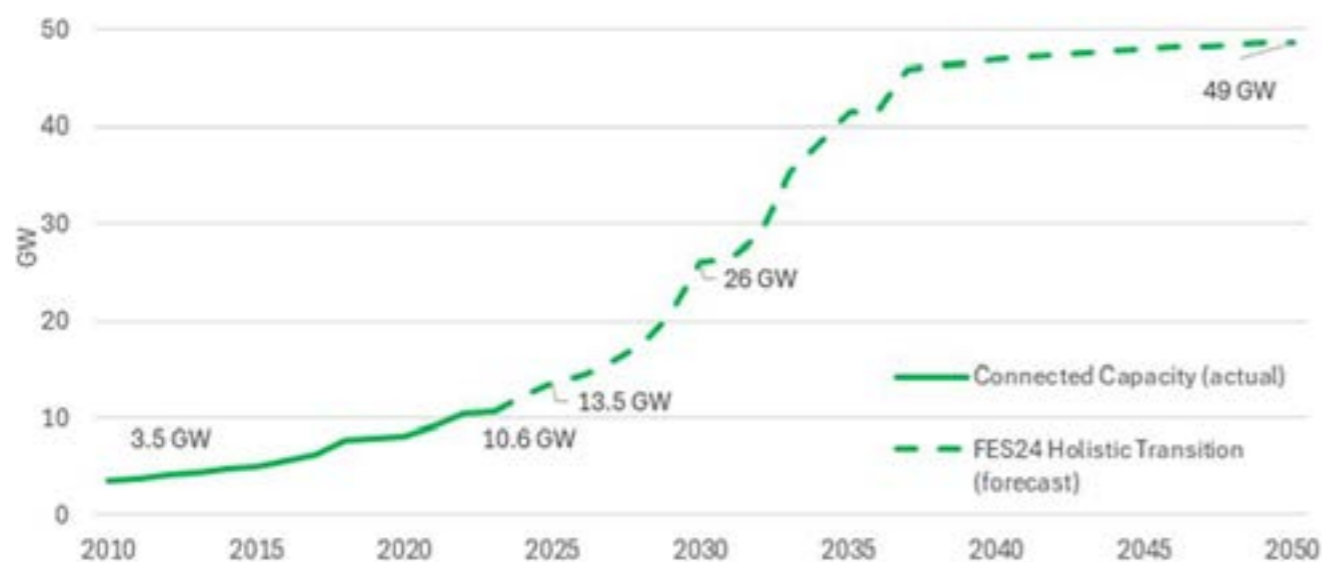
The Pathway to 2030 requires the amount of renewable generation in the north of Scotland to more than double. This will be a mixture of onshore and offshore wind, along with hydro, solar and flexibility service providers such as batteries.

Our RIIO-T3 Plan seeks to grow the grid to allow for this growth in renewable generation.



“
The Pathway to 2030 requires the amount of renewable generation in the north of Scotland to more than double

Connected Generation in the North of Scotland



Our RIIO-T3 Plan for Clean Power



Strategic Investment

Strategic investment is in major grid infrastructure, or 'motorways', that transport electricity over long distances across GB and beyond.

Eight strategic investments are part of Pathway to 2030. Four of these are subsea cable links, and four are new build or reinforcements of onshore overhead lines and substations. These eight mega projects will go into construction between 2024 and 2028.

These investments already have regulatory approval under Ofgem's existing Accelerated Strategic Transmission Investment (ASTI) frameworks.



Regional Investment

Regional investment in the onshore transmission system are the 'A roads' that wire up individual generators and provide points of connection with the low voltage distribution network.

Three large regional investments in Argyll, Orkney and Skye have already been approved by Ofgem and will be delivered in 2028-29. Our RIIO-T3 Plan includes ten new regional investments.

We anticipate further investments will be required prior to 2030 to achieve clean power and implement an industry reform of the process for connection. Ofgem allows us to apply for regulatory approval when those investments are known.

Our 2030 Goal

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

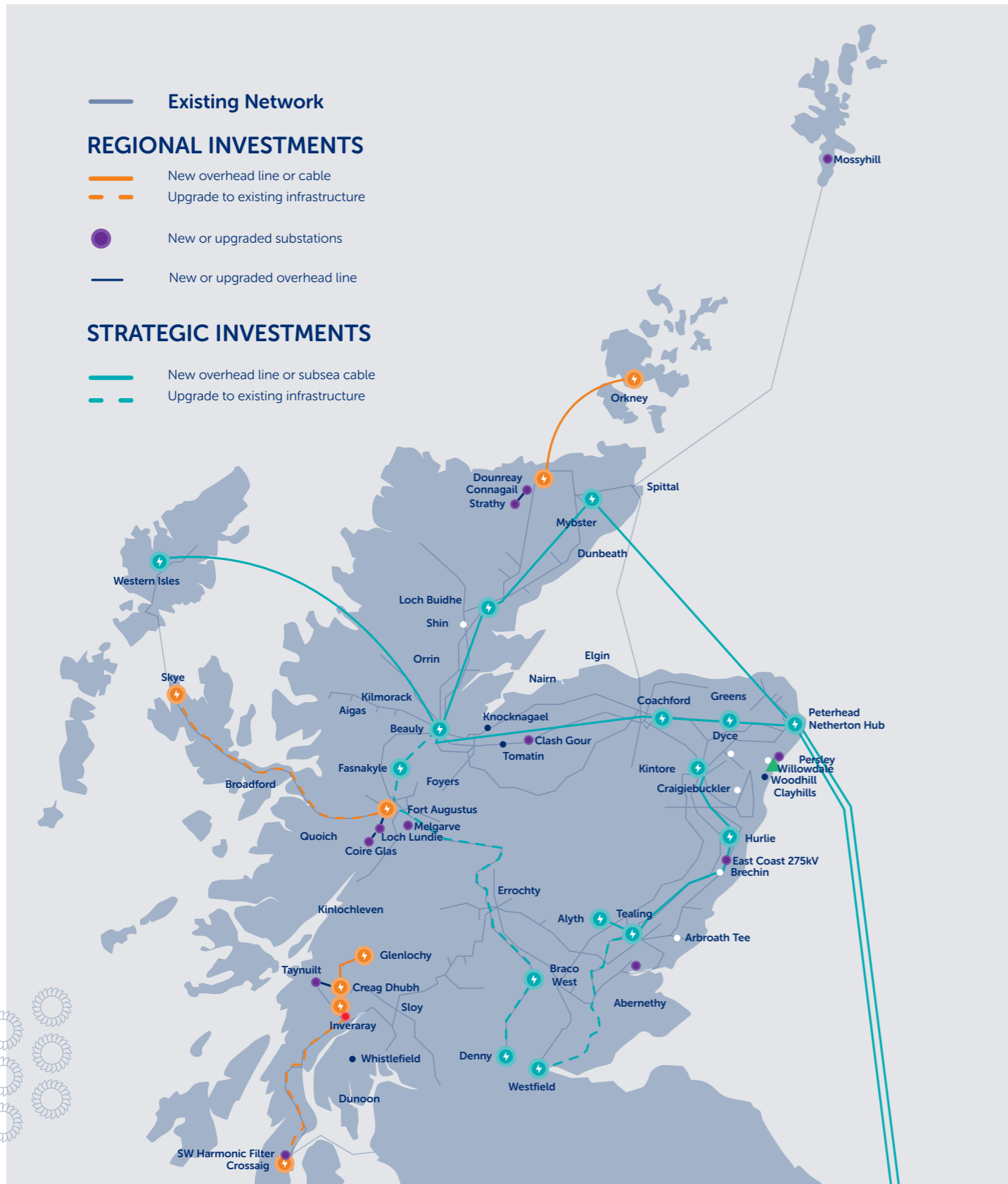


National clean power pathways forecast that low and zero carbon generation in the north of Scotland will contribute around one-fifth of clean power by 2030. Our goal is to deliver the necessary transmission infrastructure to make that happen. We will measure our progress by tracking our power transfer capability at our southern network boundary.

This goal is aligned with Ofgem's strategic objective of achieving a **Low-Cost Transition to Net Zero**.

Our Clean Power Investments for 2030

More information about these projects can be found on our [dedicated project webpages](#)



Our Legacy

A just energy transition

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** sets out how we will build on our strong foundations in tackling climate change, protecting and restoring nature, and engaging with communities. Coupled with a focus on people, procurement, and our performance, our strategy describes our approach to world-leading sustainability practices for a just energy transition.



People

- Grow skilled workforce
- Drive inclusion & wellbeing



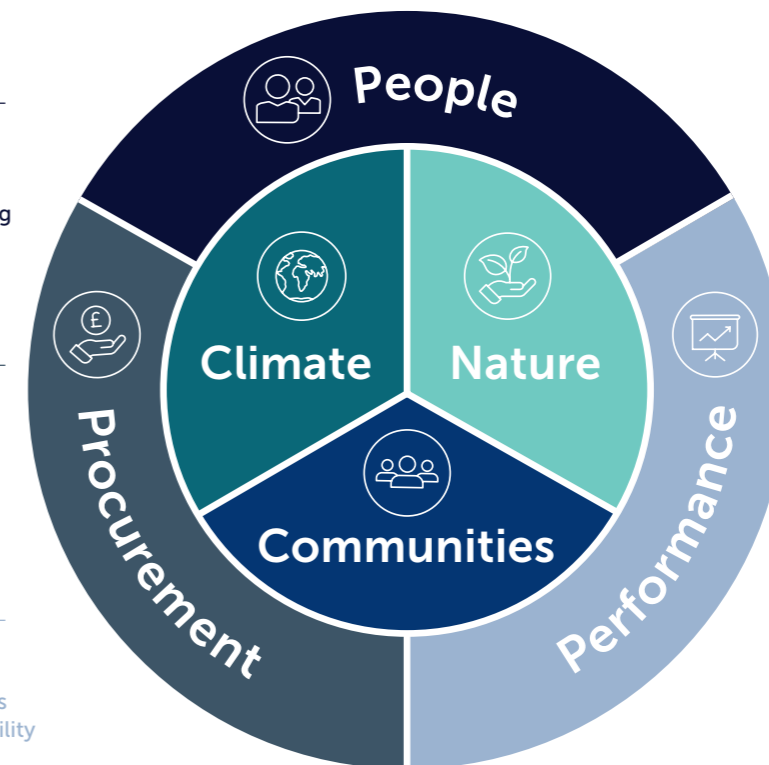
Procurement

- Partner for excellence
- Procure responsibly



Performance

- Improve data & processes
- World-leading sustainability



Climate

- Reduce emissions
- Build resilience



Nature

- Protect nature
- Restore nature



Communities

- Minimise impacts
- Share benefits



Housing Strategy

Housing is still used by communities today that was originally built for the North of Scotland Hydro Board workforce over 50 years ago.

The Pathway to 2030 aims to build on this legacy. We will take an approach to worker housing for our major projects that enables project delivery, and also supports the housing needs of the communities where we operate over the long term.

We have pledged to support the delivery of over 1,000 new homes across the north of Scotland.



Community Benefit Fund

Our Community Benefit Fund will allow a share of the benefits of the national energy transition to go directly to those communities hosting new grid infrastructure. The Fund, developed in collaboration with stakeholders and with awards made by an independent panel, is designed to bring substantial benefits and a positive, lasting legacy through local and regional initiatives across the north of Scotland.

We anticipate the value of the Community Benefit Funds from the Pathway to 2030 to be in excess of £100 million.



Climate Change and Impact on the Planet

We were the world's first electricity networks company to receive external accreditation for a science-based target for greenhouse gas emissions reduction in line with the 1.5°C global warming pathway in the Paris Agreement.

By 2030, we aspire to be one of the first companies in the world to take a 'whole system' approach to assessing our impacts using a planetary boundaries framework.



Biodiversity Strategy

We are recognised as an industry leader on our biodiversity commitments, as the first developer to consult upon and achieve for all new projects consented no net loss of woodlands (2021) and Biodiversity Net Gain (2023).

For the Pathway to 2030, we are extending our leadership offshore with the development and adoption of marine biodiversity metrics. On the land, our restoration efforts extend beyond habitats to include location-specific initiatives including species protection and restoration projects.

Our RIIO-T3 Plan for Our Legacy



Climate

Urgent action is needed to address the climate crisis. We are already playing a vital role in decarbonising the national energy system by connecting clean power to meet growing demand for low carbon electricity. Enabling decarbonisation is our most material topic where we can and do have the greatest impacts on tackling climate change.



Nature

We are privileged to operate in the unique natural environment of the north of Scotland and its islands, and this has motivated our ambition to protect biodiversity and restore nature. Our approach is aligned with global best practice and supporting international goals such as the Global Biodiversity Framework.



Communities

The communities of the north of Scotland are at the heart of the Pathway to 2030. As we saw with the first renewable electricity revolution in the 1950s, the investment in the energy transition is an opportunity for people and communities to thrive and realise a lasting legacy in jobs, inward investment and community regeneration. We are committed to make that happen.

Our 2030 Goal



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. 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**.



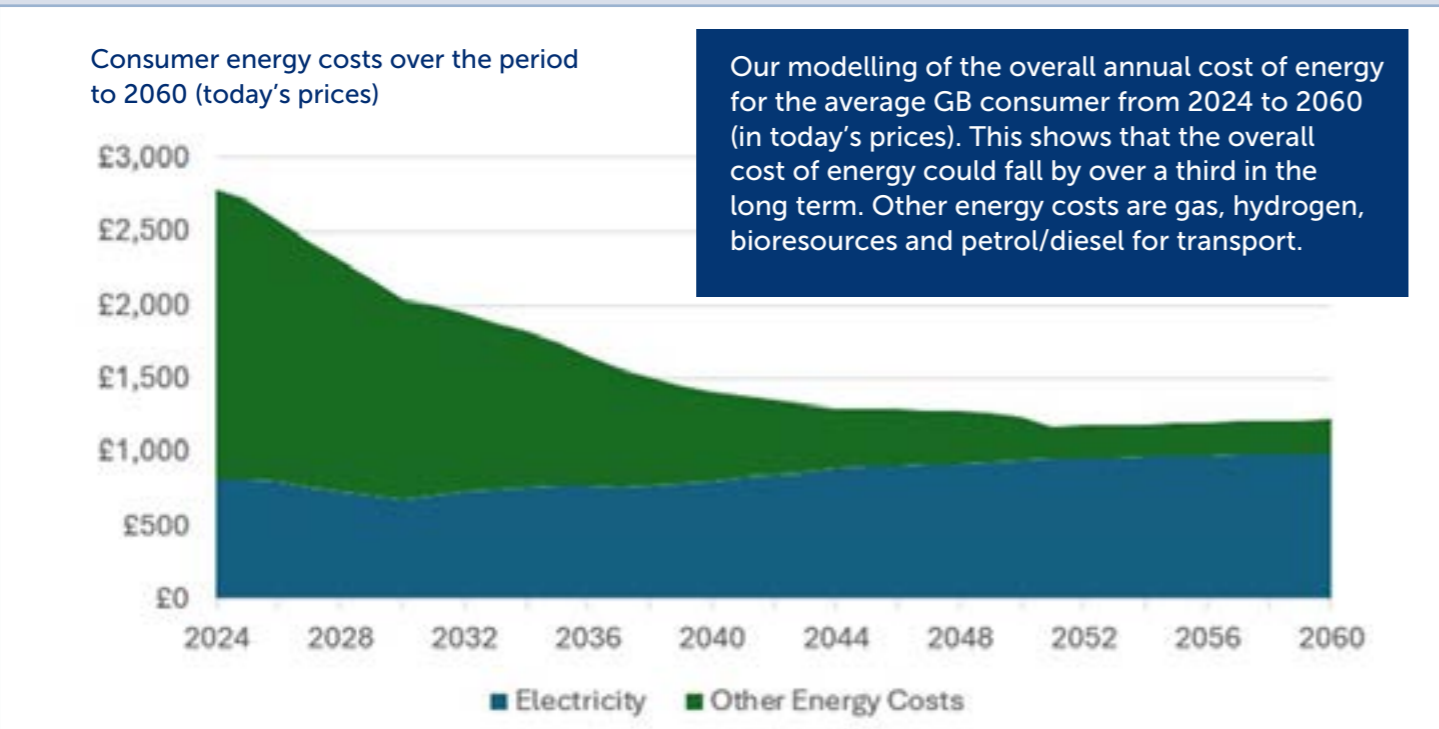
Energy Costs and Value for Money

The cost of energy on the Pathway to 2030 and Net Zero

There is a cost to the significant investment in the north of Scotland transmission network set out in our RIIO-T3 Plan. Under the regulatory rules set by Ofgem, this cost will be paid through electricity bills but spread out over the next four decades. This reflects the fact that people today and people in the future will benefit from these long life assets.



Electricity is one part of household energy costs. While the cost of electricity is likely to rise in the near term, in part because of our investment in the grid, other costs for energy should start to fall. Our modelling shows that, taking into account inflation and based on the current Government policy, overall energy costs for the average household should fall by over a third during the energy transition.



RIIO-T3 Plan on a page



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

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

Cross-Cutting Strategies

That are embedded in all aspects of our RIIO-T3 Plan

Sustainability	Supply Chain & Workforce Resilience	Cost & Efficiency
Innovation	Data & Digital	Customer & Stakeholder

Investments and Interventions

Actions we will take during the RIIO-T3 period

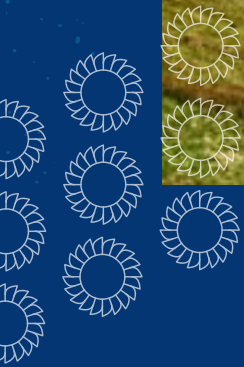
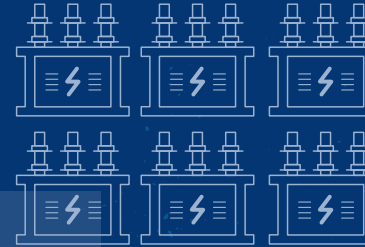
Network Growth for Clean Power <ul style="list-style-type: none"> Strategic investments Regional investments 	Action for a Safe and Resilient Network <ul style="list-style-type: none"> Investment in existing assets Building resilience capabilities Security of supply Network operations 	Data & Digital IT & Telecoms
		Running the Business and Future Planning <ul style="list-style-type: none"> Network planning and connections Back office functions

SCOPE OF OUR RIIO-T3 BASELINE PLAN, £6 BILLION



Scottish & Southern
Electricity Networks

TRANSMISSION



www.ssen-transmission.co.uk

