



Scottish & Southern
Electricity Networks

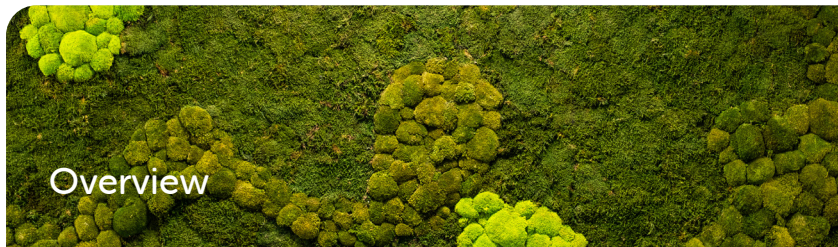
TRANSMISSION

Annual Performance Report

2022/23



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Overview

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About us

SSEN Transmission is responsible for the electricity transmission network in the North of Scotland. We are responsible for the maintenance and investment in the high voltage 132kV, 220kV, 275kV, and 400kV electricity transmission network. Our extensive network consists of overhead lines, substations, underground and High Voltage Direct Current (HVDC) subsea cables.

It extends over a quarter of the UK's landmass, navigating some of the most challenging terrains and powering our communities by providing a safe and reliable supply of electricity. Scotland's transmission network has a strategic role to play in supporting the delivery of the UK and Scotland's Net Zero targets.

We are committed to inclusive stakeholder engagement, and conduct this at an 'Advanced' level as assessed by AccountAbility, the international consulting and standards firm.

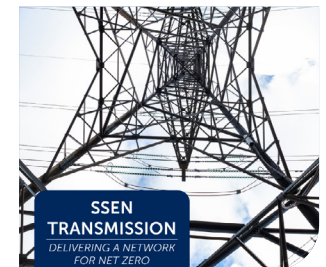
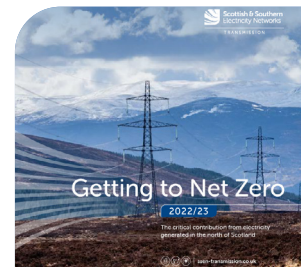
This report and statement have been prepared by the Managing Director for the directors of Scottish Hydro Electric Transmission plc (SHE Transmission), operating as SSEN Transmission, in accordance with the provisions of Special Licence Condition B15.

Following a minority stake sale completed in November 2022, SSEN Transmission is now owned 75% by SSE plc and 25% by Ontario Teachers' Pension Plan Board. SSEN Transmission is now governed by the recently appointed SSEN Transmission Board in accordance with the direction issued by the Gas and Electricity Markets Authority (the Authority) under Special Licence Condition 9.15 of SSEN Transmission's licence. This outlines requirements on the licensee to appoint an independent compliance officer and report on compliance against the licensee's duties on an annual basis.



Reporting and further information

This report is complemented by wider reports on our businesses' operational, sustainability and environmental performance. Links to each report can be found by clicking the icons below:



If you would like further information on SSEN Transmission, please visit: www.ssen-transmission.co.uk





Welcome

I am delighted to introduce SSEN Transmission's Annual Performance Report for 2022/23, which provides an overview of our performance in the second year of the RIIO-T2 price control period.

With another year of strong performance in 2022/23, we are delivering as planned on our RIIO-T2 outputs and making progress against our five ambitious goals for 2026. This is testament to the hard work of our dedicated teams, supported by our contractors, customers and stakeholders.

In operations, we have achieved the maximum reward available through the Energy Not Supplied Incentive for the third consecutive year, keeping the lights on for communities around the North of Scotland and ensuring reliable network access for our electricity generation customers to support security of supply.

We continue to make great progress in the delivery of our capital investment programme, with work to connect Shetland to the GB transmission for the first time well on track for completion next summer.

We also energised the second phase of the Inveraray-Crossaig overhead line replacement project, alongside continued good progress to increase the capacity of the North East transmission network to 400kV.

These investments are key to help deliver UK and Scottish Government net zero and energy security targets, supporting the national endeavor to build a cleaner, more secure and affordable energy system for homes and businesses across Great Britain, with 2022/23 a pivotal year in establishing the future electricity network reinforcements required to deliver this ambition

Following the publication in July of the Electricity System Operator's Pathway to 2030 Holistic Network Design, in December, Ofgem approved the need for these investments as part of its Accelerated Strategic Transmission Investment framework decision. This included over £10bn of investment in the north of Scotland, which will be key to unlocking the first phase of the ScotWind offshore wind leasing round.

We also secured regulatory approval for the Orkney transmission link, the final piece in the jigsaw in unlocking Scotland's three island groups' vast renewables potential, alongside regulatory approval for the Skye reinforcement project and minded-to approval for our Argyll 275kV strategy.

These investments are not just key to supporting net zero and energy security targets, they will also provide significant and lasting economic and job opportunities across the north of Scotland and beyond and the lasting legacy we will provide for current and future generations.

At SSEN Transmission, we are extremely proud of the contribution we make to meeting society's energy needs and we hope this report is helpful in providing a snapshot of our key successes throughout 2022/23.



“

As we celebrate our key achievements this past year we'd like to express sincere thanks to our staff and key stakeholders in the North of Scotland for their ongoing support as we work to deliver a Network for Net Zero.

Rob McDonald
Managing Director

”





Highlights



Showing Leadership



Won Employer of the Year at the Utility Week Awards 2022



Awarded Gold accredited membership via The 5% Club's Employer Audit Scheme. The 5% Club is a dynamic movement of over 750 employers working to drive 'earn and learn' skills training opportunities across the UK



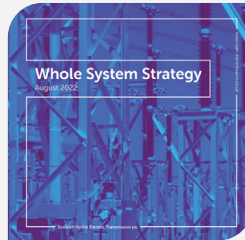
Our community tree planting partnership with the Argyll and the Isles Coast and Countryside Trust was nominated for three prestigious awards: the RSPB Nature Scotland Awards, the Scottish Green Energy Awards, and the national Utility Week Awards.



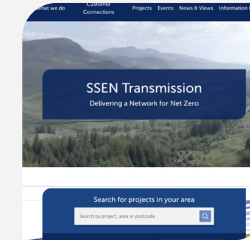
Taking Action



Sold a 25% minority stake to Ontario's Teachers' Pension Plan Board to unlock future growth



Published an updated stakeholder-led Whole System Energy System Strategy, taking a whole system approach to system planning including electricity, gas, heat and transport requirements.



Launched our new SSEN Transmission website to enhance visitor accessibility and experience.



Working Together



26% of our approved suppliers are in the north of Scotland (ahead of our target to have 25%)



Supported Shetland Climate Week 2022 to collaborate with like minded groups on the need to tackle climate change.



Our business continues to grow with 382 new jobs created in 2022/23, taking our total employee headcount from 910 to 1,292.





Highlights



Showing Leadership



New Safety, Health, and Wellbeing Strategy

We launched a new Safety, Health, and Wellbeing Strategy to further support the development of a happy, healthy, and safe workplace. We are adopting a proactive approach to safety and have created four key themes: our communities, reactive to proactive, improved systems and make it easy to do the right thing.



Taking Action



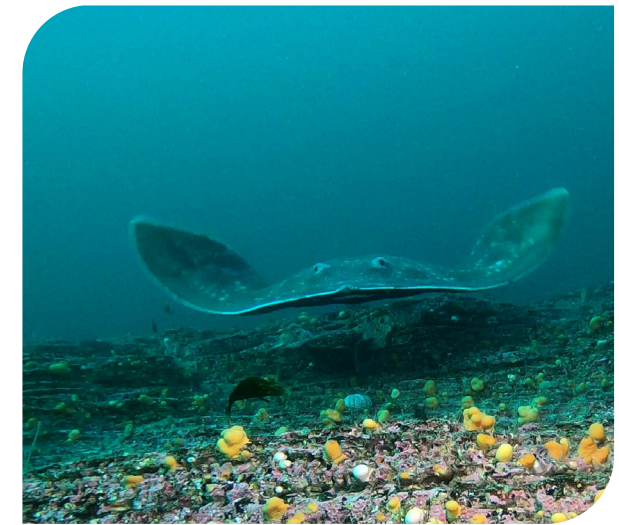
Green light for Orkney transmission link

We welcomed Ofgem's provisional approval of the long awaited and much needed subsea link to Orkney.

SSEN Transmission's proposed solution would enable the connection of up to 220MW of new renewable electricity and consists of a new substation at Finstown in Orkney, and around 57km of subsea cable, connecting to a new substation at Dounreay in Caithness.



Working Together



Orkney Skate Trust

We formed a partnership with Orkney Skate Trust, a volunteer-led marine conservation organisation, to protect the critically endangered flapper skate species. Through this partnership, we aim to gain a better understanding of the marine habitats that support these giant skate species.





Performance for Society

- Safety
- Environment & Sustainability
- Pathway to 2030
- Innovating to a Net Zero Future





Safety

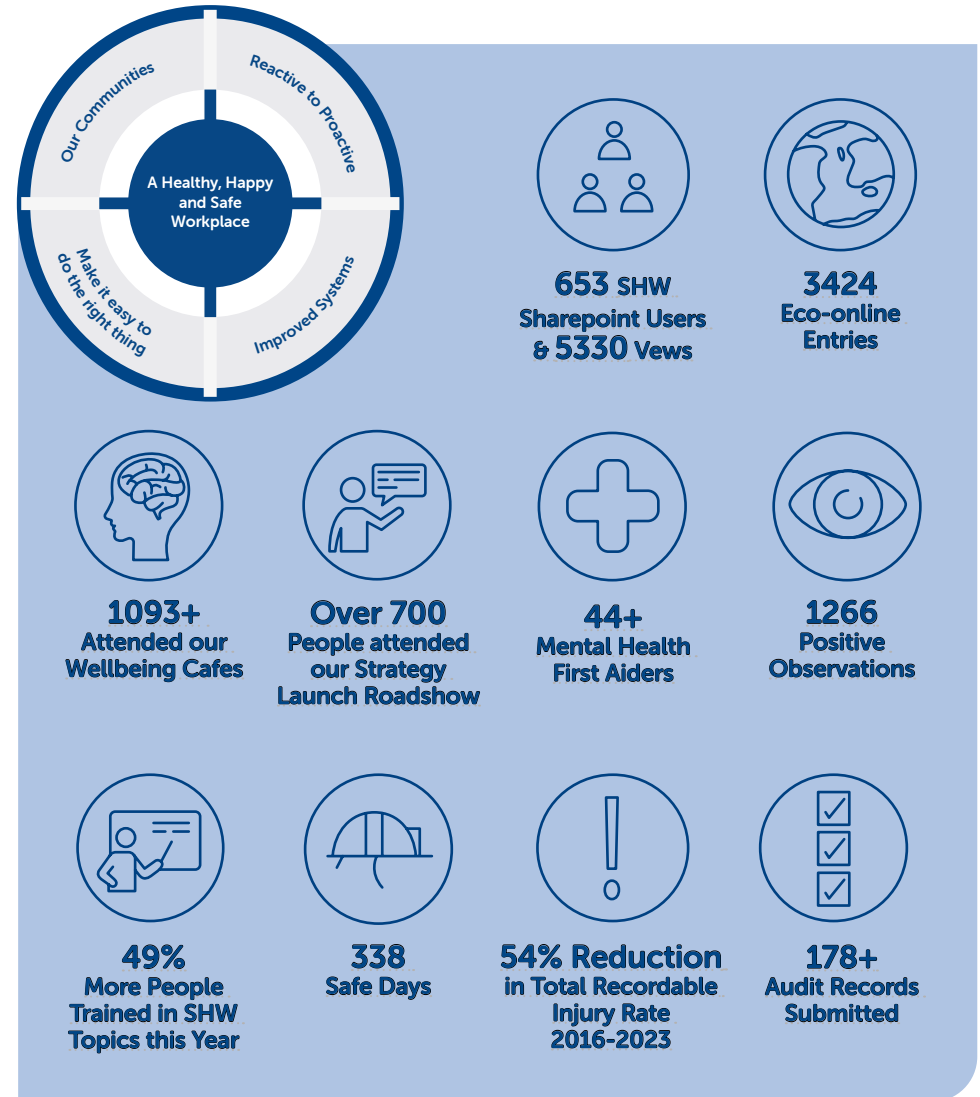
Safety Health and Wellbeing is at the heart of SSEN Transmission.

During 2022-23, SSEN Transmission launched a new Safety Health and Wellbeing Strategy to further support the development of a Healthy, Happy and Safe Workplace as we deliver a network for net zero. Through engagement with our key stakeholders across the business, we identified four key themes - Our communities; Reactive to Proactive; Improved Systems and Making it Easier to do the Right Thing and we held a series of roadshows to promote the launch of our strategy, with over 700 people attending.

Throughout the year, we focused on delivering improvements aligned with these key themes, including some of the examples below:

- Developed and implemented a new safety management tool, EcoOnline
- Adopted a proactive approach to risk and focused on emerging trends through targeted engagements.
- Launched a new Safety Health and Wellbeing SharePoint page making it easier for people to find information.
- Strengthened our focus on Health & Wellbeing and developed a plan to enhance how we support our communities.
- Created our new Transmission Operational Safety Rules and Operational Safety Manual.
- Delivered our SHW audit programme covering contractor safety and performance, CDM compliance, Occupational Health, Business Continuity and Safe Working in Proximity to OHLs and Equipment in Sub Stations.

As we look ahead to 2023-24, we will continue to build on this and further embed our strategy by developing a Transmission Safety Health and Wellbeing Management system, strengthening our communication channels with our growing workforce and building on our communities.





Environment & Sustainability

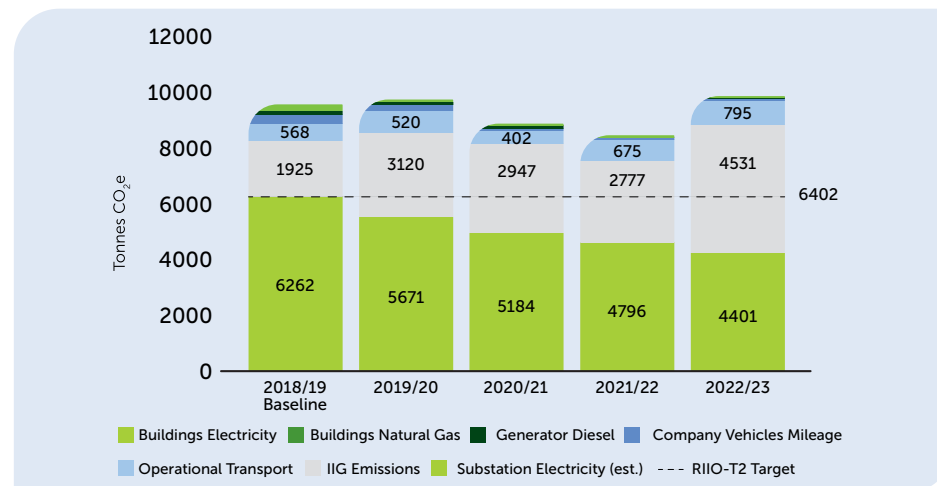
Tackling our Carbon Emissions

In 2022/23, we worked with Planet Mark to provide an independent assessment of our business' carbon footprint. This verification was undertaken to provide a limited level of assurance in accordance with ISO14064-3:2019, the international standard for greenhouse gas reporting. We aim to continuously improve our methods for carbon emissions reporting. This year, we have worked to improve our substation electricity estimation methodology based on new data from an energy monitoring programme at a selection of substation sites.

Insulation and Interruption Gas Emissions

To ensure our network operates safely and resiliently, Insulation and Interruption Gases (IIGs) are essential. However, SF₆ the most common IIG, is a potent greenhouse gas with 23,500 times the impact of carbon dioxide. When leaks occur, they have a significant impact on our carbon footprint. In 2022/23, fugitive emissions of IIGs totalled 4,531 tCO₂e. At 46% of our scope 1 & 2 total, this is now our largest source of emissions, overtaking substation electricity consumption, and is a big focus of effort for reducing our climate impact. Our leakage rate of 0.29% in 2022/23 is nearer the top end of our historical range, but remains well below our Ofgem maximum leakage rate (0.38%) and still compares favourably with other GB TOs' performance due to the use of SF₆ free technology at sites where it can be deployed. More information on our emissions can be found in our Annual Environment Report.

SSEN Transmission Scope 1 & 2 Emissions from 2018/19 Baseline into RIIO-T2 Period



Delivering Biodiversity Net Gain

All of our projects that received consent in 2022/23 are committed to achieving no net loss of biodiversity, ensuring that our operations do not cause any net negative impact on the environment. Over 50% of the projects gaining consent in the same period achieved a net gain greater than 9% over the baseline.

These achievements demonstrate our dedication to minimising environmental impact, promoting natural capital, and enhancing visual amenities throughout our operations.

Moving forward, all of our projects will be required to achieve net gain. We have also committed to developing a Natural Capital Approach, which will integrate the valuation and conservation of ecosystems and biodiversity into our project planning and decision-making processes. This approach recognises the inherent value of nature and aims to enhance and sustain the benefits we derive from it.

SSEN Transmission Scope 1 & 2 Emissions for 2022/23

Emissions in tCO ₂ e	Specific Area	Emissions Scope	2018/19 Baseline	2019 /20	2020 /21	2021 /22	2022 /23
Building Energy Use	Buildings Electricity	2	338	189	112	90	6
	Buildings Natural Gas	1	14	13	7	5	5
	Substation Electricity (Estimated)	2	6262	5671	5184	4796	4401
Operational transport	Operational Transport	1	568	520	402	675	795
	Company vehicle Mileage - Conventional Vehicles	1	347	337	115	136	131
	Company vehicle Mileage - Electric Vehicles	2	0	0	1	8	23
Fugitive Emissions	IIG Emissions	1	1925	3120	2947	2777	4531
Fuel Combustion	Generator Diesel	1	100	69	20	0	42
Total Scope 1			2954	4058	3491	3593	5504
Total Scope 2 (Market Based)			6600	5860	5298	4894	4431
Total Scope 1 & 2			9554	9918	8788	8487	9934





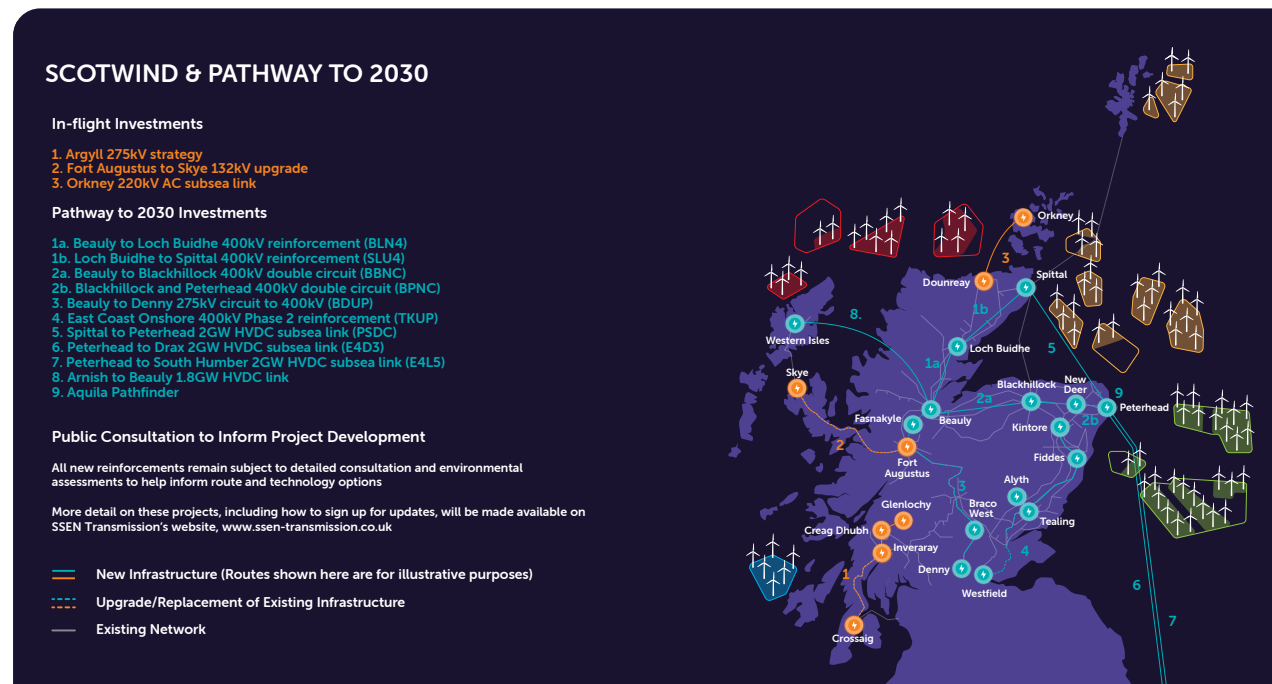
Pathway to 2030

In December, we welcomed the publication of Ofgem's Accelerated Strategic Transmission Infrastructure (ASTI) decision, which approved the need for further investment in Great Britain's Transmission network to support greater home-grown energy security and enable delivery of the UK and Scottish Government's 2030 renewable energy targets.

Our £10bn ASTI projects, also known as our "Pathway to 2030 programme" includes several new onshore reinforcements and subsea links including the long awaited Western Isles HVDC link, will enable the connection of up to 11GW of ScotWind. Contributing to one fifth of the UK Government's 50GW of offshore wind target by 2030.

Independent analysis by BiGGAR Economics outlines that collectively the schemes are expected to contribute over £6bn in additional value to the UK economy, including around £2.5bn of direct additional benefit in Scotland. And could support over 20,000 jobs across the UK, including over 9,000 in Scotland.

The development of our ASTI schemes remain at an early stage, with substantial community and stakeholder engagement being undertaken to shape the detailed development of the projects.



Economic Impact of the SSENT Pathway 2030 Investment Programme

A report to Scottish and Southern Electricity Networks
May 2023



"SSEN Transmission's Pathway to 2030 programme is a significant investment into the future of Scotland and the rest of the United Kingdom.

This is a £6.2 billion economic boost for the UK which will deliver long-term and well-paid jobs whilst helping Britain achieve home grown energy security and an electricity network fit for the future."

Graham Stuart
UK Minister for Energy Security and Net Zero
June 2023





Visual Impact Scottish Transmission Assets (VISTA)

Leaving a positive environmental legacy through our VISTA schemes.

In 2012, Ofgem established a £500m fund in the 2015-2021 price control (RIIO-T1) for UK electricity transmission owners to mitigate the impact of historic electricity infrastructure on the visual amenity of nationally designated landscapes, such as National Parks. A similar mechanism has also been established by Ofgem in the current price control, RIIO-T2, covering 2021-2025. A fund of £465m has been established for works during this period. Through this fund, SSEN Transmission has been progressing a number of stakeholder-led projects in our network area, known as our Visual Impact of Scottish Transmission Assets projects (or VISTA for short), to conserve and enhance the natural beauty and cultural heritage of our most important Scottish landscapes.

To date we have successfully completed two technical projects within Cairngorms National Park, removing over 12km of overhead lines around Nethy Bridge and Boat of Garten, along with a non-technical scheme in the Loch Tummel National Scenic Area. In 2022/23, we have also successfully completed further projects within Loch Lomond and the Trossachs National Park, resulting in the removal of historic overhead lines around Glen Sloy, Killin and Glen Falloch.



Nethy Bridge – Complete

Cairngorms National Park

Removal of 132kV overhead line infrastructure by installing underground cables between the substation east of Boat of Garten to the edge of the forestry near Castle Roy (removal of 8.3km OHL).



Boat of Garten – Complete

Cairngorms National Park

Removal of 132kV overhead line infrastructure by installing underground cables between Docharn and the substation east of Boat of Garten (removal of 4km OHL).



Loch Tummel – Complete

Loch Tummel NSA

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



Sloy – Complete

Loch Lomond and Trossachs National Park

Removal of 132kV overhead line infrastructure by installing underground cables on various circuits in proximity to Sloy switching stations (removal of 2.8km OHL).



Glen Falloch - Complete

Loch Lomond and Trossachs National Park

Removal of 132kV overhead line infrastructure by installing underground cables between Inverarnan substation and Crianlarich (removal of 4.5km OHL).



Killin - Complete

Loch Lomond and Trossachs National Park

Removal of 132kV overhead line infrastructure by installing underground cables to the north of the village of Killin (removal of 7.8km OHL).

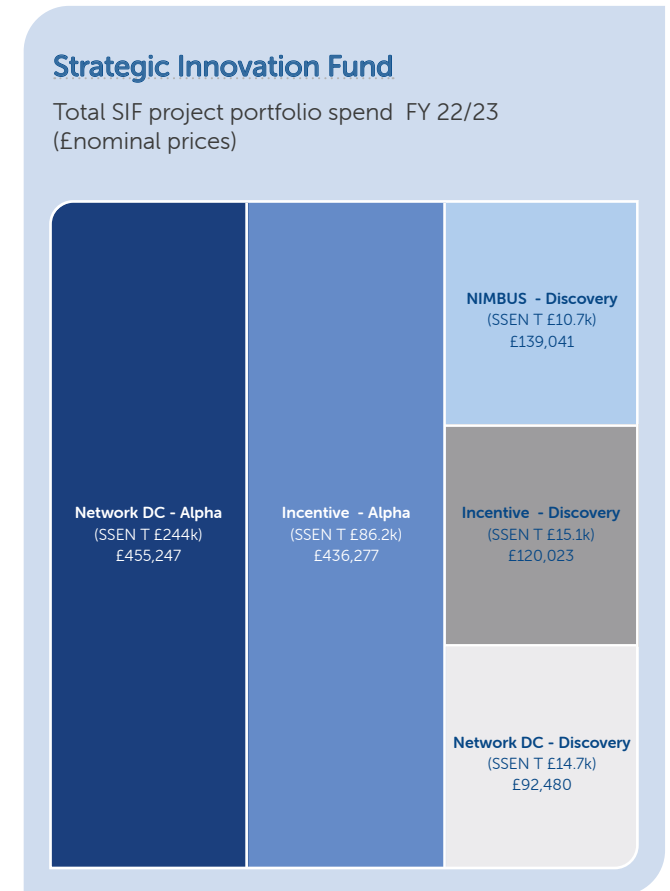
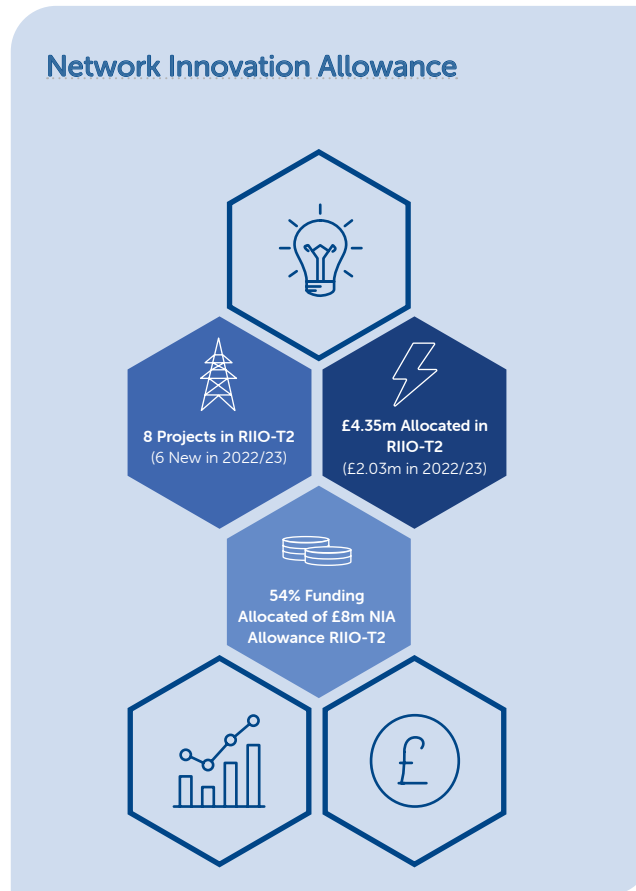
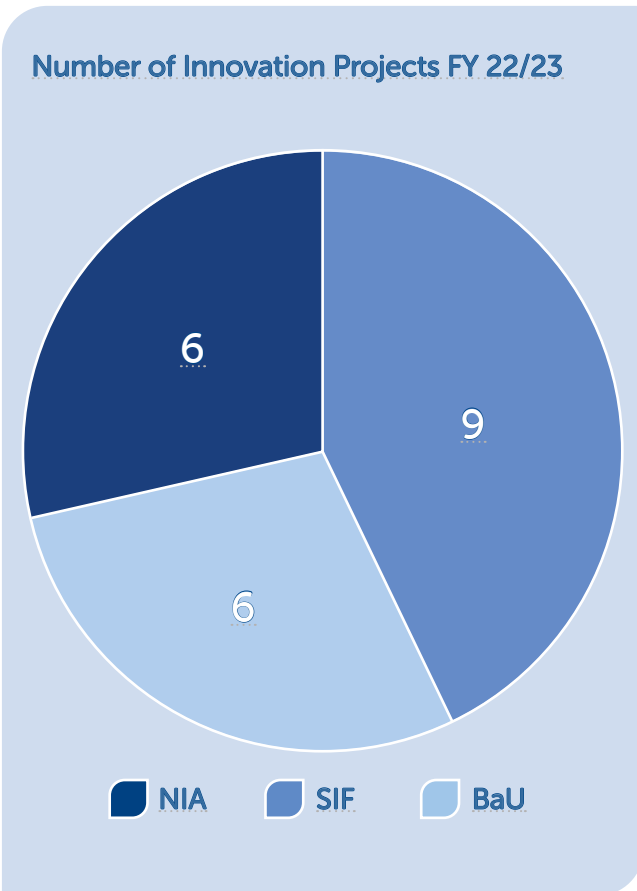




Innovating to a Net Zero Future

To ensure our network continues to be ahead of the curve on the journey to net zero, we have taken a stakeholder-led approach to revising our innovation strategy, exploring opportunities to modernise and find efficiencies in our processes and support the development of the latest technological advances for grid. We will be publishing this updated strategy later in the financial year.

Our innovation portfolio has benefitted from Ofgem’s funding mechanisms, the Strategic Innovation Fund (SIF) and Network Innovation Allowance (NIA). In the 2022/23 financial year, our Innovation team has led the development of four new NIA projects. We also had three projects that were successful in the second SIF Discovery round which were delivered throughout the year. In addition, we progressed two SIF projects to the SIF Alpha phase.





Innovating to a Net Zero Future

Some examples of the Innovation projects which we are currently progressing:



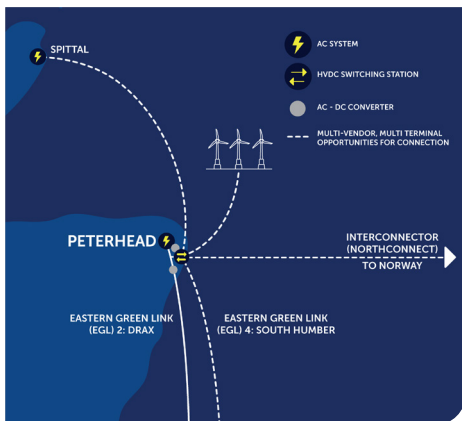
Low Profile 132kV Steel Poles

Over the next five years, we will be ramping up the number of grid connections to renewable sources of energy, supporting the energy system transition and supplying clean energy to homes and businesses across the UK. Traditional 132kV wooden poles are not always suitable for all projects due to their smaller capacity. The proposed alternatives, steel lattice, and New Suite of Transmission Structures (NeSTS), have high costs and a larger carbon footprint. To address this, our NIA-funded Low Profile 132kV Steel Poles project has made significant progress in research, design, and development. The poles require less steel, offer multiple safety improvements, and eliminate the need for concrete and access tracks during construction. They resemble current wooden overhead lines, minimising visual impact on the landscape, and can withstand adverse weather conditions, carry higher loads, and be used at higher altitudes. The project aims to increase the line's capacity without further impacting the landscape or using additional materials, while also streamlining the construction process. Testing on erected prototypes is scheduled for Summer 2023, and the first structures will be erected on the network in 2024, resulting in significant cost savings.



Network DC

Our whole system innovation challenge is to create an integrated system capable of providing net-zero electricity generation to meet the UK's increasing energy needs while reducing carbon emissions. The country plans to increase offshore wind capacity from 12GW to 40GW by 2030. The challenge lies in adopting developing technology like Direct Current Circuit Breakers (DCCBs) with limited information from initial implementations. During the Alpha phase, the project has achieved several milestones, including the development of open-source DC breaker models, protection system design, techno-economic evaluations of the DC network switching station, and identification of commercial and regulatory obstacles. Implementing DCCBs will enable SSEN Transmission to connect more offshore wind at a more efficient cost and with reduced environmental impact. This will save valuable land space and minimise the infrastructure's footprint, minimise the infrastructure's footprint for local coastal communities. The increased flexibility of the Direct Current (DC) network will allow more efficient routing of wind power to areas of demand, reducing constraints and curtailment on wind generation. The cost-benefit analysis shows significant positive benefits in cost savings over the operational lifetime.



Aquila

This innovation has been continuing its development in the second year of RIIO-2. Our project Aquila has been announced as one of the UK Government's successful first tranche 'Pathfinder' projects by BEIS led Offshore Transmission Network Review Early Opportunities workstream. This innovation project aims to demonstrate multi-terminal, multi-vendor interoperability and deliver a vendor agnostic approach to interface different High Voltage Direct Current (HVDC) systems. This has the potential to help reduce the number of HVDC Converter Stations required to support the development of future HVDC links and the integration of HVDC grids, reducing costs and minimising community and environmental impacts.

While the project is in early-stage development, Aquila will complete the first of three work packages by September 2023. This includes the construction of Peterhead DCSS for interoperability demonstration.

Guided by Ofgem, this project is funded under Net Zero and Reopener Development Fund to begin early development works including FEED study, engineering design development, planning, and stakeholder engagement.





Service Performance

- Customers & Stakeholders
- Network Investment: Growing Our Network
- Network Investment: Existing Network
- Operations & Asset Management





Customer & Stakeholders

Our Leading Approach to Stakeholder Engagement

We are proud to be a stakeholder-led business with a stakeholder-led strategy. We work hard to meet the needs of all our stakeholders and customers, collaborating and working in partnership with our stakeholders to overcome environmental, societal and economic challenges as we strive to reach mutually acceptable outcomes. We are committed to advocate on behalf of our stakeholders to drive positive change along our pathway to Net Zero. Carrying out effective engagement with our stakeholders is crucial to our critical work and we are committed to delivering the highest stakeholder engagement standards.

In 2022/23, we successfully connected 1.3 GW of renewable energy to our network, primarily due to Seagreen – Scotland's largest offshore wind farm. Our low carbon share of generation rose to 88% from 84%, accompanied by an increase in the number of connection offers accepted to 139 (an additional 40 compared to the previous year). Furthermore, we successfully reduced the average time it takes to issue a connection offer to 69.5 days. Currently, our network has a renewable capacity of circa 9.2 GW, and we remain steadfast in our commitment to expanding it while delivering excellent service to meet the ever-growing demand for clean energy. Our dedication to this cause is exemplified by our top-ranking performance as the Transmission Owner in 2022/23, achieving an exceptional score of 8.6 in the Quality of Connections Survey. This comprehensive survey evaluates customer satisfaction across all stages of connection projects, solidifying our commitment to delivering exceptional service throughout the entire project lifecycle.

Connections reform

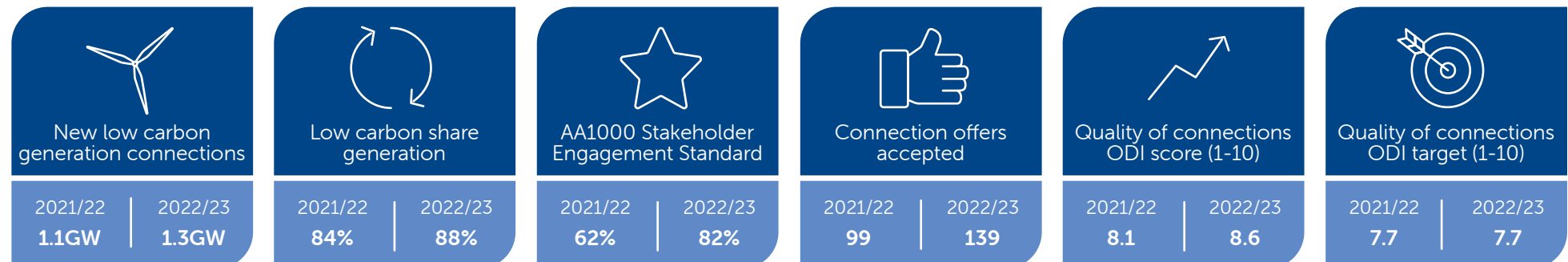
Improving customer connections

Ensuring the safe and efficient connection of generation and demand schemes to our transmission network in the north of Scotland is a key responsibility we embrace. In the upcoming years, we have an immense task ahead of us to make sure that our network is capable of connecting the growing onshore and offshore renewable power to support Scotland and the UK's net zero targets alongside securing our future energy by using affordable, home-grown, low carbon electricity.

Changing energy landscape

At the beginning of 2023, our network had just over 9GW of renewable generation connected. We currently have over 60GW of generation capacity contracted to connect to our network. The demand for network capacity is increasing every month as new applications are received and offers for connections are accepted. With this growth in renewables and shift in the energy sector, connection requirements are changing, and customers are utilising a range of technology types for generation. The connections process needs change in order to efficiently advance those projects which are ready to connect to meet the renewable generation 2030 and 2050 targets.

Connections Data





Investing in our Network

In 2022/23, we welcomed Ofgem's approval of the need for the strategic electricity transmission reinforcements required to deliver the UK Government's 50GW offshore wind by 2030 target, set out as part of the regulator's Accelerated Strategic Transmission Investment (ASTI) framework. At SSEN Transmission, we view ASTI as a critical milestone to support our collective net zero and energy security ambitions.

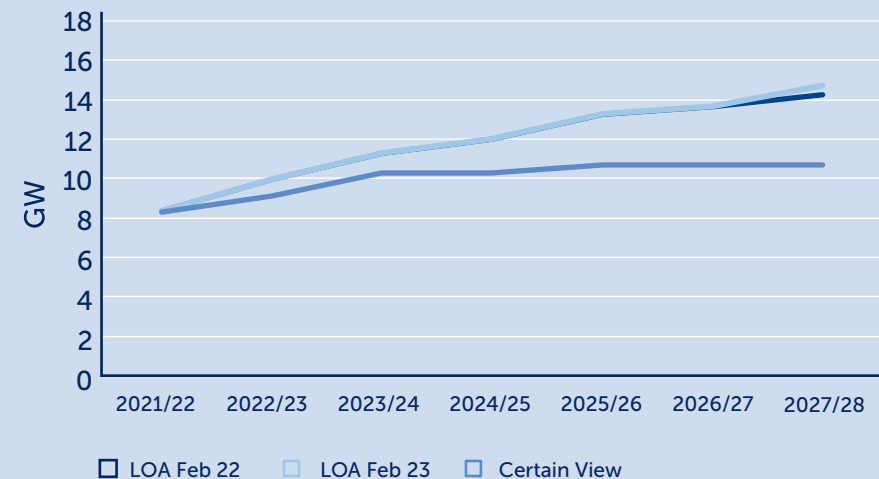
Accelerating the development and delivery of the strategic electricity transmission infrastructure required to enable the deployment of homegrown and affordable, low carbon power, is arguably the most important enabler to securing the UK's future energy security and net zero ambitions.

Growing Our Network

In order to deliver Net Zero, we are investing over £10bn to upgrade the network infrastructure across the north of Scotland between now and 2030 as the region plays a leading role in the clean energy transition. We remain on track to deliver all network investments set out in our Business Plan for the RIIO-T2 period, and have secured our supply chain for our full RIIO-T2 programme. As we continue to deliver a network for net zero emissions in the north of Scotland, we have made excellent progress in building the strategic reinforcements to the transmission system required to support the forecast growth in renewable electricity generation across the region. This includes growth of 1.3GW in 2022/23, which brings the total installed capacity connected to the North of Scotland transmission network to around 10.5GW, of which circa 9.2GW is from renewable sources.

This investment will support our RIIO-T2 goal to transport the renewable electricity that powers 10m homes, which will be met once the installed capacity of renewables supported by our network reaches 10GW, which we are well on the way to delivering.

We expect the total installed generation capacity in the north of Scotland to increase to around 14GW by the end of RIIO-T2, with up to 13GW of this from renewable sources. This would increase the number of homes our network could power from renewable electricity to around 13m homes, greatly exceeding our RIIO-T2 goal. We call this increase to our baseline our Likely Outturn Assessment (LOA), which remains under constant review in response to changes to the underlying generation background looking to connect to our network.





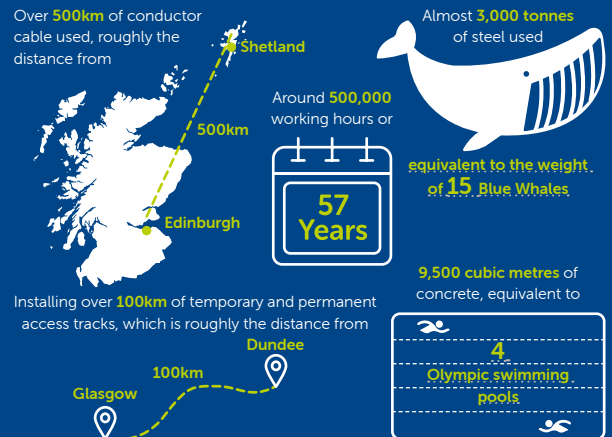
Investing in our Network

We are immensely proud of the key project milestones and achievements that our colleagues and contractors have delivered this year. Below are some of our key milestones in 2022/23.



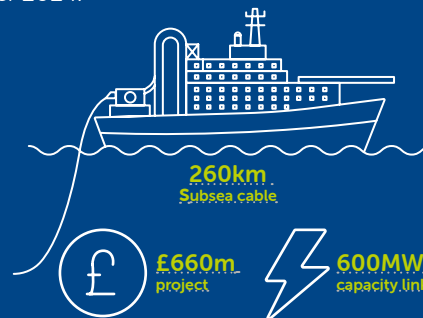
Inveraray to Crossaig

During 2022/23, the last of the 148 steel transmission towers on our Inveraray to Crossaig overhead line project was erected. This project traverses some of Scotland's most rugged landscapes, meaning many challenges had to be overcome to reach this milestone and ultimately deliver this nationally significant project. After two years of work, the new Inveraray to Crossaig overhead line project was energised in Summer 2023.



Shetland

The construction of the Shetland HVDC Link continues to make good progress, with subsea cable installation now underway. Our £660 million project involves installing a 260km subsea cable system between Caithness and Shetland. The link will enable 600MW of clean, renewable electricity generation to connect supporting UK and Scottish net zero and energy security targets. This is crucial to transporting clean, renewable energy to where it is needed most, ultimately helping us achieve a network for net zero; alongside securing Shetland's future security of supply. The project is on track to be completed by Summer 2024.



Alyth

Teams working on our Alyth Substation project successfully completed the arrival of a new transformer unit to the development, marking a major step in the ongoing construction of the new substation. The new unit, weighing around 120 tonnes, is a key component in the ongoing development of the substation. The project at Alyth is on course to be completed later this year.

New transformer unit installed, weighing around **120 tonnes**.



equivalent to the weight of **20 African Elephants**.



Plans to **plant almost 5,400** local native species of trees to enhance biodiversity.



Installing **two bat boxes** within the site's tree perimeter to create roosting places for the species.



Installing **nine bird and red squirrel feeders** around the site perimeter fence.






















Operations and Asset Management

In 2022/23, we have once again achieved a remarkable milestone by attaining peak performance levels in our Energy Not Supplied (ENS) Incentive, marking the third consecutive year of this achievement. This exceptional feat has been made possible through the collective efforts of our entire organisation, which has demonstrated outstanding proficiency in the entire spectrum of asset management, from policy and specification, to system planning, to capital delivery, to network operations and maintenance.

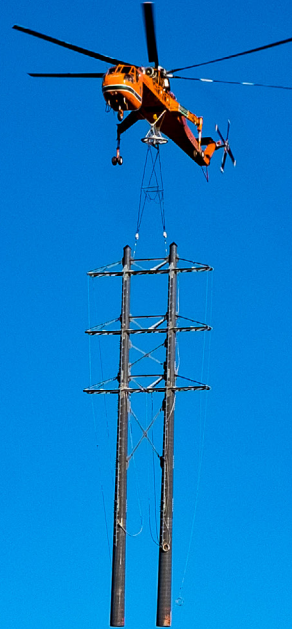
Our success is also heavily attributed to the rigorous implementation of our well-defined asset management strategies, which consistently emphasise thorough inspection, diligent maintenance, and effective refurbishment practices. These measures have been instrumental in ensuring the enduring durability and dependability of our transmission infrastructure as well as informing us when it is time to intervene and replace. Notably, these 'O&M' activities are primarily undertaken by our versatile in-house operational teams, possessing diverse expertise encompassing substations, overhead lines, cables, HVDC systems, civil engineering, and vegetation management.

Expanding upon our commitment from the previous year, we intensified our endeavours to enhance network resilience by prioritising comprehensive tree-cutting initiatives. This strategic focus was particularly vital in areas prone to storm-related disruptions. A prime example of this effort can be seen in the substantial progress made on the North East 132kV network, which, as of March 2023, has achieved an impressive 99% resilience against vegetation-related risk. Overall, our transmission network's resilience now stands at an impressive 90%.

In summary, our Operations and Asset Management performance throughout 2022/23 is a testament to our organisational capabilities and unwavering determination to ensure the availability and reliability of our network. By leveraging strategic planning, fostering collaboration, and executing proactive asset management and operational practices, we effectively surmounted challenges and upheld our commitment to customers and communities alike. Our relentless pursuit of excellence continues to power households, enterprises, and critical infrastructure across northern Scotland, actively contributing to regional progress and the assurance of a secure energy supply.

Asset Interventions 2022/23 (Non-Load and Load)		
400kV		
 1.1km OHL Tower Conductors	 2 OHL Towers	
275kV		
 4.3km OHL Tower Conductors	 3 Circuit Breakers	
 3 OHL Towers	 6 OHL Tower Fittings	
132kV		
Non-Load	Load	
 1.1km OHL Tower Conductors	 36.2 km OHL Tower Conductors	 275 OHL Pole Fittings
 1 Circuit Breaker	 3 OHL Towers	 227 OHL Wooden Poles
	 12 Circuit Breakers	 275 OHL Pole Conductors
	 6 OHL Tower Fittings	 4 Transformers
	 17.6km Underground Cable	





Financial Performance

- Financial Performance During the Year
- Financial forecast for RIIO-T2
- Delivering Outputs for Consumers, Customers and Society



Financial Performance During the Year

The majority of our total expenditure (TOTEX) in 2022/23 continues to be focused on the delivery of large capital investment projects. Particularly those investments in new and upgraded network infrastructure that are required to grow the capacity of our network to facilitate the connection of new renewable electricity generation. This includes the Shetland HVDC link and upgrades to the existing East Coast and North East transmission network.

The table below shows our actual expenditure vs allowances for 2022/23, broken down against each investment category that we report against. As this is the second year of the five year price control period, it is difficult to accurately assess performance vs allowances, given investments will span several years within price control periods and even crossover from one price control period to another. We therefore believe a better indicator of performance is our forecast for the full price control period, as set out in the Financial Forecast for RIIO-T2 table on page 23.

	2022/23 Actual (£m)	2022/23 Allowance (£m)	Delta (£m)
Load Related – Wider Works	304.9	413.7	108.8
Non-Load Related	84.7	177.6	92.9
Non-Operational Capex	4.7	33.3	28.6
Network Operating Costs	19.1	23.1	4.0
Indirect and Other Costs	114.5	98.2	-16.3
Total Expenditure as per RRP	527.9	745.9	218.0

Return on Regulatory Equity (RoRE)



5.4% 5 year weighted average operational RoRE*

*excluding debt and tax performance

Regulated Asset Value (RAV) at End of Year



2012/13 = £1.1bn
2018/19 = £3.5bn
2022/23 = £4.8bn

The RAV is a useful indicator of the growth in the size of our network over the price control period and we are forecasting that by March 2026 it could reach between £6.5bn - £7bn.

Load Related Expenditure

Our reported outperformance of around £109m in 2022/23 is due to several factors beyond the phasing of expenditure across the price control period (i.e. you cannot look at performance for one year only across a five year period). This is primarily explained by efficiencies in our contracting strategy, alongside savings realised through the competitive tendering process, the early placement of material orders and changes in the technical scope of certain projects.

Non-Load Related Expenditure

Our reported outperformance of around £93m in 2022/23, beyond the phasing of expenditure across the price control period (i.e. you cannot look at performance for one year only across a five year period), can primarily be attributed to these replacement works, including savings in the competitive tendering of projects.

Non-Operational Capex

Non-operational capital expenditure relates to investments in activities such as IT, Telecoms and non-operational property, which includes our new control centre, two new warehouses as well as climate change assets. Our reported underspend in 2022/23 of £28.6m is largely driven due to delays in awarding construction contracts, mainly for these new properties. These properties will still be completed within the T2 price control and within allowance. It should be noted that the construction contracts for the two new warehouses have now been awarded to local Scottish companies. Our IT expenditure is also under allowance but will be on track by the end of the T2 price control period.

Network Operating Costs

Network Operating Costs relate to the direct operation of our network, including costs associated with faults, repairs and maintenance, inspections & vegetation management. They also capture costs associated with our Visual Amenity schemes. The bulk of our reported underspend of £4.0m in 2022/23 relates to our refurbishment and maintenance programme and the phasing of expenditure, which recovers during the remainder RIIO-T2.

Indirect and Other Costs

Indirect overheads and Other Costs mainly relate to our general indirect overheads in running our business including our own internal staff cost associated with delivering our capital programme (in line with Ofgem reporting requirements). This category also includes our physical site security upgrades and cyber resilience costs. Our reported overspend for 2022-23 of £16.3m is largely due to increased business support costs covering IT & Telecoms, Property, Finance & Regulation, Procurement & Legals costs. The T2 settlement for additional allowances to cover these costs is limited.





Financial Forecast for RIIO-T2

	Expenditure (£m)						Allowances (£m)	Performance (£m)
	2022	2023	2024	2025	2026	T2 Total	T2 Total	T2 Total
Load Related	392	304.9	407	685.2	1,346.80	3,135.90	3,173.30	37.4
Non-Load Related	79.2	84.7	136.7	285	226.8	812.4	844.3	31.9
Non-Operational Capex	7.7	4.7	39.9	41.9	13.2	107.4	112.4	5
Network Operating Costs	37.2	19.1	23.5	36.5	66.6	182.9	187	4.1
Indirect Overheads, Other Costs & RPE's	86.1	114.5	168.4	178.5	189.6	737.1	569	-168.1
Total Expenditure (TOTEX) as per Regulatory Reporting Pack	602.2	527.9	775.5	1,227.1	1,843.0	4,975.7	4,886.0	-89.7
Adjustments to Allowances within PCFM						161.4	387.0	225.6
Sub-total						5,137.1	5,273.0	135.9
Enduring Value Adjustments per RFPR								-33.3
TOTEX Performance per RFPR								102.6

As is the case with our actual expenditure for 2022/23 and building on our RIIO-T1 financial performance, the majority of our forecast expenditure for the RIIO-T2 period continues to be focused on the delivery of large capital investment projects. Over 60% of this investment is forecast in new and upgraded network infrastructure that is required to grow the capacity of our network to facilitate the connection of new renewable electricity generation as we continue to deliver a network for net zero emission in the north of Scotland.

We are forecasting RIIO-T2 allowances of £5,069m against forecast expenditure of £4,976m (including the RIIO-T1 cross over and RIIO-T3 spend relating to T2 projects). These allowances include adjustments to our baseline allowances for uncertainty mechanisms and include allowances which get adjusted for with our price control financial models such as connection asset true and real price effects. We use the Ofgem methodology for calculating Enduring Value adjustments which remove non-RIIO-T2 related activity such as RIIO-T1 or RIIO-T3 costs and allowances. This leads to an adjustment in outperformance by +£10m leaving a revised totex outperformance of £102.6m over the full RIIO-T2 period.

This forecast includes the impact of uncertainty mechanisms we are progressing throughout the RIIO-T2 price control period and associated early construction and pre-construction impact of investments which span the RIIO-T1 and RIIO-T3 price control periods. Uncertainty mechanisms are an important element of the RIIO-T2 price control and constitute a significant proportion of expenditure. Our current forecasts to the end of RIIO-T2 include around 50% related to Uncertainty Mechanisms of totex allowances. At the time of submitting our Business Plan, our Likely Outturn Assessment totex forecast was between £3-3.5bn, with the increased forecast expenditure of around £5bn mainly reflective of the acceleration of renewable electricity generation to support Government net zero targets which includes the new ASTI schemes. Outperformance has been forecast for our load RIIO-T2 Certain view schemes, driven by a combination of innovation, intelligent/value engineering and efficiencies in the contracting strategy.





Delivering Outputs for Consumers, Customers and Society

As we deliver our ambitious RIIO-T2 business plan, we are making excellent progress delivering against the commitments we have made. We are on track to deliver all Price Control Deliverables (PCDs) and our ambitious five goals, where in many cases we are exceeding original expectations. PCDs were introduced in RIIO-T2 to better hold Transmission Owners (TOs) accountable for delivering work funded through the price control by providing a greater level of clarity between baseline allowances and the associated outputs for certain view projects. We are on track to deliver all 20 PCDs included in the 2022/23 reporting period in line with our license commitments. Cyber Resilience PCDs and PCDs that contribute to Network Asset Risk Metrics (NARMs) are excluded as they have separate reporting processes which are currently ongoing. We are also performing strongly against our Output Deliverable Incentives (ODIs), a series of penalty or reward incentives to drive continual improvement; and our Consumer Value Propositions (CVPs), where our Business Plan delivers additional benefits and value for energy consumers, our customers and stakeholders, over and above minimum requirements. The table below summarises our ODI and CVP performance in 2022/23, and where applicable, the financial reward or penalty against each of these measures alongside our target/baseline.

Incentive	Type	Metric	Target/Baseline	2022/23 Output	Max Potential 2022/23*	Final Financial Position 2022/23*
Energy Not Supplied	ODI (Reward/Penalty)	Volume of unsupplied energy incidents due to Incentivised Loss of Supply Events (MWh)	<102	0	£0.77m	£0.77m
Insulation and Interruption Gas (IIG) Emissions	ODI (Reward/Penalty)	Measured Leakage (TCO2e)	5,788	4,599	£0.52m	£0.1m~
Timely Connections	ODI (Penalty)	% of offers of time	100%	100%	Penalty Avoidance	£0.0m
Quality of Connections	ODI (Reward/Penalty)	Overall satisfaction at customer connection milestones. (marked out of 10)	7.7	8.6	£2.52m	£1.8m
Biodiversity No Net Loss/Net Gain	CVP	% projects meeting designed in biodiversity targets (NNL until 2025)	100%	100%	-	n/a
Incentive (links to individual table narrative)	Type	Metric	2022/23	Reduction vs 2021/22		Final Financial Position 2022/23*
Science Based Target	CVP	Scope 1 & 2 Emissions (TCO2e)	9,934	+4%	-	n/a
Incentive (links to individual table narrative)	Type	Forecast Savings to ESO	Net Cost to SSEN Transmission	Actual Savings to ESO	Max Potential 2022/23*	Final Financial Position 2022/23*
SO:TO Optimisation	ODI (Reward)	£90m	£137k	£162.4m	£1.2m	£1.2m

SSEN Transmission also has two Consumer Value Propositions (CVPs) for which we will be rewarded for ambitious commitments that go above and beyond minimum requirements in generating value for customers over RIIO-T2:

- All eligible projects to deliver a biodiversity No Net Loss/Net Gain – all eligible projects during this reporting period have achieved a minimum of no net loss in biodiversity as measured by the SSEN Biodiversity Toolkit. 7/11 projects achieved greater than a 10% Net Gain in biodiversity compared to the baseline units, meaning that 64% of projects consented exceeded the business commitment of no net loss in biodiversity.
- Science Based Target to reduce emissions – we have seen a 4% increase against baseline for this year, primarily driven by the rise in IIG emissions attributed to the elevated SF6 leakage rates. We anticipate improvement in future years against our stretch CVP target (it should be noted that we have exceeded our incentive target for our ODI for IIG Emissions).





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