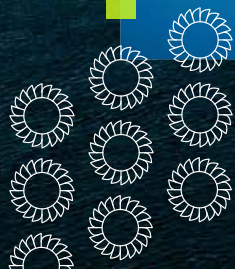


Annual Report 2023/2024



Foreword

I am delighted to introduce SSEN Transmission's Annual Report for 2023/24, marking another year of significant performance in delivering our regulatory outputs and five ambitious goals for the RIIO-T2 price control period.

This year, and in response to feedback from our stakeholders, we have combined our Annual Performance and Sustainability Reports, presenting our key performance indicators and progress against our RIIO-T2 commitments in a single integrated report.

Starting with safety, our number one priority, we continue to make excellent progress in our commitment to create a healthy, happy, and safe workplace. This is embodied by our commitment to 'doing safety differently' alongside our safety licence 'if it's not safe we don't do it'.

In operations, we have delivered another exceptional performance, achieving 95% of the available reward through the 'Energy Not Supplied' (ENS) incentive. Having secured the full ENS incentive in the three consecutive years previously, we are well placed to achieve our RIIO-T2 goal of aiming for 100% transmission network reliability for homes and businesses.

We also continue to make excellent progress delivering our capital investment programme, including increasing the capacity of the north east transmission network to 400kV and the successful energisation of the Shetland HVDC link, connecting the islands to the GB energy system for the first time, unlocking Shetland's vast renewable potential. These investments support our strategic objective to enable the transition to a low carbon economy as we continue to deliver a network for net zero in the north of Scotland.

We are well on track to exceeding our RIIO-T2 goals of transporting the renewable electricity needed to power 10 million homes alongside delivering every connection on time, with the installed capacity of renewables on our network rapidly approaching 10GW.

Through our Pathway to 2030 programme, we will invest over £20bn to unlock the north of Scotland's potential as a clean energy powerhouse, with the region set to play a

leading role in the clean energy transition. This investment, which will support thousands of jobs and provide a significant boost to local and national economies, is crucial to achieving UK and Scottish Government clean power and energy security targets.

We are well-placed to deliver on these projects, having successfully secured the supply chain for all our major projects. We are also undertaking what we believe to be the most extensive listening exercise across the north of Scotland as we develop our projects in close consultation with communities and wider stakeholders. This has led to significant changes to our plans in direct response to local feedback, with this engagement and consultation ongoing.

In March 2024, the ESO published its 'Beyond 2030' report setting out the additional investments required to deliver a fully decarbonised electricity system, which included a second HVDC link to Shetland. In May 2024, we were delighted to select the Sumitomo Electric Van Oord Consortium as preferred bidder for this second Shetland link - the anchor project enabling Sumitomo's investment in a new state-of-the-art subsea cable manufacturing facility at Nigg in the Scottish Highlands.

Supporting Sumitomo's investment underscores our commitment to developing a homegrown sustainable supply chain to support the country's energy security and net zero targets. It also provides tangible economic benefits of the clean energy transition, creating hundreds of high-skilled jobs in the Scottish Highlands.

Alongside delivering societal value, we continue to achieve efficiencies and innovations in the delivery of our RIIO-T2 investments and remain on track to achieve our RIIO-T2 goal of £100m in efficiency savings, which will be shared with electricity consumers.

We are therefore firmly on track to deliver our main RIIO-T2 outputs and four out of five RIIO-T2 goals. Due to the exponential growth of our network, our goal to deliver a 33% reduction in greenhouse gas emissions may not be met in full. However, our commitment to sustainability and tackling our own emissions remains steadfast, underpinned by our revised Sustainability Strategy.

Refreshing our Sustainability Strategy

Sustainability remains at the core of everything we do and in 2024, we launched a refreshed strategy which builds on our strengths in climate action, nature protection, and community benefits.

We remain fully committed to our world-leading carbon emission reduction targets in line with a Science Based Target pathway consistent with net zero. In 2023/24, we achieved sector leading performance for our SF₆ leakage targets, more than 50% below target, demonstrating our commitment to take responsibility for our own carbon impacts.

In May 2023, we celebrated World Biodiversity Day by bringing forward our Biodiversity Net Gain commitment by two years, which means all new projects will deliver a minimum of 10% Biodiversity Net Gain.

In June 2023, we consulted on the first of its kind Community Benefit fund, which will see at least £10m of funding to be available throughout the RIIO-T2 period. Our initial £2m regional fund is open for applications from September 2024.

Our workforce continues to grow at pace as we invest in skills and talent in the north of Scotland. This year, we welcomed another 500 new employees, meaning our total workforce is now in excess of 2,000 - a fourfold increase in just five years.

As we look to the future, SSEN Transmission is well-positioned to continue to play a leading role in the clean energy transition.

Our performance this year is testament to the hard work of our teams, our supply chain partners, and stakeholders and I am extremely grateful for their continued support and collaboration as we work together to deliver a network for net zero.



Rob McDonald
Managing Director



Delivering our five ambitious goals for the RIIO-T2 period

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 and 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.

We have successfully completed the delivery of four of our 22 Price Control Deliverables (PCDs), which are made up of 38 schemes representing our main load related investments for the RIIO-T2 period. We have a small number of Price Control Deliverables (PCDs) and Network Asset Risk Metric (NARM) projects which are experiencing a change of scope from what we signed up to deliver originally due to changes in either customer or network need. We are responding to these changes accordingly to ensure that we deliver the most economic and efficient solution for the consumer. We remain on track to deliver the rest of our RIIO-T2 outputs, however we are facing more challenges and headwinds today than ever before, including planning delays, issues in securing outages, and supply chain issues resulting in longer delivery period for materials equipment and services. These external factors, largely outwith our control, are having an impact on our delivery profile and we will continue to monitor and respond to these challenges, which will result in revisions to our delivery plans.



ON TRACK

01

Every connection delivered on time

Against a target of 7.7 out of 10, in 2023/24 we achieved a quality of connections customer rating of 8.6, maintaining our sector leading position for the second consecutive year.



ON TRACK

02

Aim for 100% transmission network reliability for homes and businesses

For the three full years of RIIO-T2, we have had just one incentivised loss of supply event, having achieved the full 100% Energy Not Supply (ENS) incentive for the first two years of the RIIO-T2 period and 95% in 2023/24. Our network reliability exceeds 99.999%.



ON TRACK

03

Transport the renewable electricity that powers 10 million homes

During 2023/24, our network had a connected capacity capable of transporting 33.2 TWh of renewable generation. This connected capacity is enough to power 12.3 million homes, meaning we have achieved our goal two years early. Our work to connect low carbon generation includes the recently completed HVDC link to Shetland – the world's first multiterminal HVDC link outside of China.



AT RISK

04

One third reduction in our greenhouse gas emissions

We continue to deliver sector-leading emissions performance, underpinned by our SF₆ leakage rate of just 0.17% in 2023/24, our lowest since 2018/19 and less than half our incentive target of 0.38%.



ON TRACK

05

£100 million in efficiency savings from innovation

For the five-year period, we forecast savings of around 3% against total expenditure of £4.2 billion (around £110 million).

KEY HIGHLIGHTS



Growing our workforce

During 2023/24 we welcomed another 500 new employees, bringing our total workforce to 1,800 people by March 2024, then in August 2024, we hit the milestone of 2,000 employees, a fourfold increase from four years ago.



Delivering diversity and inclusion

Through targeted efforts to improve diversity across our teams, over the last four years we have successfully grown our female population from 19% to 28.8% and decreased the median gender pay gap from 36.1% to 16.4%.



Expanding our presence in the north east

We opened a new office at Prime Four business park in Aberdeen to accommodate an expanding workforce in the north-east of Scotland.



Top rated stakeholder engagement for third year running

We were awarded top rating for stakeholder engagement for the third year running with our score of 88% in AccountAbility's AA1000 Stakeholder Engagement Standard achieved at the same time we increased levels of engagement across our business.



Launching our Community Benefit Fund

Following a six-week consultation to seek views on our plans for a community benefit scheme, which attracted over 135 responses, on 1 September 2024, we launched our initial £2m regional fund, part of our £10m RII0-T2 community benefit fund.



Delivering value for electricity consumers

We successfully carried out two innovative projects to help avoid constraints, allowing clean power to be transported to the centres of demand, resulting in a net consumer benefit of more than £55m in avoided constraint payments.

KEY HIGHLIGHTS



Sumitomo partnership delivers jobs boost for Highlands

We announced preferred bidder status with the Sumitomo Electric U.K. Power Cable Consortium (SVOC) for the Shetland 2 HVDC subsea link, unlocking Sumitomo's investment in a new cable manufacturing facility in Nigg, supporting hundreds of skilled jobs in the Scottish Highlands, a fourfold increase from four years ago.



Supply Chain Delivery Charter launched

We launched a Delivery Charter with our supply chain which commits 11 of our Principal Contractors working on our ASTI projects to a series of key working principles, including leaving a positive legacy in the communities where our infrastructure will be hosted.



A data-led approach to improving safety

Our proactive, data-led approach to improving safety, health and wellbeing has helped deliver a 24% reduction in our combined total recordable incident rate (TRIR), and an 8% reduction in our contractor TRIR.



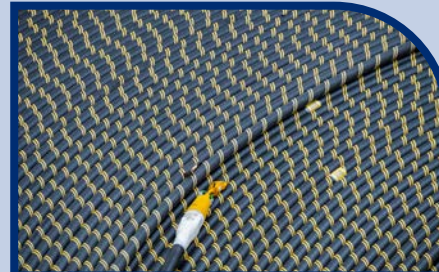
Adopting best practice for our new Sustainability Strategy

We undertook a comprehensive approach to update our Sustainability Strategy by conducting a double materiality assessment, with our updated Sustainability Strategy focussing on the most critical issues for our stakeholders and society, driving action for the coming decade.



Increasing ambition for biodiversity

We brought forward our industry-leading target to deliver a minimum of 10% biodiversity net gain on all new projects by two years, demonstrating our commitment to leaving a positive environmental legacy in the north of Scotland.



Eastern Green Link 2 sustainability fund

Our joint venture project with National Grid Electricity Transmission secured a £60m fund from Ofgem to drive innovative and sustainable solutions for the UK's single largest electricity transmission project of all time.

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Overview

About us

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 132kV, 220kV, 275kV and 400kV electricity transmission network.

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



Our operating area is home to vast renewable energy resources and this is being harnessed by wind, hydro and marine generation. Working closely with National Grid, the GB transmission System Operator, we also 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 strategic role to play in supporting delivery of the UK and Scotland's Net Zero targets. We're 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 40GW of low carbon energy capacity to support net zero delivery. For context, we currently have over 9GW of renewable generation connected in the north of Scotland.

As a natural monopoly, we are closely regulated by the GB energy regulator, Ofgem, who determines 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.



About this report

Our Annual Report provides a comprehensive update on our financial performance and sustainability progress throughout the financial year 2023/24.

This report is compliant with our obligations under Standard Licence Condition B15 (Regulatory Instructions and Guidance) and Special Licence Condition 9.1 (Annual Environmental Report).

This report has been prepared by the Managing Director for the directors of Scottish Hydro Electric Transmission plc (SHE Transmission). SSEN Transmission encompass the licenced entity Scottish Hydro Electric Transmission plc Registered in Scotland No. SC213461



About our shareholders

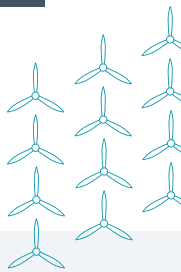


SSE, the UK and Ireland's clean energy champion, holds a majority 75% stake in SSEN Transmission. SSE's purpose is to provide the energy needed today while building a better world of energy for tomorrow. SSE aim to be a leading energy company in a net zero world and their strategy for achieving this 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.



Ontario Teachers' Pension Plan acquired a 25% minority stake in SSEN Transmission 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. 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



Safety

Throughout 2023/24, we have made excellent progress with our safety performance as we continue to focus on ways to do safety differently to create a healthy, happy and safe workplace, underpinned by our safety licence, 'if it's not safe we don't do it'.

We have continued to build strong positive communities, adopt a more proactive approach, improve, and digitalise our systems and understand what makes things difficult so that we can simplify and improve our processes. This has led to some notable achievements in line with our Safety Health and Wellbeing strategy, including:

<p>Development of SSEN Transmission management system and achieving ISO 45001 certification for management of occupational health and safety risks</p>	<p>Building a new Health & Wellbeing team to enable us to proactively support our communities</p>	<p>Enhancing our engagements by conducting roadshows with front line teams and developing new communication tools</p>
<p>Roll out of our Inspiring Safe Communities programme to over 1,100 employees</p>	<p>Implementing a new Transmission Safety, Health, and Wellbeing induction to help set our new starts up for success</p>	

We have continued to monitor our safety performance data throughout the year, enabling us to understand when we should act promptly and do things differently. This resulted in us conducting a deep dive of our data, a review called 'Stopping for Safety', and strengthening our approach when returning at the start of the new calendar year. This helped us see a reduction in our combined TRIR by 24% and our contractor TRIR by 8% in 2023/24. We also achieved more safe days.

We concluded the year with a Transmission Safety, Health and Wellbeing Conference and Awards dinner where we hosted over 180 operational employees in Aberdeen. This gave us the opportunity to celebrate our success and think about the ways can do safety differently as we grow and deliver our Network for Net Zero.

We will be focussing our efforts on safe driving, contractor safety, implementation of our Operational Safety manual and through our new state of the art Immersive Training programme.



Operational Performance

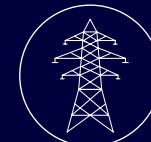
In 2023/24, we delivered another exceptional operational performance, achieving 95% of the available reward through the 'Energy Not Supplied' (ENS) incentive. Having secured the full ENS incentive in the three consecutive years previously, we are well placed to achieve our RII0-T2 goal of aiming for 100% transmission network reliability for homes and businesses. This performance is underpinned by a robust and ongoing programme of inspection, maintenance, refurbishment, and replacement of our assets, keeping the lights on for communities across the north of Scotland and ensuring reliable network access for electricity generators to support security of supply in Great Britain.

Not achieving the full ENS reward for the fourth year in a row was due to a single grid transformer fault at our Arbroath Substation, which occurred while the parallel unit was out of service for planned maintenance. This incident led to a temporary power outage affecting approximately 20,000 customers for around 30 minutes whilst supplies were restored through alternative circuits on the local distribution network. Our response to this fault was exemplary, with our team on site within an hour, swiftly restoring the parallel transformer and securing supplies for local communities. This rapid and effective response highlighted the exceptional capabilities and dedication of our operational team.

Our proactive approach to asset management has positioned us as the leading Transmission Owner across Great Britain in terms of availability. Through strategic foresight, collaboration, and a commitment to operational excellence, we continue to drive regional development and continuous improvement to ensure a secure and reliable transmission network across the North of Scotland. Our commitment to operational excellence is reflected in the hat trick of awards our team won at the 2023 Institute of Asset Management (IAM) Asset Management Excellence Awards.

2023/24 also marked our best-ever performance in SF₆ leakage, with only 0.17% of the total gas held leaking across our entire network, over 50% below our target. This success was driven by policy changes in the selection, design, and operation of gas-insulated apparatus, significantly exceeding performance expectations and confirming that we are on the right track as we continue to phase out SF₆ gas from our network.

We also made significant strides in enhancing the resilience of our overhead line network, which spans over 5,000 km across some of the UK's most challenging terrains. By the end of the year, our 132kV, 275kV, and 400kV overhead networks achieved resilience rates against falling vegetation of 95%, 92%, and 91%, respectively. This improvement reflects a strategic policy shift that extends beyond simple electrical clearance to achieving greater levels of resilience against fallen trees. In doing so, this enhanced resilience helps safeguard our network from storm related damage which is particularly important for our customers and communities as the impacts of climate change continue to see an increase in extreme weather events across the north of Scotland.



Achieved

95%

of our Energy Not Supplied incentive



Best ever performance

in SF₆ leakage, surpassing our target by over 50%

Asset interventions 2022/23 (Non-load and load)

400kV (Load)

- 211.5km OHL tower conductors
- 328 OHL towers
- 31 Circuit breakers
- 656 OHL tower fittings
- 5 Transformers

275kV (Load)

- 15 Circuit breakers
- 1.9km Underground cable
- 13 Flexible AC Transmission Systems

132kV

Non-load	Load
89.3km OHL tower conductors	1 Circuit breaker
0.6km Underground cable	2 OHL tower fittings
310 OHL tower fittings	1.1km OHL tower conductors
148 OHL towers	1 Transformer
2 Transformers	

Investing in our network



Growing Our Network

Throughout 2023/24, we continued to make excellent progress delivering our RIIO-T2 capital investment programme, building the strategic reinforcements to the transmission system required to support the forecast growth in renewable electricity generation across the region.

These investments include increasing the capacity of the North East and East Coast transmission network to 400kV. In February 2024, we successfully completed and energised all circuits in the North East, between Rothienorman, Blackhillock and Peterhead, increasing the network capacity to 400kV. These works include the new Peterhead 400kV substation.

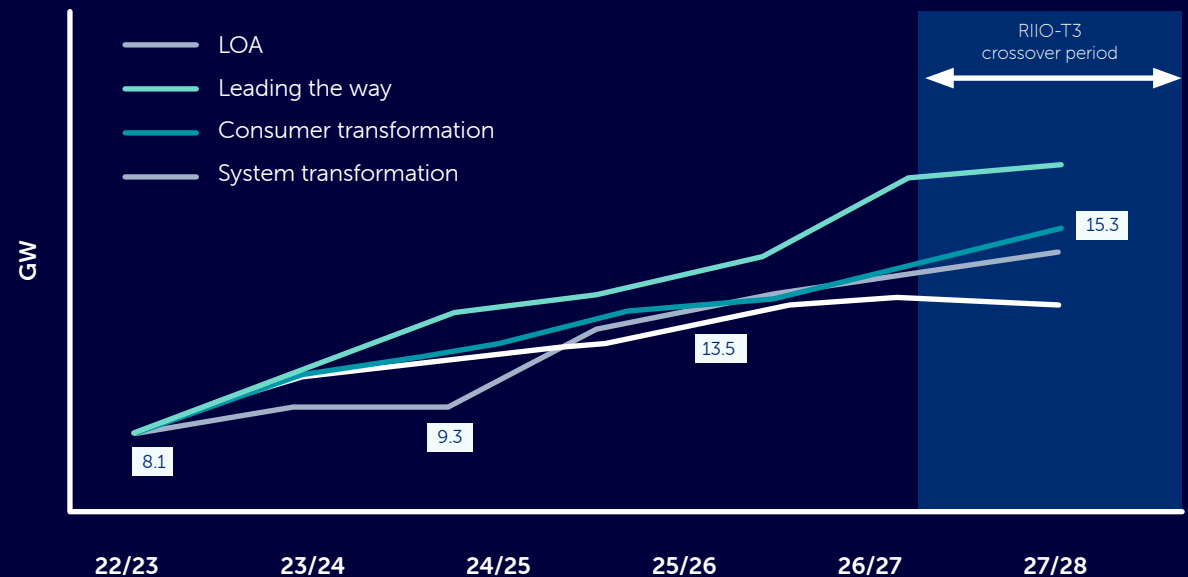
In 2023/24 we also successfully energised the Alyth 275kV substation, with works already underway to increase its capacity to 400kV as part of our wider East Coast 400kV upgrade programme.

These investments will support delivery of our RIIO-T2 goal to transport the renewable electricity that powers 10 million homes. This goal will be met once the installed capacity of renewables supported by our network reaches 10GW, which we are well on track to exceeding, supporting our strategic objective to enable the transition to a low carbon economy, delivering a network for net zero emissions in the north of Scotland.

As of 31 March 2024, the total installed capacity of the north of Scotland network was almost 10.6GW, of which just over 9.3GW is from renewable and other low carbon sources. This includes 0.6GW of pumped storage and batteries.

We continue to forecast the total installed generation capacity in the north of Scotland to increase to around 14GW by the end of RIIO-T2, with 13GW of this from renewable sources. We call this 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.

Likely outturn assessment (LOA) connected generation forecast





Progressing LOTI Investments

Over and above our RIIO-T2 baseline investment case, we are also progressing several major investments through Ofgem's Large Onshore Transmission Investment (LOTI) Uncertainty Mechanism.

Securing Shetland's Future Energy Needs

In August 2024, we successfully completed the Shetland HVDC link, connecting the islands to the GB energy system for the first time and unlocking Shetland's renewable potential. Delivery of this major milestone, on time and within budget, reinforces our expertise in executing major and complex capital investment programmes. With the Shetland link connecting to the existing Caithness-Moray HVDC link, this represents the world's first multi-terminal HVDC link outside of China, as we continue to grow our expertise in HVDC technology. During 2023/24, work has also progressed to connect Shetland's existing electricity distribution network to the Shetland HVDC link via the new Grid Supply Point being constructed at Gremista. The Kergord-Gremista 132kV circuits will then connect the HVDC link to the new Gremista Grid Supply Point, connecting Shetland's homes and business to the GB electricity network for the first time, and remains on track for completion by the end of 2025.

Unlocking Orkney's Renewable Potential

In July 2023, Ofgem approved the Final Needs Case for the Orkney transmission link. The link will accommodate around 220MW of renewable electricity generation, further unlocking Orkney's vast renewable potential and supporting the continued development and growth of Orkney's marine energy sector. Main construction works are due to commence in summer 2024, with full energisation expected in 2028.

Ensuring Security of Supply for Skye

In August 2023, Ofgem approved the Final Needs Case for the Skye reinforcement project, which involves the replacement and upgrade of the existing Fort Augustus to Skye transmission line. This project is essential for maintaining security of supply and enabling the connection of renewable electricity generation along its route. Both substation applications were granted consent by the Highland Council in early 2024, with a decision on the Section 37 overhead line planning application expected later in 2024. Pre-construction enabling works are already underway with full construction works ready to commence once all consents are in place, with full energisation anticipated in 2028.

Enabling Renewable Growth in Argyll

In October 2023, Ofgem approved the Final Needs Case for the Argyll and Kintyre 275kV Reinforcement, subject to securing all material planning consents. This reinforcement is necessary to upgrade the local transmission network from 132kV to 275kV, supporting the anticipated growth in renewables in the region. All substation planning consents for the Argyll and Kintyre 275kV Reinforcement have been secured and in August 2024, Scottish Minister's granted consent for the Creag Dhubh to Dalmally 275kV overhead line. We continue to await the outcome of the Inveraray to Creag Dhubh 275kV Section 37 application with construction planned to commence later in 2024 and full energisation targeted for 2028.

Pathway to 2030

Progressing ASTI projects at pace

As part of the National Grid Electricity System Operator's (NGESO) Pathway to 2030 Holistic Network Design (HND), published in July 2022, eight major projects in the north of Scotland have been confirmed for us to progress through Ofgem's Accelerated Strategic Transmission Investment (ASTI) framework.

These projects include several subsea links and onshore upgrades to support the connection of ScotWind and onshore electricity generation. While most of these projects are wholly owned by SSEN Transmission, our Eastern Green Link projects are being developed jointly with National Grid Electricity Transmission.

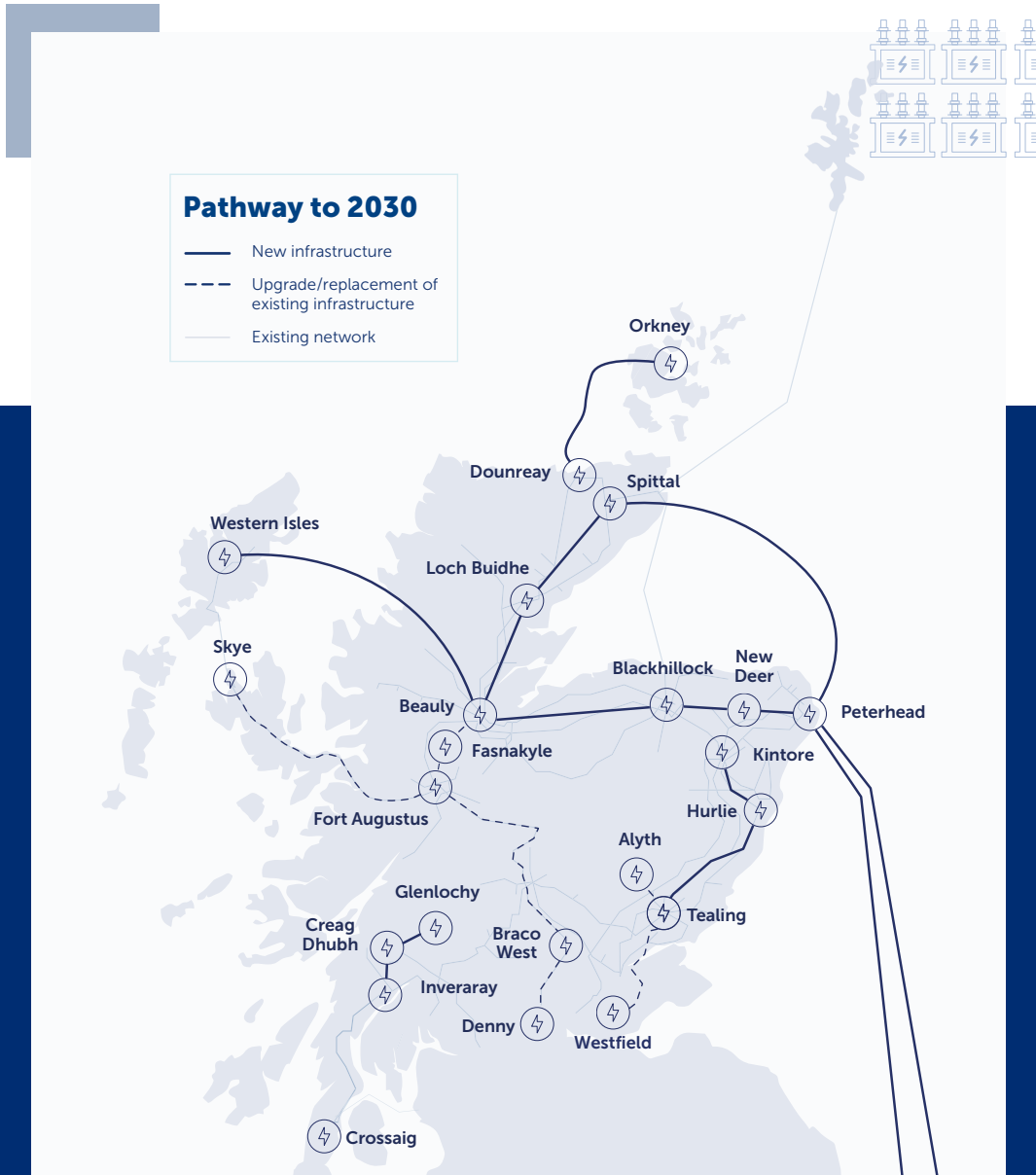
During 2023/24 we have made significant progress in delivering these projects, having successfully secured the supply chain for all our wholly owned ASTI projects and for the EGL2 link.

Across our wider ASTI developments, in August 2023 we reached preferred bidder status for all our onshore projects and the tender process for EGL3 is now underway.

We are also undertaking what we believe to be the most extensive listening exercise across the north of Scotland as we develop these projects in close consultation with communities and wider stakeholders.

During 2023/24, we successfully completed our first round of public consultations across our wholly owned onshore and subsea ASTI projects which has led to significant changes to our plans. Further consultation and engagement is planned before submitting consent applications to the relevant authorities.

At the time of drafting our RIIO-T2 Business Plan, the ASTI initiative was not anticipated. Its introduction has significantly impacted our T2 forecast, with an additional spend of approximately £1.47bn, as we have taken on more projects and personnel to meet the ambitious targets required for achieving Net Zero. This evolution in the regulatory landscape has necessitated a recalibration of our original expectations, driving both increased capital expenditure and output delivery to align with ASTI's accelerated timelines.



EGL2 will see the installation of a 2GW, 500km HVDC electricity transmission superhighway between the north-east of Scotland and Yorkshire, the longest HVDC subsea cable in the UK. With all major consents now in place and having reached contract award status with our supply chain, in August 2024, Ofgem confirmed its final approval of the costs of Eastern Green Link 2. At £4.3bn, EGL2 represents the single largest-ever investment in electricity transmission infrastructure in Great Britain and is one of the most significant, strategic investments in energy infrastructure the country has seen in recent years. With onshore works now underway in Peterhead, the project remains on track for targeted completion in 2029.



In March 2024, the ESO published its 'Beyond 2030' report, the second transitional Centralised Strategic Network Plan, building on the ESO's HND publication in 2022. Beyond 2030 will connect an additional tranche of ScotWind generation alongside new onshore renewables and sets out the additional electricity transmission infrastructure required to deliver the previous UK Government's 2035 decarbonised electricity system target.

For the north of Scotland, Beyond 2030 recommends several new and upgraded transmission network reinforcements and represents a total potential estimated investment of over £5bn for SSEN Transmission. This includes a second HVDC link to Shetland and in May 2024, we were delighted to announce the Sumitomo Electric Van Oord Consortium was selected as preferred bidder for this proposed 1.8GW subsea cable, the anchor project enabling Sumitomo's investment in its new cable manufacturing facility at Nigg in the Scottish Highlands, supporting thousands of highly skilled jobs.

In August 2024, Ofgem published a consultation on the 'Beyond 2030' recommendations, in which the regulator has recognised the need for these projects and has confirmed SSEN Transmission as the Delivery Body for the majority of new and upgraded reinforcements in the north of Scotland. We continue to engage constructively with Ofgem as it continues to establish the regulatory framework required to take forward these essential projects.

2030 Clean Energy Mission

Following the UK General Election in June 2024, the new Labour Government has set out an increased ambition to decarbonise the electricity system by 2030, five years earlier than the previous Government target.

This 2030 Clean Energy Mission will require the further acceleration of new and upgraded electricity transmission network infrastructure, alongside key policy reforms to support greater acceleration. These policy reforms are likely to include measures to accelerate the consenting of new transmission infrastructure; early approval of the regulatory need for new investments, including confirmation of the Delivery Body; and greater ambition through Connections Reform work that is already underway. An appropriate regulatory financial framework, recognising the unprecedented level of investment required, will also be necessary to attract the record levels of finance required.

We continue to work with Government, Ofgem and wider stakeholders to identify the investments required and to establish the regulatory frameworks and associated policies necessary to help deliver the 2030 Clean Energy Mission.



Delivering value for customers and consumers

	Unit	2021/22	2022/23	2023/24
New low carbon generation connections	GW	1.1	1.4	0.095
Low carbon share of generation	%	84	88	88
Quality of connections ODI score	Score (1-10)	8.1	8.6	8.6
Quality of connections ODI target		7.7	7.7	7.7

Sector-leading engagement

In 2023/24, we issued over 300 connection offers, with 100% of these offers issued on time, meeting our license obligations.

Our engagement with customers enables us to understand their needs, proactively identify improvements, and gain valuable insights into their experiences. The Quality of Connections (QoC) survey, which gathers feedback at critical connection milestones, plays a crucial role in measuring customer satisfaction and driving continuous improvement across the entire project lifecycle.

In 2023/24, we achieved an overall QoC score of 8.6/10, significantly outperforming Ofgem's baseline score of 7.7, maintaining our sector-leading position for the second consecutive year against a challenging background of change in the connections process and rising costs for connections infrastructure.

Connecting renewables

In 2023/24, whilst the volume of new low carbon electricity connecting to our network was significantly lower than previous years, we successfully increased the capacity of our network to support future connections.

This includes upgrading the North East network to 400kV operation and the Shetland HVDC link, which was commissioned in summer 2024/25 and will enable 600MW of renewable generation to support UK and Scottish net zero and energy security targets.

Reforming connections

Making sure that generation and demand schemes can connect to our network in a safe and timely manner is one of our primary responsibilities. At the end of 2023/24, our network had 9.3GW of low carbon electricity generation connected.

The demand for new connections to our network is increasing every month as new applications are received and offers for connections are accepted, with over 60GW of new generation capacity contracted to connect to our network.

However, this scale of contracted generation is significantly beyond what the system requires, so the connections process needs to change to efficiently advance those projects that will be ready to connect and meet future net zero and energy security targets.

We have been engaging with our customers and partners across the industry on reform to the customer connections process and will continue to do so across 2024/25, as we work on longer term reform which delivers faster, better coordinated and more efficient delivery of connections.

Delivering consumer benefits

In 2023/24, our optimisation projects resulted in a net benefit to consumers of more than £55m through avoided constraints and allowing clean power to be transported to centres of demand.

Constraint payments, which are managed by the Electricity System Operator, are paid to electricity generators when they are unable to export their power to the market, including during planned outages on the electricity system, with the cost of these constraint payments impacting consumer bills.

While these payments are a necessary part of efficient network operations and the ESO's role in balancing supply and demand, we are deploying innovation solutions to reduce the impact of network outages, helping minimise constraint costs while we undertake essential work on our network.

One project involved a temporary bypass around a construction site at Tealing, which allowed us to install new equipment without taking a crucial circuit out of service for a full year. This bypass, built in just seven weeks, ensured the circuit was back in operation much sooner.

The second project involved installing a relay at a critical point on the border of our network. This relay allows more electricity to be transmitted through a part of the network that was previously limited, helping the system operate more efficiently.

Financial Performance

Financial Performance

The majority of our total expenditure (TOTEX) in 2023/24 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 2023/24, broken down against each investment category that we report against. As this represents the mid-point 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 18.

	2023/24 Actual (£m)	2023/24 Allowance (£m)	Delta (£m)
Load Related - Wider Works	288.2	313.0	24.8
Non-Load Related	96.0	189.1	93.0
Non-Operational Capex	22.5	33.0	10.5
Network Operating Costs	17.7	20.4	2.8
Indirect and Other Costs	160.5	98.4	-62.2
Total Expenditure as per RRP	584.9	653.8	68.9

*ASTI allowances and costs are excluded from the Regulatory Reporting Pack per Ofgem requirements

**All figures shown in 18/19 price base



Return on Regulatory Equity (RoRE)

5.8%

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

2023/24 = £5.7bn

The RAV, shown here in nominal prices, 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 £25m in 2023/24 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 2023/24, beyond the phasing of expenditure across the price control 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 2023/24 of around £11m is largely driven due to delays in awarding construction contracts, mainly for these new properties. These properties will still be completed within the RIIO-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 around £3m in 2023/24 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 2023/24, of around £62m, is due largely to the accelerated recruitment to prepare and deliver the ASTI programme, resulting in higher closely associated indirects and business support costs. Early discussions have taken place with Ofgem on how these additional costs will be recovered, with further discussions expected in the near future.

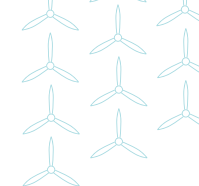
Strategic performance

During the RIIO-T2 period so far, we have experienced efficiencies in some of our Certain View load schemes where contracts have been negotiated early in the RIIO-T2 price control period when the supply chain market was more stable and less constrained, allowing fixed costs contracts to be put in place. We are continually adapting and responding to external factors and have already improved our supply chain management, adapted our plans to procure assets with long lead times early and continue a regular and ongoing engagement with the ESO on outage planning.

As the exceptional level of growth driven by 2030 targets back in 2019 could not have been anticipated, funding for the rapid expansion of the organisation was not included within the RIIO-T2 Plan. We are currently forecasting significant overspend against our Indirect* allowance by the end of T2. Our RIIO-T2 baseline assumed we would have 682 employees by the end of RIIO-T2 – our current forecast is for over 2,800 employees by the end of the period. We will continue to work closely with Ofgem to agree a suitable way forward for recovering the costs associated with this growth through our Project Assessment submissions and our RIIO-T3 Business Plan depending on the business activity.

*Indirect allowances cover the necessary costs, such as administration, IT, and management, that support the efficient operation and delivery of electricity network services, even though they aren't directly related to physical infrastructure.





Financial Forecast for RIIO-T2

	Expenditure (£m)						Allowances (£m)	Performance (£m)
	2022	2023	2024	2025	2026	T2 Total	T2 Total	T2 Total
Load Related	357.5	274.6	288.2	495.3	809.2	2,224.7	2,521.4	296.7
Non-Load Related	73.7	78.0	96.0	177.4	259.9	685.0	844.3	159.3
Non-Operational Capex	7.7	4.0	22.5	37.2	25.3	96.7	110.3	13.6
Network Operating Costs	37.1	19.1	17.7	38.7	63.1	175.6	167.5	-8.2
Indirect Overheads, Other Costs & RPE's	126.1	135.9	160.5	244.1	299.3	965.9	516.2	-449.7
Total Expenditure (TOTEX) as per Regulatory Reporting Pack	602.0	511.5	584.9	992.7	1,456.8	4,147.9	4,159.6	11.7
Adjustments to Allowances within PCFM						78.3	213.8	135.5
ASTI Allowances and Costs not reported within Regulatory Reporting Pack*						2,276.3	2,276.3	0.0
Sub-total						6,502.5	6,649.7	147.2
Enduring Value Adjustments per RFPR								9.6
TOTEX Performance per RFPR								156.8

* All figures shown in 18/19 price base

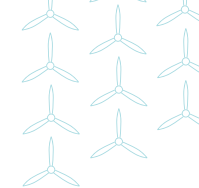
As is the case with our actual expenditure for 2023/24 and building on our RIIO-T1 financial performance, the majority of our forecast expenditure for the RIIO-T2 period continues to be focused on the delivery of large capital investment projects. A significant amount of this investment is forecast in 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 in the north of Scotland.

We are forecasting RIIO-T2 allowances of £6,650m against forecast expenditure of £6,503m (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-up 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 to a revised totex outperformance of £156.8m over the full RIIO-T2 period. This is around 2% of outperformance against allowances which is in line with our RIIO-T2 goal to deliver £100m in efficiency savings over the 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 70% 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 £6.5bn 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 continue to advance our ambitious RII0-T2 business plan, we are pleased to report strong progress across the majority of our commitments. Our performance in delivering Price Control Deliverables (PCDs) and Output Deliverable Incentives (ODIs) has been exceptional, with significant achievements in areas such as Timely and Quality Connections, where we consistently exceed targets. Our efforts in biodiversity have also been commendable, with nearly all projects achieving a net positive impact. Additionally, our SO:TO optimisation schemes have delivered substantial consumer benefits, contributing to cost savings and improved operational efficiency. While we have made significant strides in reducing our emissions, achieving our second lowest business carbon footprint to date, we acknowledge that the trajectory for our Science Based Target is now at risk due to increased operational and grid-related emissions. Nevertheless, we remain committed to addressing these challenges and continue to excel in delivering value and positive outcomes for our customers and stakeholders.

Incentive (links to individual table narrative)	Type	Metric	Target/ Baseline	2023/24 Output	Max Potential 23/24 (23/24pr)	Final Financial Position 23/24 (23/24pr)
Energy Not Supplied	ODI (Reward/Penalty)	Volume of unsupplied energy incidents due to Incentivised Loss of Supply Events (MWh)	<102	5.3	£0.96m	£0.91m
Insulation and Interruption Gas (IIG) Emissions	ODI (Reward/Penalty)	Measured Leakage (tCO ₂ e)	5,888	2,489	£0.58m	£0.36m*
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. (out of 10)	7.7	8.6	£3.14m	£2.27m
Biodiversity No Net Loss/ Net Gain	CVP	% projects meeting designed in biodiversity targets (NNL until 2025) 100	100%	100%	-	n/a
Incentive (links to individual table narrative)	Type	Forecast Savings to ESO	Net cost to SSEN T	Actual Savings to ESO	Max Potential 23/24 (23/24pr)	Final Financial Position 23/24 (23/24pr)
SO:TO Optimisation	ODI (Reward)	£45.18m	£137k	£59.76m	£4.52m	£4.52m
TOTAL					£9.20m	£8.06m
Incentive (links to individual table narrative)	Type	Metric	2023/2024 Output	Reduction vs 2018/19	-	Final Financial Position 23/24 (23/24pr)
Science Based Target	CVP	Scope 1 & 2 Emissions (tCO ₂ e)	8,556	-10%	-	n/a

*Assumed Non-Trade Price of Carbon per GOV UK Green Book £242/tCO₂e.

Our approach to Sustainability

Sustainability strategy

Overview

In 2018, we launched our first Sustainability Strategy with a detailed sustainability action plan later published in 2019. Since launching our first Sustainability Strategy, our business has significantly changed. In 2023/24, we undertook a double materiality assessment and extensive stakeholder engagement to develop a new Sustainability Strategy to guide our development out to the next decade.

This new Sustainability Strategy supports our business strategy to Deliver a Network for Net Zero.

The new Strategy will inform decision making and action from 2024/25 up to and including 2030/31 (including the RIIO-T3 period). It aims to:




- **Build** on strong foundations, evolving our ambition on climate change, nature, and communities;
- **Power** sustainability leadership through a focus on procurement, people, and performance; and
- **Connect** to global sustainability ambition, best practice standards, and the latest science.

These three aims recognise our current context and future direction, reflecting our maturity in delivering on our sustainability ambition.

This Strategy focuses on our most material impact areas (climate, nature, and communities) and on how we deliver against them (through procurement, our people, and our systems, processes and performance management). In doing so, it demonstrates world-leading ambition whilst recognising the urgency of delivery.



An accompanying Sustainability Action Plan builds on these six focus areas and their twelve aims and provides the detail of our targets and the actions we will take to achieve them.

Focus Area	Goal	Aims	Hero Commitment
 Climate	Actively reduce our emissions whilst building a resilient network for a climate-changed world.	<ul style="list-style-type: none"> • Reduce emissions • Build resilience 	By 2030 cut GHG emissions in line with our pioneering science based target to limit warming to 1.5°.
 Nature	Take a nature positive approach, to protect and restore nature.	<ul style="list-style-type: none"> • Protect nature • Restore nature 	Grow our biodiversity net gain (BNG) ambition, establishing ourselves as pioneers in marine BNG by 2030.
 Communities	Ensure benefits are shared with communities and any adverse impacts are minimised	<ul style="list-style-type: none"> • Minimise impacts • Share benefits 	Leave a positive community legacy by delivering hundreds of new and upgraded homes.
 Procurement	Forge partnerships for excellence in procurement, ensuring responsible sourcing.	<ul style="list-style-type: none"> • Partner for excellence • Procure responsibly 	Deliver social and economic benefits on 100% of projects and strive to maximise suppliers located in the north of Scotland.
 People	Grow our skilled workforce and continue to drive inclusion and wellbeing.	<ul style="list-style-type: none"> • Grow our skilled workforce • Drive an inclusive wellbeing culture 	Implement a Just Transition Workforce Plan by 2026 to grow our skilled workforce in a just and sustainable way.
 Performance	Understand our impacts from a global to local scale by enhancing data and processes.	<ul style="list-style-type: none"> • Improve data and processes • World-leading sustainability 	By 2030, measure our impacts against planetary boundaries, in line with world-leading science.



“
This new Sustainability Strategy supports our business strategy to Deliver a Network for Net Zero

Double materiality assessment

Our new Sustainability Strategy builds on a double materiality assessment undertaken in late 2023. A double materiality assessment is a robust process to determine which topics (impacts, risks, and opportunities) are most material for a business. The process examines both the impacts of a business on the outside world (on people, the economy and the environment) and the ways that the outside world impacts on the business and on its financial sustainability.

Our double materiality assessment included a context review, detailed impact assessment, and stakeholder engagement. The assessment provided a valuable basis for strategy development and future reporting.

In addition to the double materiality assessment, the development of the Sustainability Strategy also included commissioning external research on best practice from the University of Strathclyde; extensive engagement with over 150 stakeholders or stakeholder groups; and draft target development and testing with a wide range of colleagues at all levels across SSEN Transmission.

Sustainability governance

Our structure

Our sustainability approach is driven by a robust governance structure. The Planet Steering Group (PSG), brings together senior management and subject matter experts from across the business and is chaired by the Director of Business Planning and Commercial. The PSG convenes regularly to discuss our performance in relation to climate change, nature, and on topics related to sustainability in our supply chain.

Throughout 2023/24, the PSG supported the development of our new Sustainability Strategy through a rigorous review of our double materiality approach and its outputs. The group's insights drove continuous improvement and alignment with other business strategies.

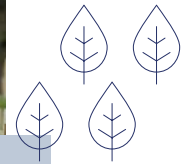
The double materiality assessment and new Sustainability Strategy were also guided by a smaller working group consisting of senior managers and subject matter experts, and both processes were overseen and approved by the Transmission Executive Committee (TEC).

In preparing this report, a robust and collaborative review process was implemented which involved both the PSG and the Network for Net Zero Stakeholder Group. By incorporating multiple perspectives, our report is ensured to be effective and aligned with the needs of both our business and stakeholders.

Our projects

We have sustainability requirements for all delivered projects. For Large Capital Projects (those over £40m), project teams are required to complete a Sustainability Assessment and Action Plan (SAAP) and to update this throughout the project stages. The SAAP prompts project teams to identify sustainability impacts and mitigate risks and implement opportunities at a project level. Each project team needs to develop and deliver a SAAP tailored to their project to assess the impact from realising identified opportunities.

As part of our approach to continual improvement, we recruited a Sustainable Infrastructure Manager in late 2023 to give focus to how sustainability is implemented on our projects. Work to review our SAAP template and supporting guidance began in 2023/24 and a range of enhancement opportunities have been identified. Activities to deliver these improvements will be delivered throughout 2024/25. Looking ahead we anticipate being able to better track, monitor and report our project sustainability performance, quantify the impact from the sustainability measures we identify and implement, and identify good/best practices across our projects. In addition, improvements to the SAAP template and guidance will support more accurate data on the carbon baselines of projects.



Green finance

To move to a cleaner energy system, we need infrastructure that brings renewable energy to those who need it. Our £20bn Pathway to 2030 programme in the north of Scotland will enable over a fifth of the UK's 50GW offshore wind goal and help power millions of homes.

In 2023/24, we launched our first £750m sustainability-linked Revolving Credit Facility. This financial solution complies with the Sustainability-Linked Loan Principles (SLLPs), an external framework that ensures environmental and social considerations are integrated into the loan terms. We incorporated a set of Environmental, Social and Governance (ESG) targets, aligning our financing with our commitment to sustainability. These are:

- Reduction in Scope 1 and 2 emissions
- Suppliers setting science-based emission reduction targets
- Capex spend on connecting renewables
- Biodiversity net gain delivery commitments across major terrestrial projects

Whilst performance against the targets in the ESG Revolving Credit Facility is not explicitly covered in this report, performance against our GHG emissions targets, new low carbon generation connections, and biodiversity net gain can be found throughout this report.



Climate






Looking back

In the third year of the RIIO-T2 price control, we have seen very strong performance in relation to SF₆ leakage and our Scope 3 science-based targets. We have made significant progress on embodied carbon, putting us back on track for PAS2080 alignment by the end of RIIO-T2.

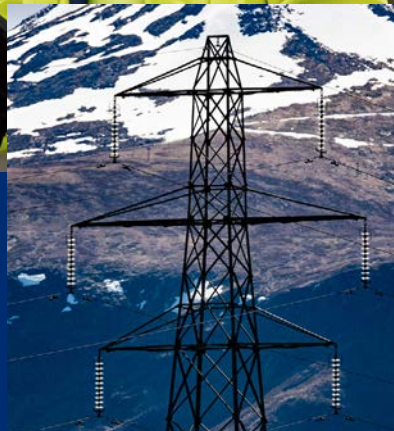
2023/24 saw our second lowest business carbon footprint for Scope 1 and 2 emissions, and a 14% reduction since 2022/23. However, due to an increase in operational transport emissions as we grow our network, and an increase in emissions from substation electricity use due to an unprecedented 7% year-on-year increase in the UK grid electricity generation emissions factor, we consider our emissions reduction trajectory to be at risk, reflected in the amber rating below.

Our continued commitment to connect new renewable energy generation also saw a significant increase in connection offers made and accepted in 2023/24 and the low carbon share of generation remains steady at 88% (on a GW capacity basis).

Sustainability outcome

	2021/22	2022/23	2023/24
 Achieve a 33% reduction in Scope 1 and 2 greenhouse gas emissions by 2025/26, from a 2018/19 baseline			
 Target a maximum Insulation and Interruption Gas leakage rate of 0.15% of installed volumes by 2025/26			
 Achieve the capacity to transport enough renewable energy through our network to power 10 million homes by 2025/26			

● Progress is at significant risk, and it is highly likely that milestones will be missed ● Progress is delayed; however it is expected to be achievable before the end of the RIIO-T2 price control period ● Progress is firmly on track, aligning with implementation milestones



Decarbonisation

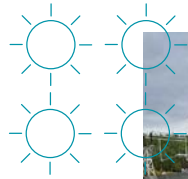
Our business is at the heart of the transition to net zero in the UK. In the coming years, our network will be pivotal in connecting and transporting the renewable power needed to decarbonise the UK's electricity network and, in doing so, to power the UK's net zero ambition. Our business is growing rapidly to meet this challenge, with a projected investment programme of over £20bn in the next 10 years.

This network development will make a significant positive contribution to meeting net zero targets in Scotland and the UK. Research published in September 2023 shows that our network will play a pivotal part in enabling one sixth of all the decarbonisation efforts needed to reach net zero across the UK by 2050.

During 2023/24, our network had a connected capacity capable of transporting 33.2 TWh of renewable generation. This consists of 6.3 TWh from hydro electric sources, 11.8 TWh from offshore wind, 14.89 TWh from onshore wind, 0.07 TWh from solar, and 0.10 TWh from tidal array. This connected capacity is enough to power 12.3 million homes, meaning we have achieved our T2 commitment of achieving the capacity to transport enough renewable energy through our network to power 10 million homes by 2025/26 two years early. In addition, this connected capacity is enough to displace a total of 6.9 million tCO_{2e}. This puts into perspective our carbon footprint of 0.009 million tCO_{2e} in Scope 1 and 2 or 0.25 million tCO_{2e} including Scope 3



...our network will play a pivotal part in enabling one sixth of all the decarbonisation efforts needed to reach net zero across the UK by 2050.



Science-based Targets

Science-based targets (SBTs) are recognised as the gold standard for corporate climate action. It is important for us, as we work to deliver a network for net zero, that our contribution to the clean energy transition is credible and transparent. We have set stretching targets aligned with global scenarios to limit global heating to 1.5°C. The validation of our targets by the Science Based Target Initiative ensures that we are held accountable for our carbon reduction commitments and that our actions are measurable. This helps to build trust with stakeholders, customers and our communities. Our SBT for reducing Greenhouse Gas Emissions (GHG) received official approval in July 2020 and includes three core commitments:

- Reduce absolute Scope 1 and 2 GHG emissions 46% by 2029/30 from a 2018/19 base year (33% by end of 2025/26)
- Reduce Scope 3 transmission losses emissions GHG intensity by 50% over the same period
- Reduce Scope 3 emissions by ensuring that two thirds (67%) of our suppliers by spend will have an SBT by 2024/25

Our headline achievement this year is that we have achieved both of our Scope 3 SBTs. We achieved our transmission losses target six years early by continuing to connect renewable generation to our network. Our supplier engagement target has also been achieved and exceeded one year early. A total of 70% of our suppliers by spend have now set an SBT.

Progress against our Scope 1 and 2 SBT has been more mixed. We achieved our best ever SF₆ leakage rate of 0.17%. This is less than half of our IIG incentive target (0.38%) and our best result since 2018/19. However, increases in emissions from transport and substation electricity use mean that our overall Scope 1 and 2 footprint is only down 10% against the base year compared with a target of 33% by 2025/26. Therefore, we consider our emissions reduction trajectory to be at risk, reflected in the amber rating (shown on page 23).

Commitments	2021/22	2022/23	2023/24
Reduce absolute scope 1 and 2 GHG emissions 46% by 2029/30 from a 2018/19 base year (33% by end of 2025/26)	11% reduction against base year	4% increase against base year	10% reduction against base year
Reduce scope 3 transmission losses emissions GHG intensity by 50% over the same period	40% reduction against base year	39% reduction against base year	64% reduction against base year
Reduce indirect emissions by ensuring that two thirds (67%) of our suppliers by spend will have an SBT by 2024/25	43% of suppliers by spend have set an SBT	47% of suppliers by spend have set an SBT	70% of suppliers by spend have set an SBT

Scope 1 and 2 performance


For the second year running, Planet Mark have provided an independent verification of our Scope 1, 2 and 3 business carbon footprint in accordance with ISO14064-3:2019, the international standard for GHG reporting.

Our total Scope 1 and 2 emissions for 2023/24 are 8,556 tCO₂e. This is down 10% from our base year, while our network has grown from 7.6 GW to 10.5GW connected. Against 2022/23, our emissions are down 14%. This has been driven by a large decrease in our SF₆ leakage rate, improving from 0.32% to 0.17% to achieve our best annual performance to date (see IIG Emissions section). This large improvement has been counteracted by increases in other parts of our footprint. Substation electricity emissions increased for the first time due to an unprecedented 7% year-on-year increase in the UK grid electricity generation emissions factor resulting from atypical low wind conditions in 2021 (data year for the 2023 emissions factor). Operational transport emissions have also increased, driven by a 30% year-on-year increase in fuel consumed.

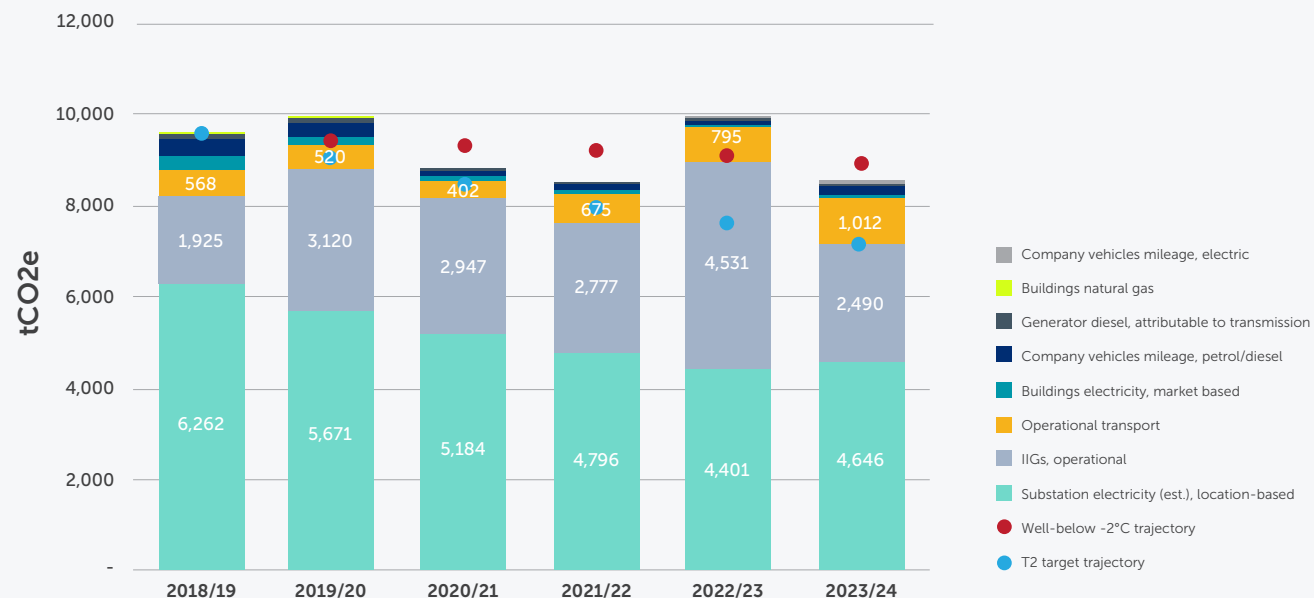


Emissions in tCO ₂ e	Specific area	Emissions scope	2018/19 base year	2019/20	2020/21	2021/22	2022/23	2023/24
Building energy use	Electricity	2	338	189	112	90	6	72
	Natural gas	1	14	13	7	5	5	2
	Substation electricity (estimated)	2	6,262	5,671	5,184	4,796	4,401	4,646
Operational transport*	Transport	1	568	520	402	675	795	1,012
	Conventional company vehicles mileage	1	347	337	115	136	131	234
	Electric company vehicles mileage	2	0	0	1	8	23	73
Fugitive emissions	IIG	1	1,925	3,120	2,947	2,777	4,531	2,490
Fuel combustion	Generator diesel	1	100	69	20	0	42	26
Total scope 1			2,954	4,058	3,491	3,593	5,504	3,765
Total scope 2 (market based)			6,600	5,860	5,298	4,894	4,431	4,792
Total scope 1 and 2			9,554	9,918	8,788	8,487	9,934	8,556

*Under draft GHG protocol guidance, carbon dioxide emissions from the combustion of biofuels are to be included in business carbon footprints as "Outside of Scopes" emissions. While awaiting the finalised guidance, we have voluntarily calculated these to be 2,665 tCO₂e in 2023/24 and had this figure verified by Planet Mark. Operational transport only covers emissions from road vehicles. We do not have any Scope 1 GHG emissions from sea or air transport. Fuel combustion emissions from natural gas are listed under Buildings Natural Gas.



Business Carbon Footprint (Scope 1&2)



Scope 1 insulation and interruption gas emissions

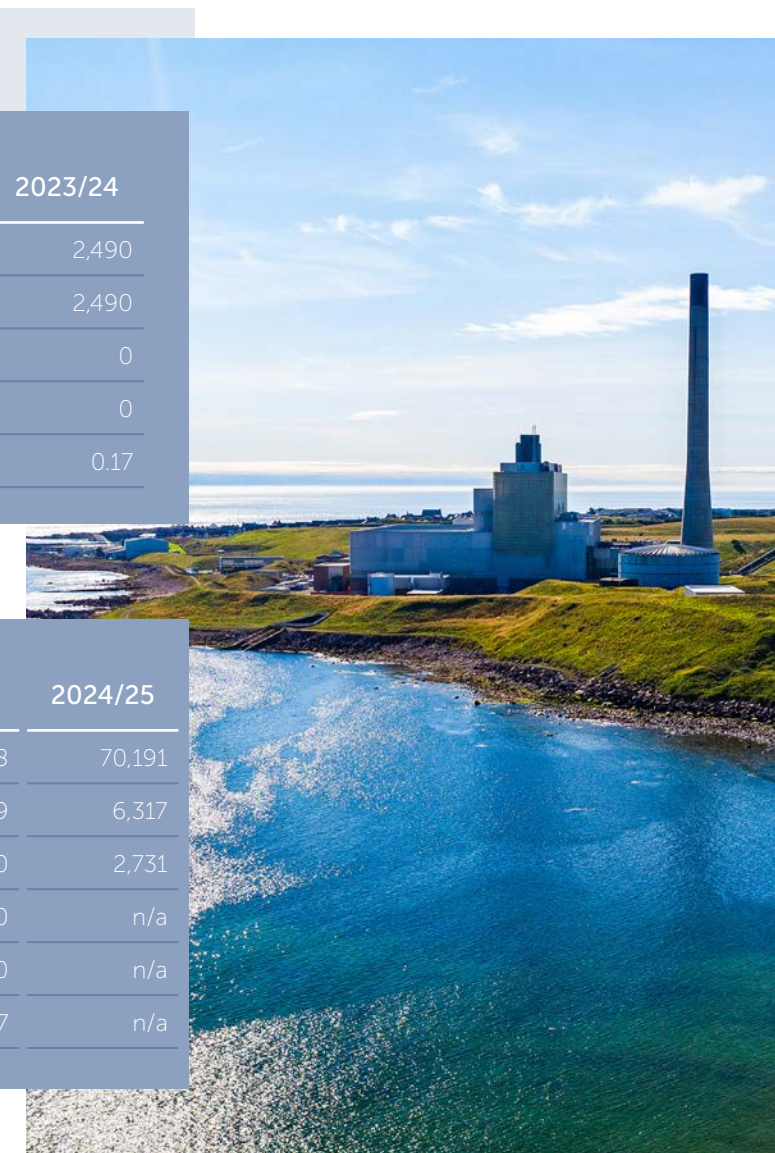
IIG type	Unit	2018/2019 base year	2019/20	2020/21	2021/22	2022/23	2023/24
Total emissions	tCO ₂ e	1,925	3,120	2,947	2,777	4,531	2,490
SF ₆	tCO ₂ e	1,925	3,120	2,947	2,777	4,531	2,490
C4-FN-based gases	tCO ₂ e	0	0	0	0	0	0
Vacuum/clean air	tCO ₂ e	0	0	0	0	0	0
Leakage rate (SF ₆ only)	%	0.22	0.33	0.30	0.23	0.29	0.17

*Inventory is reported for the start of each year, in line with EREC S38. Our network held 37,988kg of SF₆ on the 1st of April 2018 and 70,191kg of SF₆ on the 1st of April 2024.

Metric	Unit	2018/2019 base year	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Inventory* – SF ₆	kg	37,988	39,713	41,775	52,013	61,032	61,188	70,191
Inventory* – C4-FN-based gases	kg	0	0	0	0	4,588	4,599	6,317
Inventory* – Natural origin gases	kg	0	0	0	0	0	0	2,731
Leakage – SF ₆ **	kg gas	81.9	132.8	125.4	118.2	192.8	106.0	n/a
Leakage – SF ₆ **	tCO ₂ e	1,925	3,120	2,947	2,777	4,531	2,490	n/a
Leakage rate – SF ₆	%	0.22	0.33	0.30	0.23	0.29	0.17	n/a

*Inventory is reported for the start of each year, in line with EREC S38. Our network held 37,988kg of SF₆ on the 1st of April 2018 and 70,191kg of SF₆ on the 1st of April 2024.

**We have had no top-ups of other IIGs recorded so far.



To operate our network 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 2023/24, we added 13.5t of IIGs to our network, the largest annual increase so far as we energised two new gas-insulated substations at Alyth and Peterhead.

However, both of these new substations included a proportion of SF₆ alternatives: 1.7t of C4-FN-based gases at Peterhead and 2.7t of natural origin gases at Alyth. This marks the first time we have deployed natural origin IIGs with zero global warming potential on our network.

In the face of this growth in our IIG inventory, with 85% more SF₆ on our network now than in 2018, we managed to leak only 106kg of SF₆ or 2,490 tCO₂e. This is our best yearly total since 2018/19 and corresponds to a leakage rate of 0.17%, less than half of our IIG incentive target (0.38%). In order to maintain this good performance going forward, we brought together colleagues from across the business to form an internal SF₆ working group. As a result, our Operations and Maintenance teams are undertaking more proactive repair work and tackling the root causes of leaks, such as corrosion in the flanges on our outdoor gas insulated busbars. In tandem, we are rolling out gas density monitoring systems to identify leaks early and intervene more quickly. We are also reviewing leaks caused by process failures rather than condition-driven leaks – these

are rare events but can result in large leaks that could be avoided through improved processes.

To improve consistency of reporting between TOs and to ensure alignment between this report and our regulatory reporting pack, we have not reported the emissions reductions associated with specific interventions here. Our SF₆ emissions are falling as a result of business-as-usual activities rather than separately funded interventions.

In order to increase the transparency of our IIG reporting, we have included figures on our IIG inventory in our sustainability report for the first time. We have also reported for the first time on SF₆ leaks occurring during construction and installation, while assets are still under our contractors' operational control (see Scope 3 section).



Substation electricity use

Our substations consume electricity to power communication and control equipment as well as to provide heating and lighting for staff on site. This consumption resulted in 4,646 tCO₂e in 2023/24 or 54% of our Scope 1 and 2 footprint. Emissions per substation have been decreasing over time, except for the most recent year. This increase is due to an unprecedented 7% year-on-year increase in the UK grid electricity generation emissions factor due to atypical low wind conditions in 2021 (data year for the 2023 emissions factor).

	Unit	2018/2019 base year	2019/20	2020/21	2021/22	2022/23	2023/24
Emissions per substation	tCO ₂ e	50.5	45	40.5	37.2	34.1	35.5
Change against baseline	%	0	-11	-20	-26	-32	-30

Transport

Taken together, the GHG emissions from our fleet of operational vehicles (1,012 tCO₂e) and company cars (307 tCO₂e) comprise the third-largest part of our 2023/24 Scope 1 and 2 footprint at 15% of the total. They are up 39% year-on-year, driven by a 30% increase in operational fleet fuel consumption and a 134% increase in miles travelled in company cars. This has only partly been offset by continued increases in company car mileage undertaken in EVs, now up to 50% of miles travelled.

	Unit	2018/2019 base year	2019/20	2020/21	2021/22	2022/23	2023/24
Emissions per vehicle	tCO ₂ e	3.53	3.43	2.09	3.01	2.42	2.73
Change against baseline	%	0	-3	-41	-15	-32	-23

In the absence of complete mileage data, we track emissions per vehicle as our progress indicator. These continue to fall and are now down 36% compared to the baseline. This is because the number of vehicles is increasing by 52% year-on-year, which is faster than the increase in emissions. This clearly demonstrates the positive impact of shifting to EVs for company cars.

We are actively deploying electric vehicle chargers across our substations. This initiative facilitates the electrification of our operational fleet by 2030, supporting the transition to a low carbon future. We have identified 32 sites for EV chargers, with construction well underway at 10. The remaining locations will be completed by April 2026.



Scope 3

Scope 3 GHG emissions are indirect emissions that occur in our value chain, for which we share responsibility with others. Our largest categories of Scope 3 emissions are capital goods and transmission losses, with purchased goods and services, business travel and employee commuting also being material.

In line with our commitment to ongoing improvement in Scope 3 emissions reporting, we have implemented further improvements to our capital goods and purchased goods and services calculation methodologies. Following a recommendation from our 2022/23 Planet Mark ISO14064-1 verification process, we have split out purchased goods and services and capital goods and have applied BEIS-published emissions factors instead of the ONS-published carbon intensities we used previously to convert our spend into GHG emissions. These new emissions factors include carbon emitted by our supply chain outside the UK and are therefore a better measure of our consumption-based footprint. To maintain consistency, we have applied this new methodology retrospectively to previous years. We also report for the first time on SF₆ leaks occurring during construction and installation, while the assets are within our contractors' operational control.

After more than three years of development and two years of successful Planet Mark verification, our Scope 3 data collection and calculation methodologies are now robust enough to enable meaningful commentary on trends.

Our total Scope 3 emissions for 2023/24 are 245,731 tCO₂e. This is a 50% increase against our 2018/19 base year and an 18% increase against 2022/23. Capital goods emissions have increased 40% year-on-year in direct relationship to the 41% increase in capital spend.

Over the longer term, our capital spend has increased 67% against base year and the electricity on our network has decarbonised 64% against base year. This means that capital goods have grown from 67% to 86% of our Scope 3 footprint and trends in our capital spend are the primary driver of our Scope 3 emissions going forward (see Embodied Carbon section for more detail).

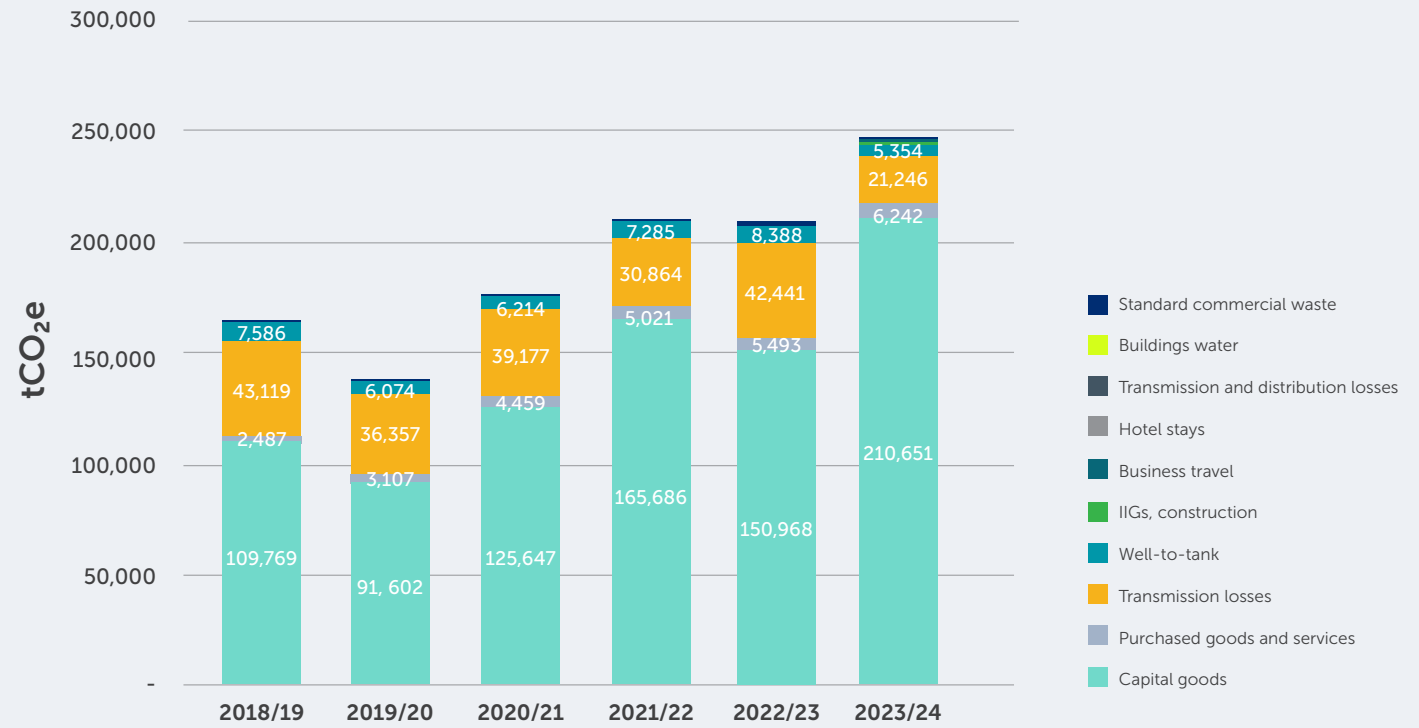
Transmission losses are the second-largest part of our Scope 3 footprint at 9%. These have decreased 50% year-on-year as the carbon intensity of the electricity on our network and the amount of electricity lost on our network have decreased (see Transmission Losses section).

Scope 3 emissions (tCO₂e)

GHG Protocol Category	Specific area	2021/22	2022/23	2023/24
Purchased goods and services	Water supply	0.1	0.3	0.5
	Purchased goods and services	5021	5493	6242
Capital goods	Capital goods	165686	150968	210651
	SF ₆ leaks construction	No data	No data	762
Fuel and energy related activity	Transmission and distribution losses for grid electricity	18	38	43
	Transmission losses from our network	30864	42441	21246
	Well-to-tank emissions	7285	8388	5354
Upstream transportation and distribution	Included in purchased goods and services or capital goods	n/a	n/a	n/a
Waste generated in operations	Wastewater treatment	0	1	1
	Standard commercial waste from non-operational buildings	2	3	2
	Decommissioning and disposal of network assets	No data	No data	No data
Business Travel	Private vehicles	159	243	447
	Rail	6	27	50
	Air	126	313	640
	Ferry	2	5	5
	Hotel stays	No data	184	289
Employee commuting	Commuting and home working emissions	No data	No data	No data
Leased assets	n/a as we do not differentiate between leased and owned assets	n/a	n/a	n/a



Business Carbon Footprint (Scope 3)





Embodied carbon

Emissions from our construction programme (“capital carbon”) are the largest part of our carbon footprint (see Scope 3 section). As noted above, capital goods emissions have increased 40% year-on-year in direct relationship to the 41% increase in capital spend. The tCO₂e per £m in 2023/24 was 194.4 tCO₂e/£m. This is the first time we have reported against this metric and we aim to continue reporting on this in future years. Although our net carbon impact is clearly positive due to the significant carbon savings from the renewable electricity we transmit (see Decarbonisation section), we are committed to managing our capital carbon emissions in line with the principles of PAS2080:2023, the British Standard for carbon management in buildings and infrastructure.

To guide our approach and meet our commitment to align to PAS2080 by the end of RIIO-T2, we contracted Mott MacDonald to undertake a maturity assessment of our business against the clauses of PAS2080. This has identified three key workstreams for us to focus on in the next two years:

- Develop the tools we need to assess targets and baselines
- Develop a whole life carbon approach to project management
- Integrate carbon considerations into our procurement processes

Progress in 2023/24 includes the development of a Project Carbon Calculator. This is essential for project teams to assess the capital carbon impact of their project throughout the design phases, identifying carbon hotspots and considering opportunities to reduce them. Having developed this tool, we are now looking to formalise its application in our project management processes.

This represents an important step towards establishing carbon baselines and setting targets on a project-by-project basis. The Project Carbon Calculator will also guide our project design and delivery teams in implementing emissions reduction measures in a targeted way. In pilot applications of the calculator, we have been able to highlight project-specific carbon hotspots, such as peat disturbance for underground cables, which has affected design decisions. An example of the Project Carbon Calculator informing design decisions is on the Alyth 400kV upgrade project, due for completion in 2026. The Calculator demonstrated the potential embodied carbon savings from reusing transformers and noise enclosures. By choosing these options, the project avoided over 2000 tCO₂e compared with buying new assets. We hope to be able to report more fully on these types of impacts in future reports.

Embodied Carbon Reporting

Our 2022/23 report included the embodied carbon emissions of installed assets by combining annual asset additions data with emissions factors from the Carbon Asset (CA) Database. This year, we have improved our approach to include data on civil works and report the total embodied carbon for projects energised in 2023/24. This advancement has been made possible by applying our new Project Carbon Calculator to cost and volume data within our Regulatory Reporting Pack. This represents a significant step forward in our ability to identify embodied carbon hotspots.



Carbon Hotspots

Based on this new methodology our total embodied carbon emissions for projects energised in 2023/24 is 79,837 tCO₂e.

As can be seen from the table below, three main sources contribute to 89% of these emissions: steel towers, concrete and supergrid transformers. Conductors and roads make up a further 5%.

The table below reveals that the Port Ann to Crossaig overhead line project has the highest embodied carbon emissions among the projects analysed. This significant contribution is primarily due to the large number of steel towers installed.

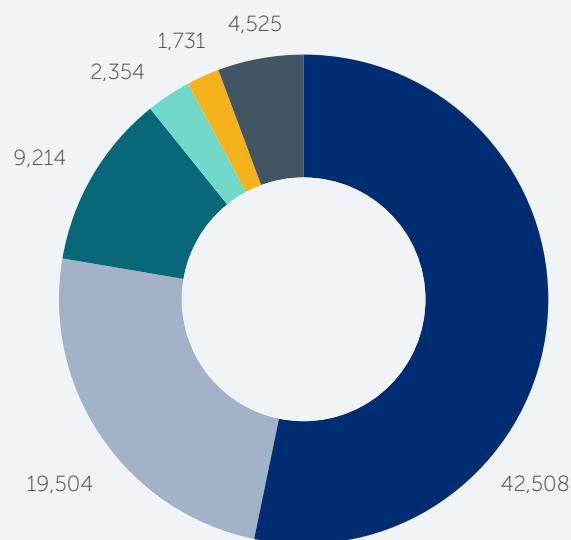
Informed by our enhanced knowledge of embodied carbon hotspots, we will focus on developing effective strategies to reduce the emissions associated with key materials and assets.

Project	Embodied carbon emissions (tCO ₂ e)	Key sources of embodied carbon
Kintore substn 400kV (NE400)	4,180	Supergrid transformers (2), concrete foundations and towers (2)
East Coast 275kv OHL Works	1,083	Towers (3) and concrete foundations
North East 400kv OHL (NE400)	4,711	Road, conductor and towers (3)
Rothienorman SS 400kV mod	3,480	Supergrid transformers (2), circuit breakers (24) and concrete foundations
New Deer SS 400kV mod	111	Concrete foundations
Alyth S/S & reactive comp	2,789	Supergrid transformer (1) and concrete foundations
Tealing PST (ECU2)	2,172	Supergrid transformer (2) and concrete foundations
Peterhead 400kv busbar (NE400)	4,371	Supergrid transformers (2), towers (2), concrete foundations and road
TCA - Abernethy GSP	22	Circuit breakers (2)
Port Ann to Crossaig OHL	53,024	Towers (148), concrete foundations
Invergarry T 132kV Conduct Rep	3,894	Towers (11), concrete foundations
TOTAL	79,837	Total embodied carbon emissions for projects energised in 2023/24

Note: Number of assets is shown in brackets in the "Key sources of embodied carbon" column.

Embodied Carbon by Source (tCO₂e)

- Tower
- Concrete
- Supergrid transformer
- Conductor
- Road
- Other



A note on embodied carbon figures

There are multiple methods available for calculating the GHG emissions associated with our capital projects. In the Business Carbon Footprint graph on page 31 we show that 210,651 tCO₂e was emitted in relation to "capital goods". This figure is calculated using a spend based method and represents emissions associated with all capital expenditure in the year including purchasing of assets, cost of works and so on.

In the Carbon Hotspots section above, we show that 79,837 tCO₂e was generated by projects energised in this reporting year. This figure uses the carbon asset database and represents only embodied carbon emissions from projects energised in 2023/24. The associated emissions were generated over several years. Ofgem require us to report embodied carbon emissions of projects energised in the reporting year.

It is not possible to directly compare these two figures for the following reasons:

- 1. Different emissions factors:** The capital goods figure of 210,651 tCO₂e uses a spend based emissions factor whilst the carbon hotspots figure of 79,837 uses asset specific emissions factors.
- 2. Scope:** The capital goods figure includes emissions associated with all capex spend in the reporting year whilst the carbon hotspots figure focuses solely on projects energised in the reporting year.
- 3. Timeframe:** The capital goods calculation focuses on emissions associated with capex spend over one year, whilst the carbon hotspots figure covers emissions generated over several years of activity associated with projects energised in this reporting year.

Transmission losses

Our network transmitted 17.1TWh of electricity, of which 14.6TWh was renewable. This is the highest proportion of renewable electricity we have ever transmitted. This explains why the GHG intensity of the electricity on our network, and therefore of our losses, reached a record low of 0.045 kgCO₂e/kWh. This represents a 64% reduction against our 2018/19 base year and means that we have achieved our science-based target of a 50% reduction by 2029/30 six years early.

Emissions from electricity transmission losses are a function of power flows across the UK electricity network and are therefore affected largely by the energy market and the operation of the system. This means future changes in the balance between renewable and fossil-fuelled electricity on our network could increase the carbon intensity again. We have nevertheless achieved a significant milestone and by continuing to connect renewable generators as quickly as possible we will continue to decarbonise the electricity on our network and on the wider GB network (see Decarbonisation section). We made no changes to our Transmission Losses Strategy in 2023/24.

	Unit	2018/2019 base year	2019/20	2020/21	2021/22	2022/23	2023/24
Annual losses	TWh	0.348	0.414	0.449	0.417	0.564	0.476
Share of total electricity	%	1.98	2.05	2.47	2.33	2.75	2.78
GHG emissions from transmission losses	tCO ₂ e	43,119	36,357	39,177	30,864	42,441	21,246
Transmission network GHG emission intensity	kgCO ₂ e/kWh	0.124	0.088	0.087	0.074	0.075	0.045

* The figures presented here have had substation electricity consumption subtracted to avoid double-counting. This is a minor adjustment: substations are estimated to contribute 0.022TWh to transmission losses in 2023/24.



Climate resilience

The UK faces significant climate challenges, and the March 2024 assessment of the Government's Third National Adaptation Programme by the Climate Change Committee highlights the need for a stronger response. Within our business, we prioritise safeguarding and maintaining network reliability which requires robust preparation for, response to, and recovery from extreme weather events.

Following a comprehensive flood risk assessment in 2022/23 for 120 sites, we identified 34 locations requiring further evaluation. We engaged a specialist consultant in 2023/24 to refine our initial prioritisation with more detailed hydraulic modelling. The output of this prioritisation was used to create a Risk Priority Matrix in collaboration with the Maintenance and Operations Team and the Consents and Environment Team. This matrix identified nine sites for which mitigation measures are to be proposed. We are developing outline design solutions for mitigation measures to be implemented at these sites.

Looking ahead

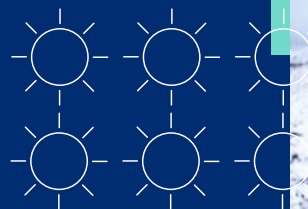
In the coming years, the pace and scale of network growth is likely to mean that our Scope 3 GHG emissions grow. We are committed to limiting that growth as much as possible through the use of low carbon materials and construction methods, and to continually improve the ways in which we measure, monitor, and improve our practice in relation to emissions. The PAS2080 standard is at the heart of these efforts and alignment with this standard will guide much of our work in this space.

We will continue to pioneer innovative projects to avoid, limit leakage from, and seek alternatives to SF₆ wherever possible, and in the coming years we will seek to better understand our substation electricity use in order to explore ways to reduce emissions from this source.

In 2024-25, we will seek to renew our science-based targets, ensuring that our targets are ambitious and achievable.

Finally, as we prepare for the RIIO T3 price control period (2026-2031), we will strengthen our approach to climate risk, resilience and adaptation in line with Ofgem requirements and best practice.

Nature



Looking back

Climate change and biodiversity decline are two of the most pressing global issues. It is not possible to solve one without the other. They are intrinsically linked. We have been recognised as industry-leading in relation to our biodiversity commitments and continue to make progress in fulfilling our commitments regarding environmental impact and natural capital.

Demonstrating our dedication to continued industry leadership in protecting, restoring and enhancing biodiversity, on the International Day for Biodiversity (22 May 2023), we brought forward our commitment to Biodiversity Net Gain on all eligible new infrastructure projects by almost two years (previously April 2025). It applied not only to new applications but also to any eligible project consent which had not been granted prior to that date. We also updated our commitment from delivering a 5% gain, to a 10% net gain.

With a view to further enhancing our work in this area, we engaged sustainability consultancy 3Keel and undertook a review on readiness for Nature Positive and a

review of our progress on Biodiversity Net Gain. The findings are being used to inform key risks and mitigation options, as well as any strengths, weaknesses and areas for development to reinforce our approach to biodiversity.

In addition, we continue to follow the mitigation hierarchy for No Net Loss of Woodland Cover and are continuing to notably reduce felling corridors where practicable. Where re-planting is necessary, it remains our preference to support native broadleaf planting, providing higher value for biodiversity.

Building on our commitment to developing a Natural Capital Approach, we have collaborated with the two other Transmission Owners to develop and test a platform that we hope will become a tool to enable a common approach to this work. These achievements demonstrate our ongoing dedication towards minimising environmental impact, promoting natural capital, and enhancing visual amenities throughout our operations.



Biodiversity net gain

All eligible projects gaining consent between 22 May 2023 and 31 March 2024 forecasted a minimum 10% Biodiversity Net Gain when measured using the SSEN Transmission Biodiversity Toolkit. Kergord to Gremista Overhead Line (OHL) was consented (on 11 May 2023) under the previous No Net Loss commitment and has designed in 93.89 Biodiversity Units for No Net Loss. Through the combination of on-site and off-site biodiversity enhancement design across all reported projects, we have designed in 854.64 area habitat Biodiversity Units, which exceeds the baseline of all eligible consents by 144.84 Biodiversity Units, delivering more than 20.4% Biodiversity Net Gain.

Across the Beauly and two Kintore cable sealing ends, we added 590 metres of new native hedgerows, providing further habitat for invertebrates, shelter and corridors for mammals and nesting opportunities for birds.

The SSEN Transmission Biodiversity Toolkit is informed by the Natural England Biodiversity Metric with alterations to reflect the challenges presented by Scottish habitats and transmission operator specific infrastructure.

Project name	Baseline biodiversity units (area)	Designed in biodiversity units (area)	Total net unit change	Overall % net change
Beauly cable sealing end	2.2	6.9	4.7	213
Keith cable sealing end T113R	2.2	5.3	3.1	142
Harris to Stornoway overhead line replacement	37.2	69.1	31.9	86
Keith cable sealing end T362R	3.2	6	2.7	84
Craig Murrail Substation and overhead line tie-in	61.9	94.7	32.8	53
Tomatin - Boat of Garten overhead line access track	2.3	3.1	0.8	32
An Suidhe Substation and overhead line tie-in	47.2	61.6	14.4	30
Crossaig North Substation and overhead line tie-in	41.4	53.9	12.5	30
Sloy to Windyhill access tracks	184.2	202.6	18.4	10
Kintore cable sealing end access track	1.4	1.5	0.1	10
Crarae Substation and overhead line tie-in	75.3	82.8	7.5	10
Errochty Switching Station	7	7.7	0.7	10
Edinbane Substation	36.3	39.9	3.6	10
Lairg II Wind Farm connection access track	29.2	32.1	2.9	10
Corriegarth Wind Farm extension connection access track	40.1	44.3	4.2	10
Corriegarth Wind Farm extension connection	44.9	49.4	4.5	10
Kergord to Gremista overhead line*	93.9	93.9	0	0

*Kergord to Gremista overhead line Section 37 consent was granted under our No Net Loss of biodiversity commitment, before Biodiversity Net Gain of 10% or more was voluntarily brought forward from 2025/26



Local environmental enhancements

Over the last year, we supported the completion of 42.5 hectares (ha) of native broadleaf woodland planting at Borralan, north of Ullapool and we are on track to complete 127ha of predominantly native woodland planting at Achlain near Dalmally. We are also working towards future delivery of a further 135ha of native planting at Attadale near Loch Carron and at Woodland Crofts in Harris and Lewis. We have also supported control of invasive non-native rhododendron in North Argyll, supporting the recovery of native vegetation.*

We have collaborated with other TOs to trial a Natural Capital approach, and will continue to work with the wider industry to adopt a standardised approach. This will build on our rigorous approach to BNG which is a fundamental “building block” of Natural Capital. We have developed expertise in accounting for this key area of Natural Capital.

*These schemes are schemes to enhance the environment in the local community (i.e. sites that are not owned by SSEN Transmission or its corporate group) that we initiated or contributed to within the reporting year

Project name	Location	Description of local improvement	Environmental benefit	Timescales
Borralan	North of Ullapool	42.5 ha of native broadleaf planting	<ul style="list-style-type: none"> Biodiversity Climate 	Delivered August 2023
Achlain	Near Dalmally	127 ha of predominantly native woodland	<ul style="list-style-type: none"> Biodiversity Climate 	In progress to complete June 2024
Attadale	Near Loch Carron	125 ha of native woodland planting	<ul style="list-style-type: none"> Biodiversity Climate 	In planning to start May 2024
Woodland Crofts	Harris and Lewis	10 ha native woodland planting	<ul style="list-style-type: none"> Biodiversity Climate 	In planning for 2024/25
Port Ann to Crossaig	Argyll	Estimated 2.5 ha of invasive non-native rhododendron control	<ul style="list-style-type: none"> Biodiversity 	Rhododendron control year one out of five delivered
Inveraray to Port Ann	Argyll	68 wildlife boxes installed across the route (for pine marten, red squirrel, bats and owls)	<ul style="list-style-type: none"> Biodiversity 	Delivered December 2023
Port Ann to Crossaig	Kilmory-Walled Garden	2 pine marten boxes, 2 red squirrel boxes, 3 bat boxes, 1 owl box	<ul style="list-style-type: none"> Biodiversity 	Delivered December 2023
Port Ann to Crossaig	Argyll	Estimated 40 wildlife boxes across the route (for pine marten, red squirrel, bats and owls) and diver raft	<ul style="list-style-type: none"> Biodiversity 	Wildlife shelters ongoing

Environmental incidents

We report our incidents via EcoOnline, a safety and environment reporting tool for internal staff and all third-party contactors across our active projects and operational sites. During 2023/24, we reported 14 environmental incidents to the regulator. For consistency with other GB Transmission Owners, our reporting now focuses on the total number of incidents reported to the regulator. Previously, we categorised incidents by type. There were no actions taken by the regulator in relation to these incidents. Of the 14 incidents reported, two were categorised as 'Serious' SF₆ leaks in line with our internal severity criteria. All other incidents were minor and therefore had minimal impact.

	Unit	2021/22	2022/23	2023/24
Reported to regulator	Number	13	12	14

Oil management

The total volume of oil in our transmission network reached 4,944,964 litres for the year. Since 2021, this has steadily increased due to the expansion of the network. No additional oil was needed for our cables due to minimal losses, however, we introduced 5,763 litres of oil specifically to our transformer and reactor asset classes. This increase compared to the previous year is due to losses from aging assets commissioned in the 1950s and 60s.

	Unit	2021/22	2022/23	2023/24
Operational equipment	Litres	4,816,545	4,897,413	4,944,964
Cable oil top up	Litres	0	923	0
Transformer oil top up	Litres	5,741	1,614	5,763

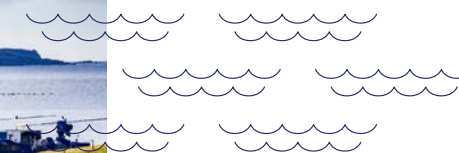


Looking ahead

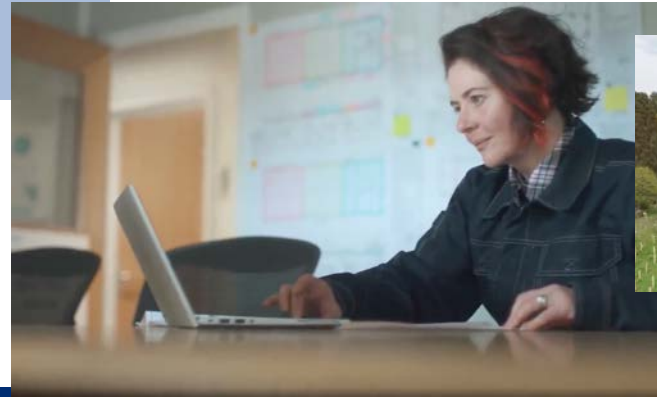
Network growth will inevitably have some impacts on nature. A project to better understand and measure those impacts is already underway with other Transmission Owners across Great Britain and we hope to be able to update on progress in next year's report.

We are committed to avoiding harm wherever possible, and to leaving the natural environment in a better state than we found it. In the coming months and years, our work to deliver Biodiversity Net Gain will continue to gain momentum, with partnership working across Scotland enabling many more positive outcomes for nature.

The growth in offshore wind and subsea connections also means that our impacts in the marine environment will become a greater focus for our business, and we will seek opportunities to protect and restore the marine environment with expert partners.



Communities and Stakeholders



Community engagement

2023/24 marked a year of extensive and meaningful consultation with communities and wider stakeholders on plans to upgrade the electricity transmission network across the north of Scotland with over 70 consultation and engagement events held. We delivered purposeful, targeted, and inclusive engagement with those communities impacted by our transmission infrastructure which is absolutely vital in helping us to fully understand the concerns of the impacted communities which has led to several major changes to our plans.

As a stakeholder-led business, the views shared at these events really matter to us and we always look to work closely with the local community and wider stakeholders to help inform and shape the development of our projects.

As well as in-person consultation events, we also either hosted and/or attended over six virtual consultations, with more than 40 additional community meetings, including several Town Hall public meetings. In total, we have received well in excess of 6,000 responses to our consultations held in the period, reflecting the breadth and extent of engagement undertaken.

Securing power for future generations

In 2023/24, we embarked on our first major brand advertising campaign, including our partnership with STV to launch our inaugural TV advertisement, sharing the story of our business and our commitment to securing power for future generations. The purpose of the campaign is to build greater awareness and acceptability of the need to upgrade the electricity transmission network in the north of Scotland, with a UK wide national campaign planned following the recommendations of the previous UK Government's Electricity Networks Commissioner, Nick Winser.

Our STV partnership aims to introduce new audiences to our mission, our operations, and the significant task of expanding the electricity transmission network in the north of Scotland. We hope this initiative clarifies the need behind and benefits of our £20bn grid upgrade programme.

AccountAbility top rating for third consecutive year

In May 2024, we were delighted to be awarded a top rating for stakeholder engagement for the third year running, following a comprehensive audit conducted by leading global consulting and standards firm, AccountAbility.

Our impressive score of 88% on the AccountAbility Stakeholder Engagement Maturity Ladder – a rise on last year's rating of 85% - comes at a time when we have significantly increased the volume of stakeholder engagement to support the development of our £20bn Pathway to 2030 investment programme.

The AA1000 Stakeholder Engagement Standard is considered the 'gold standard' in stakeholder engagement accreditation and helps ensure the highest standards in professional stakeholder engagement are delivered. Our latest performance, where we have maintained our position in the highest 'Advanced' stage of AccountAbility's Maturity Ladder, means we have already achieved our RIIO-T2 stakeholder engagement commitments to deliver 'Advanced' performance in the AccountAbility assessment.

The AccountAbility AA1000 Healthcheck incorporates a thorough review of stakeholder engagement practices, including interviews with internal and external stakeholders.

Delivering a lasting and positive legacy

Throughout the development of our Pathway to 2030 projects, we are committed to leave a positive, lasting legacy for the communities who host our infrastructure developments, beyond the significant local jobs and economic boost our investments represent. Alongside leaving a positive environmental legacy through our Biodiversity Net Gain commitments, we are also delivering legacy through community benefit funding and ambitious housing commitments.

Community Benefit Fund

In summer, 2023, we launched a six-week consultation to gather stakeholder feedback on our first-ever Community Benefit Fund. This initiative aims to channel funding towards vital local projects across the north of Scotland, sharing the benefits of the energy transition with the people most impacted by it, and empowering communities to make a real difference. The fund will cover our RIIO-T2 projects that are already being delivered.

Our consultation encouraged stakeholders to share their views on the initial planning for development of the fund and received over 135 responses from local residents, representative organisations and other interested parties. The response was overwhelmingly positive, with over 70% of those who responded indicating their support for the initiative.

After analysing all of the feedback received we published a detailed report on the consultation in October 2023. Three key themes were identified that our community benefit funding will help address:

People: focusing on skills, training and employability

Place: emphasising the community and culture of the north of Scotland

Reducing fuel poverty levels

On 1 September 2024, we launched our first £2m regional fund, part of our RIIO-T2 £10m community benefit fund, for community groups across the north of Scotland to apply to. Following the appointment of Peter Peacock, former Scottish Government Minister and Highland Council Convenor as our Independent Inaugural Chair of our Community Benefit Fund, we continue to recruit other panel members.

Separately, we continue to await a decision from the UK Government on its final Community Benefit Guidance. Based on draft guidance published in November 2023, we expect that over £100m of funding could be available through our Pathway to 2030 investment programme.

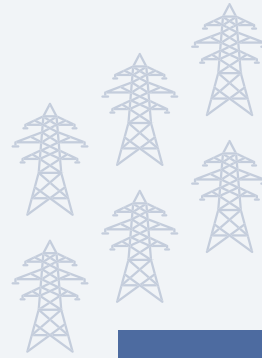


Delivering a Housing Legacy

As part of our accommodation strategy to support the delivery of our Pathway to 2030 projects, in December 2023 we announced ambitious plans to deliver an accommodation legacy. As part of this, we have committed to contribute to the development of at least 200 homes across the north of Scotland. Our accommodation strategy is underpinned by a policy of additionality, where we will be seeking to avoid displacement and negative impacts on the local housing sector, including tourism accommodation.

These homes will house workers during the construction of our projects and will help to address the housing crisis facing many communities in the north of Scotland. Upon completion of our Pathway to 2030 projects, homes will be handed to local organisations to provide accommodation for local people across the north of Scotland, delivering a lasting legacy for future generations. Our accommodation legacy is expected to deliver a blend of new and renovated homes, as well as fully serviced sites for temporary accommodation camps for workers, delivered to the standard required to support future housing and wider economic development activities.

To help inform our housing strategy, we are engaging with Local Authorities and wider stakeholders to help identify local property needs, including helping to address the rural housing crisis.



Visual amenity

We have successfully completed all construction of our Visual Impact of Scottish Transmission Assets (VISTA) projects which aim to mitigate the impact of existing electricity infrastructure on the visual amenity of nationally designated landscapes. We aimed to complete five such projects by 2023/24 and have now completed six projects, on time.

- Boat of Garten – 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).
- Glen Falloch – 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 – 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).
- Loch Tummel – Loch Tummel National Scenic Area. 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.
- Nethy Bridge – 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).
- Sloy – 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).

Killin was our last project to reach completion – see below for a clear before and after.



In June 2023, we completed the final technical VISTA project by removing the remaining 4.8km of 132kV overhead line infrastructure to the north of Killin and replacing it with underground cables. In 2023/24 we also conducted site visits for eight locations and assessed two outline proposals for non-technical mitigation projects, which aim to blend overhead line infrastructure into the landscape through schemes such as planting. We will continue to develop the proposal for the remaining sites and actively engage with key stakeholders to gather essential feedback.

	Unit	2021/22	2022/23	2023/24
Removal of overhead lines	Km	7.3	3	4.8
Non-technical mitigation projects started in year	Number	1	0	0
Non-technical mitigation projects	£m	0.168	0	0

Sustainability outcome



Complete detailed VISTA project designs and prepare Ofgem applications for selected projects by 2023/24

2021/22 2022/23 2023/24



● Progress is at significant risk, and it is highly likely that milestones will be missed ● Progress is delayed; however it is expected to be achievable before the end of the RIIO-T2 price control period ● Progress is firmly on track, aligning with implementation milestones

People



Looking back

We are passionate about investing in skills and talent in the north of Scotland. In 2023/24, we welcomed 500 new employees, bringing our total workforce to 1,800 employees. Our people are leading the change and through strategic talent development, we are ensuring our people are equipped with the knowledge and expertise to thrive in their roles.

Sustainability outcome



Achieve a more representative workforce that reflects the local communities we serve by developing improved diversity and inclusion metrics by 2023/24

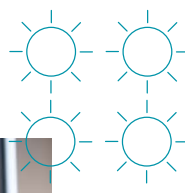


Achieve a more inclusive working environment by 2023/24

2021/22 2022/23 2023/24



● Progress is at significant risk, and it is highly likely that milestones will be missed ● Progress is delayed; however it is expected to be achievable before the end of the RII0-T2 price control period ● Progress is firmly on track, aligning with implementation milestones



One inclusive engaged team

Our Sustainable People Strategy is in place to enable the creation of long-term, sustainable careers with a focus on delivering in line with our four ambitions:

	A happy, healthy workforce
	One inclusive and engaged team
	Empowered inspirational leaders
	Right people, right skills

We are committed, through the actions outlined in our people strategy and in line with these ambitions, to contribute to the creation of a fairer and more equal society, by proactively seeking out opportunities for disadvantaged communities and identifying opportunities to give back to the communities with which we engage.

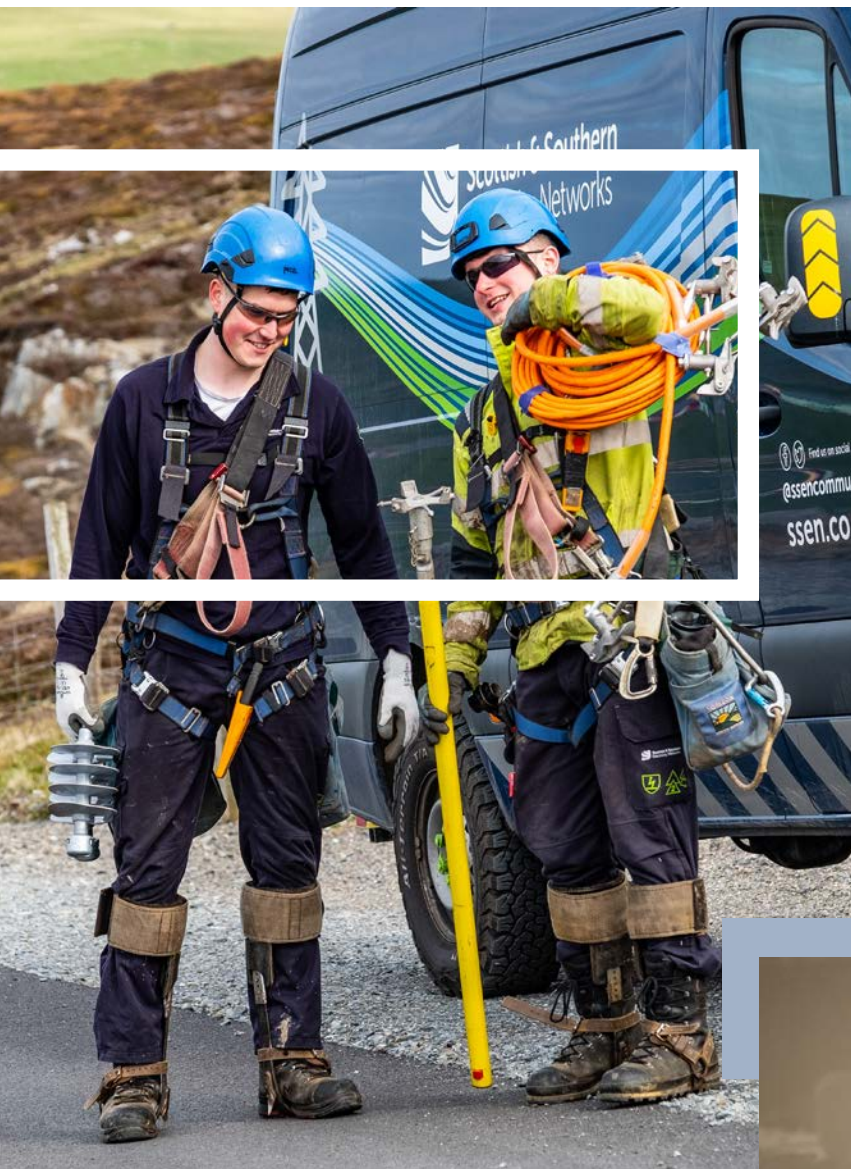
With a particular lens on 'One Inclusive and Engaged Team', we have increased our female population from 19% of the business (April 2019) to 28.8% (April 2024) and reduced our median Gender Pay Gap from 36.1% (2018) to 16.4% (2024). We also launched our Enabling Transmission Careers learning programme to support skills development and career planning. We increased our diversity return information from 38% in September 2022, to 74% in April 2024. This allows us to better understand our colleague demographic and better tailor our people activities.

In terms of our commitment to be an inclusive employer for all, and as set out in our Inclusion and Diversity (I and D) Strategy, we have successfully;

- Designed and delivered a programme of Banter Awareness sessions, which provide a safe space for discussion and learning between colleagues. These are now an established part of our development programme and have been well received by those that have attended
- Embedded a 'reverse mentoring' programme following a successful pilot. We have concluded Programme 1, which saw 13 pairs of colleagues engage in reverse mentoring relationships. Programme 2 is underway with 21 pairs of colleagues participating
- Established a new I and D Committee, with 23 members from across the business taking up roles under the following pillars: Ambition, Employee Voice, Education and Development and Inclusive Processes, supported by the 'Senior Sponsor',
- Designed and delivered two programmes of work experience for the young people supported by Perth Autism Support

This year we also developed our Strategic Workforce Planning tool, which allows us to be pro-active and prepare for the resources and skills we will need ahead of time. The tool provides valuable insight into our existing employee population, allowing us to identify the skills and roles we need in specific locations, and to monitor and plan for attrition in the context of an ageing workforce.





As part of the Sustainable People Strategy, growing our own talent is a top priority. We have significantly increased the suite of Pipeline programmes across the business with varying entry requirements – from apprenticeships where no qualification or experience is needed, to our Graduate programmes for those who have undertaken academic qualifications. Our pipeline growth is underpinned by a strong partnership with The 5% Club – a charitable organisation that supports us in achieving our target of employing 5% of our workforce in earn-as-you-learn roles. In addition, we offer wider attraction across other programmes including our STEM Returners Programme which attracts female returners into industry.

Having increased the number of our trainees from 19 in 2021 to now over 180 in 2024, we have changed our approach to recruiting and now host two large scale recruitment events each year to meet prospective candidates and welcome them through a new interviewing process. Successful candidates are welcomed to the business through 'Transmission Welcome', our onboarding programme which is now fully embedded and available to all new employees.

As part of our commitment to give back to local communities and to attract the next generation of employees into our industry, we are investing in primary and secondary schools within our geographical operational areas, partnering with Industrial Cadets, an industry-led quality benchmark for outreach and education programmes.



Looking ahead

As we look to the future, we are excited to be working on the following:

- Continue to enhance our strategic workforce planning service and in-house developed platform, to provide strategy support which will enable the business to meet our ambitious future growth plans in support of our sustainability goals
- Continue to develop our early careers and pipeline activity to create accessible and enduring career opportunities in the communities that we serve
- Continue to challenge our thinking in relation to our I and D strategy, in line with our ambitions in relation to 'One Inclusive and Engaged Team' and our wider Sustainable People Strategy
- Embed our Reverse Mentoring, Returnship and Retirewell programmes so that they become an enduring part of the work we do to enable success for our employees, at all stages of their careers



Procurement



Looking back

Around the world, businesses and governments are seeking ways to build supply chains that are more resilient to economic, political, or climate-related shocks. Investors and other stakeholders are also looking to businesses like ours to better understand, manage, and report on the social, environmental, and economic impacts of what we buy, who we buy from, and who we partner with across our supply chain.

At the same time, we understand that the planet's resources are finite. As we grow our network, our demand for raw materials will increase. We recognise the need to find circular economy solutions to our resource needs, and to consider the whole life impacts of the assets and materials we buy.













In 2023/24, we continued to meet our goal of achieving a 25% representation of approved suppliers based in the north

of Scotland, and we strengthened our engagement with our supply chain on sustainability. For example, key suppliers signed up to an ASTI charter in late 2023, committing to leaving a lasting legacy for communities through their partnership with us to deliver the Accelerated Strategic Transmission Investment programme.

With regards to waste and the circular economy, our operational waste management saw a reduction in waste from 2022/23-2023/24 and we are on track to achieve zero waste to landfill for operational waste. Our project level waste data does not yet allow for an assessment of progress against our zero waste to landfill and recycling, recovery and reuse rates, leading to these targets being rated amber.



Sustainability outcome

	2021/22	2022/23	2023/24
 Achieve zero waste to landfill (excluding compliance waste) by 2025/26			
 Achieve a recycling, recovery and re-use rate of >70% across our waste streams by 2025/26			
 Achieve a 25% representation of approved suppliers based in the north of Scotland by 2025/26			

● Progress is at significant risk, and it is highly likely that milestones will be missed ● Progress is delayed; however it is expected to be achievable before the end of the RIIO-T2 price control period ● Progress is firmly on track, aligning with implementation milestones



Supply chain

Our supply chain partners are pivotal to the successful delivery of our Pathway to 2030 projects and we are collaborating with them to ensure we have the right engagement, on the right topics, with the right people, at the right time.

We signed the ASTI Charter with key ASTI supply chain partners agreeing to work collaboratively across six key areas: safety, value, innovation, delivery, legacy and to work in a spirit of openness and trust.

Suppliers are required to comply with SSE’s Sustainable Procurement Code when working with us. As part of our supply chain engagement, we meet our supply chain to discuss topics including sustainability given the importance of this topic and the socio-economic, nature and climatic impacts Transmission will have on the communities we’re working in to deliver these important infrastructure schemes.

Our ongoing commitment to local content is currently being met. This target aims for at least 25% of all our suppliers to be based in the north of Scotland.

By the end of 2023/24, nearly two thirds of our suppliers by spend had access to EcoVadis, a platform designed to help businesses to manage ESG risk and compliance, meet sustainability goals, and guide the sustainability performance improvement of users and their value chain. This platform measures supplier performance against a range of sustainability metrics, allowing for assessment against four key categories – environment, labour and human rights, ethics, and sustainable procurement.

While it is not currently possible to provide information on the percentage of suppliers (by value) that have their own sustainability metrics or KPIs, through the use of EcoVadis and other sustainability reporting tools, we intend to be able to provide more detailed data on supplier performance in future reports.

	Unit	2021/22	2022/23	2023/24
Proportion of suppliers adhering to our sustainable code	%	100	100	100
Approved suppliers located in the north of Scotland	%	25	25	25

Sustainable resource use

Building, maintaining, and operating our network is inherently resource intensive. However, as we rapidly expand, we take an active role in advocating for and implementing sustainable resource use across the sector, while also embedding these practices in our own business.

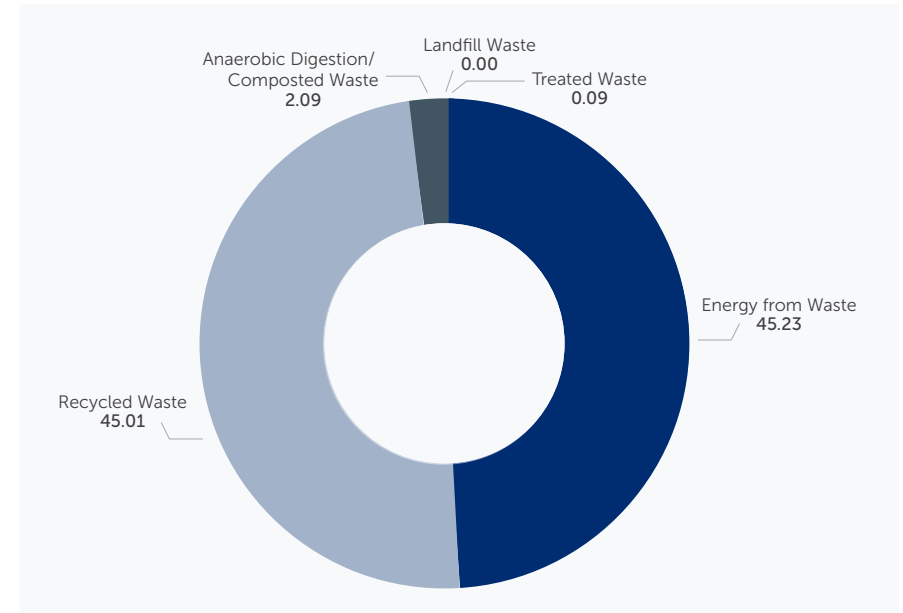
Operational waste

To improve the accuracy of our waste reporting, we altered our approach used since the beginning of RIIO-T2 (2021/22). Previously, we reported data for specific sites relevant to SSE plc, but less relevant for SSEN Transmission as a business unit. Consequently, we amended our reporting criteria to better reflect SSEN Transmission's occupancy of relevant sites. This impacts on reported figures.

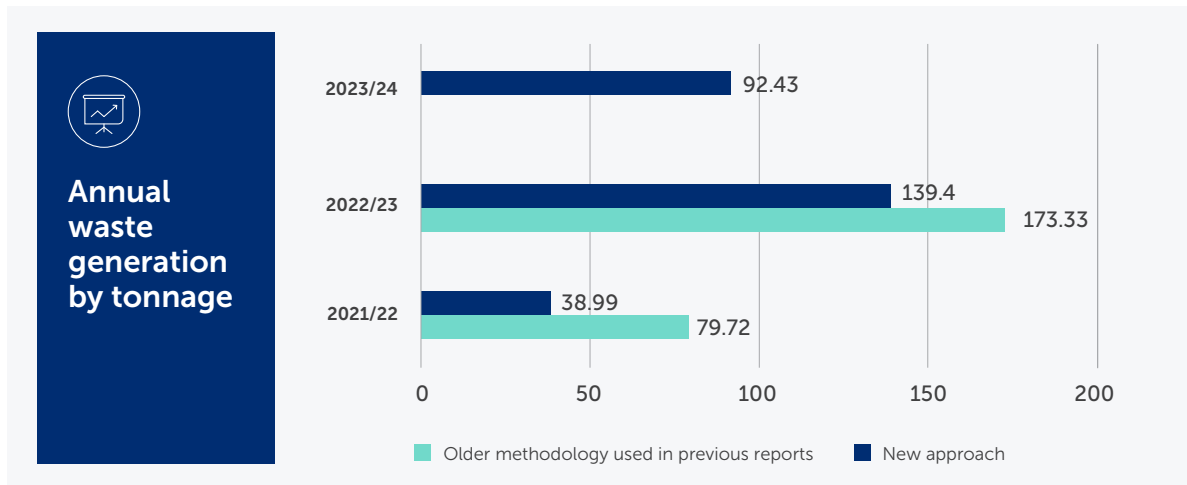
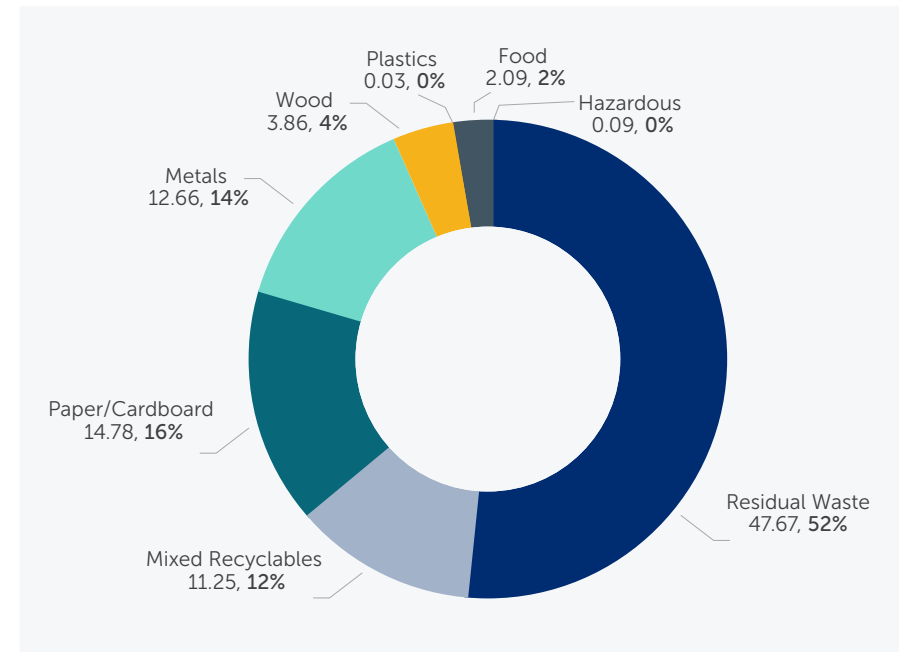
In 2023/24, we achieved a zero waste to landfill outcome for our operational waste streams, which includes our shared office locations and depots. In total, we generated 92.43 tonnes of waste across 8 waste types and 99.9% of this waste was diverted through responsible management practices such as anaerobic digestion, recycling, incineration with energy recovery, and other treatment options. This represents a significant fall in the amount of waste generated compared with the previous year, and indicates that we remain on track to meet our zero waste to landfill commitment as it pertains to our operational waste.

The charts on the right display our waste by destination and type.

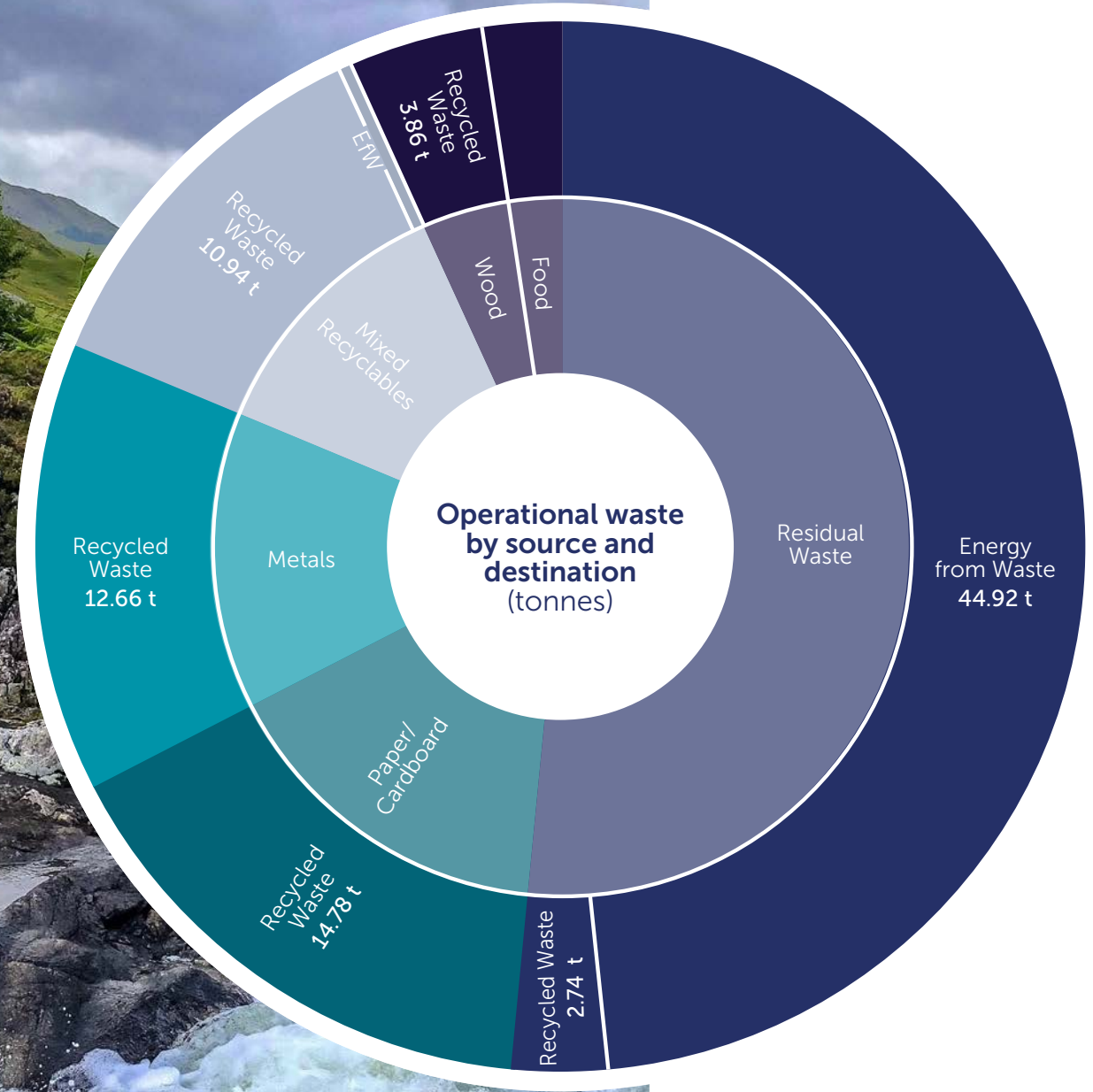
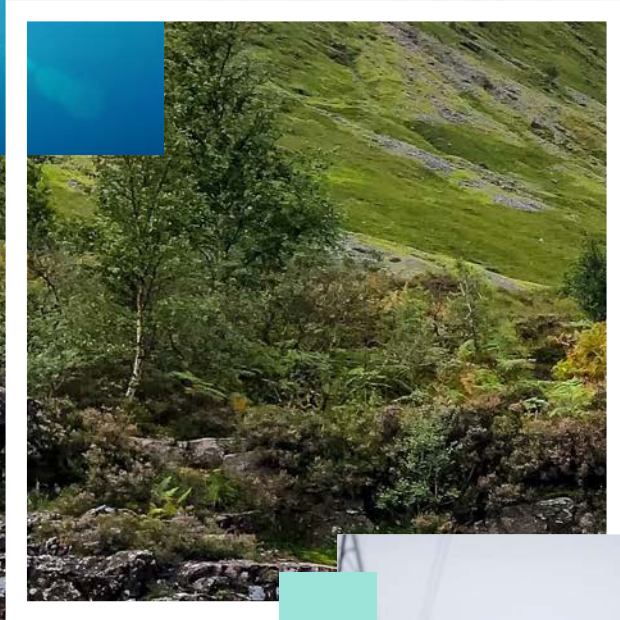
Operational waste by destination (tonnes)



Operational waste by source



The above chart displays the differentiation between previously reported and current annual waste generation by tonnage and provides a more accurate picture of our waste





Project waste

Our projects are a major source of waste generation due to the volume of resources required. In 2023/24 we undertook analysis of the quantitative data reported from our supply chain on our projects. The analysis revealed several opportunities to improve our reporting approach, particularly our data quality. Work is underway in 2024/25 to undertake these improvements. As a result, quantitative waste data for our projects is not yet available for publication. The case study below showcases the performance of our supply chain partner, Balfour Beatty, taking action by promoting waste reduction, recycling, and material reuse within the local community.

Maximising asset value: a circular approach

As assets on our network come to the end of their useful lifespan, they are decommissioned. Inspired by Zero Waste Scotland's report 'Full Circle: Closing the Energy Sector's Circularity Gap', we have identified an opportunity to improve the way we approach decommissioning in order to minimise any negative social or environmental impacts.

In support of the transition to a circular economy, we launched a dedicated continuous improvement project focused on improving circularity within asset management.

Our project team, comprising of stakeholders from asset management, business change and transformation, operations, logistics, and sustainability, have been actively engaged throughout the year to deep dive into current processes and improve our existing ways of working. Their efforts focused on key areas such as repurposing assets or components within the network to extend lifespan, exploring mechanisms for responsible sales of decommissioned assets to external entities, and implementing improved inventory management systems with detailed asset information for informed reuse or repurposing decisions.

This project has resulted in the identification of opportunities for asset repurposing and the development of a new framework for responsible resource management.

Looking ahead

As we continue to grow the network, we will work closely with our supply chain partners to identify and realise opportunities to further develop sustainable practice. In addition, we will undertake data and system improvements to enable accurate and timely assessment of project level waste data. This will enhance our ability to identify and realise circular economy opportunities on current and future projects.

Case study

Circular economy

On the East Coast Upgrade 400kv project, circularity options were included as part of a wider community engagement strategy. Balfour Beatty identified an opportunity to engage with Edzell Men's Shed, a community group less than 2 miles from the project yard which encourages people to come together to make, repair and repurpose materials with the goal of improving wellbeing, reducing loneliness and combatting social isolation. For this project, 128.58 tonnes of wood waste was generated due to the arrival of materials and goods to site which require wooden packaging.

To promote circular solutions, Balfour Beatty created three separate channels for wood waste:

- **Closed loop conductor drums:** Conductor drums were returned to the manufacturer for reuse in future deliveries which minimising waste generation
- **Responsible recycling:** All low-quality wood waste was diverted from landfills and sent for recycling
- **Community repurposing:** High-quality wood from pallets and drum battens was donated to the local Edzell Men's Shed, providing valuable materials for their community projects

This is a great example of working together with our communities for circular solutions – the site team were able to request that the Men's Shed used some of the donated wood from our site to be repurposed as steps to access our onsite sleeper units, helping colleagues who use them to access their accommodation safely and securely. For more information on Men's Sheds and the good work they do, please visit menssheds.org.uk



Innovation

Innovation Strategy

With the Pathway to 2030 programme highlighting the need for significant investment in the north of Scotland to connect the anticipated large capacity of renewable energy projects by 2050, and the RIIO-T3 plans now underway, our focus on innovation remains crucial. As we face the challenges ahead, particularly in enabling the energy transition, our commitment to innovative thinking will be essential.

In March 2024, we launched our new Innovation Strategy, setting out our purpose, vision, and focus areas for strategic innovation. This refreshed strategy guides our efforts in developing and implementing the right innovations to support the transition to a low-carbon economy. Our four focus areas—safer, smarter, greener, and faster—form the foundation of this strategy, identified through horizon scanning and stakeholder engagement to pinpoint where innovation can have the greatest impact. The 'greener' pillar, for example, prioritises projects aimed at reducing CO2 emissions and minimising waste, while also advancing environmentally friendly practices in network construction and operation.

Since the launch of our new Innovation Strategy on 18th March, we have hosted launch events across four of our offices, allowing the Innovation team to introduce colleagues to the strategy, answer questions, and explore collaborative opportunities to foster an innovative culture. Moving forward, we will publish an Annual Innovation Action Plan internally, establish internal Challenge Groups to drive collaborative thinking within our focus areas, and launch an Innovation Hub to enhance collaboration and knowledge sharing. Additionally, we will update our internal and external web pages with innovation project blogs and quarterly newsletters, and we will coordinate a horizon scanning programme to identify emerging trends, threats, and opportunities, providing valuable insights to our Challenge Groups to fuel further innovative thinking.



Safer



Smarter



Greener



Faster



Corrosion Mapping

In 2023/24, we conducted a project focused on improving the accuracy of corrosion mapping for our network assets, particularly those made from galvanized steel. The existing method, which relies on the Galvanisers Association corrosion map, has become outdated due to advances in meteorological practices, leading to issues in strategic decision-making for asset development and management. The limitations of the current methodology, including its lack of granularity and insufficient consideration of local topography, have resulted in some assets, such as substations near coastal environments, being unnecessarily enclosed, and unrealistic estimations of the remaining service life of overhead lines.

To address these challenges, this project assessed the potential for more accurate and relevant weather and environmental data to enhance the design, construction, and maintenance of our network assets. High-resolution Numerical Weather Prediction (NWP) data provided by the Met Office allowed for the creation of detailed corrosion models and new corrosion rate maps specific to our licence area.

The expected benefits of this project include the development of a new corrosion map that will be compared against the existing Galvanisers Association map to assess its effectiveness in improving design and lifecycle practices. The new map is anticipated to better determine the necessity of housing substations in buildings to minimise corrosion impact, potentially leading to significant cost savings in construction, equipment, and materials, as well as a reduction in carbon emissions. Our internal Project Carbon Calculator estimated that avoiding the construction of unnecessary transformer buildings at seven substations could result in lifecycle carbon savings of 2,402 tonnes of CO₂e, equating to an approximate carbon value of £717,000. We are now integrating the data outputs with our GIS systems and will continue reviewing the results to assess their suitability for adoption in Business As Usual (BAU) applications.



[Find out more](#)



Ice Mapping

In August 2022, we launched a project aimed at developing a more accurate model for ice accretion on transmission infrastructure, particularly relevant to the challenging weather conditions of the north of Scotland. The current standards for radial ice accretion, as defined by British Standards (BS), are considered conservative and not fully reflective of modern meteorological practices. This can lead to the overdesign of overhead lines (OHLs), potentially increasing costs unnecessarily. By creating a new ice accretion model integrated with global Numerical Weather Prediction (NWP) models that account for detailed topological and orographical factors, the project sought to derive new, more accurate values for radial ice accretion using extreme value analysis techniques.

The expected benefits of this new ice map are significant. For wood pole OHLs, reduced ice loading could allow for longer spans between poles, providing an estimated cost saving of £3,000 per kilometre. For steel OHLs, applying the new ice map could result in lighter structures and foundations, potentially saving £2,000 per kilometre in scenarios where ice and wind loads are critical. Additionally, these design improvements offer environmental benefits, including a reduction in the number of wood poles needed and savings on steel and concrete materials for steel towers. The project estimated a carbon reduction of approximately 19.3 tonnes of CO₂e per steel structure and a reduction of 0.15 tonnes CO₂e per wood pole, using our internal Project Carbon Calculator.

The project was completed in February 2024, and the findings will be presented to the BS committee for consideration in updating the standards to include these new ice values. The new ice mapping values have the potential to be applied to future ASTI and T3 schemes. Furthermore, the methodology developed can be adapted by other network licensees to minimise the overdesign of OHLs in their regions.

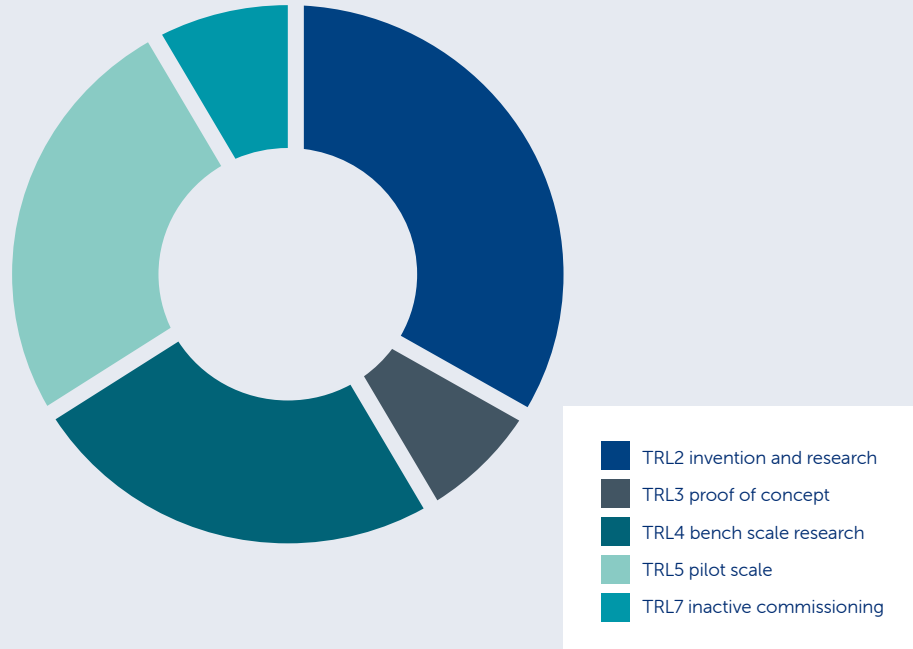


[Find out more](#)



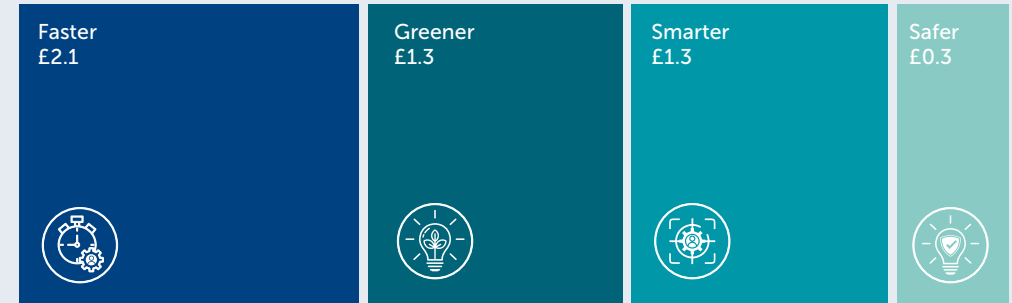
Innovating to a Net Zero future

Percentage of projects by technology readiness level (TRL)

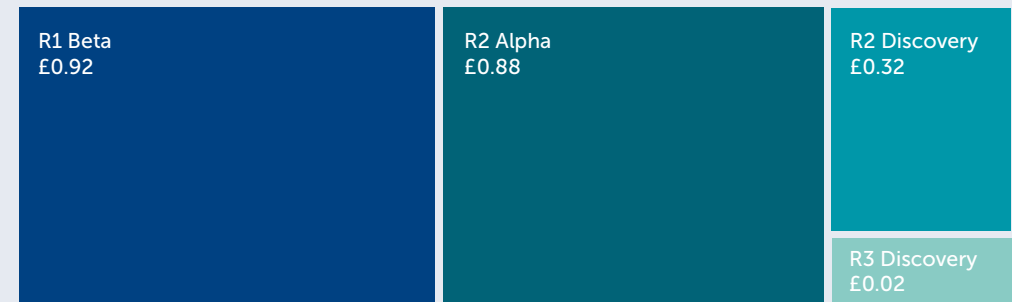


<p>12 live projects in RIIO-T2 (4 new in 23/24)</p>	<p>£5m* current confirmed spend in RIIO-T2</p>	<p>56% funding allocated of £8.9m NIA budget RIIO-T2</p>
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Funding Allocation by transmission innovation strategy theme
(£m, 18/19 prices)



2023/24 SIF project portfolio with spend
(£m, 18/19 prices)



<p>For every £1 of project spend</p>	<p>Generates £5.2 cost benefits by FY 30/31</p>	<p>Generates £20.1 45yr asset lifetime cost benefits</p>
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Appendices

RIIO-T2 Sustainability Action Plan

We consider our emissions reduction trajectory to be at risk, reflected in the amber rating for our Scope 1 and 2 emissions reduction target. In addition, our waste reduction targets are shown as amber due to challenges related to our project-level waste data. Please see pages 25 and 46 for more information.

	Action	Milestone	Intended benefit / outcome	2021/22	2022/23	2023/24
Climate	Achieve a 33% reduction in Scope 1 and 2 greenhouse gas emissions by 2025/26, from a 2018/19 baseline	2025/26	Reduction in our contribution to climate change	Green	Amber	Amber
Climate	Achieve a maximum Insulation and Interruption Gas leakage rate of 0.15% of installed volumes by 2025/26	2025/26	Reduction in our contribution to climate change	Green	Amber	Green
Climate	Achieve the capacity to transport enough renewable energy through our network to power 10 million homes by 2025/26	2025/26	Contribution to meeting net zero targets in Scotland and the UK, enabling one sixth of all the decarbonisation efforts needed to reach net zero across the UK by 2050	Green	Green	Green
Communities	Complete detailed VISTA project designs and prepare Ofgem applications for selected projects by 2023/24	2025/26	Improvements related to the visual impacts of Scottish transmission infrastructure.	Green	Green	Green
People	Achieve a more representative workforce that reflects the local communities we serve by developing improved diversity and inclusion metrics by 2023/24	2023/24	A more representative workforce that reflects the local communities we serve	Green	Green	Green
People	Achieve a more inclusive working environment by 2023/24	2023/24	A more inclusive working environment	Green	Green	Green
Procurement	Achieve zero waste to landfill (excluding compliance waste) by 2025/26	2025/26	Alignment with circular economy principles and minimisation of waste, in support of sustainable resource use	Amber	Amber	Amber
Procurement	Achieve a recycling, recovery and re-use rate of >70% across our waste streams by 2025/26	2025/26	Alignment with circular economy principles and minimisation of waste, in support of sustainable resource use	Amber	Amber	Amber
Procurement	Achieve a 25% representation of approved suppliers based in the north of Scotland	2025/26	Support the economy of the north of Scotland	Green	Green	Green





Scope 3 methodology

Category	Methodology and Assumptions	Data Source	Confidence in Data (Completeness and Accuracy): RAG Rating	Improvement actions
Purchased Goods and Services	<p>Purchased goods and services cover cradle-to-gate emissions from any goods or services purchased in the course of normal business operations.</p> <p>This year we have further improved our methodology following recommendations from our 2022/23 Planet Mark ISO14064-1 verification process. We have split out purchased goods and services and capital goods and have applied DEFRA-published emissions factors instead of the ONS carbon intensities. These new emissions factors account for carbon emitted outside the UK and are therefore a better measure of our consumption-based footprint. These changes have enabled us to calculate our emissions more accurately and to maintain consistency, we have applied this new methodology retrospectively to previous years. This is in line with our re-baselining policy which states that methodological changes resulting in a greater than 5% change to base year emissions will trigger a re-calculation for all years.</p> <p>The only exception is water consumption for which accurate consumption data and emissions factors are available. We therefore report emissions related to our water supply separately and exclude them from the spend-based calculation.</p>	<ul style="list-style-type: none"> Annual transmission spend data by procurement category Spend-based emissions factors published by DEFRA Metered water consumption data from non-operational buildings (offices, depots, and warehouses) BEIS Greenhouse Gas Conversion Factors 2021 – Water supply 	Medium	We have implemented all recommendations made by Planet Mark during the 2022/23 verification process and now have robust and comprehensive spend-based emissions reporting for purchased goods and services. Given the very diverse nature of our purchased goods and services, further improvement will be difficult (in contrast to capital goods, see below).
Capital Goods	<p>Capital goods cover emissions from lifecycle stages A1 to A5 (raw material extraction, transport to manufacturing sites, manufacturing processes, transport to construction site and construction site emissions) for all of our network upgrades and expansion projects.</p> <p>Last year, this category was combined with purchased goods and services. This year, we have split out the two categories on the basis of their categorisation as either operational or capital expenditure. We use the same improved spend-based methodology for both categories in 2023/24.</p>	<ul style="list-style-type: none"> Annual transmission spend data by procurement category Spend-based emissions factors published by DEFRA 	Medium	We now have robust and comprehensive spend-based emissions reporting for capital goods. Further improvements will have to come from using project information to assess quantities of assets installed and materials used to develop bottom-up calculations of Scope 3 emissions.



Scope 3 methodology

Category	Methodology and Assumptions	Data Source	Confidence in Data (Completeness and Accuracy): RAG Rating	Improvement actions
<p>Fuel and Energy Related Activity</p>	<p>This category covers fuel- and energy-related emissions that are not included in Scope 1 or Scope 2.</p> <p>Transmission & Distribution Losses (T&D) This accounts for the electricity lost between the point of generation and the point at which we consume the electricity in one of our non-operational buildings (offices, depots and warehouses) or to charge company-owned electric vehicles. This category is common to all users of grid electricity and should not be confused with "Transmission losses", which are unique to transmission network operators.</p> <p>Transmission Losses These are the emissions attributable to the energy lost through dissipation between the point at which electricity enters our transmission network and the point at which it leaves our network. The amount of electricity lost in this way is calculated annually by the electricity system operator. The carbon intensity of this electricity is calculated by SSEN Transmission based on the total generation on our network and the carbon intensity of each carbon emitting generation source. Note that substation electricity use is counted as a Scope 2 emission and is subtracted from the overall losses figure provided by the electricity system operator to avoid double-counting.</p> <p>Well-to-Tank Emissions This accounts for the extraction, production and transportation of the fuels (natural gas, petrol, diesel) consumed by SSEN Transmission. It also accounts for the extraction, production and transportation of fuels to produce the electricity and provide the transport used by SSEN Transmission. This category is linked to a range of other categories across our emissions inventory and changes are driven by multiple factors.</p>	<p>T&D Losses</p> <ul style="list-style-type: none"> Metered electricity consumption data from non-operational buildings (offices, depots and warehouses). BEIS GHG Conversion Factors 2023 – T&D – UK electricity UK electricity T&D for EVs <p>Transmission Losses</p> <ul style="list-style-type: none"> ESO transmission losses value for SSEN Transmission network 2023/24. SSEN Transmission network carbon intensity value (kgCO₂e/kWh) – calculated from total generation on our network and its carbon intensity. BEIS GHG Conversion Factors 2023. <p>Well-to-tank Emissions</p> <ul style="list-style-type: none"> Fuel and electricity consumption data BEIS GHG Conversion Factors 2023 – multiple factors depending on fuel type 	<p>High</p>	<p>No further improvement is planned in these categories.</p>
<p>Upstream Transportation and Distribution</p>	<p>Transportation and distribution of goods through third-party suppliers is not a major part of SSEN Transmission's operations. We mainly either transport goods ourselves, emissions from which are counted under Transport in Scope 1, or where third parties are involved, we would account for the emissions under the first two Scope 3 categories: Purchased goods and services and Capital goods</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>



Scope 3 methodology

Category	Methodology and Assumptions	Data Source	Confidence in Data (Completeness and Accuracy): RAG Rating	Improvement actions
<p>Waste Generated in Operations</p>	<p>This section accounts for third-party disposal and treatment of waste and wastewater. For SSEN Transmission, this would cover emissions associated with standard commercial waste and wastewater from non-operational buildings as well as decommissioning and disposal of obsolete network assets. The latter would form the majority of SSEN Transmission’s waste-related emissions, however the data requirements to accurately calculate greenhouse gas emissions from this are complex. We will develop our internal systems to report on this over the course of RIIO-T2.</p> <p>Standard Commercial Waste This category includes emissions associated with standard commercial waste from non-operational buildings (offices warehouses and depots). We have implemented a new waste-type-specific methodology to calculate these emissions. These buildings are generally shared with staff from other SSE business units therefore proportion of standard commercial waste attributable to SSEN Transmission is based on the percentage of the site’s floor space occupied by SSEN Transmission staff.</p> <p>Wastewater Treatment We have calculated emissions for wastewater treatment from all of SSEN Transmission’s non-operational buildings (offices, depots, and warehouses). These buildings are generally shared with staff from other SSE business units. The proportion of wastewater for a building attributable to SSEN Transmission is based on the percentage of the site’s floor space occupied by SSEN Transmission staff.</p>	<p>Standard Commercial Waste</p> <ul style="list-style-type: none"> Waste data categorised by building, waste type (i.e. metal, wood) and treatment method (i.e. recycled, composted). BEIS GHG Conversion Factors 2023 - Waste disposal <p>Wastewater Treatment</p> <ul style="list-style-type: none"> Metered water consumption data from SSEN Transmission’s non-operational buildings (offices, depots, and warehouses) BEIS GHG Conversion Factors 2023 – Water treatment 	<p>Medium</p>	<p>Over the course of the RIIO-T2, we will continue to improve the accuracy of our commercial waste data from non-operational buildings.</p> <p>The decommissioning and disposal of obsolete network assets is typically carried out by contractors as part of our capital projects and therefore emissions are currently reported under capital goods.</p>



Scope 3 screening categories

Category	Methodology and Assumptions	Data Source	Confidence in Data (Completeness and Accuracy): RAG Rating	Improvement actions
Business Travel	<p>Business travel covers emissions from staff travel via vehicles over which SSEN Transmission does not have direct operational control. This includes private road vehicles (when used for business travel purposes) and travel via rail, air or ferry services. We also include hotel stays in this category.</p> <p>Note that this excludes mileage undertaken in company-owned or leased vehicles which is already counted under Scope 1 – Transport – Business mileage.</p>	<ul style="list-style-type: none"> Employee mileage and travel claim data (with transport modes) Data covering the number of hotel rooms per night occupied by employees BEIS GHG Conversion Factors 2023 – multiple factors depending on travel type and location of hotel stay 	High	No further improvement is planned in these categories.
Employee Commuting	Employee commuting covers emissions from staff travel to and from their work locations. We have not reported on these emissions in year 3 of RIIO-T2.	TBD	TBD	Over the course of the RIIO-T2, we will develop systems to collect the relevant activity data and seek to identify accurate emissions factors that would allow us to account for our employees' differing commuting profiles.
Leased Assets	This category covers emissions from leased assets where these are not already covered under Scope 1 or Scope 2 categories. We use an operational control approach to GHG accounting therefore, all assets we operate, regardless of ownership, are part of Scope 1 and 2 reporting.	N/A	N/A	N/A



Data

SSEN Transmission adopts an integrated approach to assurance by utilising both internal audit and external assurance providers to ensure accurate and comprehensive disclosures as necessary. Whenever data has been externally and independently assured, it is acknowledged in the corresponding tables. SSEN Transmission employs objective reporting criteria to prepare and present independently assured information in this report. The performance measures conform to the established reporting criteria.

Reporting scope and boundaries

While we have previously reported on many areas of sustainability in this report, there are new areas of reporting that have emerged for RIIO-T2 and will evolve over time. We are committed to expanding the scope and boundaries of our reporting to encompass relevant aspects. Our ambition is to identify the most pertinent and significant scope for each area, considering its material impact. We are dedicated to reporting 100% of the material scope. To enhance our data reporting, we have established improvement plans and we will provide annual updates on our efforts within our Annual Report.

Assurance

All data presented in this report adheres to the Data Assurance Requirements Standard Licence Condition B23. A Risk Assessment was conducted, and the Total Risk Rating was Low. The appropriate level of assurance activities has been employed commensurate with the risk rating including a submission plan, methodology and appropriate level of review and sign off. However, to ensure the accuracy and reliability of this report, we have conducted additional assurance activities, including a Director-level review and sign-off.

Our GHG emissions continue to be a significant impact for our business. As in the previous reporting period, we have subjected our entire business carbon footprint (Scope 1, 2 and 3) to independent verification according to the ISO14064-1 standard. This was undertaken by Planet Mark. For their verification statement, please visit our website:

<https://www.ssen-transmission.co.uk/>

If you would like a printed copy of this document or require it in an adapted format, such as large print, please get in touch so that we can accommodate your preferences.

If you want more information or assistance in using this Guide, please contact our Strategy Team at transmission.strategy@sse.com

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