

SP Transmission Annual Performance Report 2021/2022



**SP ENERGY
NETWORKS**



Our transmission network comprises under 4,300 kilometres of circuits and 156 substations operating at 400kV, 275kV and 132kV

4,300KM

Our network area serves around 7% of all consumers in Great Britain, and we have connected 30% of all GB onshore wind generation

30%

Scottish Hydro-Electric Transmission

SP Transmission

National Grid Electricity Transmission

SP Energy Networks owns three regulated electricity network business in the UK: SP Transmission plc (SPT), SP Distribution plc (SPD) and SP Manweb plc (SPM).

Our Business

SP Energy Networks is part of the Iberdrola Group. Iberdrola is a global energy leader, the number-one producer of wind power and one of the world's biggest electricity utilities by market capitalisation. Iberdrola is investing €34 billion during 2018-2022, laying the foundations for sustainable growth over the next decade. The UK makes up 17% of Iberdrola's global investment portfolio.

SPT is the licensed Transmission Owner (TO) for the Central Belt and South of Scotland. We serve 2 million consumers connected

via our sister distribution network and our workforce of 488 internal employees are supported by around 150 major contracting and supply companies. Our transmission network comprises just under 4,300 kilometres of circuits and 156 substations operating at 400kV, 275kV, 132kV and 33kV. Our network area serves around 7% of all consumers in Great Britain, and we have connected 30% of all GB onshore wind generation. We take electricity generated from power stations, wind farms and other sites and transport it through our transmission network to centres of demand.

Our network is crucial to the delivery of the Government's Net Zero target and to help mitigate climate change due to its location in an area of abundant renewable energy, transporting power from Scotland to the centres of demand in England and Wales, benefiting consumers well beyond our license area. Our vision as a business has always been to provide a safe, reliable and economic transmission system for current and future network users; and deliver a sustainable, low carbon energy system. By adopting a more sustainable approach, we are managing the network more effectively for customers and the environment, year on year.



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Welcome

A message from our CEO

At SP Energy Networks, we always strive to deliver a first-class service for our customers – whether that's by enhancing the safety and reliability of our network, connecting new customers and providing support to our customers when they need us most. Our role is becoming ever more central as we have a critical role to play in the drive towards Net Zero emissions.

In the last year, we have reduced our business carbon footprint by nearly 26% (excluding losses). We are supporting societal decarbonisation by enabling high volumes of low carbon connections to our network. We play an essential role in providing security of supply both within our Licence area and beyond in ensuring that electricity generators and consumers continue to benefit from the outstanding levels of reliability to which they are accustomed.

Over the next five years we will invest more than £2.2bn in our transmission network as part of a demanding investment programme which will be delivering on our T2 commitments – building major infrastructure to pave the way for a low carbon future, connecting our customers and replacing assets to safeguard the long term performance of our network.

Our customers are extremely important to us, they are at the heart of everything we do – they have every right to expect a good experience when they interact with us – and it is essential for us to maintain an open dialogue and continue to measure what is important to them. As part of our RIIO-T2 Business Plan we are committed to delivering on this and improving the quality of service as measured through the Quality of Connections survey, more commonly known as the 'Moments that Matter'. For the first year our customers rated us at 8.3, against a benchmark of 7.7. Whilst our score was the highest amongst the UK's Transmission Operators, we continue to focus on improvements in how we serve our customers.

The impact of COVID-19 and the subsequent lockdowns since March 2020 had significant consequences for our 2020/21 outage programme and major effects on our supply chains, and in 2021/2022, we continue to experience knock-on effects from the Pandemic. We have reviewed and revised plans over the course of the year to maximise delivery of as much of the work programme as was practically possible. As an operator of critical national infrastructure, our priority is to keep the power flowing to our customers, in turn keeping them connected to family, friends and work. Within this very challenging year, we achieved a reliability level of 99.9999%.

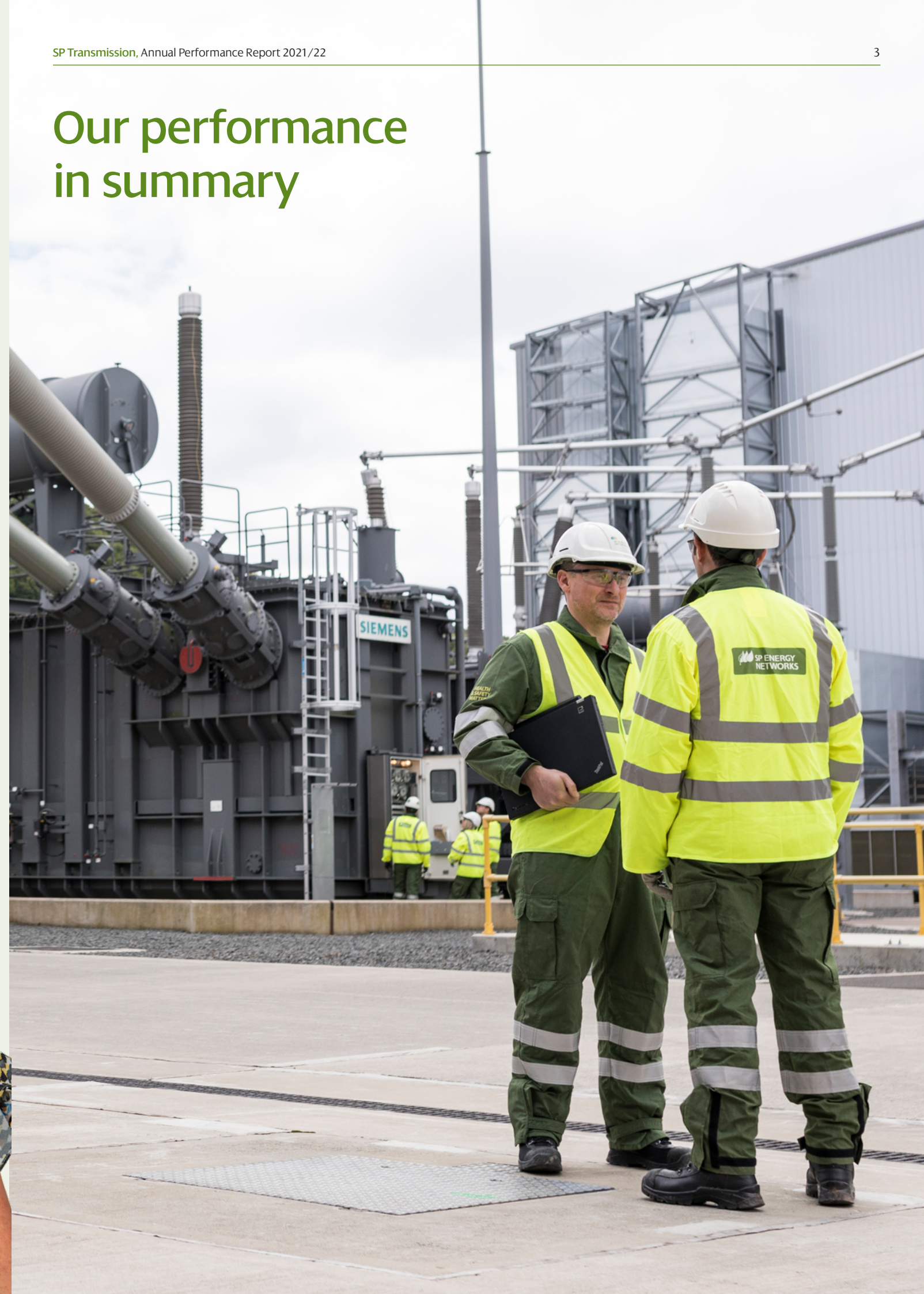
I hope that you find this year's report informative and as ever, we would be delighted to receive feedback on it so that we can continue to develop it for future years.

Vicky Kelsall

Vicky Kelsall
CEO of SP Energy Networks



Our performance in summary



Executive Summary Overview

The UK has experienced significant changes within the energy landscape since the submission of our RIIO-T2 business plan in December 2019.

We have seen an increased focus on Net Zero, which has resulted in increasing levels of interest in connecting low carbon generation and storage to our network. We created our plan to have the flexibility to respond to this changing landscape and have successfully adapted and delivered in year under this new reality. We recognise also that this trend will continue throughout T2 and beyond and recognise the importance of developments in offshore wind seeking to connect in Scotland and the increasing prevalence of battery storage, as well as onshore wind and solar generation.

As the world recovers from the Covid pandemic, year 1 of RIIO-T2 has been impacted by the delays experienced during the pandemic. In the last 12 months, our resources had to be diverted on to delivering projects which had experienced delays associated with Covid-19 periods of lock down and the impact of the system operator limiting system outages, as well as the need for social distancing on sites which adversely affected day to day productivity. This diversion of resources and restriction in access limited our capacity for delivery of the RIIO-T2 investments planned for year 1.

In addition, our supply chain has continued to experience impacts following the pandemic, and this has been further compounded because of exiting the European Union and the additional measures and timescales that were applied to the importing of goods. Whilst we have continually sought to mitigate the impact on our ability to deliver against our business plan commitments, the wider economic consequences of the conflict in Ukraine have added further complication to an already challenging supply chain environment.

These factors have impacted both equipment and contract costs and have increased the lead time for assets such as transformers and switchgear. For example, since 2020, transformer prices have doubled, and the lead time has increased by more than 25%. Whilst these impacts have been limited in year 1 due to contracts placed in advance of the increases, we anticipate a significant impact in future years.

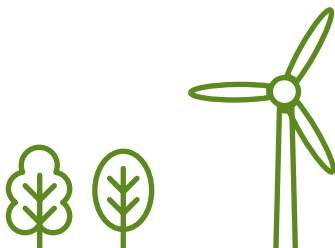
To deliver the material increase in our investment activities forecast in RIIO-T2, we initiated a recruitment campaign in 2021 to increase the number of employees by 126. Despite a challenging resourcing market, with an ongoing shortage of skilled resources and increasing competition from other potential employers, we have expanded our team significantly and looking forward, expect to create more high quality employment opportunities as we scale up further to play our full part in the Net Zero transition. To support our recruitment campaign, we are continuing with our trainee programmes and in 2021 commenced an additional programme for trainee Site Managers, a key role in our investment delivery organisation.

8.3/10
Customer Satisfaction

Moments that Matter survey for connections customers – highest score amongst the UK Transmission Operators.

As a result of the pressures on the supply chain, the availability of resources, and the changing generation landscape, our spend in year 1 was below that envisaged in our original business plan. In our non-load activities, we are forecasting this will be largely recovered in year two. In our load related activities, where we are exposed to changes in customers' plans and have greater dependencies on consenting processes and land agreements, we are forecasting that this will recover over the remainder of the RIIO-T2 period. We continue to work with the Scottish Government and other stakeholders to propose improvements to these processes to support the delivery of our plans.

T2 has brought many changes, including a greater focus on sustainability, customer service and whole system coordination. This is reflected in the incentive mechanism package, which we had a leading role in proposing. We have performed well across the full suite of incentives in year 1, with highlights including the highest ever level of system reliability, leading performance on customer service and positive savings for the ESO through our coordination with them to minimise system constraints.



Outputs at a glance

Output	Metric/Target	Actual (In Year)	Status	Year on Year Trend	Comment
Moments that matter	7.7 (Ofgem break even level)	8.3	●		This is a new incentive introduced for RIIO-T2, and therefore year on year comparisons are not possible.
Timely connections	100% (74 calendar days to submit final offer)	100%	●	↑	118 in year connection offers made on time maintaining our high standard of achieving 100% last year, up from 111 connections last year.
Network capacity	315MVA (RIIO-T2 baseline forecast YO)	291MVA	●	↑	First 2022 MVA Outputs forecasted Q2 2022.
Connections to the network	544MW (RIIO-T2 baseline forecast)	186MW	●	↘	Four windfarms were connected only two (105MW) were RIIO-T2 baseline.
Network Asset Risk Methodology	29.7% (RIIO-T2 business plan target)	2%	●		New for RIIO-T2.
Energy not supplied	130MWh	0.14MWh	●	↑	This year we continued our excellent level of network reliability improving on last years performance of 47.98MWh. Whilst performance against target is good it should be noted that there were no significant weather-related incidents in 2021/22 that impacted the SPT network.
Contractor safety	Total Recordable Injury Rate (TRIR)	0.25	●	↘	TRIR is a widely used indicator and expresses injury levels as a factor of hours worked (injuries per 200,000 hours). Although the TRIR is higher, this is comparable to last year's figure, given the increased number in man hours worked. As always, a continuous drive for zero harm is our aim.
Public safety	0	0	●	→	We can report again this year that there were zero injuries to the general public resulting from our assets or operations.
Carbon footprint – SF ₆ leakage	939kg	530kg	●	↑	44% below the target and a decrease from 775kg last year.
Carbon footprint – Network losses	No individual target. This is included within the Total BCF target.	1,597 tCO ₂ e	●	↑	This is an improvement over last year's emissions of 194,256 tCO ₂ e.
Carbon footprint – Building losses	1,693 tCO ₂ e	1,644 tCO ₂ e	●	↘	This is an increase on last year's emissions of 1,173 tCO ₂ e.

Status

● Ahead of target ● On target ● Below target

Year on year trend

↑ Improvement over prev yr → In line with prev yr ↘ Deterioration since prev yr ↓ Substantial deterioration

Financial performance

Summary

Our expenditure

This year:
Our total expenditure this year was £239.93m. This was £120.74m below our totex allowance. The breakdown was as follows:

Totex comparison (2021/21 real £m)	Allowance £m	Actual £m	Variance £m
Load Capex	158.31	55.51	102.79
Non-Load Capex	107.99	92.59	15.40
Controllable Opex	26.31	22.34	3.97
Non-Op Capex	2.94	1.83	1.10
Indirect Costs	57.30	67.06	-9.76
Other Costs within Price Control	7.82	0.58	7.24
Totex	360.67	239.93	120.74

As this is the first year of T2, our total cumulative expenditure is the same as the current year totex against allowance view.

Our revenues

In 2021/22 we recovered £404.5m. Our revenues are set through regulation by Ofgem. They comprise an element which is fixed, an element which is linked to specified variables (such as the amount of connected generation), and an element to capture incentives and other allowances along with adjustments from previous years.

Incentive awards earned in 2021/22 (revenue rec'd in 2023/24)

Smaller incentives earned in 2021/22 (£ thousands)

Quality of connections satisfaction survey	412
SO-TO Optimisation	432

Large incentives earned in 2021/22 (£ thousands)

Reliability	1,450
Emissions	1,223

Our Return on Regulated Equity (RoRE)

Investment into the electricity transmission network is a long-term project, the costs of which are spread out over the lives of assets.

RAV (Regulatory Asset Value)
For every pound we spend, we collect:

15% of the costs in the same year
85% of cost over life of the asset.

Ofgem assume that we fund this RAV by:

55% borrowing of which the allowance for interest payments are 2.05% in 2021/22
45% equity with return of £4.24% in 2021/22
Weighted average cost is 3.04% in 2021/22

As at 31st March 2022 our RAV was £2,800m (2021/22 prices), up on the prior year at £2,745m (2021/22 prices) due to higher investment on the network going into the RII0-T2 price control period.

5-year average 2021/22	Return on Regulatory Equity (RoRE) – All numbers reflecting Ofgem’s Notional Gearing methodology.
4.25%	Base Return – Set by Ofgem for the 5-year period.
0.08%	Business Plan Incentive – Agreed by Ofgem as part of the price control, and is the reward for the quality of our business plan submission.
0.00%	Totex Efficiency Savings – Any savings we make on our investment plan are shared with the consumer, at this early stage in the price control we are forecasting the cost of delivering our business plan commitments will match what we set out in our business plan submission.
0.09%	Reliability Incentive
0.10%	Emissions Incentive
0.00%	Timely Connections Incentive
0.09%	Quality of Connections Incentive
0.05%	SO-TO Optimisation Incentive
0.13%	Environmental Scorecard Incentive
-0.02%	Network Innovation Contributions
4.64%	RoRE – Operational Performance

Key performance areas



Stakeholder Engagement

Stakeholder engagement is central to everything we do at SP Energy Networks.

We’re leading the way for our customers and stakeholders on the journey to Net Zero, ensuring we continue to engage on the topics that matter most to them and directly embed stakeholder feedback within our strategic decision making. At such an important time, it’s more essential than ever that our customers and stakeholders have their voices heard in this process.

We are focused on delivering high quality engagement with our stakeholders, with their feedback shaping the future of our business. Our strategic priorities of ‘**Developing a network that’s ready for Net Zero, Being the trusted partner of our customers, communities and stakeholders and Ready**ing our business for a digital and sustainable future’ have been created in direct alignment with the areas our customers and stakeholders have told us to focus on.

With a pivotal role to play in how the UK achieves its Net Zero ambitions, we must drive a continual, ongoing engagement strategy focused on the issues that matter most to our customers and stakeholders.

Key engagement highlights

- Global leaders in stakeholder engagement – **achieving 85% in the AccountAbility audit and in the top 10% of companies assessed globally**
- Customer and stakeholder reach of over **4,400**
- **8.1/10** for [Stakeholder Satisfaction](#) – stakeholders impacted by new infrastructure projects
- **Winner of the ‘Best Return on Customer Service Investment Award’** for our Social Return on Investment (SROI) tool at the 2021 UK Customer Satisfaction Awards.

Stakeholder Engagement Strategy

We first implemented a dedicated Stakeholder Engagement Strategy in 2013 and since then have made significant changes, through improvements and a desire to continuously evolve. Our strategy is driven by our CEO and Executive Team, supported by the Central Stakeholder Engagement Team and embedded across our entire organisation. It shows our commitment to the AccountAbility AA1000 principles for stakeholder engagement and is composed of four key parts:

1. Mission Statement
2. Principles
3. Approach
4. Supporting tools and processes

Our five principles then drive our engagement efforts and underpin delivery of our mission statement – **Inclusive, Authentic, Tailored, Innovative and Value for Money**. These principles are derived from how we currently operate and how we want to operate in the future, allowing us to be responsive to stakeholder needs and look to better our approach.

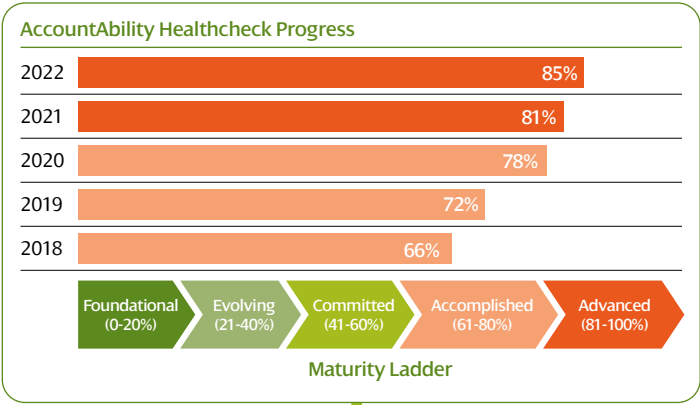
External accreditation on our strategy

To ensure our strategy continues to be fit for purpose, we enlist AccountAbility to conduct a full health check audit of our engagement strategy and processes. The standard is an internationally accepted, principles-based framework and guidance, designed to enable organisations to respond to stakeholders in a comprehensive and balanced way to material issues, impacts, and opportunities.

The audit takes form of a quantitative assessment to inform our decision making and drive improvements in stakeholder engagement performance – identifying strengths and gaps of engagement practices. Last year, we created a set of over **70 robust actions** as a result of each recommendation derived through our annual audit. The resulting impact has continued to drive our programme of continual improvement in stakeholder engagement to deliver quality engagement across our entire business.

This year, we’re extremely proud to remain one of the top scoring utilities for our AccountAbility health check, with a score of **85%**, a **19% improvement** since our first health check in 2018. We’re not only one of the top scoring utilities for stakeholder engagement, but one of the **top 10% of companies assessed globally**, spanning multiple industries.

This enhanced performance and continuous improvement has allowed us to remain in the highest phase of the maturity ladder, demonstrating our strong commitment to stakeholder engagement and our efforts to embed engagement into our organisational strategy, governance and operations.



Our focus areas in 2021/22

Our network is changing rapidly as are our stakeholders needs and preferences. We understand that our stakeholders have their own path to Net Zero and we may be a key part to enable their transition.

We have ambitious plans for our business, encompassed by a clear strategy that has been shaped by the priorities of our customers and stakeholders. These priorities have been aligned to three strategic anchors, which provide a consistent focus to our business and enable us to deliver our ambitious agenda. To support this framework, we have a future vision for our business which articulates the role we must play in delivering Net Zero.

Develop a safe, secure and resilient network that's ready for Net Zero

- Recognise the fundamental role we will play in delivery Net Zero
- Invest to maintain a safe, secure and resilient network
- Facilitate the transition from reliance on fossil towards more sustainable energy
- Connect more renewable energy sources and support the infrastructure required for a whole systems approach to support the decarbonisation of transport, heat, energy and industry.

Be a trusted partner for our customers, communities and stakeholders

- Position our customers, communities and stakeholders at the heart of our decision-making on the journey to Net Zero
- Ensure our work improves lives, creates jobs and protects the most vulnerable
- Ensure our journey to Net Zero enables a just transition and nobody is left behind
- Support communities to realise their own Net Zero ambitions.

Innovate to ready our business for a digital and sustainable future

- Embrace smarter solutions by deploying new technologies, processes and ways to share data
- Operate in a more digital and data-driven word
- Adapt our network to meet emerging threats head on
- Create jobs, upskill our people and strengthen our supply chain as we collectively challenge ourselves to do more with less
- Be ambitious in our journey towards becoming a Net Zero business, putting sustainability first.

Keeping our stakeholders informed through Community Consultations

With the RII0-T2 period delivering in excess of £2 billion pounds of investment in the transmission network, our relationship with stakeholders has never been more important. A key part of this process is engaging with local communities about the changes and modernisation of the network we are proposing, to ensure we stay on track to achieve Net Zero.

Our Planning Team have been involved in community consultations around three major projects in development. These consultation events allow communities along with other bodies and organisations to comment on future proposals. Two of the projects involved are located in Dumfries and Galloway and involve a sizeable extension to Glenglass Substation and the connection of Dear Wind Farm into Moffat Substation. The third consultation project is an extension to Eccles Substation in the Borders, which is forecast to cost in excess of £90 million pounds when it is delivered. Making local communities and other interested parties aware of proposals and engaging throughout to keep them updated and informed in advance, is a key part of our approach to successfully delivering projects.

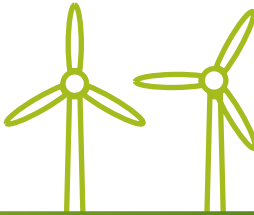
Enhancing the environment for local communities

Caring for the environment and supporting local communities are two central pillars here at SP Energy Networks – so it’s great when our activities bring the two together. The Beauly Denny mitigation projects are nearing an end, and as part of this process we recently completed a foot/cycle path between Cowie near to Stirling and the A905 between Throsk and Fallin for the local community to benefit from. We engaged extensively with the community and were made aware there was no continuous footpath or safe cycle lane for the local community to use. The link, between Throsk and Fallin, was suggested by the community when consultation took place in relation to the mitigation packages and residents are now delighted with the outcome - being able to travel in safety between the villages. As part of this we planted 10,000 shrubs along the side of the pathway – these shrubs, just like trees, are great for the environment and will help remove excess carbon for decades to come.

At the heart of Net Zero – supporting many key partners in achieving carbon neutral goals within their organisations

Network Rail are moving at pace in the electrification programme on the rail network and working closely with us as we help facilitate this ongoing transition.

We have several projects across central and southern Scotland including Elderslie, Innerwick, Currie and Tweedbank which will provide additional capacity to Network Rail. When complete, these projects will play a considerable part in supporting Networks Rail's Net Zero targets. We are proud of the part we play in the nations move to Net Zero and a more sustainable environment for us all.



Innovation

Innovation is part of our organisational DNA. We continue to develop a strong innovation culture within our business in order to maintain a leading position.

Our Transmission innovation project portfolio continues to be shaped by on-going internal and external stakeholder engagement, with a view to maintaining a balanced portfolio that addresses both immediate issues and those anticipated in future years.

Digital Substation

The initiative to roll-out digital substations for sites across our network follows on from the success of the NIC Project FITNESS (Future Intelligent Transmission Network Substation) in RIIO-T1.

A working group with a mix of expertise from across our business is now developing a business-as-usual solution to be implemented and tested at our first fully digital substation in 2024. We are working closely with a variety of manufacturers to ensure that the best products are implemented in a way that maintains our design standards and makes the most of currently available technology.

To do this requires a major development of skills within the teams who design, operate, and maintain these systems, putting them at the leading edge of this technological roll-out, discussing findings and ideas with utilities around the world to establish best practice for this approach to substation monitoring, protection, automation, and control.

The digital substation solution will be one that involves ongoing innovation, as these technologies and practices continue to evolve and will encompass fundamental changes to these systems throughout their entire service life.

The first Digital substation to be implemented will be at Windyhill 275kV substation which is located to the west of Glasgow and plays a vital role in the transfer of electricity across the west of Scotland.

Testing will begin early next year, as we look to realise savings around the installation time and maintenance and utilise the additional information that the systems can provide us with.

The work we are doing has been showcased at multiple global conferences this year and recognised by industry peers and technical experts as leading edge, with SPEN being the first utility worldwide to deploy a fully interoperable IEC61850 control system.



Comparison of conventionally wired panel (West Coast Operational Intertrip Controller Panel at STHA4 on left vs ASACS Controller panel at STHA4 on right).

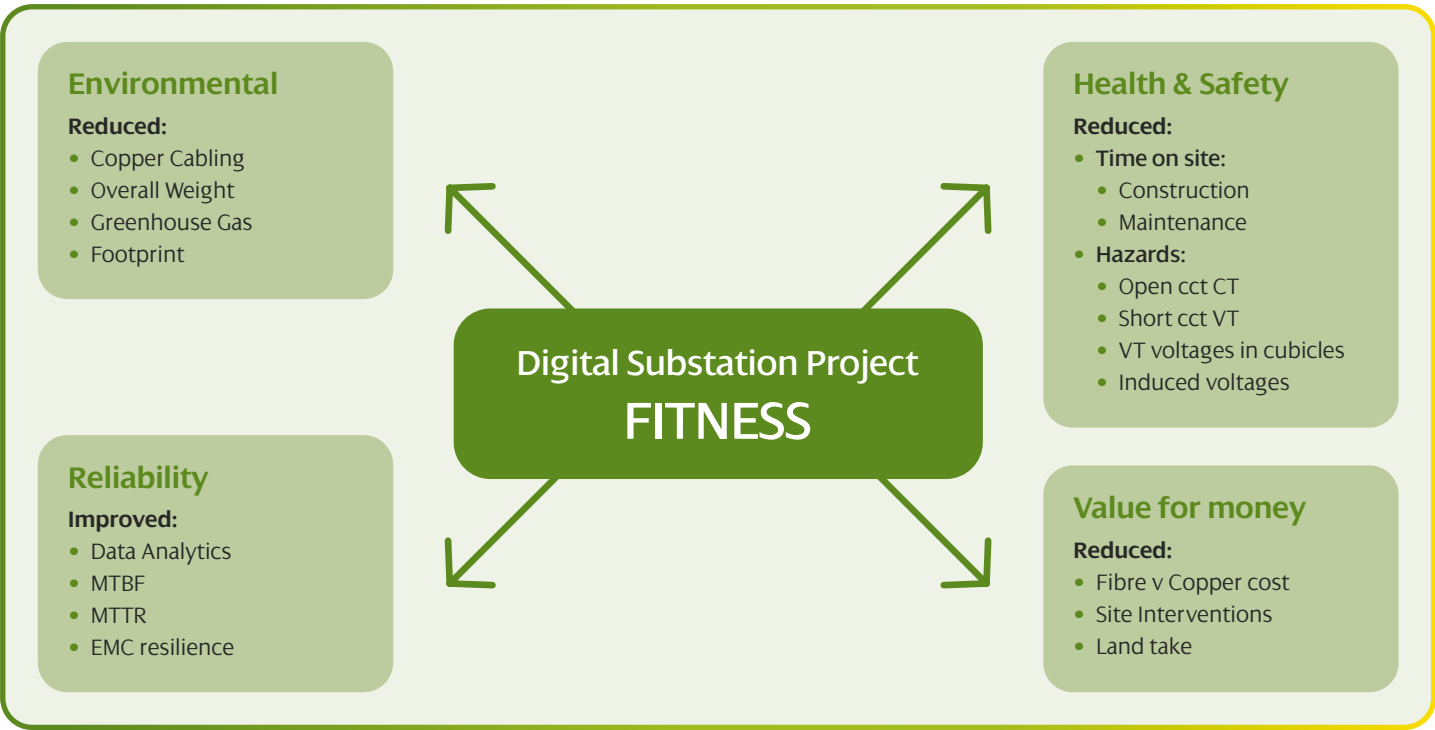


Windyhill Substation is situated in West Dunbartonshire to the north of Glasgow and is a key hub in central and southern Scotland's transmission network infrastructure.

Benefits

The roll out of Digital Substations has many benefits, one of which is the reduction in the number of copper cables within a substation to transport communications between electrical equipment. This reduces the trenching, clearances, and insulation requirements of the substation. The use of optical fibres reduces the number of substation cubicles, as fewer cables require connection within panels. In addition, digital equivalents of current and voltage instrument transformers are inherently safer so clearances to other equipment is reduced. Put simply we will be substituting large amounts of copper cable with a much reduced volume of which will be more reliable and better for the environment.

A fully digitalised substation will reduce the amount of equipment required which in turn allows us to shrink the overall substation footprint. Overall, the digital substation infrastructure is an estimated 10% smaller than traditional substation designs, resulting in a noteworthy reduction in land requirements and potential biodiversity impact.



Innovation
continued

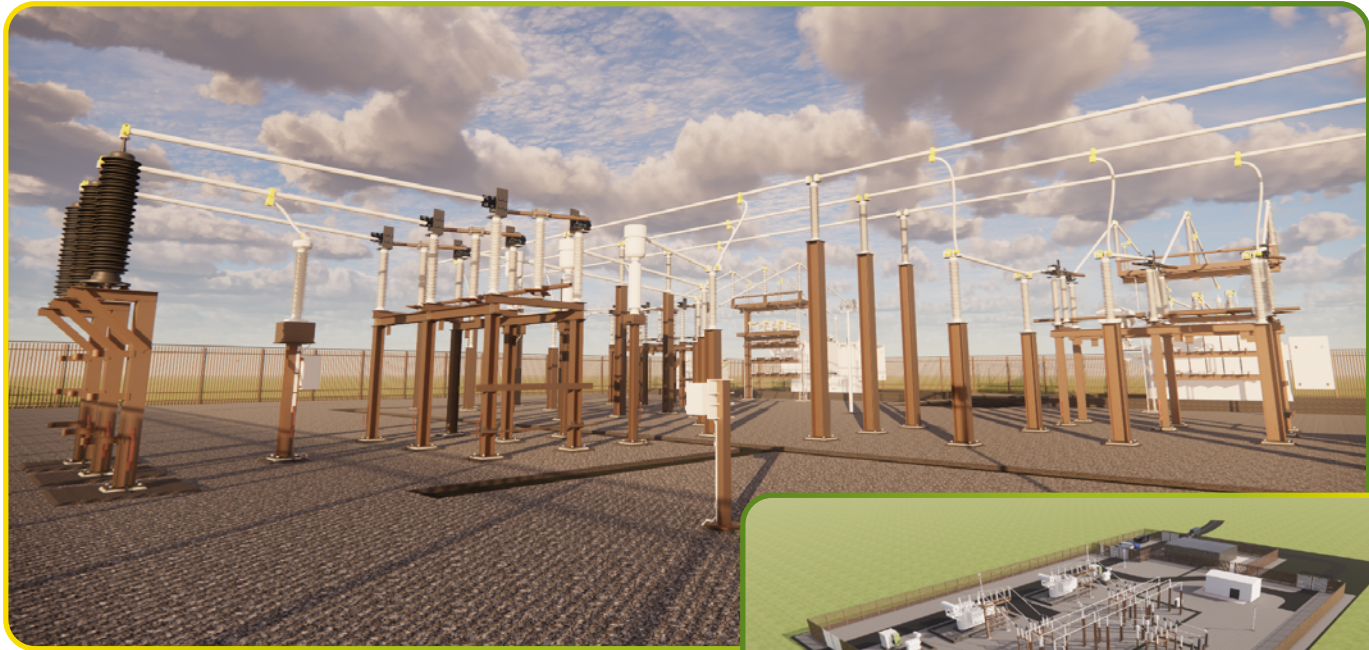
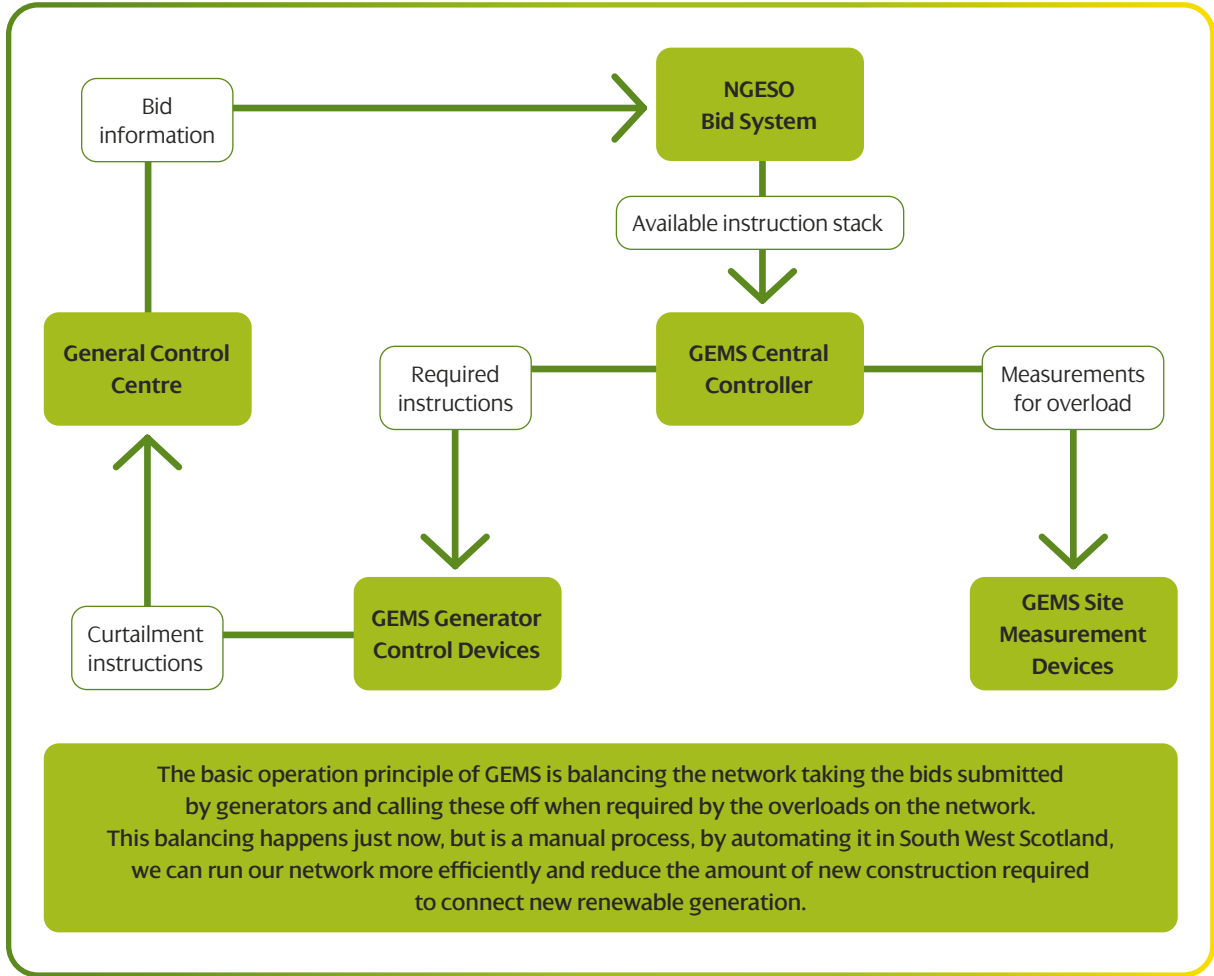
GEMS

Working in collaboration with National Grid ESO (electricity system operator) the **Generation Export Management Scheme** (GEMS) is a project that will help us to drive our transmission assets harder, connect more renewable generation and aid the journey to Net Zero. All while reducing the need for costly investment in physical power lines and substations.

The scheme will measure power flows at several key locations in the Dumfries and Galloway area. As assets begin to get overloaded, the scheme will send instructions to connected generators to reduce their output, reducing the strain on the network. This flexibility means we can offer more connections onto our assets without building new transmission power lines and substations as well as reducing the constraints costs, ultimately reducing the cost to consumers.

This project will be the first deployment of IEC61850 digital substation technology to go beyond the boundary of a single substation and into the wider SPEN network. This brings with it several challenges from cybersecurity to management of the scheme, but the benefits and learning from this project will be immensely valuable for the continued roll out of digital substations.

Our engineers, in collaboration with Siemens, are currently working to create a fully functional design specification. The design is progressing with the aim to have the GEMS scheme energised and ready for connecting the first renewable generator in October 2023.



North Kyle Substation 3D Model Renders.

Building Information Modelling

We are currently implementing **Building Information Modelling** (BIM), adopting, and implementing the ISO 19650 standard for information management in the design and delivery of all new substation projects at the beginning of 2023. Overhead line, cabling and protection and control projects will join the BIM journey at a later date.

The aim of this new approach is to introduce new tools and methodologies in design, construction and asset management that aims to further improve real time project collaboration and efficiency in information management in the full project life cycle.

BIM is “the process of designing, constructing and/or operating a building or infrastructure asset using electronic object-orientated information”. BIM is not just a new 3D software package; it is about sharing information among numerous parties for increased collaboration and hence increased efficiency. BIM is the future of the utility sector.

Building information models are computer files which create and manage information digitally across a project’s life cycle (design, operations and asset management, decommissioning and disposal).

The BIM methodology allows for the introduction of changes and optimisation at the early stages of the project when there is less time and cost impact as a result of the introduction of a change and more opportunities to explore potential efficiencies and value engineering. In comparison with design methodologies used to date, more effort is invested at the early stages of the project resulting in a more efficient management of time and costs of the project along its life cycle.

What benefits will BIM bring?

- The introduction into the business of construction industry benchmark software applications
- Improved project ‘design and build’ team collaboration and workflow efficiency, resulting in time efficiencies and less site-based design changes
- Reduced administration and co-ordination of tasks through workflows driving completion of tasks
- Greater clarity on project supply and installation costs which can then be used to improve cost estimating and forecasting
- Improvements in data accuracy and efficiencies of sharing that data with other SPEN systems
- Build towards our Net Zero Carbon mission

The design of the first two pilot projects at North Kyle windfarm substation and Glenglass GIS substation is well progressed, and another pilot project will follow later in 2022.

Supporting and securing our network

A reliant & resilient network – this year we continued our excellent level of network reliability, with faults on our network resulting in only 0.14MWh of Energy Not Supplied (ENS) to customers. This represents an overall reliability of supply of 99.9999%.

Our Network has evolved over recent years with the introduction of new technology to improve network performance and ensure we keep the lights on for the customers and communities we serve. During the first year of RIIO-T2 we have operated with an excellent level of reliability with our ‘Energy Not Supplied’ measure achieving one of the best years on record.

This can only be achieved by investing timeously to remove high risk assets before they fail and having effective maintenance and inspection programmes, while also moving swiftly to repair defects that occur before they manifest into permanent faults.

We continue to use drone technology to assist with our inspection and assessments for both our substation and overhead line assets. Drone technology has proved very advantageous in providing a close inspection of equipment with the live equipment, avoiding the disruption and cost of outages. Aerial survey by helicopter also continues to play a key part of our inspection plan to intervene in a timely manner for defects or other identifiable issues.



Sustainability and environment

Our environmental responsibilities: ‘The SP Transmission network is a crucial enabler of the UK’s renewable energy objectives.’

We have a responsibility to enable the UK economy’s low carbon transformation and help mitigate the impacts of climate change. While doing this, we must also minimise the environmental impact of our business and network operations, making decisions that meet the needs of current and future network users.

Our environmental responsibilities

Vision and drivers

Our vision is to be a sustainable networks business. We will embed the principles of sustainability in our decision-making by working with our stakeholders to:

- Efficiently manage and develop our network in support of the low carbon transition; and
- Achieve neutral or positive environmental and social impacts.

We aim to be a leader in this area. Our actions to become a sustainable network operator drive our supply chain and support our customers and communities to become more sustainable.

To deliver our vision of a sustainable networks business, we’re focusing on six key areas of activity that will drive big sustainability benefits for all. We call these our Sustainability Drivers.

These Drivers help guide decisions on which activities and projects we take forward. They allow us to connect different activities across the business that contribute to the delivery of our Goals and Objectives, and they help facilitate communication of our activities (see Diagram 1 below).

In line with these key principles, our Strategy is reviewed annually by key internal and external stakeholders, including our Sustainability Stakeholder Working Group made up of key external stakeholders including SEPA, NatureScot, Zero Waste Scotland and the Sustainable Scotland Network.

Strategy development is underpinned by expert advice and benchmarking from sustainability-focused organisations including AccountAbility and Planet Mark. All Directors of SP Transmission and Distribution participate in the Executive Sustainability Steering Group (ESSG). The ESSG conduct a comprehensive annual review of the Strategy to ensure our goals remain in line with policy developments and are ambitious enough to demonstrate leadership.

2021 Sustainable Business Strategy Updates

As our Strategy covers both our Transmission and Distribution licenses, our Executive Team made the decision to delay the 2021 update of the strategy document to enable further engagement workshops and the development of the distribution Business Plan to influence it further.

In 2021, the following updates were made to align the Strategy with our RIIO-ED2 Business Plan, which was developed via extensive engagement with stakeholders:

- Opportunities and Challenges section updated with policy changes published in the last 18 months since the 2020 Strategy review. Previous content has been transferred into Appendix 1 to maintain a log of all impacting policies.
- Our Sustainability Maturity Matrices have been updated to show level of maturity now (2021) and in the future (five-year horizon to 2026 – the end of T2 and the mid-point of ED2).
- Our Sustainability Goals table has been updated to include our new and updated RIIO-T2 targets.
- The Carbon Footprint and Waste graphs have been updated to reflect recent performance and revised targets as appropriate.
- The Sustainability Governance Structure has been updated to reflect changes in the SPEN organisational structure.
- Relevant text has been updated to refer to our Science-Based Targets and our other new carbon targets.
- The ESSG and SSWG Terms of Reference have been updated to reflect changes in membership.

Diagram 1 – Our Sustainability Drivers



Sustainable Society



Carbon and Energy Reduction



Climate Change Resilience



Water Efficiency and Protection



Land and Biodiversity Improvement



Sustainable Resource Use

Sustainability and environment

continued

Our Business Carbon Footprint

We mitigate climate change most significantly through our actions to connect low carbon generation for societal decarbonisation. But while we do this, we must reduce the carbon footprint of our business and operations and ensure that our network is climate-change resilient.

Performance – business carbon footprint (excluding losses)

Overview

Our Scopes 1 and 2 Business Carbon Footprint tCO₂e (excluding losses) in 2021/22 is 14,425 tCO₂e, this is a reduction of 4,871 tCO₂e during the scheme year. Our scope 3 emissions for 2021/22 are 1,531 tCO₂e. Sulphur hexafluoride (SF₆) emissions have reduced by 32% during this scheme year.

Science Based Targets: Recognising the importance of our ongoing leadership and ambition, we have publicly committed to reducing our carbon footprint in line with the trajectory required for a 1.5°C future, by setting validated Science-Based Targets.



Depot and substation energy use: This year is our second full reporting year on the Green Source tariff. 1,173 tCO₂e for 2020/21 (the first full year on the Green Source Tariff) and in 21/22 they have increased to 1,644 tCO₂e, under the 2021/22 target set in the Business Plan of 1,693 tCO₂e.

Operational transport: Our emissions from fleet vehicles has increased from 452 tCO₂e in 2020/21 to 518 tCO₂e in 2021/22. However, non-essential journeys in Operational Fleet Vehicles would have diminished with necessary Covid-measures introduced and the increase is likely due to the easing of travel restrictions over the course of 2021/22.

Business transport: Transmission business travel has increased from 308 tCO₂e in 2020/21 to 369 tCO₂e in 2021/22. This is directly attributable to the easing of travel restrictions over the course of 2021/22.

Fugitive emissions: Whilst the underlying trend is downwards, SF₆ emissions are volatile on a year-to-year basis, being significantly influenced by any considerable failure or leakage from the large assets on the Transmission network. During scheme year 2021/22 our SF₆ emissions decreased from 775kg (17,672 tCO₂e) in 2020/21 to 530kg (12,085 tCO₂e). Additionally, in 2021/22 we have included calculations of tCO₂e emissions from F gas losses from our HVAC systems in our depots and offices. For 2021/22, our SPT F Gas emissions were equal to 170 tCO₂e.

Sulphur hexafluoride (SF₆)

As SF₆ is the most significant contributor to our carbon footprint (excluding losses) we continue to prioritise SF₆ leakage reduction and drive alternatives via our supply chain.

In 2021/22, Insulation and Interrupting Gas (IIG) leakage was equivalent to 12,254 tCO₂e. This is the largest contributor to our business carbon footprint (c.77%). IIG emissions were dominated by SF₆ leakage, which has a very high global warming potential (23,500 times higher than carbon dioxide equivalent). Total emissions from IIG decreased by 31% relative to the previous reporting year.

Annual emissions can be influenced by numerous factors, such as significant faults or leaks from assets on the Transmission Network. Overall, the SPT IIG leakage rate for regulatory period 2021/2022 was 0.45%. A large part of this can be attributed to our SF₆ repair plan included within our RIIO-T2 settlement. The repair plan was derived from thorough analysis of our SF₆ filled equipment with a wide range of interventions considered to ensure any leaking assets were either fully refurbished or, if this cannot be achieved, replaced.

Several interventions have been completed throughout the year resulting in a low leakage rate and an emissions reduction. It is our expectation that emissions will reduce further in the coming years as we progress through the repair plan.

We have stated in our RIIO-T2 business plan, to mitigate the environmental impact of our SF₆ emissions, we will only use SF₆ where alternative IIGs are not viable. This currently means all our 132kV projects will be specified SF₆-free and where we have GIS installations at 275kV & 400kV, the GIB associated with these sites may be SF₆-free where viable. Currently, the SF₆ free solutions offered by our main switchgear suppliers vary in gas composition which comes with its own challenges. The Global Warming Potential (GWP) for all solutions are notably lower than SF₆ ensuring a future reduction in SPT emissions. Moreover, we are actively in discussion with suppliers to adopt other SF₆-free assets as the technology emerges.

Sulphur hexafluoride (SF₆) continued

We have established the SP Transmission SF₆ working group, bringing together our internal expertise to drive forward both SF₆ alternatives and reduce leakage. We are also collaborating with the other Transmission Operators to identify areas of challenge, where we can work together to identify and implement solutions.

The role of this working group has grown within SPEN performing bi-monthly reviews of SF₆ related issues ensuring any leaks are appropriately remedied without undue delay, engaging with SPD and SPM on best working practices and maintaining our RIIO-T2 commitments stated in our T2 Environmental Action Plan.

Innovation: We have been reviewing a variety of improvement initiatives across our SF₆ assets, this included identifying equipment that can provide the same functionality without being filled with SF₆ e.g. The Siemens Clean Air CB (3AV1) which after previous successful trials was installed at a number of our sites last year, reducing our SF₆ footprint at these sites and minimising any future environmental impact.

We also trialled a system of encapsulation of the area of an SF₆ leak on an asset using an epoxy resin and flange kit to reduce leakage. This was partially successful and we will continue to develop the technique with the provider where opportunities indicate this may be a viable option.



Kilwinning and Meadowhead Circuit Breaker changes, removing aging SF₆ Assets and installing new Clean Air CB's from Siemens.

Sustainable Resource Use

As a sustainable network business, we need to embed sustainability across everything we do, from the goods and services we procure to the design and delivery of projects and operations, considering impacts along the value chain with a cradle-to-cradle approach to sustainable procurement and resource management.

In 2021/22 we carried out a gap analysis against BS8001 Circular Economy standard to create a circular economy action plan to target activity. We started delivering on the initial phases Including framing and scoping, baselining material use, waste, and current circular practice, this will be completed in 2022/23.

We commenced idea generation and feasibility, with a focus on electrical assets through the Asset Reuse and Recovery Collaboration (ARRC). The action plan outlines high level future activity to the end of 2024, including building the business case for circularity, piloting and prototyping, delivery and continuous and transformational improvement.

The most significant success in sustainable resource use in the reporting year was exceeding our target of 95% waste diverted from landfill by 2023, in 2021/22 we diverted 97.9% of transmission waste. This was due to several factors:

- More stretching requirements built into procurement contracts
- Better reporting through Smartwaste
- Prioritising and promoting the waste hierarchy, resulting in a significant proportion of waste moving up the hierarch from landfill to recycling and reuse
- Due to volume, diversion of soils from landfill was a key focus, recognising the importance of prioritising the waste hierarchy at the design stage to minimise soil excavation and identify early opportunities to reuse on and off site.

Supply Chain Sustainability

This year, we further enhanced our standard contract terms, pre-qualification questionnaires and specifications, obligating our suppliers and contractors to meet high environmental management standards. This drives sustainability from the very outset of new contracts, highlighting our expectations of suppliers, which will ultimately aid our journey to Net Zero.

During 2021/22 we have worked with other network companies to create a joint approach to supply chain Key Performance Indicators (KPIs). As a group we have developed common performance metrics, with the purpose to improve reporting for our suppliers and contractors. These performance metrics are currently being included within our T2 contract documents, with suppliers required to submit data through our data reporting tool SmartWaste.



Sustainability and environment continued

Biodiversity

During the first year of the price control period, we have been reviewing processes and developing our approach, following the biodiversity mitigation hierarchy, and analysing data to ensure that our spend and strategy is efficient. We have created our internal Biodiversity Working Group to lead the strategic implementation of our biodiversity plans. This group has identified the sites that are to be considered for Biodiversity No Net Loss and has driven the piloting of tools and worked with external consultants to identify methodologies for baselining our biodiversity and natural capital to allow a better understanding of our position.

We are working with NatureScot through the Scottish Linear Infrastructure group, where we are part of a collaboration to develop a standardised Scottish biodiversity tool. In 2021, as part of our work with the joint Transmission Owners (TOs) Natural Capital Working Group an analysis of a range of natural capital assessment tools has been carried out and are currently in the testing phase of a tool which will provide both baseline assessment and project optioneering.



Performance dashboard



Driving Decarbonisation

186MW of renewable generation connected to our network since April 2021.	£2.8m invested in ongoing innovation activities supporting decarbonisation and environmental protection.	68.86 average number of days to develop a connections offer against 72 day target.	34% increase in connections applications from 2020-21.
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Mitigating Climate Change

22% Business Carbon Footprint, excluding network losses, decreased by 22% since 2013-14.	26% Business Carbon Footprint, excluding network losses, decreased by 26% this year.	 PlanetMark 6 years PlanetMark external verification certificate for 6 years in a row.	 SCIENCE BASED TARGETS DRIVING AMBITIOUS CORPORATE CLIMATE ACTION 1.5°C Our Science Based Targets have been validated by the SBTi. We have publicly committed to reducing our carbon footprint in line with the trajectory required for a 1.5°C future, by setting validated Science-Based Targets.
18% Business Carbon Footprint, including losses, reduced by 18% this year.	32% SF ₆ carbon emissions decreased by 32% this year.		

Enhancing the Natural Environment

 Full ISO 14001 Environmental Management Certification.	Zero environmental regulatory interventions in 2020/21.
 Partnership development of natural capital assessment tools.	

Sustainable Resource Use

 Partner member of the Supply Chain Sustainability School.	97% landfill avoided.
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Sustainable Society

8.1/10 Infrastructure Stakeholder Engagement Survey satisfaction is 8.1/10.	16.33% gender pay gap for SP Transmission in 2021.	 GoSupply supplier engagement platform implemented.
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A safe network

The Health, Safety and Wellbeing of our customers, our employees, our supply chain and the public, continues to be our number one priority.

We are committed to ensuring that our infrastructure is safe, and that all our operational activities safeguard the health, safety and wellbeing of every person who interacts with our assets or activities.

Our vision is to deliver the highest standards of Health, Safety, and Wellbeing performance, where no injury, or ill health is realised, because of our activities.

Our Staff and Contractor Safety

We monitor performance using Total Recordable Injury Rate (TRIR). This defines significant injury levels as a factor of hours worked (injuries per 200,000 hours). We achieved a combined Staff and Contractor TRIR in 2021/22 of 0.39.

Based on the 2021/22 performance data, we have focussed on several proactive initiatives to progress our existing Health, Safety and Wellbeing performance, as well as enhancing our Health, Safety and Wellbeing culture



We are committed to continually monitoring, reviewing, and improving our performance through the application of our Health and Safety Management System, which is accredited and verified to ISO 45001: 2018, international standard.

These include:

- The continuation of the return to work 'Soft Start' initiative in 2022. First introduced in 2021 the "Soft Start" was continued in January 2022, on the commencement of work following the festive holiday period. Soft start is a phased and controlled return to work over the course of January, which limits hazardous exposures and places emphasis on health, safety, and wellbeing engagements.
- Contractor HSEQ Forums facilitated remotely over MS Teams. The 2022 forum discussed "Organisational Memory" which focussed on learning from previous experiences and sharing best practice.
- SPEN participated and contributed to Energy Network Association initiatives which produced and published industry guidance on workplace fatigue and plant and vehicle safety within the energy sector environment.
- As part of our behavioural safety approach to enhancing our Health, Safety and Wellbeing culture, several long term initiatives were established in 2021. Training on Situational Awareness, Behavioural Health and Safety Visits, and our existing S.L.A.M. (Stop, Look, Assess and Manage) initiative have been developed and will be provided on an ongoing basis.

Mental Health

The Government and the NHS have acknowledged that the pandemic has had a significant impact on the nations Mental Health. We continue to have a proactive approach to mental health and our Occupational Health Department offer a wide range of internal and external support services for staff. We have recruited a wellbeing advisor who will enhance existing services by providing advice to staff and People Managers. Advanced training for Managers has been piloted and will become a requirement for managerial roles.

Public Safety

We can again report that there have been zero public safety injuries as a result of interaction or from our operations.

In addition to the physical measures we take to protect the public from electricity, for example secure compounds, safety distances and signage, extensive inspection, and maintenance programmes, we also strive to raise electrical safety awareness with the public via several campaigns and initiatives including safety forums with the emergency services. We have had zero public safety issues as a result of our Transmission network.

We attended several agricultural shows and have utilised social media channels as well as media channels to reach different audience groups such as the agricultural industry, construction industry and general members of the public as well as promoting safety for children as part of our ongoing safety campaigns.

We supported, and continue to support, three safety centres where our key safety messages are presented to children through substation and overhead powerline interactive props and presentations.

Our Powerwise website has continually been promoted to schools and parents. This is a curriculum-linked teaching resource to inform young people about the dangers of electricity and provides free, interactive resources.

We have also worked with the emergency services providing them with awareness presentations, as well as offering support to them when any incidents have occurred.

Various communication campaigns have been delivered throughout the year and significant work was done in conjunction with the ENA for the production and promotion of consistent energy and utility safety messages.



Whole System

Our priorities this year have been the stakeholder led development of our Business Plan and the Whole System Register, whilst continuing to engage with various stakeholders and organisations to lead on the understanding of how Whole System thinking can provide real societal benefit and outcomes.

SP Energy Networks, as a principal sponsor and contributor, also contributed to the success of the largest Whole System event of the last year, COP26 in Glasgow.

We are engaged with the Energy Systems Catapult, who will act as both an objective assessor of our Whole System approach and challenge us on both our thinking and implementation of the plans that are detailed in the ED2 Business Plan.

Here at SP Transmission we played a key part in supporting our sister DNO's ambitious RIIO ED2 Business Plan. The plan keeps their customers at the heart of their decision making, and they believe strikes a fair balance between the investment costs required and the need for a just transition to Net Zero. Their stakeholder sessions assisted in the development of their mission statement for Whole System. Their mission is to unlock the full value of whole system thinking by collaborating not only with other electricity companies, but also key stakeholders including gas and water networks, innovators, network users, non-regulated companies, local areas, and communities. This is to ensure efficient investment in the electricity network and to achieve a just transition to Net Zero.

As demand for LCTs continues to increase, and consequently the load requirement on the distribution network, collaboration with other DNOs and external partners (such as Councils and Universities) is a demonstration of their Whole System thinking and will be pivotal to successful delivery of future Whole System solutions and outcomes.

The lessons from Project FUSION, set to culminate in December 2023, will be communicated with all parties and stakeholders, and will inform future projects as we enter RIIO-ED2. FUSION will enable a Whole System approach to network flexibility and further facilitate both the use of renewable sources of energy, and the uptake of LCTs.

Whole System Register

Our Whole System Register is available for viewing on a dedicated web page, accessible with the following link: [Our Whole System Strategy – SP Energy Networks](#)

We believe Whole System registers should be multi-party, collaborative and real time – in recognition that development element of this needs to be evolutionary. Collaboration is driven by signalling the input section we have developed for stakeholders to get involved and shape the direction of this strategy.



Net Zero Fund

Building on the success of the Green Economy Fund, the Transmission Net Zero Fund aims to support areas which are expected to be key to unlocking Net Zero across our Transmission network in Central and Southern Scotland.

As part of our T2 commitment, we have worked closely with our communities to develop the Transmission Net Zero Fund which will help ensure vulnerable communities, who are facing barriers in taking part in the Net Zero transition, aren't left behind on Scotland's journey to achieving Net Zero emissions by 2045.

The fund will provide guidance and support to community organisations, charities and other not-for-profit organisations to improve and decarbonise heating systems, electrify transport, increase energy efficiency, and upskill communities.

Working with Energy Saving Trust, the fund will initially deliver tailored community workshops and general knowledge-sharing sessions to help communities develop their Net Zero ideas and plans. Following these sessions, the fund will focus on helping eligible community organisations develop their Net Zero aspirations and plans into tangible projects.

Supporting community plans and projects to deliver Net Zero
Net Zero means we need to decarbonise buildings, electrify transport and rethink how we power and heat our homes. We want to enable our communities' decarbonisation plans and a just transition for all, so this fund will help them develop robust routes to achieving Net Zero which will deliver tangible social, environmental and economic benefits.

Vicky Kelsall
Chief Executive of SP Energy Networks

"The race to Net Zero is speeding up and we're here to help communities take action now. On the road to achieving Net Zero in Scotland by 2045, we need to see significant changes by 2030 which means towns and cities across Scotland will need to reduce carbon emissions across heating and transport while investing in energy efficiency and knowledge building.

"The Net Zero Fund will support vulnerable communities to make proactive change to reduce their impact on the environment. It will focus on areas that are often overlooked but have the potential to unlock Net Zero and deliver tangible social, environmental and economic benefits."

The Fund will operate in three phases:

- 1. Knowledge sharing:** Tailored community workshops will be open to eligible community organisations – these sessions will be tailored to the needs and plans of a specific community.
- 2. Developing community plans:** The fund will support feasibility studies for eligible proposals to gather data, develop project plans and assess viability.
- 3. Supporting community projects:** Eligible organisations with projects that meet Net Zero Fund criteria will be able to apply for funding support. Applicants will be supported with guidance during the application process. Applications will be assessed, and funding provided to successful applicants, with projects monitored thereafter to completion.

All community plans and projects supported through the fund must:

- Demonstrate a strong link to the energy sector
- Focus on Net Zero measures which principally save carbon and provide cost reductions
- Support consumers and communities in vulnerable situations. Please see our definition of vulnerability [here](#)
- Deliver social benefits for the communities they serve. Please see our definition of social return on investment [here](#).

The fund is currently looking for eligible charities and community organisations to **express their interest** in receiving tailored support to develop their Net Zero plans and project ideas. More information about the Net Zero Fund and eligibility criteria is available at: https://www.spenergynetworks.co.uk/pages/the_net_zero_fund_t2.aspx



Customer Satisfaction

Our customers are extremely important to us, they are at the heart of everything we do – they have every right to expect a good experience when they interact with us – and it is essential for us to maintain an open dialogue and continue to measure what is important to them.

As part of our [RIIO-T2 Business Plan](#) we are committed to delivering for our customers and improving the quality of service as measured through the Quality of Connections survey, more commonly known as the ‘Moments that Matter’.

We have now completed the first year of the regulatory incentive mechanism that measures customer satisfaction at key stages throughout our Connections process, both for customers wanting to connect to the Transmission network, those in the process of connecting to the network and those that are connected to the network.

The mechanism offers a penalty/reward incentive based on those customers rating us out of 10 on their satisfaction of the level of service we provide to them. For the first year our customers rated us at 8.3, against a benchmark of 7.7. This was a positive start, and our score was the highest when compared with the other Transmission Operators who also take part in the survey.

By listening to and understanding what is important, we can improve the quality of service delivered to all of our customers.

	2021/22 Submitted for survey	2021/22 Customers surveyed	2021/22 Participation rate	2021/22 Score
MTM 1 Pre application Engagement	79	49	62%	8.55
MTM 2 Application Process & Offer	72	14	22%	6.64
MTM 3 Development Phase	59	16	71%	7.38
MTM 4 Delivery Phase	14	6	100%	8.00
MTM 5 Outage Management	38	29	76%	9.00
MTM 6 Connected Customer Review	14	9	64%	9.11
Total	276	123	45%	8.30

MTM survey score 10/10
Connection customer 2021/22

“A potential issue had been identified with the project and a call was organised across all key parties (inc. SP Transmission and SP Distribution). It was great to get everyone round the table and talk things through, and the meeting had a really positive outcome in that we managed to get to where we wanted to be.”

MTM survey score 7/10
Connection customer 2021/22

“Better communication required from all parties, have better channels of communication.”



Expenditure and Outputs



Load related expenditure and outputs

Changing network requirements

Our plans for the transmission network need to be dynamic to account for the changing landscape of electricity generation and demand. We continue to see a significant increase in generation connecting to the transmission network across Scotland as well as a growth in energy storage. This requires additional points of connection onto the system, and also reinforcements to ensure the network has sufficient capacity to transmit the power to where it is being consumed. This is called Load related activity.

Long term and whole system planning are critical to ensuring the network can meet the requirements of users, but this is subject to change as a result of the impact of government policy, changing requirements from generation customers and challenges we face to secure access to land for constructing new assets.

Delivering for our customers

In 2021/22 we successfully connected four new renewable generation customers, all onshore wind, with a combined total of 186MW of additional generation connection. Additionally, 315MVA of capacity from reinforcement was added through three schemes.

Investment of £51m on Load related projects was made in this period. £44m of this expenditure was on projects identified in the RIIO-T2 Business Plan with the remainder on additional projects that were uncertain at the time of the Business Plan being completed.

In year 1 of RIIO-T2 we have seen several factors impacting the delivery of our business plan in the Load Related area. The evolving landscape for generation connections has been the largest factor for the difference between the baseline plan in year 1 and the actual spend. All baseline generation connection schemes in T2 were onshore windfarms and with the changes to the CfD regime amongst other factors we have seen impacts on reinforcements triggered by connections, which has led to a number of reinforcements being delayed until such time as the generation is ready to be connected.

In the last year we received 118 connection applications, all of which contracted with SPT for connection. This level of application is 6% higher than in the previous year.



Kincardine substation Flood Defence.

Working with stakeholders to secure access

Another major factor has been the delays due to the planning process. For all major projects, Section 37 consent is required from Scottish Government as well as securing land access through either voluntary agreement with landowners or the deployment of statutory powers. Unlike England and Wales, the Scottish planning process has no defined timescales which can lead to protracted processes compared to those forecast when projects are initially designed.

The most notable impact of this nature in the SPT plan is associated with the upgrades for the Kendoon-Tongland Reinforcement which comprises of three reinforcement projects but impacts around twenty other projects that are dependent on its completion. This project is now subject to a Public Inquiry which is scheduled to take place in October and November 2022 with a final decision from Scottish Government not expected until late Q1/Q2 2023. Very limited works can progress and all connections subject to this reinforcement are delayed as a result. The consequential impact is much greater. Whilst this is currently the most material example, a number of other projects are affected by difficulties in securing land access as well as the planning process.

We have and continue to work closely with the Scottish Government on their planning framework to look at how this process can be improved to better facilitate upgrades to electricity infrastructure.

Adapting our plans

Most transmission projects take a number of years to develop and construct before they can be commissioned. Good progress was made on a range of projects in year 1 including the strategic reinforcements which are vital for the operability of the main interconnected transmission system. For some of these, the cost profile in the T2 period has changed from what was initially forecast in the business plan. Since the business plan was submitted, we have continued to develop projects and engage with the supply chain. The supply chain which we rely on for equipment, materials as well as services is seeing pressures on materials and resources. There is an increase in electrical infrastructure activity globally which allied to pandemic impacts and the Ukrainian conflict is giving rise to longer lead times for equipment, for example the lead times for transformers has increased by 25%.

With the recent publication of the Holistic Network Design, further changes and a number of additional strategic reinforcements have been identified which we are in the process of incorporating into our plans. The Holistic Network Design process identified more than £3billion of additional investment that is required in the SPT network area to facilitate the commitments for Net Zero, with particular focus on facilitating the vast amount of offshore wind around Scotland that was successful in the Scotwind auctions earlier in 2022.

Non-load expenditure and outputs

Long term asset stewardship

The assets on our network vary in age and condition. Our experience and expertise are essential for proper asset stewardship, allowing us to adapt our world-class, resilient network for a Net Zero Future.

The management of these assets through their refurbishment or replacement is known as non-load expenditure and outputs.

Over the T2 period, the total non-load expenditure allowance totals £458m. This year expenditure totalled £73.2m for which we have completed c15% of T2 planned outputs which represents good progress to date. This was slightly behind our business plan target due to supply chain constraints and the recruitment process we have been undertaking.

Delivering outputs

Notable outputs in the last year include the completion of the first circuit on the ZA 400kV OHL route major refurbishment and progression on the second circuit is ongoing and expected to complete before the end of 2022. Upon completion, this project is expected to yield over 6% of total T2 outputs target.

Progress has also been made on other OHL major and minor refurbishments. We are seeing significant pressure on the OHL supply chain due to the volume of work in the T2 period and some OHL resources also support Rail Electrification work which is similarly seeing a significant growth due to the ongoing electrification programme across central and southern Scotland. We are continuing to work with OHL contractors to ensure that our programmes of work can be delivered cost effectively over the T2 period.

Progress is also being made on a number of other non-load projects including switchgear, transformer and other asset refurbishment and replacement programmes. This included the completion of three switchgear replacement schemes. We are forecasting progress to continue in year 2 which will take our outputs to over 32%.

Supply chain pressures

Similar to our load programme, we are seeing lead times for equipment extending and increasing costs due to inflation, commodity prices and global demand for electrical goods. This is placing significant pressure on costs and opportunities to improve efficiency are continually being sought. These include refining our contracting models in conjunction with the supply chain and implementation of BIM within our design processes.

To undertake asset refurbishment or replacement, most assets require to be switched out of service. With increasing constraint costs due to energy prices, as well as outages in other parts of the network, we proactively work with the ESO to coordinate our plans. This has led to some projects being re-scheduled to fit in for outages across the T2 period. This is vital to balance the availability of the wider network with the asset risk of individual assets which are requiring intervention.



XF Route.



XP Route.



Other expenditure

Opex

Network Operating Costs for Year 1 of the RIIO-T2 period are £22.34m compared to an allowance of £26.31m. The capex element of the allowance is slightly behind, and we reflect a small underspend associated with flood defence works, however Reactive Capex is slightly over allowance due to a transformer replacement following a fault.

Totex comparison Capex	(2021/22 real £m)	Allowance £m	Actual £m	Variance £m
Baseline – Wider Works (BWW)		40.92	19.58	21.34
Baseline – Other LR Capex		117.38	35.93	81.45
Sub-Total Load Related Capex		158.31	55.51	102.79
Asset Replacement Capex		91.30	87.08	4.22
Other Capex		16.69	5.51	11.18
Non Operational capex		2.94	1.83	1.10
Total Capex		269.24	149.94	119.30

Totex comparison Opex	(2021/22 real £m)	Allowance £m	Actual £m	Variance £m
Faults		4.28	6.07	-1.79
Inspections		2.26	1.63	0.63
Repairs & Maintenance		10.16	7.77	2.39
Vegetation Management		0.44	0.26	0.18
Legal & Safety		6.91	4.56	2.36
Operational IT		2.26	2.05	0.21
Total Controllable Opex		28.81	39.36	10.55

Indirects and other costs	(2021/22 real £m)	Allowance £m	Actual £m	Variance £m
Indirects		57.30	67.06	-9.76
Other		7.82	0.58	7.24
Total		65.12	67.64	-2.53
Totex total		360.67	239.93	120.74



Our revenues

In 2021/2022 we recovered £404.5m. Our revenues are set through regulation by Ofgem. They comprise an element which is fixed, an element which is linked to specified variables (such as the amount of connected generation), and an element to capture incentives and adjustments from previous years.

We recover our revenues through charges to the system operator, National Grid – who, in turn, levies charges on users of the transmission system across GB. Based on our forecast performance, the Operational Return on Regulatory Equity over the full RIIO-T1 period is estimated at 9.4%.

Our revenue allowance – the basics:

An allowance is set by Ofgem.

This is calculated using a formula.

There are various components to the formula.

Some components are fixed, and some depend on variables (such as MW of generation connected).

Some components relate to individual investment schemes, e.g. those listed under Strategic Wider Works.

Performance under the various incentive schemes will affect revenue allowance with a lag of two years.

Differences between what we recover and what we are allowed to recover are adjusted for in subsequent years.

Incentive awards earned in 2020/21 (revenue rec'd in 2022/23)

Smaller incentives earned in 2020/21		(£ thousands)
Quality of connections satisfaction survey	412	
SO-TO Optimisation	432	
Larger incentives earned in 2020/21		(£ thousands)
Reliability	1,450	
Emissions	1,223	



Our RoRE (Return on Regulatory Equity)

Investment into the electricity transmission network is a long-term project, the costs of which are spread out over the lives of assets.

Consistent with the RIIO price control framework Ofgem attached a financial reward/penalty to a number of the incentives. This has the effect of changing our Return on Regulated Equity (RoRE) below.

RoRE is calculated based on values in 18/19 prices and therefore represents an average real equity return over the 5-year price control.

We have followed the Operational RoRE methodology used by Ofgem in their Regulatory Financial Performance Reporting (RFPR) to ensure consistency.

For detailed information about our financial performance, please see the SP Transmission Regulatory Accounts which are published annually, available from https://www.spenergynetworks.co.uk/pages/accounts_information.aspx, and our Regulatory Financial Performance Report, available from https://www.spenergynetworks.co.uk/pages/regulatory_financial_performance_report.aspx

RAV (Regulatory Asset Value)

For every pound that we spend, we collect:

- 15% of the costs in the same year.
- 85% of the costs over the life of the asset, which gets added to the 'Regulated Asset Value' (RAV) balance.

Ofgem assume that we fund this RAV by:

- 55% borrowing – of which the allowance for interest payments are 2.05% in 2021/22.
- 45% equity – on which we receive a return of 4.24% in 2021/22.

The weighted average cost of **funding the RAV is therefore 3.04%** for 2021/22.

At 31st March 2022 **our RAV was £2,800m (21/22 prices)**, up on the prior year at £2,745m (2021/22 prices) due to higher investment on the network going into the RIIO-T2 price control period.

5-year average 2020/21	Return on Regulatory Equity (RoRE). All numbers reflecting Ofgem's National Gearing methodology.
4.25%	Base Return – Set by Ofgem for the 5-year period.
0.08%	Business Plan Incentive – Agreed by Ofgem as part of the price control, and is the reward for the quality of our business plan submission.
0.08%	Totex Efficiency Savings – Any savings we make on our investment plan are shared with the consumer, at this early stage in the price control we are forecasting the cost of delivering our business plan commitments will match what we set out in our business plan submission.
0.09%	Reliability Incentive
0.10%	Emissions Incentive
0.00%	Timely Connections Incentive
0.09%	Quality of Connections Incentive
0.05%	SO-TO Optimisation Incentive
0.00%	Environmental Scorecard Reward
-0.02%	Network Innovation Contributions
4.64%	Return on Regulatory Equity – Operational Performance

Looking forward



Holistic Network Design

Momentum is growing throughout our RIIO-T2 investment programme, which is very important given the scale of growth that is required of our business.

This has been brought into even more focus in the UK ESO’s recently released ‘Holistic Network Design’ (HND) report, which is a fundamental component of the UK Government’s British Energy Security Strategy (BESS).

In July the Electricity System Operator (ESO) published its Holistic Network Design (HND), setting out the strategic vision for the UK’s electricity transmission network, outlining the huge challenge and opportunity, to deliver a network that is ready to facilitate ambitious Scottish and UK offshore wind 2030 targets.

This is a major milestone for both our industry and our business as the solutions proposed in the HND will see us invest over £5bn in transmission projects in South and Central Scotland by 2030, which have all been categorised by the ESO as “required” to deliver 2030 ambitions.

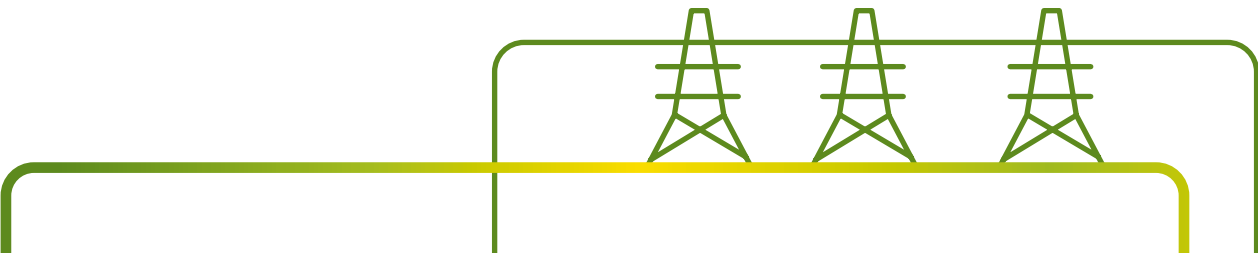
This investment represents the criticality of our business to deliver the UK’s Net Zero targets, which we will deliver through a mixture of projects to upgrade and strengthen the existing network infrastructure and the design and development of new strategic transmission infrastructure.

2030 is not far away. We are working with Government and Ofgem to agree upon ways in which key changes can be made to the regulatory approvals and planning processes to ensure that delivery of this key strategic transmission infrastructure can be accelerated in line with 2030 ambitions.

We fully back the ESO’s ambition to 2030. And as a business, we stand ready to work with Government, Ofgem, the ESO and developers to ensure the vision in this HND can be realised, delivering jobs and economic development to Scotland and the rest of the UK.

This is another big step for us on our journey to a green and independent energy future, as we work at pace to deliver a safe, secure, and resilient network that’s ready for Net Zero.

You can read more about HND here:
[Pathway to 2030 Holistic Network Design](#)





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