

SP Transmission

Annual Performance Report 2022/23





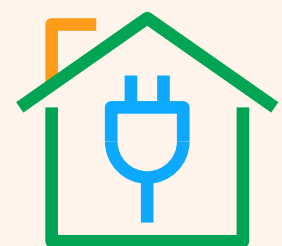
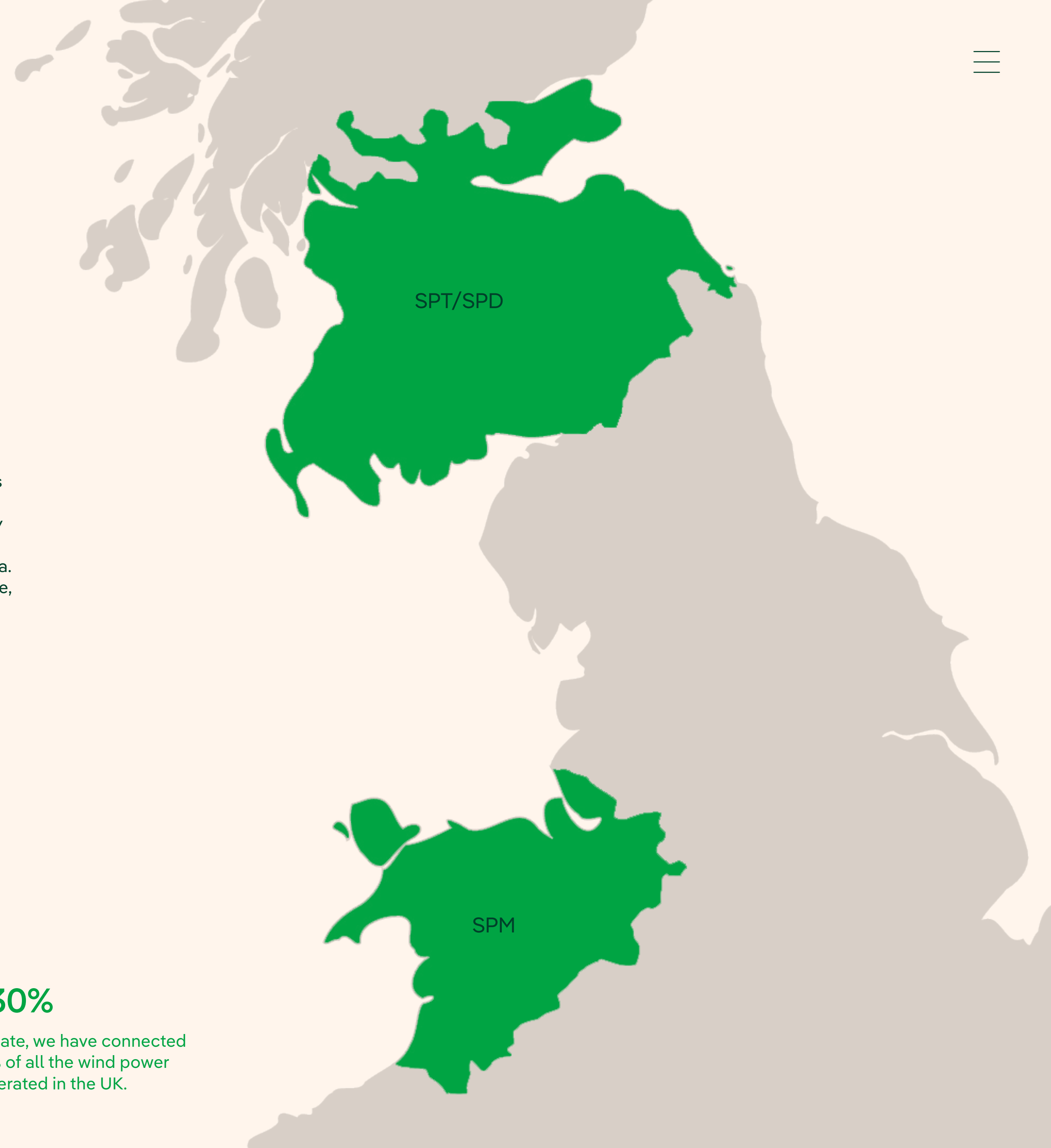
Our business

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 capitalization. Iberdrola will invest €47m during 2023-2025, laying the foundations for sustainable growth over the next decade. The UK makes up 17% of Iberdrola’s global investment portfolio.

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

SPT is the licensed Transmission Owner (TO) for the Central Belt and South of Scotland. We serve 2 million consumers connected via our distribution network and our workforce of 581 internal employees are supported by around 150 major contractors and suppliers. Our transmission network comprises just under 4,500 kilometres of circuits and 160 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 outstanding renewable energy from Scotland into 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.



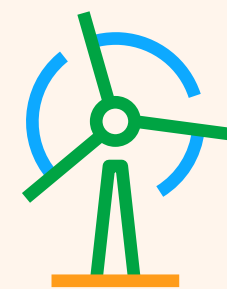
+2 million

Our Distribution network serves 2 million business and domestic customers



c.4,500

Our Transmission network contains just under 4,500km of circuits and 160 substations



≤30%

To date, we have connected 30% of all the wind power generated in the UK.

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Welcome

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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, investing in new infrastructure, connecting new customers, or providing support to our customers when they need us most. Our role is becoming ever more central given the critical part we play in the drive towards Net Zero emissions.

From an environmental perspective, significant progress has been made with our Scopes 1 and 2 Business Carbon Footprint (excluding losses) being 62% lower than our business plan forecast. 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 ensuring that electricity generators and consumers continue to benefit from the outstanding levels of reliability to which they are accustomed.

We have forecast to spend £2.9bn, from 2021-2026, in our Transmission network as part of a demanding investment programme which will deliver 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. We are also seeing a significant increase in the number of Transmission connections being requested from developers with an 85% increase year on year.

Our customers are at the heart of everything we do – they have every right to expect an excellent 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 delivered through the Quality of Connections survey, more commonly known as the ‘Moments that Matter’. For the second year of T2 our customers rated us at 8.23, against a benchmark of 7.7. This was slightly down from last year but still demonstrates a high level of satisfaction from our customers.

As an operator of critical national infrastructure, our priority is to keep the power flowing to our 3.5million customers, in turn keeping them connected to family, friends and work. In 2022/2023, we achieved a reliability level of 99.9999%.



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 ‘Holistic Network Design’ (HND) report, which is a fundamental component of the UK Government’s British Energy Security Strategy (BESS). 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.

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, SP Energy Networks



Executive Summary

The energy landscape which we play an integral part of has continued to evolve over the last year. We have seen a growing number of applications to connect to the SP Transmission network which is a significant increase from the business plan we proposed in December 2019. 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.

To facilitate these connections and wider changes to enable Net Zero, the announcement of the Holistic Network Design (HND) in late 2022 was a welcome step forward and we are progressing with the development of these projects and how they will integrate with our T2 plans. The level of investment in these projects surpasses our RIIO-T2 plans and requires a step change on many fronts to realise this ambition. This announcement has allowed us to progress a portfolio of projects which will ultimately create significant increases in network capacity to facilitate the vast amounts of renewable generation planned to connect to the network across Scotland in the years ahead.

One of the largest projects in the HND, Eastern Green Link 1 which is a new HVDC subsea cable between Torness in East Lothian and Hawthorn Pit, County Durham. This is being undertaken as a Joint Venture with National Grid Electricity Transmission and we are anticipating contract placement and Ofgem's assessment of the project to be complete by the end of 2023 which will allow construction works to progress in early 2024.

Following an increase in resources for 2021/22, we have continued to recruit in the last year to grow our capability for the development and delivery of the pipeline of additional projects and to allow for the scaling up of investment from HND and additional generation connections.

With this increasing level of activity, constraints on several fronts are becoming evident including supply chain capacity and outage availability. We have engaged extensively with the supply chain as the lead times for equipment continue to extend substantially for all types of equipment as well as significant cost escalation. This is due to inflationary pressures and global demand for equipment as countries across Europe and further afield seek to decarbonise and transform their electricity networks. We are also still seeing constraints in the supplies of subcomponents such as circuit boards and microchips from Asia which is delaying circuit breakers and protection and control equipment. Due to the variety of challenges, since 2020, we have seen the lead time for transformers double from 12 to 24 months, circuit breakers increase from 6 to 16 months and 132kV cable from 6 to 12 months. We continue to review our delivery model to reflect these challenges and how we contract with the market.

The changing generation landscape is also having an impact on the operation of the network and ability to secure outages which are essential to allow major works to take place. Over the winter of 2022, we had outages cancelled by the ESO due to generation availability. This has had an impact on the delivery of our plan as works were re-scheduled into spring and summer of 2023. This will have a subsequent impact on those projects which were planned in this period and cannot be undertaken at the same time. We are also expecting similar restrictions through the winter of 2023 and engaging with the ESO for their long-term plan to mitigate the impact as far as reasonably possible.

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 as well as working with the Electricity Networks Commissioner on the reforms that we consider necessary to avoid such extensive delays. Our response to the National Planning Framework 4 consultation references the need for a different approach to enable timely investment. We have experienced substantial delays on the Kendoon to Tongland Reinforcement Project (KTR) because of the existing planning framework. This project, which is critical for the connection of an array or renewable generation, has been subject to a Public Inquiry which has led to a two-year delay to the project and without change, similar delays on other projects will be inevitable.

As a result of these pressures, our spend in year 2 has continued to be below that envisaged in our original business plan. In our Non-load investment, we have made progress including the completion of a 400kV overhead line (OHL) major refurbishment in Lothian & Borders area which is one of our largest overhead line projects in T2, and in Fife, where we completed a 132kV OHL major refurbishment. Good progress is being made on several other projects, and we are forecasting this will recover in year three and subsequent years. Due to cost increases, we expect a net overspend across the five years of RIIO-T2 for Non-load investment.

In our load related activities, five wind farms were connected with a total capacity of 484MW along with a new Network Rail electrification point of connection. Our first price control deliverable was completed ten months ahead of schedule and provides progress to increasing boundary transfer capacity in central Scotland. We are aware of a number of connections from our baseline plan that we expect to be cancelled or delayed which will have a corresponding impact on the baseline allowance.

In the first six months of 2023, we have seen 168 connection applications with a total capacity of 26GW apply for connection offers in SPT. This volume is unprecedented, and we expect the applications by December 2023 to be double the total number of applications in 2022. This is expected to result in a substantial increase in investment

for future connections. This trend has had the impact of increasing resource costs to service these applications whilst not translating to corresponding capital spend on projects. A review of the connections process and queue management is urgently required due to the impact this is having on TOs and costs to consumers as a result.

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 2, with highlights including the highest ever level of system reliability, strong performance on customer service and positive savings for the ESO through our coordination to minimise system constraints. From an environmental perspective, significant progress has been made with our Scopes 1 and 2 Business Carbon Footprint (excluding losses) being 62% lower than our business plan forecast, totalling 9,340 tCO₂e for the last year.

We have a range of innovation projects at the discovery phase which also supports the changes we are seeing on the network and for users of the system. These projects include the use of AI, providing additional services to the ESO, and working with users on the Whole System impact of the electrification of transport such as rail and HGVs.

During 22/23 we have seen a substantial change in the cyber-security threat landscape for the energy sector due to a number of factors which have affected companies globally, such as recent geopolitical events which have led to an increase in cyber-attacks. Threat actors have also continued to develop their capability and in 2022 a seventh ICS-impacting malware was detected which used 5 critical protocols found in industrial environments. Further to that there was an 87% increase in ransomware attacks on industrial organisations, a 35% increase in ransomware groups targeting operational technology and a total of 20 threat groups tracked. SPEN takes cyber security very seriously and continuously develops and enhances security controls in line with business needs, the threat environment, and regulatory requirements.



Our Key Outputs at a glance

	Metric/Target		Actual (in Year)	Status	Year on Year Trend	Comment
Moments that Matter	7.7	(Ofgem break even level)	8.23	●	↘	The score for overall satisfaction dropped back slightly from 8.30 in 21/22 to 8.23, a decrease of 0.07. Survey response rates increase to 54% (45% in 21/22).
Timely connections	100%	(74 calendar days to submit final offer)	99%	●	↘	217 were issued on time and 2 were issued late. For reference, 118 offers were issued in the corresponding period.
Network capacity	1,781MVA	(RIIO-T2 baseline cumulative 27%)	360MVA	●	↑	Network capacity was added through two reinforcement schemes.
Connections to the network	544MW	(RIIO-T2 baseline forecast cumulative 27%)	175MW	●	↘	There were 5 windfarms commissioned in the reporting year, delivering 484MW of renewable generation. Only 2 of these schemes contributed to the T2 baseline target.
Network Asset Risk Methodology	100%	(T2 business plan target)	27%	●	↑	Increase from 2% last year.
Energy not supplied	130MWh		0MWh	●	↑	This was an improved performance on the previous year's figure of 0.14Mwh.
Contractor safety	Total Recordable Injury Rate (TRIR)		0.38	●	↘	TRIR is a widely used indicator and expresses injury levels as a factor of hours worked (injuries per 100,000 hours). 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	931kg		294kg	●	↑	This is a reduction from last year and represents the continued effort to reduce SF ₆ leaks and the repair of leaking assets at Torness substation.
Carbon footprint – Network losses	No individual target. This is included within the Total BCF target.		1,908tCO ₂ e	●	↘	This is up from last year's emissions of 1,597tCO ₂ e, due to more people returning to the office and traveling after COVID.
Carbon footprint – Building losses	1,693tCO ₂ e		1,951tCO ₂ e	●	↘	This is an increase on last year's emissions of 1,644tCO ₂ e.

● Ahead of Target
 ● On Target
 ● Below Target

↑ Improvement on Previous Year
 → In line with Previous Year
 ↘ Deterioration on Previous Year
 ↓ Substantial deterioration

Financial Performance

Our Expenditure

Our total expenditure for reporting year 2022/23 was £235m. This was £88m below our equivalent totex allowance. The tables shown below use 2018/19 prices.

Totex comparison (2022/23 real £m)

Reporting Year	Allowance £m	Actual £m	Variance £m
Load Capex	131.76	72.53	59.23
Non-load Capex	104.65	73.24	31.41
Controllable Opex	22.84	16.63	6.21
Non-Op Capex	1.99	2.54	-0.55
Indirect Costs	55.12	62.73	-7.61
Other Costs	7.08	7.73	-0.65
Totex	323.44	235.40	88.04

Year to date

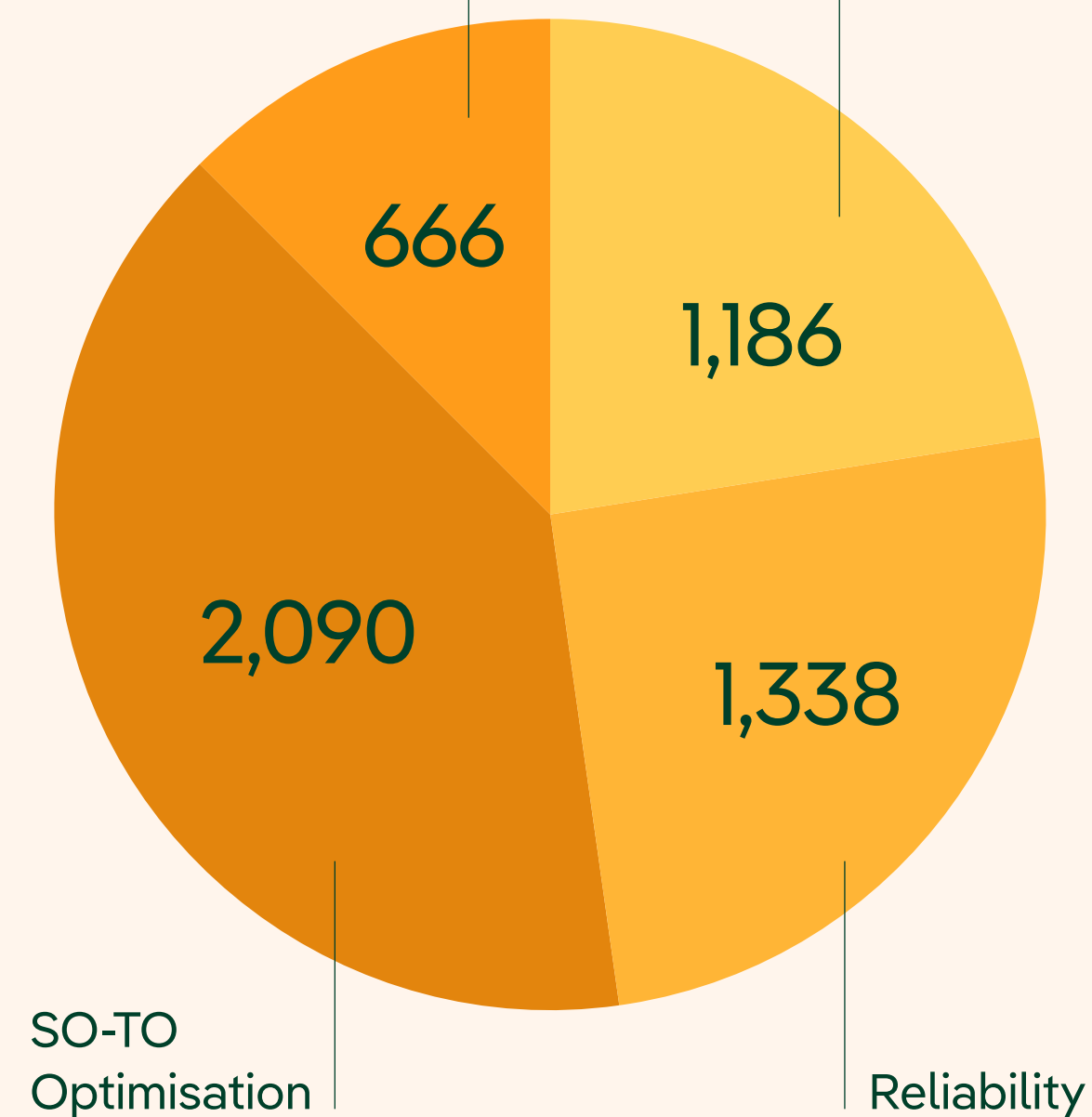
Load Capex	248.98	122.16	126.82
Non-load Capex	204.20	161.30	42.91
Controllable Opex	47.09	37.35	9.74
Non-Op Capex	4.70	4.23	0.47
Indirect Costs	107.94	124.55	-16.61
Other Costs	14.29	8.27	6.03
Totex	627.21	457.86	169.36

Our Revenues

In 2022/23 we recovered £366.7m. 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 2022/23 (£ thousands)

Quality of connections
satisfaction survey



Changes in actual or forecast performance under the various incentive schemes will affect revenue allowance in the next round of tariff setting, until final performance is known – a lag of up to two years.

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.

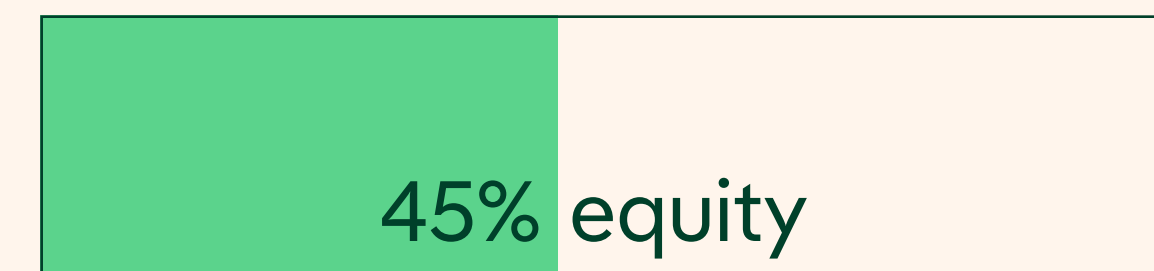
RAV (Regulatory Asset Value)

For every pound that we spend, we collect 15% of the costs in the same year and 85% of cost over life of the asset.

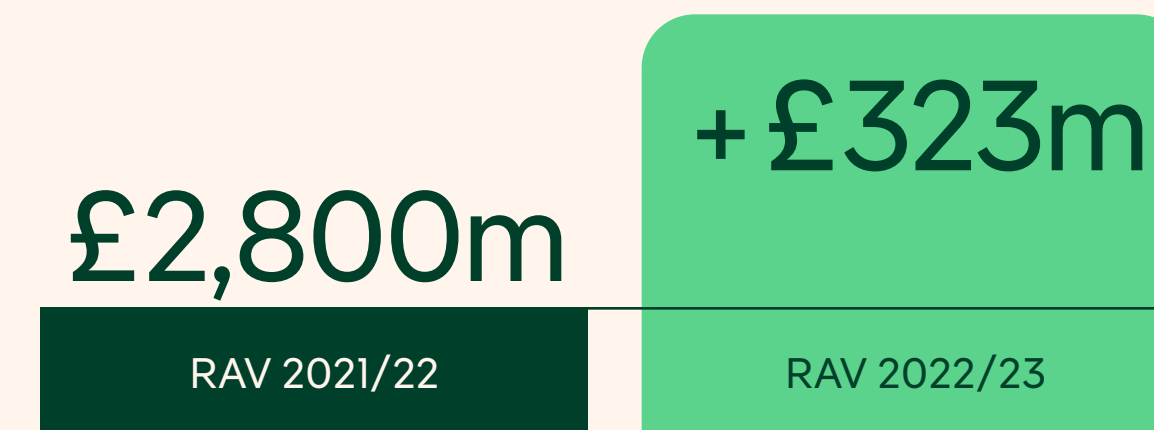


Ofgem assume that we fund this RAV by:

- 55% borrowing of which the allowance for interest payments is 1.90% in 2022/23
- 45% equity with return of 4.26% in 2022/23
- Weighted average cost is 2.96% in 2022/23



As at 31st March 2023 our RAV was £3,123m (2022/23 prices), up on the prior year at £2,800m (2021/22 prices) due to higher investment on the network going into the RII0-T2 price control period.



5-year average 2022/23 RoRE

4.67%	Base Return Set by Ofgem for the 5-year period, reflecting movements in market conditions
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.
0.10%	Reliability Incentive
0.11%	Emissions Incentive
0.00%	Timely Connections Incentive
0.09%	Quality of Connections Incentive
0.04%	SO-TO Optimisation Incentive
0.00%	Environmental Scorecard Incentive
-0.02%	Network innovation
5.06%	RoRE – Operational performance



Key Performance Areas

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Transmission Connections

Within SPT, we are seeing the contracted pipeline for connections to our network growing on a daily basis. SPT's contracted Transmission pipeline is currently sitting at c.41.2GW*, with 5.9GW* already connected. To put the scale of this appetite for connection capacity into context, winter electricity peak demand in Scotland is 5GW.

For transmission connections, across this reporting period, SPT has received unprecedented levels of connection applications. By August 2023, SPT had processed more connection offers in this year alone than we had issued in all of 2021 and 2022 combined. In reporting year 22/23 we issued 217 connection offers compared to 118 in 22/21. We believe this influx in connection applications is a reaction to the ESO's current connections reform work, with developers keen to secure a place in the connections queue now, ahead of more fundamental connection reform. With strategic connections reform forecast for delivery in mid to late 2025 at the earliest, we expect this volume of applications to continue for the next 2 years.

As many customers will already be aware, network design solutions are becoming more complex than ever, due to the 'interactivity' of projects in the current 'first come,

first served' connections queue, which is exacerbated further by the scale of connection applications that we are processing. 'Interactivity' is making it increasingly challenging for TOs to assess and design connection offers to the current licensed timescales, for both draft and finalised connection offers. The volume and complexity of the applications we are receiving is also having an impact on SPT's current timescales for offering pre-application (PACE) meetings to our customers. We do understand the importance and value of these pre-application meetings, not only for our customers but also for SPT. In light of the current workloads being experienced, we are currently exploring a number of ways in which we can improve our pre-application meeting processes and timelines. We are looking forward to sharing our ideas with our customers, and seeking their feedback, at our forthcoming SPT Connections Summit on 30th November 2023.

*data as per 18th August 2023



Increasing developer appetite to connect to SPT's Transmission network



Customer Satisfaction

Our customers are extremely important to us, they are at the heart of everything we do – they have every right to expect an excellent 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”. 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.

As part of this our Connections Customers were surveyed at key milestones known as the ‘Moments that Matter’ throughout the connections process. There are six ‘Moments that Matter’ and this year’s scorecard for each is shown in the table below.

The score for overall satisfaction is 8.23, demonstrating a good level of satisfaction from our customers. Connected Customers, gave the highest score overall this year (9.56) whilst those customers in the Application Process & Offer stage, scored lowest (7.61).

The score for overall satisfaction dropped back slightly from 8.30 in 2021/22 to 8.23, a decrease of 0.7. Survey response rates increased to 53% (45% in 2021/22) giving us a broader view of our customer service performance.

Although customers at the Application Process & Offer stage had the lowest levels of satisfaction at 7.61, this is an increase on last year’s performance of 6.64. Pre-application engagement customer satisfaction dropped back slightly from 8.55 in 2021/22 to 8.33. This decrease is due in large part to the significant increase in volumes of customer enquiries and applications we have experienced in the last 12 months.

We have identified several areas of focus and will continue to review our customers’ feedback to improve the overall customer experience during the connections process and build on this year’s performance.

MTM survey score 6/10

“Discussions are very useful and helpful on any phone calls post offer, the time for updating this feedback could be quicker to avoid requiring extensions for accepting”

Connections customer 2022/2023

The six ‘Moments That Matter’ Survey results 2022/23

	Submitted for Survey	Customers Surveyed	Participation Rate	Score
1. Pre-application Engagement	92	57	62%	8.33
2. Application Process & Offer	104	28	27%	7.61
3. Development Phase	67	37	55%	7.68
4. Delivery Phase	13	9	69%	8.11
5. Outage Management	38	28	74%	8.96
6. Connected Customer Reviews	12	9	75%	9.56
Total	326	168	51%	8.23

Customer connections summit

MTM survey score 10/10

“The level of openness and honesty allowed us to adapt and help us set realistic expectations.”

Connections customer 2022/2023



Stakeholder Engagement

Performance Health check

Our approach to stakeholder engagement is underpinned by AccountAbility’s AA1000SES, the global standard for stakeholder engagement, directly aligning to the principles of inclusivity, materiality, and responsiveness.

Since 2018, we have enlisted AccountAbility to conduct an annual health check audit of our engagement and strategy processes. We do this to support our programme of continuous improvement and the development of high-quality stakeholder engagement practices. The audit process includes interviews with internal and external stakeholders, document review, and data analysis.

We are delighted to have once again improved our AccountAbility Health check score in 2023, achieving an Advanced rating of 89%. This is one of the highest scores ever achieved globally, and a 23% improvement since our first health check in 2018.

- With the Advanced rating, we demonstrate the following:
- Strong performance in reactive and proactive engagement.
 - Medium-to long-term relationship with stakeholders with a view to inform, empower, collaborate & partner where appropriate, with clear purpose, scope, and objectives.
 - High senior management involvement, commitment and understanding.
 - Clear link of engagement process to decision making, governance and reporting.
 - Highly integrated and systematic tools and processes embedded across the organisation.

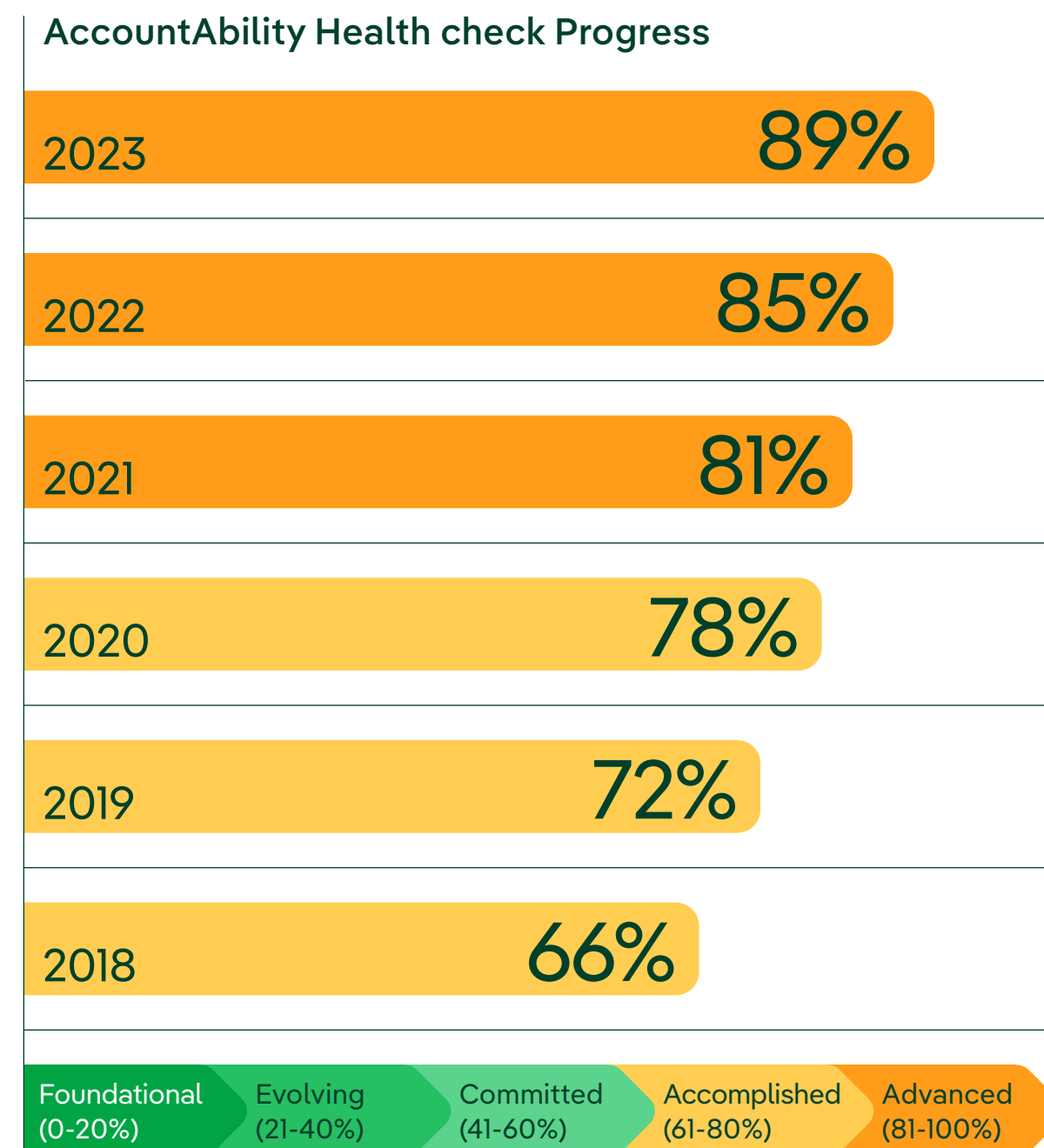
The health check audit is a constructive process, providing us with recommendations and enabling us to focus in on areas where we can improve. Looking ahead, we remain fully committed to our work with AccountAbility – we have embedded this commitment within our future business plans to ensure we continue to learn from best practice and develop industry-leading engagement with our customers and stakeholders.

AccountAbility AA1000 Stakeholder Engagement Standard:

Advanced

“There is a strong and continued commitment to the AA1000 AccountAbility Principles. Stakeholder engagement is incorporated at operational level and integrated into organisational strategy. SPEN shows continued commitment to planning a variety of engagements throughout the year, to meet its evolving stakeholder needs.”

AccountAbility Stakeholder Engagement Healthcheck Scorecard, March 2023



Case Study: Engagement in Action

During our annual programme of engagement, a key emerging priority we identified from key stakeholder groups (e.g., Community Energy Groups, Government stakeholders) was to formalise our approach to delivering and supporting a just energy transition. The cost-of-living and energy security crises have exacerbated the challenging risks faced by customers and have shaped the development of our first ever Just Transition Strategy.

The Strategy – the first of its kind for a UK network operator – sets out the plans and principles we have in place to deliver a fair and equitable transition to Net Zero. This strategy responds to stakeholder expectations that we establish a clear plan to deliver our bold ambitions.

We consulted with around 220 stakeholders on our proposed approach in Autumn and Winter 2022 through several channels, including presentations to city and district business groups, engagement with our Strategic Stakeholder Panels in our network regions, and open consultation through our website available to all stakeholders.

This collaborative approach with stakeholders led us to challenge our own internal thinking and develop more ambitious goals in facilitating a just transition. Our strategy sets out our ambition to improve energy and social justice for all customers and stakeholders across our network, and to embed the principles of a fair, inclusive transition at the heart of our business.

Our plan is centred around four key principles:

- Being a purposeful business
- Leaving no one behind in the energy transition
- Working together with our communities
- Sharing knowledge and opportunity



Digital Collaboration

Our Online Community

Developed over the last decade, our online stakeholder community is a digital platform to facilitate two-way conversations with a range of stakeholders. It can be used to share information and generate discussions through documentation, comment feeds, polls, and surveys.

Insights are fed back into our business via our project leads and to senior management to ensure stakeholder views are heard throughout our organisation, and to inform our decision making and future strategy.

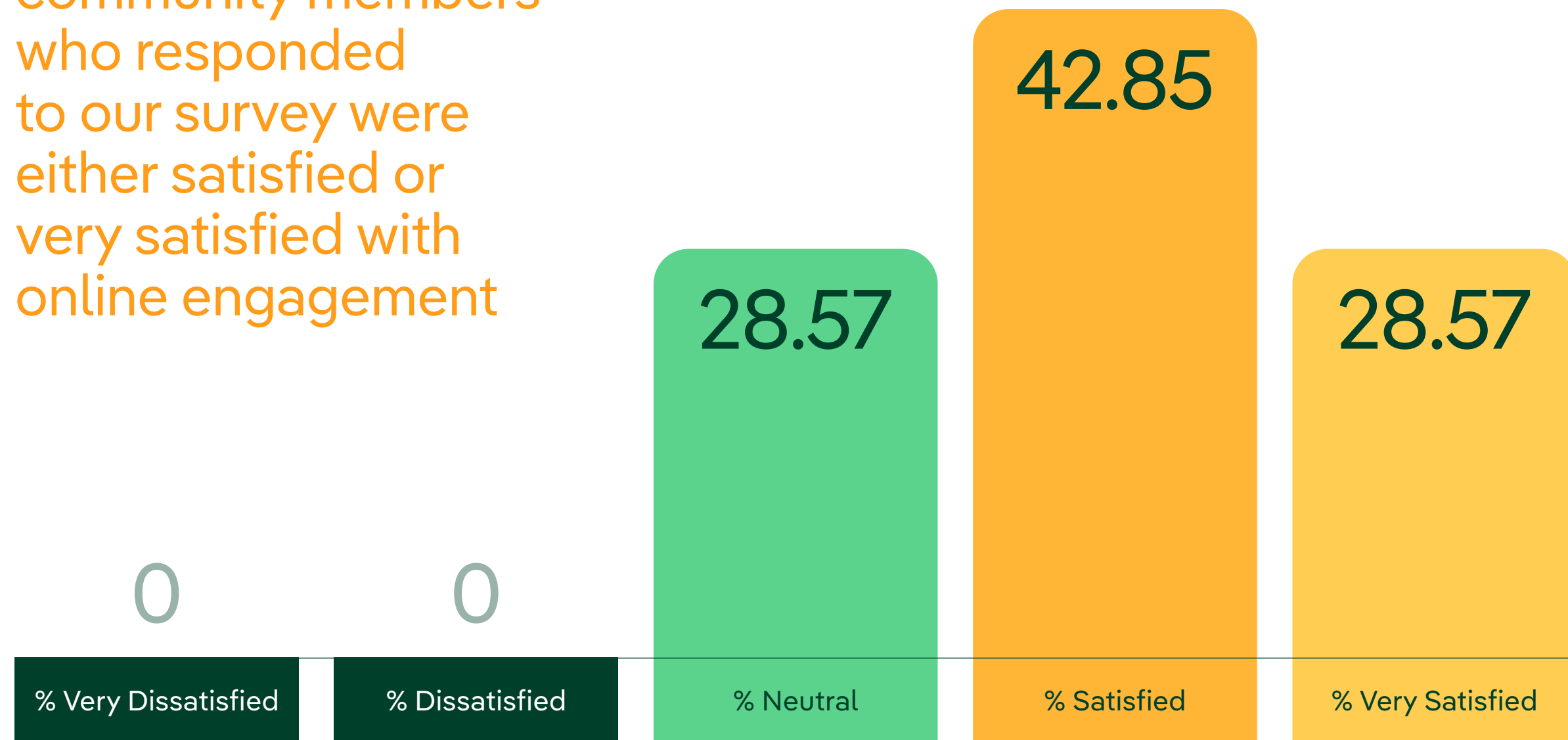
Understanding Perceptions

As part of RIIO-T2, SPEN committed to a target of achieving a 70% satisfaction rate for stakeholders' online engagement with the company. In January and February 2023, we conducted a stakeholder satisfaction survey to assess our position and gather feedback.

Participants were asked to rate satisfaction with online engagement on a scale of one to five, where one equals very dissatisfied and five equals very satisfied. We are pleased to share that 72% of online community members who responded to our survey were either satisfied or very satisfied. The remaining responses were neutral, with no members reporting to be either dissatisfied or very dissatisfied.

The survey also helped us to understand stakeholders' preferences for online engagement including methods, frequency, and content to feed into our approach going forward, ensuring it is fit for purpose.

72% of online community members who responded to our survey were either satisfied or very satisfied with online engagement



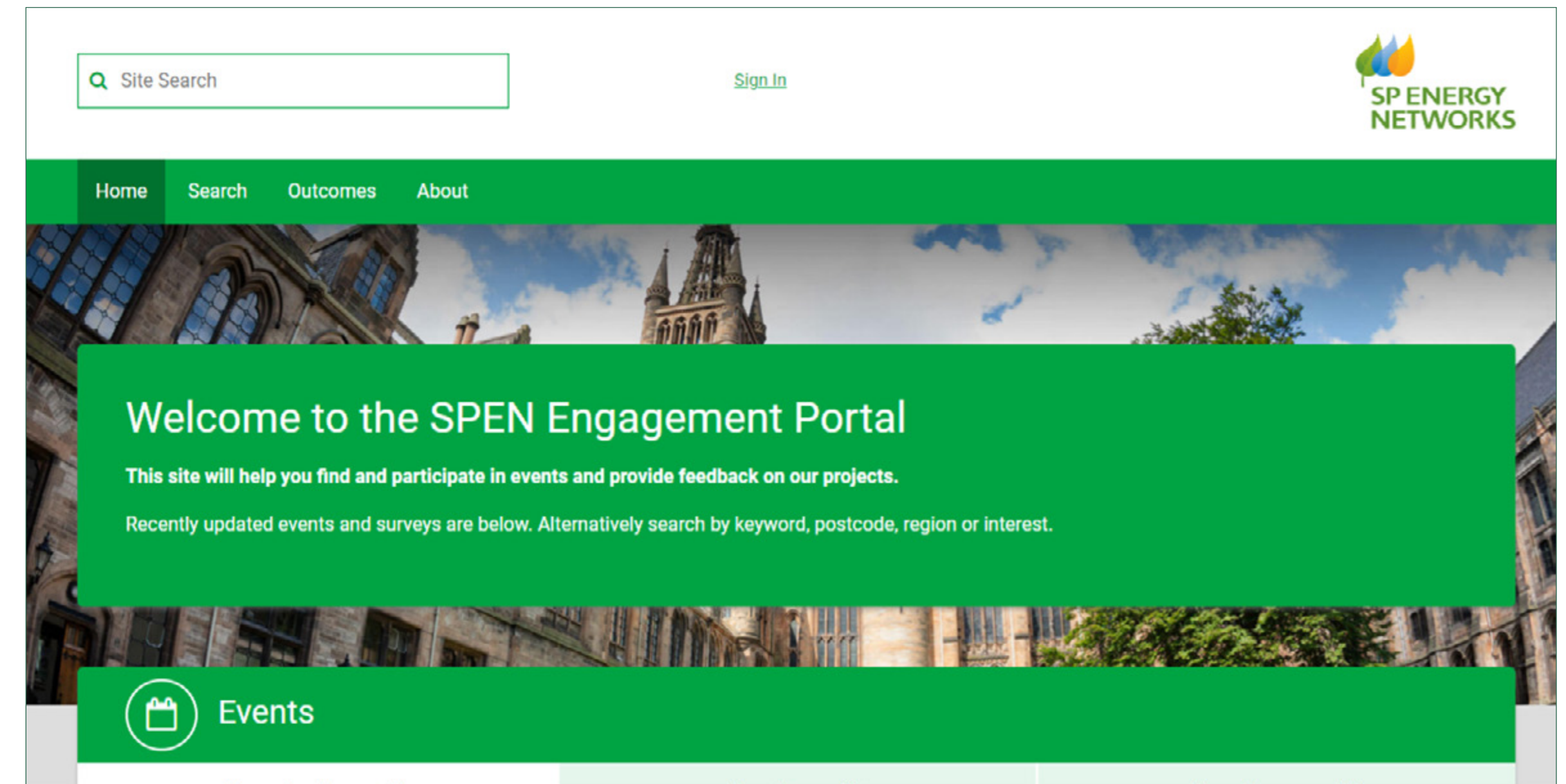
Engage 360 – a new digital platform

In 2023 we are launching a new online platform – Engage 360 powered by Tractivity, the stakeholder management system used by SPEN. This will be a fully branded online portal which will allow for additional functionality including: Stakeholder registration (not required for access), Events selection and registration, with output sharing, access to Consultations, with output sharing, Questions/contact us section, Administration directly linked to our existing Tractivity user accounts (i.e. direct control), Automatic recording engagement evidence within Tractivity.

Ongoing Programme of Engagement

We have embedded an annual programme of engagement in our business. We have a dedicated events page on our website which promotes transparency of our engagement opportunities for our stakeholders to engage with us allowing stakeholders to see 100% of engagements on the SP Energy Networks website and, if applicable, register to attend.

In 2022/23, we held several Director-led engagement events and conferences including Strategic Stakeholder Panels, Sustainability Stakeholder Working Groups, Transmission Supply Chain events and Transmission Connection Summit events which facilitated a range of strategic conversations with a broad range of key stakeholders.





Performance Reporting

Social Return on Investment (SROI)

As part of the RIIO-T2 business plan, SPEN made a commitment to increase the social value of its activities by 5% every year throughout the regulatory period. The purpose of this request is to facilitate the gathering of information on stakeholder and customer facing initiatives delivered by the Transmission business. The information collected through a set of guided questions is extracted and used as inputs in the Social Return on Investment (SROI) model, which SPEN uses to calculate the social value of initiatives, programmes and investments.

Stakeholder-driven initiatives have been targeted in lieu of the absence of the SEI submission – illustrating that, despite the absence of this submission, stakeholders remain at the heart of SPT's decision making. Examples of the type of social return calculated include job creation or the impact of a reduction in carbon emissions.

The commitment is viewed through the lens of increasing the social value of SPT's activities by at least 5% year-on-year over RIIO-T2. To date – this has been tracked by conducting a social impact valuation (employing SPEN's Social Return on Investment tool) of stakeholder-driven SPT initiatives in Y1 (2021/2022) and Y2 (2022/2023) of the current regulatory period.

We are pleased to report a 65.16% increase in gross benefits generated between Y1 and Y2. Most projects deliver a strong societal benefit over a 5-10 year period so we are pleased to see such an improvement made by year 2 of the price control. Social return calculations help us to understand projects better and to better inform decision making about where to prioritise investment and to decide between different options for implementation.

Transmission Initiatives Measured

SROI values are expressed here as the net value generated, within 1 year and within 2 years. The benefits will increase over time.

	Year 1				Year 2				Increase YoY
	Cost	Gross benefits	Net benefits	SROI	Cost	Gross benefits	Net benefits	SROI	Gross benefits
SF ₆ Strategy	£274,600	£3,618	-£270,982	-£0.99	£265,058	£4,636	-£260,422	-£0.98	65.16%
SF ₆ Offsetting	£109,000	£43,443	-£65,557	-£0.60	£105,212	£55,666	-£49,546	-£0.47	
Fleet Decarbonisation	£253,400	£204,801	-£48,599	-£0.19	£244,595	£199,924	-£44,671	-£0.18	
Substation Refurbishment	£260,600	£1,442	-£259,158	-£0.99	£251,544	£1,847	-£249,697	-£0.99	
Waste Reduction	£26,000	£49,545	£23,545	£0.91	£25,097	£63,484	£38,388	£1.53	
BIM	£420,000	£0	-£420,000	-£1.00	£405,405	£12,780	-£392,625	-£0.97	
Wind Farm – South Kyle	£13,400,000	£14,126,352	£726,352	£0.05	£12,934,363	£23,492,590	£10,558,227	£0.82	
Total	£14,743,600	£14,429,200	-£314,400	-£0.02	£14,231,274	£23,830,927	£9,599,653	£0.67	

Community Liaison

As we progress the significant volume of activity involved around our key infrastructure during the T2 price control period, the importance of ensuring local communities and indeed, all our stakeholders are made aware of proposals and projects taking place at our substations and overhead lines in their areas has never been greater.

SP Transmission prioritises building and maintaining close relationships with local communities across central and southern Scotland as we deliver our work with each major project being assessed as to how it might potentially impact the community. The community liaison team speak with local residents and business in advance of work commencing with contact details being provided should the need arise at any stage. Elected members in the form of community councils and ward councillors who play a central role in communities are also advised of activities.

Supporting our local Communities

SPT enjoy providing support to communities and our engagement takes place in a variety of ways. As life has returned to normal after covid restrictions we have quickly reconnected with communities face to face having attended a number of busy agricultural shows across our area with our events trailer. We have been involved in a large number of careers events and STEM inputs at schools which are always well received and a group of senior pupils from Lesmahagow High School enjoyed visiting the extension project at Coalburn Substation in South Lanarkshire to learn about the network and see first-hand the cluster of work planned around the substation.

Project information in a digital age

SPENs website provides a range of information which includes transmission projects with both development and delivery projects featuring in our community consultation and investment sections.



SPEN roadshow and partnership activity from various events throughout the year



Innovation

At SP Transmission, innovation is a core value which we use to help deliver the needs of our consumers and wider stakeholders. We understand and are prepared for the Net Zero journey and we are leading the way with our innovation activities; developing new technologies and solutions to enable the energy transition, promoted through our innovation engagement initiatives which are helping us address the opportunities and challenges ahead.

Our RIIO-T2 Innovation Strategy focusses on the key energy transition challenges we foresee as facing our transmission network and reiterates our commitment to our customers and stakeholders. In our strategy we have developed 4 Innovation Clusters, mapped against the ENA Innovation Themes, which are guiding our innovation delivery and ensuring we develop a balanced Network Innovation Allowance portfolio:

- Network Modernisation
- Network Flexibility
- System Security and Stability
- Digitalisation of Power Networks

Project Conan – Non-destructive testing of overhead line conductors for predictive maintenance

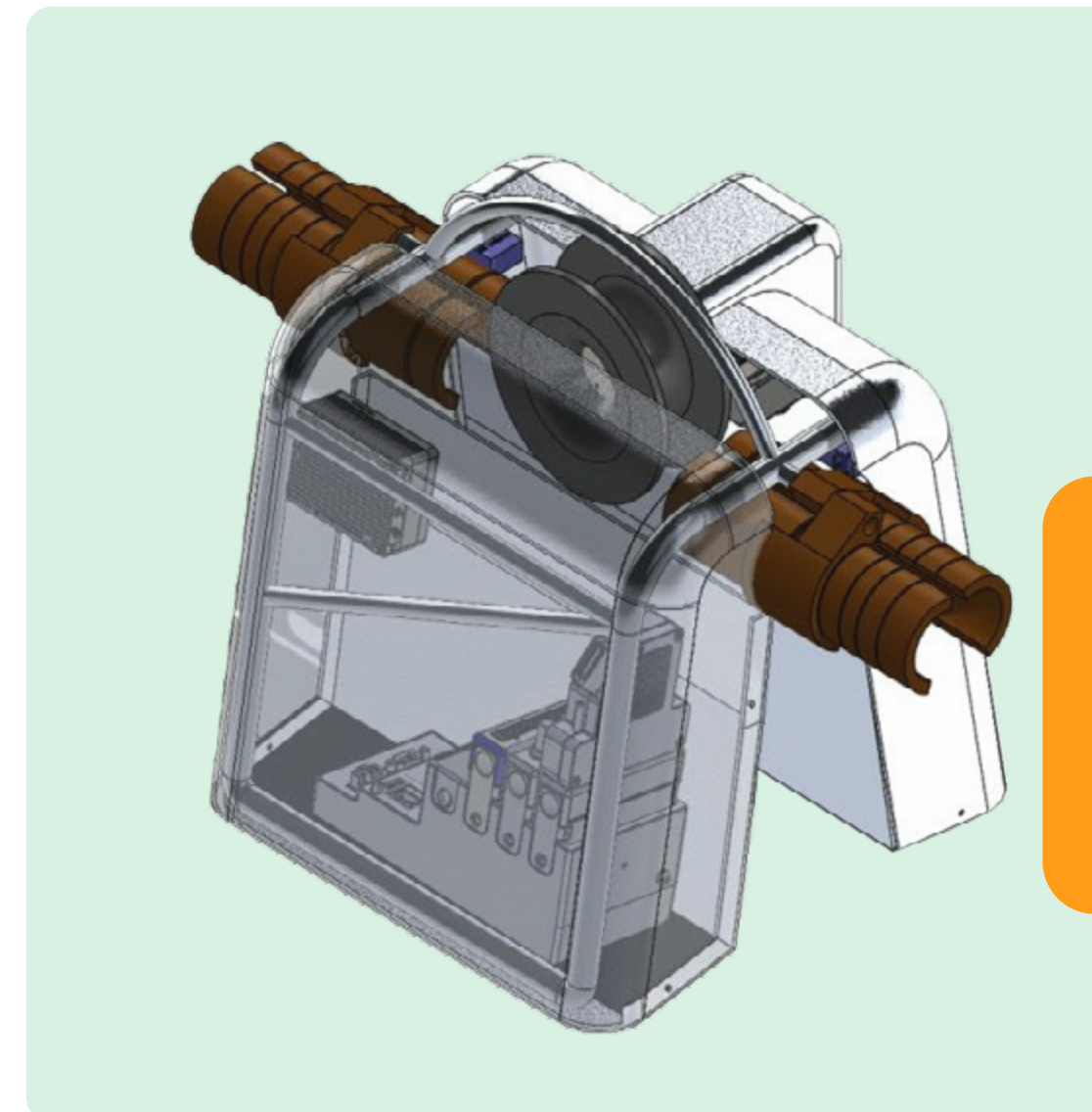
Overview

This project will develop a device for non-destructive conductor assessment to analyse the condition of ACSR and AAAC overhead line (OHL) conductors. The aim is to enable predictive condition-based interventions.

Benefits

The main benefits of the project will be:

- Reduction in costs associated with network downtime
- Greater visibility and understanding of conductor condition
- Reduced network downtime
- More efficient condition surveying, with less disruption to local community
- Safely extending asset life/reducing asset risk of failure through more effective assessment.



£190k+
potential benefits

3D rendering
of the Conan
design concept

Progress

The detailed summary report of electrical and mechanical design has been complete. This design included the AAAC detector head which is a key deliverable of the project.

Following on from this, working prototypes were developed and assembled, which established a motor mechanism for connecting the device to the conductor and communication methods for upload of results. Bench testing of the device prototype has been complete, including validation of galvanising and aluminium measurement reliability, distance accuracy, maximum traversing speed, and maximum sampling rate amongst others.

Performance testing of the Conan device and the AAAC detector head has now been completed.

Next steps

- Testing and trials in a controlled environment
- Further network trials
- Finalising a user manual.

BLADE Project – Black Start from Offshore Wind project

A consortium led by us is launching a world-leading project to demonstrate the potential of using offshore wind to provide 'black start' restoration services to the electricity grid thanks to funding from energy regulator, Ofgem.

Black start is the better-known name for Active Electricity System Restoration Service – the procedure used to restore power in the event of a total or partial shutdown of the electricity transmission system – and which has traditionally relied on fossil fuels like coal and gas.

The BLADE Black Start Demonstration from Offshore Wind project – funded through the Strategic Innovation Fund and supported by UKRI/IUK – will explore how offshore wind can transform that process and maximise the benefits of the huge amount of green electricity that will be produced in UK waters to push power on to the network in the event of a shutdown.

It follows our groundbreaking work in the demonstration of black start services from distributed energy resources at Dersalloch windfarm in South Ayrshire, where the world's first grid restart from onshore wind was achieved in 2020 in conjunction with ScottishPower Renewables.

BLADE's discovery phase will investigate the technology, capabilities and protocols that would be needed for offshore wind to deliver these services to the grid and will be used to shape modelling and demonstration work in later phases.



Transmission OHL Crossing Protection Stage 1

Overview

This project will develop a protection system to protect transmission overhead lines (OHL) from inadvertent re-energisation from contact with Distribution OHL during reconductoring.

When reconductoring Transmission OHL, there can be issues when the transmission line crosses a section of Distribution OHL. It is critical that during work transmission OHL does not drop, make contact with the distribution line and become re-energised as such an event could cause harm to the operatives who are working on the isolated line. Currently, this is avoided by undergrounding the section of distribution line, but this can be very expensive once costs such as outages, excavation and reinstatement are factored in.

Benefits

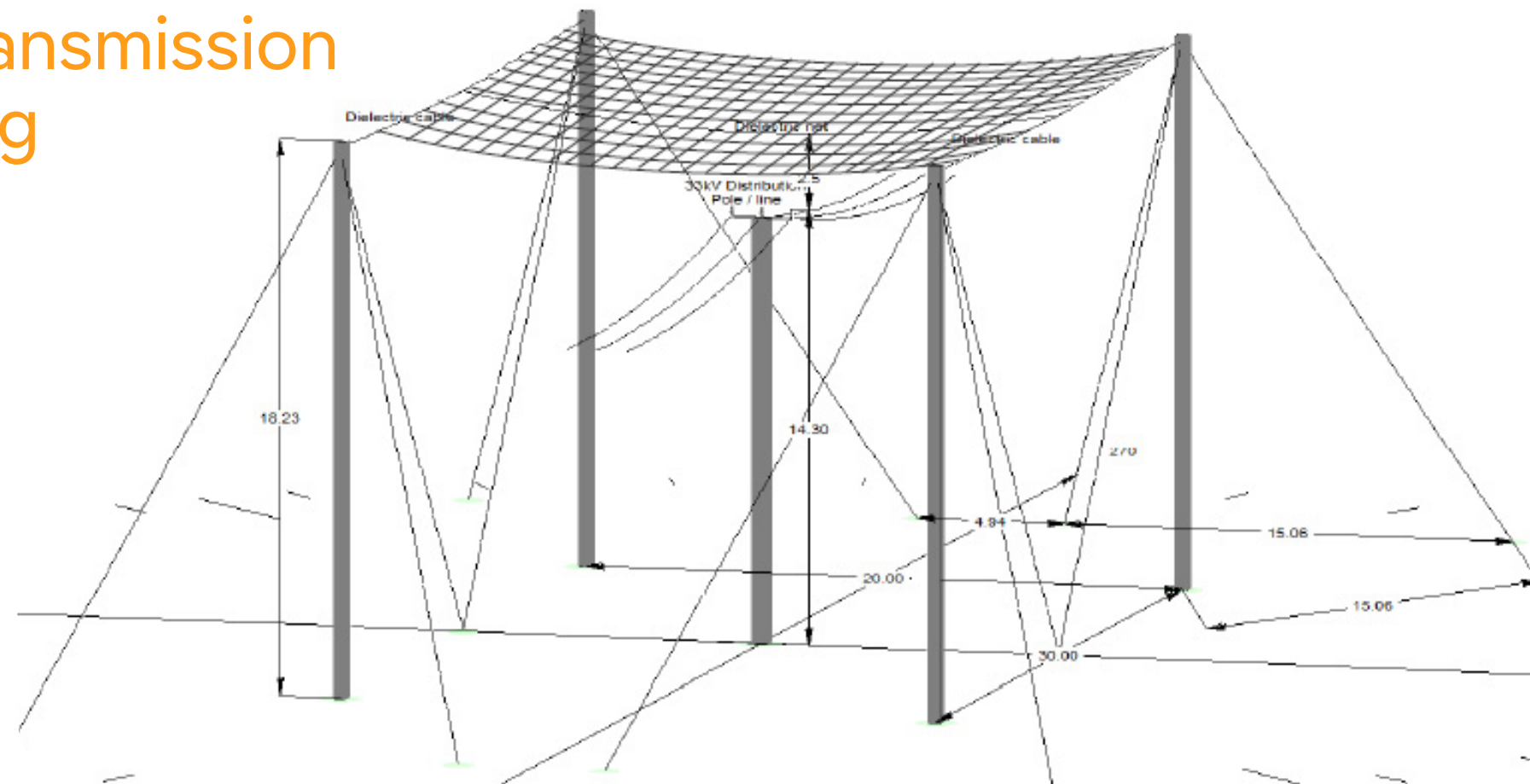
The benefits of this project will mainly be realised in Phase 2 once the device can be deployed. The main benefits will be in reduced cost of Transmission OHL reconductoring through the avoidance or reduction of undergrounding/diversion works.

Progress & Next Steps

A prototype design has been developed and the next step involves the demonstration and testing of the system. We will assess the suitability of the design by recreating a re-energisation by dropping an overhead transmission line onto a crossing with an out-of-service distribution line beneath it. This will enable us to identify any modifications required and to demonstrate that this system works on our network.

Following this we will seek to quantify the number of crossing this approach could be applied to.

A novel system to avoid the need for under-grounding of distribution overhead lines during transmission reconductoring



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.

Benefits delivered or In Progressing in 2023:

- 3D modelling via Revit and updated processes via the dedicated BIM Design team
- BIM Supplier compliance via the tender process for construction
- Integration workshops for Auto Desk Construction Cloud (ACC), SAP PM\LO\PPM, ESRI GIS, Navisworks, CATO, IClick LCA, Lidar and Mobile Field applications
- BIM Legal and Procurement.

The use of BIM is progressing well with major advances in Q1 2024 on track to deliver.



Pilot Project 2 Glenglass in design phase.

Sustainability and Environment

A sustainable electricity network connects renewable energy from generators to consumers, this is SPENs core purpose and facilitates the UK Net Zero carbon ambitions. While building and operating the network we have a responsibility to improve the social, economic and environmental sustainability in the areas in which we work.

Our Sustainability Principles

We have a clear picture of our sustainability impacts through, stakeholder engagement, the management system, ISO 40001, for over a decade, delivery of previous Sustainable Business Strategies. From these impacts we have created five priority areas for action. There is a dedicated section in this [Strategy](#) to each of these Priorities, with clear targets and route maps to deliver.

Climate Action

Our Business Carbon Footprint

The development and maintenance of our infrastructure as a key enabler for energy security and the Net Zero transition has never been more important. The most effective way for us to mitigate climate change is by connecting low carbon technology to decarbonise society. While we do this, we must also reduce the carbon footprint of our business operations, and make sure our network is resilient to the effects of climate change.

We have measured and reported our business carbon footprint (BCF) each year since 2013/14. Our BCF includes key emissions which we directly control or have the most influence over.

In 2022/23 we recorded our lowest business carbon footprint (Scopes 1 & 2 excluding Losses) to date achieving a total carbon reduction of 54% since 2013/14. We have achieved our 'Short Term' target set in 2013/14 and are on course to achieve the 'Medium Term' reduction target of 80% reduction by 2029/30.

Depot and substation energy use

Since September 2019, we have purchased green electricity through a 100% UK-based renewable energy tariff backed by Power Purchase Agreements (PPA) for the majority of our buildings and substations. All energy used under this tariff has a carbon emissions factor of zero, significantly reducing the carbon footprint of the energy we use at our depots and substations. Consumption of energy in substations on standard tariffs has gone down from a forecast of 5,148MWh to 4,418MWh in 2022/23 due to 8 metered substations now being on green tariffs.



Operational transport

Our emissions from fleet vehicles have increased during 2022/23, resulting in an additional 64tCO₂e. This is partly due to the delay in EV roll out given unavailability of suitable vehicles but also due to an increase in fleet numbers as activity increases.

Preparing for our EV transition

In 2022/23 we piloted four 22kWh electric vehicle charge points at different substations to understand the type of charger which provides the best value and ease of use.

The four substations selected for the pilot included Lagorig, Eccles, Kilmarnock South and Coalburn. The charge points will allow SPT staff to charge vehicles as they undertake critical work on our substations. This 'charge while working' approach will reduce the need to use public chargers, reducing lost time and ensuring chargers remain available for public use. Following successful trials, we will roll out approximately 400 charge points across our network.

Business Transport/Contractor emissions

These account for approximately 34% of our overall carbon footprint. The accurate reporting of these emissions is a significant challenge, particularly measuring impacts relating to products and services which we procure, given complexity and diversity of our global supply chain.

In 2022/2023, we worked with Planet Mark to develop recommendations for how we can improve the emissions measurement. Planet Mark have reviewed our methodology against the guidance of World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI) Greenhouse Gas (GHG) Protocol (2004), the 'GHG Protocol' and made recommendations for how we can continue to improve the measurement in line with best practice.

Supply Chain Sustainability



Having a strong relationship with our supply chain is essential for the successful delivery of our sustainability plans. Our diverse suppliers offer various services throughout the entire lifecycle of assets, from design to disposal.

This year we have established supply chain performance metrics to evaluate waste reduction, recycled content, and Scope 3 emissions. We use the GoSupply Platform, where we assess the ESG compliance of our suppliers via a series of scored questions, SmartWaste which is an environmental reporting tool, and Supply Chain Sustainability School, learning platform, to evaluate our suppliers' sustainability performance.

By value, 47% of our suppliers are compliant with our enhanced environmental requirements and we are on track to deliver our commitment of 80% by value by the end of RIIO-T2.

Action for Nature



We have committed to work collaboratively with the other UK electricity Transmission Network Operators to develop our approach to natural capital and biodiversity assessment and enhancement. A consistent approach will ensure decisions are made to assess biodiversity consistently across the network.

Working with other linear infrastructure operators, a biodiversity tool for use by the Transmission Operators in Scotland has been developed. This tool is based on the DEFRA V.2 tool and adapted for Scottish habitats and environments.

The three TOs undertook a review of existing Natural Capital tools over an 18-month period to identify one that best fits the requirements of each organisation and of Ofgem, which is to provide a quantified account of electricity transmission sector land assets. We are currently testing a tool, developed in collaboration with AECOM, EcoUplift, to meet the electricity network sector needs and envisage this be procured and a baseline assessment carried out in 2023/2024.

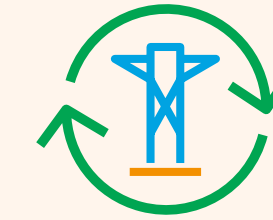
Fugitive emissions

The greatest reduction has been in SF₆ emissions; a reduction of 5,382 tCO₂e from last year. This reduction can be attributed to the refurbishment of Torness 400kV Gas Circuit Breaker X320 resulting in significant emissions savings. However, SF₆ still makes up 72% of our total BCF (Scope 1 & 2 excluding Losses).

Overall, the SPT Insulation and Interrupting Gas (IIG) leakage rate for regulatory period 2022/2023 was 0.23%. As evidenced through a recurring year-on-year downward emissions trend our T2 SF₆ repair plan has been making a significant impact on SF₆ leaks.

Furthermore, in line with commitments made in the RIIO-T2 business plan, we have utilised alternative IIG circuit breakers on the 132kV network for both new connections and asset replacement projects. The global warming potential of gas technology used in these breakers is 99% lower than SF₆ further contributing to our overall reduction in emissions. At higher voltages, we have now placed orders for SF₆ free 400kV GIS and also an industry first, a contract to remove SF₆ from 400kV GI busbars at Hunterston and replace with an environmentally friendly gas.

Circular Economy



As a sustainable network business, we are committed to incorporating circular economy principles into our policies, procedures, and project delivery. We work collaboratively to improve the circularity of our resources, recognising the value of keeping them in use for as long as possible and retaining their value. In line with this, we have set challenging business targets to divert 100% of our waste from landfill by 2030, excluding compliance waste.

Our parent company, Iberdrola, is certified to ISO20400 Sustainable Procurement Standard. During year 2 of the price control period, we have undertaken a gap analysis against this standard to identify areas for improvement. The output of this analysis has allowed us to create an action plan to embed circular economy principles into our business processes. Our first step has been to include circular economy principles within our procurement requirements.

We are continuing to use the SmartWaste reporting tool to collect resource use data including material reuse, as well as landfill and recycling rates. During the remainder of RIIO-T2 we will use SmartWaste to improve materials data including the % recycled content of materials being used on our projects

Sustainable Society



We will deliver social value to our communities, ensuring that we leave a positive legacy through our work.

While working to enable the decarbonisation of the energy system we need to ensure we deliver value and benefits for people and communities across our license areas. There is a need to anticipate the social implications of the shift to a low-carbon circular economy, the biodiversity crisis and the increasing impacts of climate change. In our view, a just transition should ensure environmental sustainability, quality work, social inclusion, and poverty eradication are all given equal consideration.

We have a strong track record in prioritising the needs of our communities, our Just Transition Strategy, published in March 2023, formalises our approach, bringing together all of our initiatives in one place, embedding the principles of a just transition across our business planning, decision making and network operation.

We are an employer that works hard for our people too, with policies and targets in place to deliver a truly inclusive and diverse workforce, with training and development a core part of our workforce model. We engage with our workforce through biannual surveys and safeguard their physical and mental health and wellbeing; for example, through the provision of mental health first aiders and a range of employee networks.

Supporting and Securing our Network

Our T2 plans continue to deliver significant network improvements as the transmission network expands with new connections on the drive towards Net Zero. Every connection we make increases the size and scale of the Transmission Network. Whether it is new windfarms, battery connections or other modern technologies, with these connections we are continually improving the efficiency and reliability of the network.

As our network continues to evolve, how we maintain our equipment and infrastructure and keep the lights on for our customers and the communities we serve is vitally important to us. This year we had minimal impact on customers with another year of high performance, as we have operated with an excellent level of reliability evidenced through our energy not supplied (ENS) measure. A key element of attaining this high performance is ensuring that the equipment is maintained and inspected at regular intervals, enabling us to identify and address any risks to performance by moving quickly to repair defects before they develop into a fault.

During this second year of T2 we have identified some equipment that have required earlier action in their replacement plan than originally forecast due to accelerated aging. We have quickly intervened to replace these oil filled assets to ensure we maintain the network performance required of a transmission system. Given the current economic position across the globe and the negative impact on supply chain, obtaining replacement assets can now take 4 to 5 times longer than our previous experience.

Identifying the key skills and resources to support the expanding and evolving transmission network is important, not only to ensure we can continue to achieve the high standards set by our business, but also the high standards expected by our customers. To do this has been a challenge, with limited skills and knowledge available to maintain and operate the electrical network, but we continue to grow our own talent to help deliver our maintenance and inspection activities.

Our use of technology has continued into the second year of T2 and will remain a key area that we will monitor to identify the Health, Safety and Environmental benefits of doing things differently. We started another sweep of our Transmission network with LiDar which will provide detailed analysis of our overhead line assets and any potential risks to the network from reduced ground clearances or objects, the details will also enable us to model the performance of the network with the current thermal rating of the circuits.



Safe Network

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

Communication and cooperation are key to ensure 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 dedication to continual improvement was acknowledged through an independent external accredited verification body. We continue to operate to ISO 45001: 2018, international standard and consider this a crucial factor, to ensure the future growth and success of the business,

Our Staff and Contractor Health and Safety

As a business, we continually monitor our “Total Recordable Injury Rate” (TRIR). This defines significant injury levels as a factor of hours worked (injuries per 100,000 hours).

We achieved a combined Staff and Contractor TRIR of 0.38 for 2022/23, which is considered an exemplary performance within our industry.

Based on the 2022/23 performance data, we have focussed on several proactive initiatives to enhance our Health, Safety and Wellbeing culture.

These include:

- The continuation of our New Year safe return to work initiative in 2022/23. Soft start is a phased and controlled return to work over the course of January, with an emphasis on health, safety, and wellbeing engagements.
- Contractor HSEQ Forums facilitated over MS Teams. The forum discussed Incident Management and Asbestos Management.
- A Summer Safety Campaign was rolled out across the business from June through to August, with a view to reinforcing the additional risks associated with summer working.

Zero public safety injuries

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 attended several agricultural shows and have utilised social media channels as well as conventional 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’ve teamed up with celebrity farmer and TV personality, Jimmy Doherty, and YouTube star and TV presenter, Adam Beales, to share important safety messages.

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, provided by ourselves, as well as providing them with annual funding.

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

We all need to work together to achieve Net Zero. With that in mind, SP Energy Networks recognise that we're a key organisation in the energy landscape and have a responsibility to put Whole System solutions at the heart of the energy transition. To do this, our Whole System Strategy, first published as part of RIIO-ED2, will help deliver the energy network of the future across our Transmission and Distribution networks.

Our Whole System Strategy, sets out a combined mission to unlock the full value of Whole System thinking by collaborating not only with other electricity companies but also with 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.

During the last regulatory period, there are several notable Whole System examples we can highlight. This includes our successful SIF (Strategic Innovation Fund) funding bid with project BLADE for Black Start Demonstration from Offshore Wind. We are leading a consortium that includes Strathclyde University, SHE Transmission and the Carbon Trust.

Following the 2022 publication of the Holistic Network Design (HND) – we have been supporting the HND follow-up exercise (HND FUE) will further support the Government's previously stated government targets for offshore wind and Net Zero. This sits alongside our support for the development of the new Centralised Strategic Network Plan (CSNP) for GB.

The BLADE Black Start Demonstration from Offshore Wind project, also known as the Active Electricity System Restoration Service, will explore how offshore wind can be used to restore power if the electricity transmission system suffers a total or partial shutdown.



We have highlighted some specific aspects of the Whole System strategy below, along with our Whole System Register:

Strategic Areas for Engagement:

- Establishing Strategic Partnerships across the sector
- Engaging stakeholders on our Whole System Strategy
- Engagement with Local Authorities through our Strategic Optimisers



How We Will Achieve/Deliver This:

- Establish strategic partnerships to achieve common Whole System goals.
- Use innovation, markets and flexibility to push the boundaries of Whole System thinking.
- Think beyond the electricity sector to support other energy vectors including heat, transport and hydrogen.
- Use Whole System thinking to support our communities and vulnerable customers in the transition to Net Zero.
- Improve our mastery of data, share data easily to unlock Whole System and consumer benefits.
- Embed Whole System thinking in our organisation, culture, and ways of working to deliver long-term value.



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 and collaborative. This collaboration is driven by co-ordinating with the other network Licensees and providing an input section for stakeholders to get involved and shape the direction of our register.



Net Zero Fund

In 2022, we launched our Transmission Net Zero Fund to ensure that 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 provides 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.

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 £5m fund has been created to help local communities achieve their Net Zero ambitions. It will support projects that are contributing to decarbonisation efforts across the SP Transmission areas in central and southern Scotland.

More information about the Transmission Net Zero Fund is available at: spenergynetworks.co.uk/netzerofund

The fund operates in three phases:

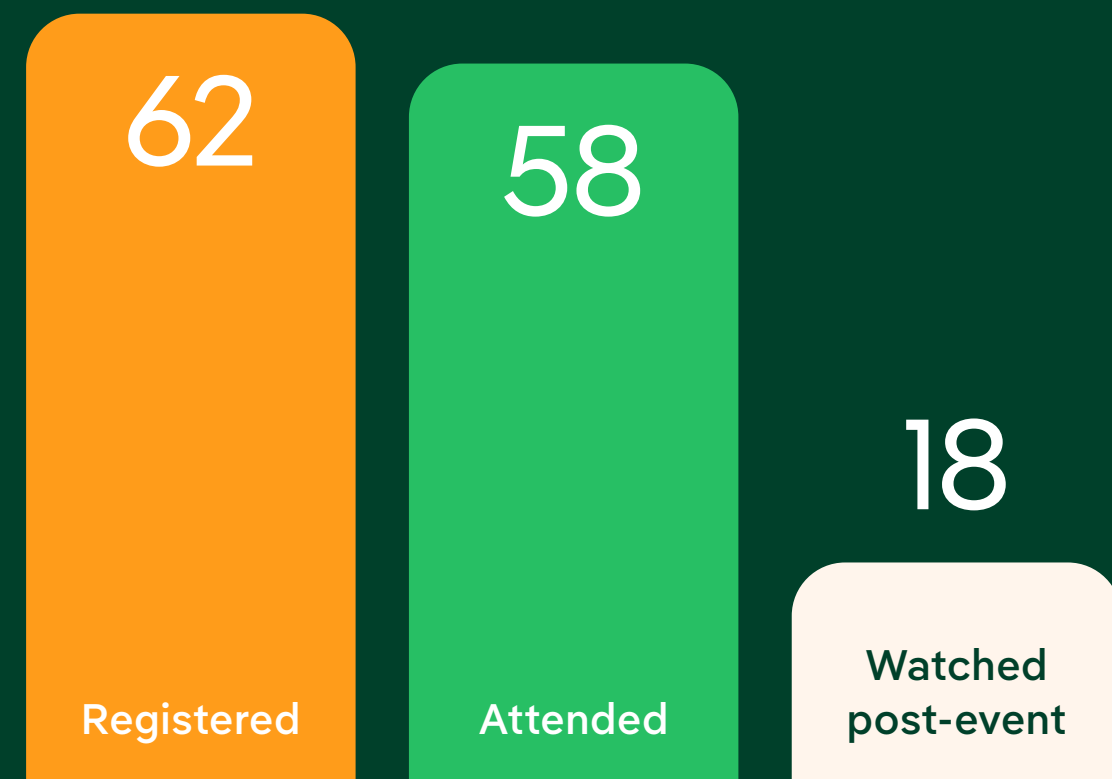
Net Zero workshops – delivering general and tailored community workshops to help local communities develop their Net Zero plans

The first general Net Zero workshop was delivered in January 2023 with the aim to demystify Net Zero for attendees.

The event introduced attendees to Net Zero options that they can consider on their decarbonisation journey. The event was well subscribed with 62 stakeholders registered to attend – 58 have attended the live event, while 18 have watched the on-demand recording post-event.

As part of the first two rounds of the tailored community workshops, 16 workshops have been delivered since November 2022. Over 130 community representatives have attended these tailored workshops.

Stakeholder participation



Project Planning and Feasibility Support – supporting development of formal project plans

The first round of Project Planning and Feasibility Support will take place from July to August 2023 to enable six eligible applicants to formalise their project plans.

Funding Support – providing funding support to eligible Net Zero community projects

Funding Support opened for applications in June 2023. Successful applicants will be awarded funding in November/December 2023.

To mark the launch of funding, we hosted a Net Zero Day at Dumfries and Galloway college to bring school pupils' vision for Net Zero to life. The event was fronted by the star of BBC Scotland's Landward, Dougie Vipond, and delivered in collaboration with SmartSTEMs, who are experts in school STEM engagement. Local school pupils were introduced to Net Zero through a tour of low carbon technologies and workshops designed to help them imagine a Net Zero future for their communities.





Expenditure and Outputs

Load related Expenditure	Pg 25
Non-load related Expenditure	Pg 27
Totex	Pg 29
Our Revenues	Pg 30



Load related Expenditure

Our plans for the transmission network are 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 reinforcements to ensure the network has sufficient capacity to transmit the power to where it is being consumed. This is called Load related activity.

An evolving network

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.

Following the announcement of the Holistic Network Design process in 2022, a portfolio of additional strategic projects for facilitating Net Zero are being progressed. As these are at an early stage, the levels of spend in 2022/23 are low but our future plans now reflect the additional investment associated with these projects.

Connecting our customers

In 2022/23 we successfully connected five new windfarms delivering an additional 484MW of renewable generation capacity. In addition, an additional 360MVA network capacity was added through two reinforcement schemes.

Whilst progress was made in completing these projects, we have seen several movements in the wider load related plan. 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.

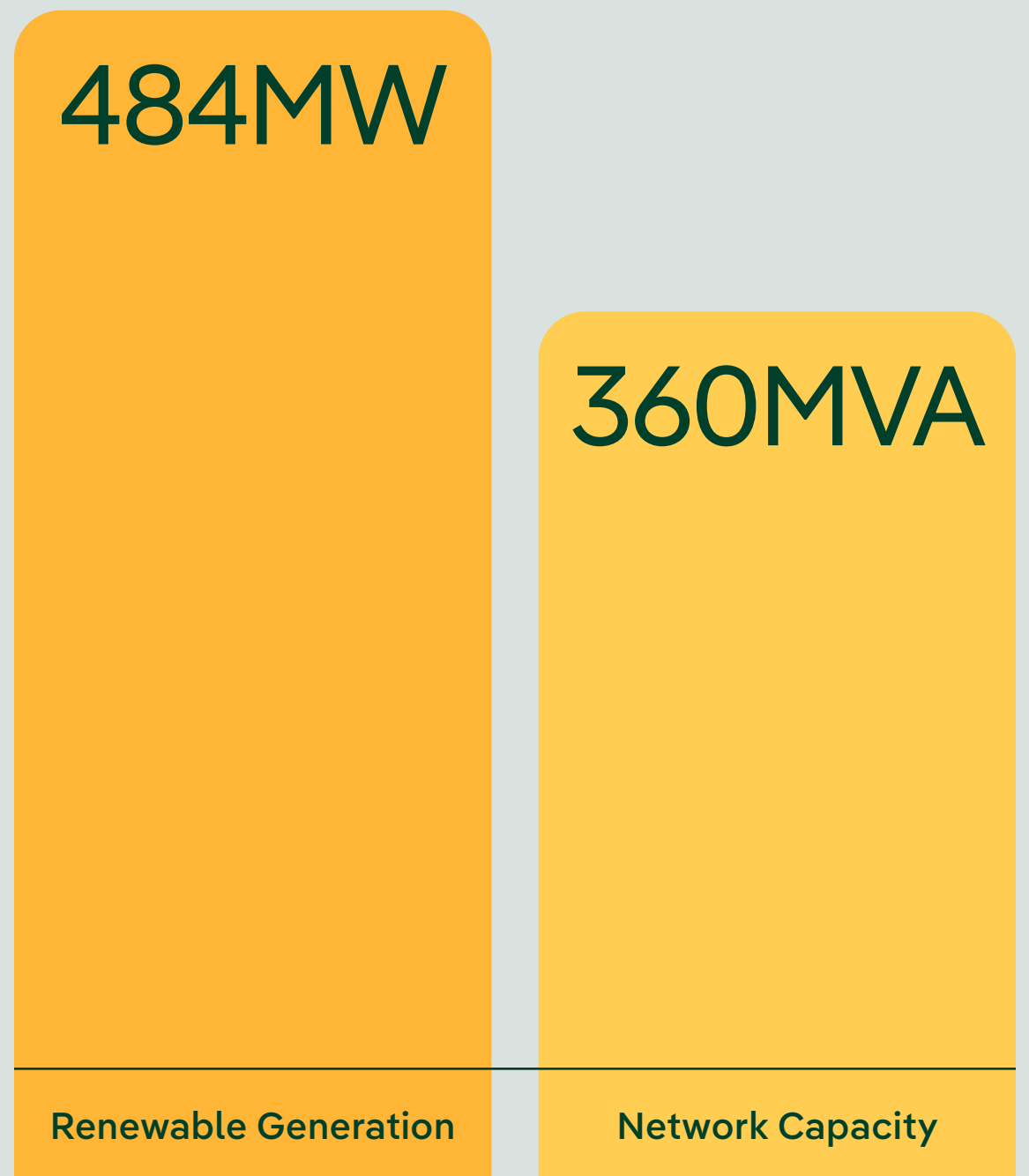
Load related expenditure in RIIO-T2

Forecasted spend as part of our RIIO-T2 Business Plan

£1,640m

Total spend to date

£122m



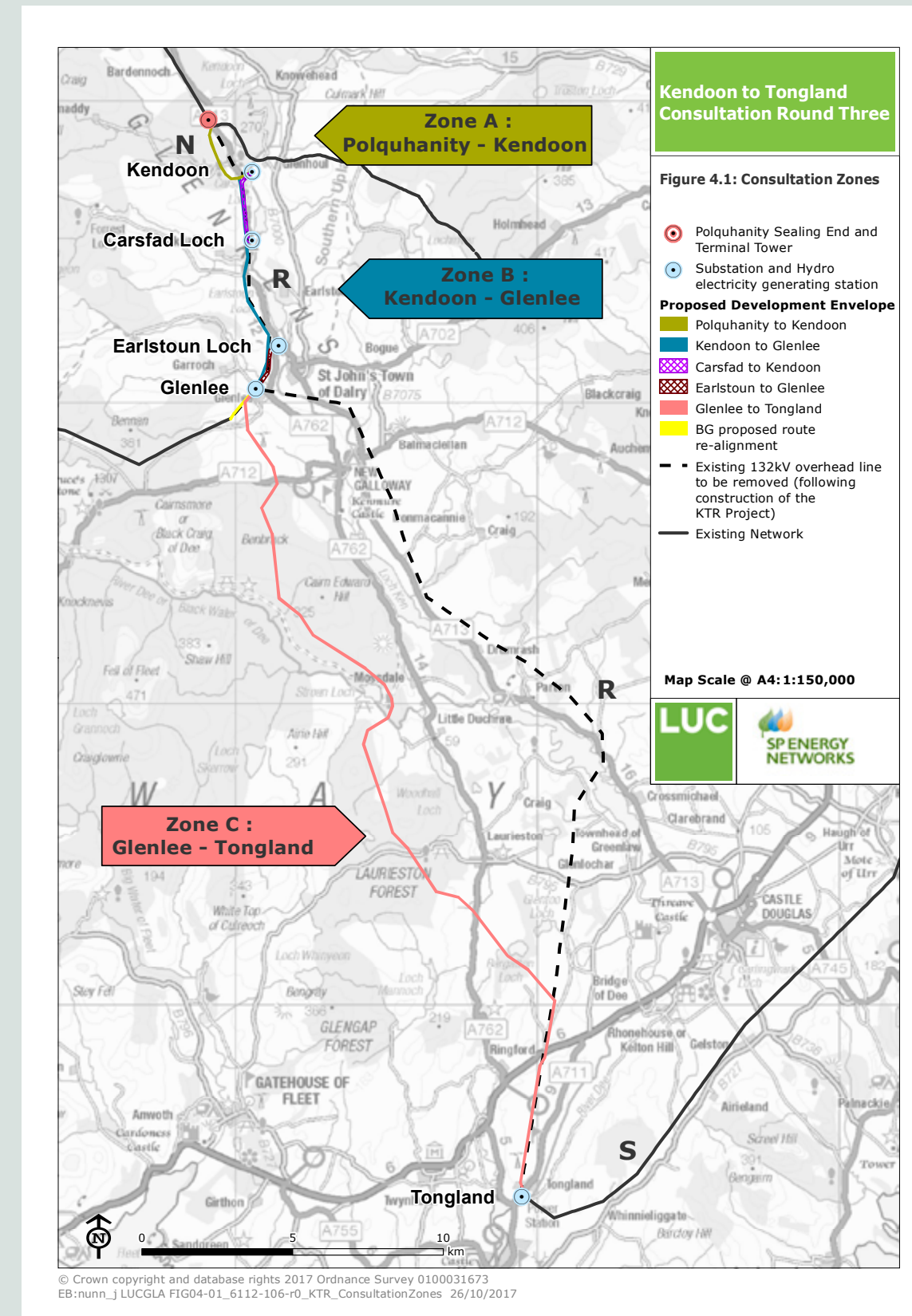
A changing landscape

In year 2 of RIIO-T2 we have continued to experience multiple factors impacting the delivery of our business plan in the Load Related area. We continue to see changes from customers in their connection dates as they experience similar issues to SPT with challenges in planning consents, landowner access and supply chain constraints for equipment.

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 (KTR) Reinforcement which comprises of three reinforcement projects but impacts around twenty other projects that are dependent on its completion. This project is going through the process of a public inquiry. Hearings took place in October and November 2022 but due to changes in the National Planning Framework further hearings have taken place over Q1 and Q2 2023 which has delayed the expected decision date to be at the end of 2023 at the earliest. This is a delay of 6-9 months from what was anticipated last year and is due to factors wholly out with SPT's control. Very limited works can progress and all connections subject to this reinforcement are delayed as a result. The consequential impact is anticipated to be much greater. Whilst matters have not been finalised, we are basing planning for the core project on a 2year delay (expected completion, 2028). 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 as well as working with the Electricity Networks Commissioner on the reforms that we consider necessary to avoid such extensive delays. Our response to the National Planning Framework 4 consultation references the need for a different approach to enable timely investment.



Network outage availability

We have also experienced several network outages being cancelled by the ESO due to network constraints and generation availability, particularly over the winter period of 2022/23. This has had a direct impact on the progress of a number of projects and the associated spend profile. The cancellation of individual outages not only impacts several projects, but the re-profiling of the outages to accommodate then has a knock-on impact on other outages that were planned at that time. An example of this is the outages for Hunterston Neilston Reinforcement which were cancelled by the ESO over the winter period. The revised outage window for these in Q2 2023 has required other projects planned for that time to be moved to accommodate the Hunterston Neilston outages. We expect this to continue to be an issue over the remainder of 2023 and for future years. We continue to work with the ESO on outage plans, but the availability of generation is increasingly the determining factor on these being granted.

The supply chain which we rely on for equipment, materials as well as services is seeing similar pressures on resources. There is also an increase in electrical infrastructure activity globally which is leading to longer lead times for equipment, for example the lead times for transformers has increased by 25%.

Transformer lead times

Now:
24 months

Pre 2020:
12 months

Continued focus on delivering our plan

Progress has continued on our Price Control Deliverables (PCDs) with the Windyhill-Lambhill turn in (WLTI) project completing in December 2022, 9 months ahead of the September 2023 target. We have however seen a change to contracted generation which has had an impact on the design and timing of several PCDs which have been adjusted to take account of this. We have had to adjust project programmes to account for these impacts and the corresponding cost profile in the T2 period. For some of these, the cost profile in the T2 period has changed from what was initially forecast in the business plan.

Windyhill movement of a 197 tonne electricity transformer



Non-load related Expenditure

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.

Managing our existing assets

Over the T2 period, the total Non-load expenditure allowance totals £458m however we are now forecasting this to be £502m, around 10% higher. We are progressing with the T2 planned outputs, however, we are experiencing significant uplift in market costs and much longer delivery periods for materials equipment and services. This has impacted our delivery profile, resulting in revisions to our plans.

Early progress

By March 2023 we completed the re-wiring of the ZA 400kV OHL route from Cockenzie to Eccles which was in line with programme and budget. This was a significant milestone with it being the largest single OHL project in T2. Progress has also been made on other OHL major and minor refurbishments which have contributed to the NARM outputs including the BC route in Fife which has been fully reconducted. Progress is also being made on various other Non-load projects including switchgear, transformer and other asset refurbishment and replacement programmes.

Non-load related expenditure in RIIO-T2

Forecasted spend
as part of our RIIO-T2
Business Plan

£524m

Total spend
to date

£161m

ZA Route: first constructed in the 1960's consists of 190 towers over a distance of 65km.



Supply chain pressures

We are continuing to see protracted lead times for equipment which has had a material impact on the delivery of the plan in year two. In the last year, we have seen increases in lead times including:

- 132kV circuit breakers which have increased from 8-10 months in 2022 to now being 14-16 months
- 132kV cable 6-8 months in 2022 to now being 10-12 months
- 60MVA transformers in 2022 18-20 months to now being 24-26 months.

The main plant for most Non-load projects is now ordered and we are working closely with manufacturers to understand how lead times are changing.

Similar to our Load programme, we are also experiencing 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.

Increase in supply chain lead times

132kV circuit breakers:

Now:
14-16 months

Pre 2020:
8-10 months

132kV cable:

Now:
12 months

Pre 2020:
6 months

60MVA transformers:

Now:
24-26 months

Pre 2020:
18-20 months

Network outages

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. The interaction with Load related activity has also had a material impact on the delivery of the plan in 2022/23 with the outages for HNNO being re-scheduled which has prevented a number of Non-load projects from proceeding.

Other assets

We have also progressed with the modernisation of our telecoms and SCADA assets. This includes the acceleration of our telecoms resilience programme across the 400 and 275kV network. This work will be followed by the 132kV Optical Transport Network upgrade.

In addition, we are working on the creation of a single control system which aims to replace the existing SCADA/CONTROL systems of SP Energy Networks, specifically the SCADA/EMS for ScottishPower Transmission (SPT) and the SCADA/DMS/OMS for the Distribution Licence areas. These systems will be replaced by a unified SCADA/CONTROL system that meets the requirements and needs of SP Energy Networks for a smarter grid and future system requirements.

SP Energy Networks control centre in Glasgow



Totex

The UK has experienced significant changes within the energy landscape, primarily, the pathway towards Net Zero. This 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 environment. We have continued to recruit over the last year to increase our capability for the development and delivery of the pipeline of additional projects

The significant increase in activity has led to constraints on several fronts including supply chain capacity and outage availability. We have engaged extensively with the supply chain as the lead times for equipment continue to extend substantially for all types of equipment as well as significant cost escalation. This is due to inflationary pressures and global demand for equipment as countries across Europe and further afield seek to decarbonise and transform their electricity networks. The continually evolving landscape for generation connections has been the largest factor for the difference between the baseline allowance in year 2 and actual spend. As a result of these pressures, our spend in the second year has continued to be below that envisaged in our original business plan. The Company remains confident, however, that it will be able to deliver its investment plan and agreed commitments.

The profiling of expenditure over the five years has changed because of changes due to the generation landscape and other external factors including consents and supply chain availability. A significant number of projects are in progress and after two years of RIIO-T2, we have now completed several of our asset replacement projects including ZA 400kV OHL re-conductoring, our largest OHL project in RIIO-T2.

In 22/23, we also connected several wind farms, including Dalquhandy Windfarm, South Kyle, Harting Rig, Sandyknowe and Cumberhead. A new connection was also provided to Network Rail to support the electrification of the rail network to the west of Glasgow. The Windyhill-Lambhill Turn In which was identified as a Price Control Deliverable was completed ten months ahead of schedule and provides progress to increased boundary transfer capacity in central Scotland. Connection applications for onshore and offshore wind farm connections continue to increase year on year, with a greater number of applications now being seen for energy storage.

Network Operating Costs for year two of the RIIO-T2 period are £15m compared to an allowance of £22.84m. The capex element of the allowance is slightly behind. This is mainly attributable to lower expenditure on flood defence works and a review of physical security measures, which has necessitated a reprofile of this expenditure.

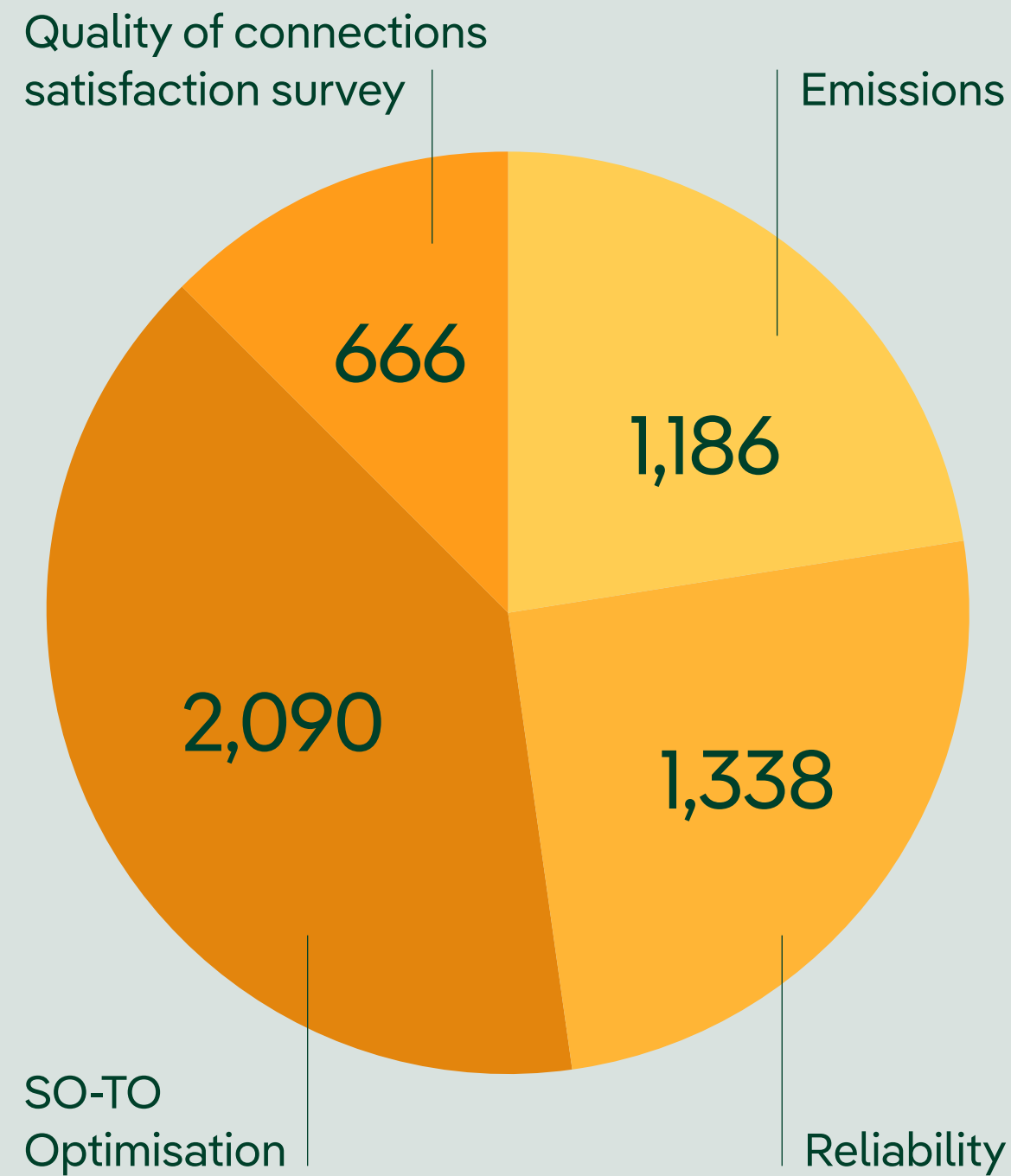
Totex comparison		Allowance (2022/23 real £m)	Actual (2022/23 real £m)	Variance (2022/23 real £m)
Capex	Wider Works	81.35	27.67	53.68
	Other LR Capex	50.41	44.85	5.56
	Sub-Total Load Related Capex	131.76	72.53	59.23
	Asset Replacement Capex	88.68	66.88	21.80
	Other Capex	15.98	6.36	9.61
	Sub-Total Non-load Related Capex	104.65	73.24	31.41
	Non-Operational Capex	1.99	2.54	-0.55
	Total Capex	238.41	148.30	90.11
Opex	Faults	3.94	3.63	0.32
	Inspections	1.75	1.03	0.73
	Repairs & Maintenance	9.92	7.54	2.38
	Vegetation Management	0.41	0.26	0.14
	Legal & Safety	4.70	0.71	3.99
	Operational IT	2.11	1.89	0.22
	T1 Carry over	0	1.57	-1.57
	Total Controllable Opex	22.84	16.63	6.20
Indirects and Other costs	Indirects	55.12	62.73	-7.61
	Other	7.08	7.73	-0.65
	Total	62.20	70.46	-8.26
Total	323.44	235.40	88.04	

Our Revenues

Our Revenues

In 2022/23 we recovered £366.7m. 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 2022/23 (£ thousands)



Changes in actual or forecast performance under the various incentive schemes will affect revenue allowance in the next round of tariff setting, until final performance is known – a lag of up to two years.

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.

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, and our [Regulatory Financial Performance Report](#).

5-year average 2022/23 RoRE

4.67%	Base Return Set by Ofgem for the 5-year period, reflecting movements in market conditions
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.
0.10%	Reliability Incentive
0.11%	Emissions Incentive
0.00%	Timely Connections Incentive
0.09%	Quality of Connections Incentive
0.04%	SO-TO Optimisation Incentive
0.00%	Environmental Scorecard Incentive
-0.02%	Network innovation
5.06%	RoRE – Operational performance

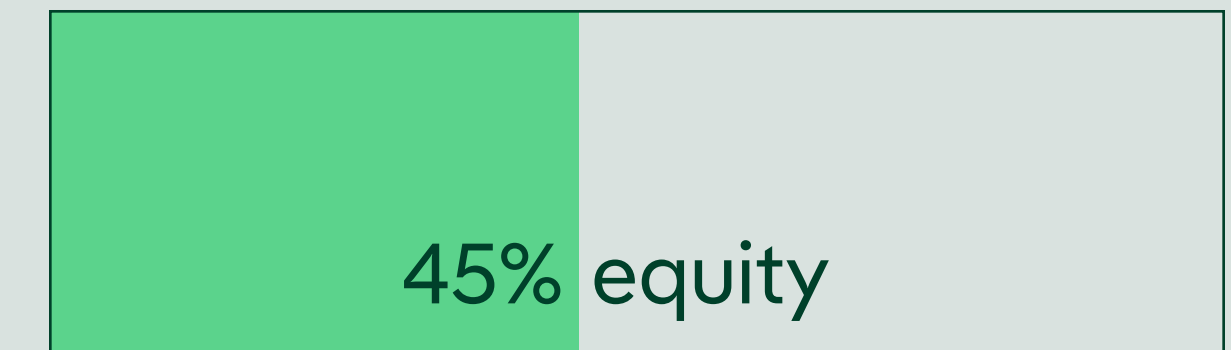
RAV (Regulatory Asset Value)

For every pound that we spend, we collect 15% of the costs in the same year and 85% of cost over life of the asset.

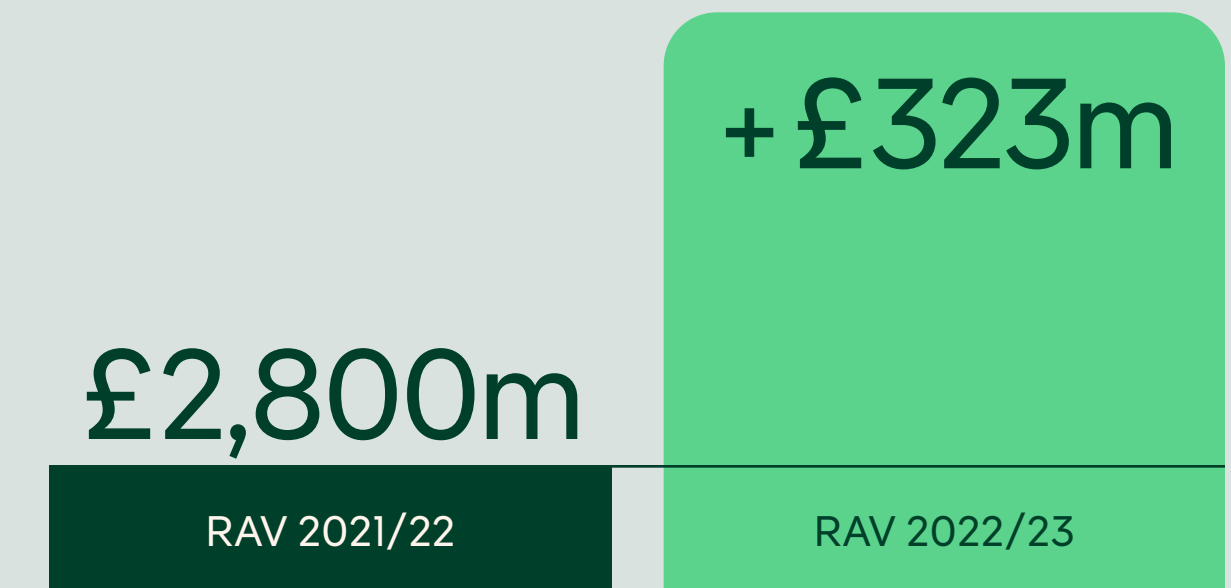


Ofgem assume that we fund this RAV by:

- 55% borrowing of which the allowance for interest payments is 1.90% in 2022/23
- 45% equity with return of 4.26% in 2022/23
- Weighted average cost is 2.96% in 2022/23



As at 31st March 2023 our RAV was £3,123m (2022/23 prices), up on the prior year at £2,800m (2021/22 prices) due to higher investment on the network going into the RIIO-T2 price control period.





Looking Forward

Accelerated Strategic Transmission
Investment (ASTI)

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Accelerated Strategic Transmission Investment (ASTI)

To meet the UK and Scotland's Net Zero and offshore wind targets, acceleration of strategic transmission infrastructure is urgently required.

SPT has therefore collaborated closely with Ofgem, Government, the other Transmission Owners (TOs), and the ESO to develop an updated regulatory framework to enable the timely development and delivery of major transmission projects. This streamlined regulatory process, the Accelerating Strategic Transmission Investment (ASTI) framework, enables faster regulatory decisions on projects and earlier access to funding to develop projects. We welcome the developments in Ofgem's recent decisions on the ASTI regulatory framework to support the TOs as they look to undertake delivery of a significant portfolio of strategic transmission works.

National Grid Electricity System Operator (NGESO) published the Holistic Network Design (HND) and Network Options Assessment (NOA) 2021/22 Refresh on 7th July 2022. The importance of the onshore transmission infrastructure identified to meeting Government targets cannot be underestimated. When the programme of onshore transmission works identified as "Required for 2030" targets is considered as a whole, it will more than double the capability to transfer power between Scotland and England, facilitating the connection of onshore and offshore renewable developments and the achievement of Net Zero targets.

The table opposite shows the SPT projects identified in NGESO's HND and NOA 2021/22 Refresh as "Required for 2030" targets.

The SPT element of the four projects highlighted in the table will be delivered via the new ASTI framework. The other projects in the table will be delivered via existing regulatory mechanisms e.g. as Medium Sized Investment Projects (MSIP's). Further major transmission projects, over and above those listed here, will be required as we progress towards Net Zero.

However, SPT faces significant challenges in delivering our four strategic ASTI projects, as well as the wider set of transmission works required by 2030. A key challenge is the planning and consenting framework for electricity transmission projects, which can be one of the longest and most uncertain stages in a project's development. Alongside SSEN Transmission, we have been working closely with the Scottish Government on reforms to the overhead line planning process in Scotland, exploring ways to accelerate the process to secure a determination within one year of a planning application being submitted. We have also engaged with UK Government and Ofgem on planning, given the need for a coordinated approach to updating legislation and reforming the planning process.

Stakeholder Engagement

The recent Electricity Networks Commissioner report, commissioned and published by UK Government, set out that acceleration in planning is required, with clearly defined timescales. We strongly support this request and have welcomed the clear consensus across the industry and policymakers that reform is required to support the delivery of strategic projects in the interests of consumers.

Following a dramatic increase in global demand for critical transmission network components as countries worldwide seek to decarbonise their electricity system, TOs are experiencing longer lead times for assets and greater challenges securing supply chain capacity.

SPT is therefore working closely with industry partners, the regulator and government on issues relating to the supply chain to manage and mitigate risks associated with supply chain constraints. Whilst the challenges to delivery as we look ahead to 2030 are significant, we will continue to engage with our stakeholders and communities to support the delivery of the transmission infrastructure required to meet national and devolved government ambitions, whilst ensuring the safe and secure development of the energy system.

HND/NOA7 projects identified as "Required for 2030" targets

E2DC	Establish a High Voltage Direct Current (HVDC) subsea link from a new Branxton 400kV Substation (near Torness) to Hawthorn Pit in the northeast of England. Branxton 400kV Substation will facilitate the connection of offshore renewable developments as well as the reinforcement of capacity between Scotland and England.
DWNO	Establish a new 400kV OHL from Bonnybridge substation to an existing OHL north of Glenmavis, together with associated substation works, conductor replacement and voltage uprating on existing OHL routes.
TGDC	Establish a second new HVDC Eastern subsea link from the SPT area, to south of the Humber estuary, in the northeast of England, together with associated onshore works.
TKUP	Establish new 400kV substations at Mossmorran, Westfield and Glenrothes to establish a 400kV double circuit corridor, on existing overhead line routes, between Kincardine North and the SSEN Transmission Tealing substation.
DNEU	Install a new 400/275kV 1000MVA Supergrid transformer (SGT2) at Denny North 400kV substation.
DWUP	Establish a 400kV single circuit corridor south from Kincardine North, on existing overhead line (OHL) routes, to Clyde's Mill substation.
LWUP	Establish a new 400kV substation north of Kincardine and connect to Denny North 400kV Substation, integrating load and non-load related investment drivers and enabling significant reinforcement of transfer capacity through central Scotland.
VSRE	Replace existing OHL conductor on the strategic east-west Strathaven - Smeaton (XH/XJ route) corridor with modern high temperature low sag (HTLS) conductor, similarly integrating load and non-load related investment drivers.
EHRE	Replace existing OHL conductor on the southern (Elvanfoot - Harker) section of the strategic north-south Strathaven - Harker (ZV route) corridor with HTLS conductor.
BDUP	Uprate the Beaully - Denny OHL route to double circuit 400kV operation.
DLUP	Establish a new 400kV substation at Windyhill and a 400kV single circuit corridor, on existing overhead line routes, between Windyhill, Lambhill and Denny North.
VERE	Replace existing OHL conductor on the northern (Strathaven - Elvanfoot) section of the strategic north-south Strathaven - Harker (ZV route) corridor with HTLS conductor.

