

SP Transmission Annual Performance Report 2018/19



WINNER



**SP ENERGY
NETWORKS**

Welcome

As Scotland drives towards net-zero emissions we continue to have a critical role in the decarbonisation of the electricity generation system. We are also, however, a vital service provider for around 2 million of Scotland's population and it is crucial to ensure that electricity generators and consumers continue to benefit from the outstanding levels of reliability to which they are accustomed.

Over the last 6 years we have invested over £1.8bn in our transmission network as part of a demanding investment programme, and are firmly on track to deliver on all our T1 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. Since 2013, we have connected 1500MW of new generation directly to our system, 60% of our output target of 2503MW for the price control period. Our forecast for the RII0-T1 period remains at 1620MW. We continue to work closely with developers to seek earliest connections where it is cost efficient and economical to do so. We have also had to adapt to the challenge of factors such as the closure of large thermal power stations. Equally, we have invested heavily to maintain and upgrade our network to ensure long-term, reliable electricity supplies to our customers. Given the abundance of renewable energy in and around Scotland, our network is strategically important in allowing this energy to be harnessed and transported to meet demand in England. Increasingly, the network must also be capable of allowing electricity to be imported into Scotland during periods of low renewable generation. We have also delivered an increase in Scotland-England transfer capacity from 2,900MW at the start of RII0-T1 to 6,600MW, a major component of which is the Western Link HVDC project which we built alongside National Grid.

Our stakeholder engagement is embedded throughout our business and strengthens each year. We are delighted that our stakeholders recognise the improvements we are making on a continuous basis to meet their needs. The score on our stakeholder satisfaction survey continued to improve I'm also very proud of our industry leading innovation programme, our progress in the areas of sustainability and our continued strong safety performance in line with our commitment to cause zero harm to everyone in proximity to, or working on our network.

SP Energy networks during 2018/19 received the BSI Kite Mark Certification for Customer Service. We are the first utility in the world to have achieved this new standard, and we were benchmarked first in the UK by Institute of Customer Service versus an equivalent seventh place last year.

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.



Frank Mitchell
CEO of SP Energy Networks

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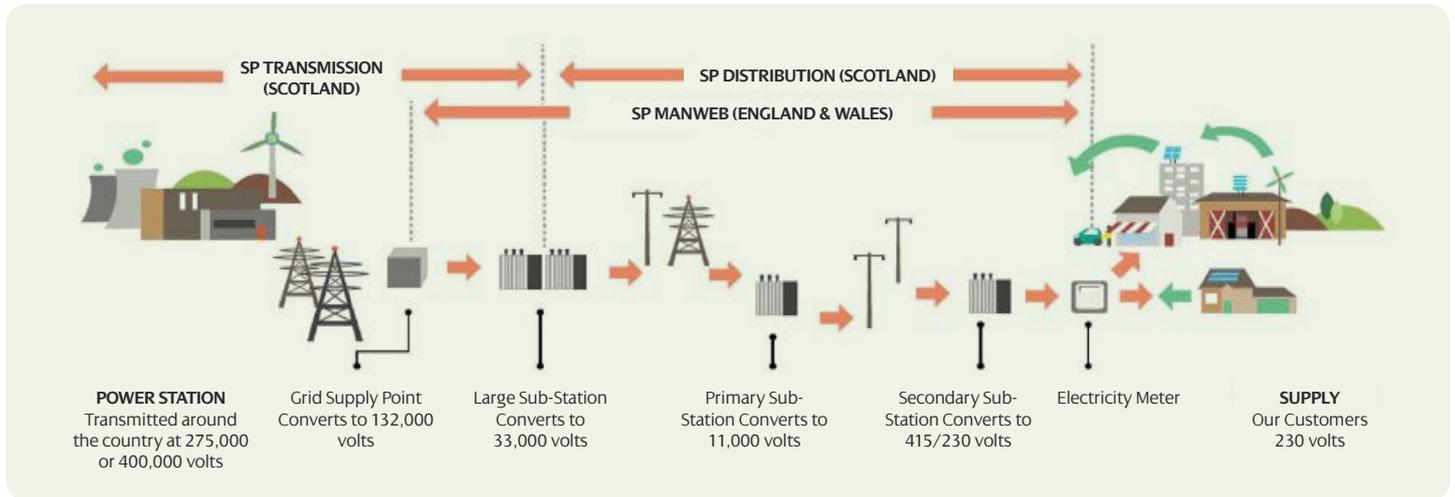
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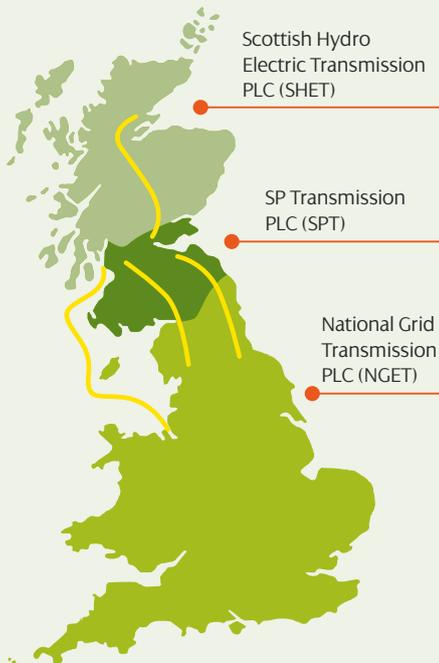
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Our Business

We transmit, distribute and connect electricity to and from homes and businesses over our network.



GB Transmission Operators and Interconnections



SP Energy Networks, is part of the Iberdrola Group, that owns three regulated electricity network businesses in the UK: SP Transmission plc (SPT), SP Distribution plc (SPD) and SP Manweb plc (SPM). This report relates to the performance of our transmission company, SPT during 2018/19. We are the licensed Transmission Owner (TO) for the Central Belt and South of Scotland. Our transmission network comprises just over 4,000 kilometres of circuits and 150 substations operating at 400kV, 275kV, 132kV and 33kV. We take electricity generated from power stations, wind farms and other sites and transport it through our vast transmission network to centres of demand. This provides transmission services to National Grid, who as the GB System Operator (GSO) coordinates the electricity flows by balancing generation supply and user demand.

Our vision as a business has always been to be a customer-focused company trusted by our communities and stakeholders; an engineering company with strong stewardship of assets and world-class safety credentials, that attracts and develops skills for the future from the communities that we serve.

We are a regulated utility with a licence to operate awarded by Ofgem, the GB energy regulator. Our regulation is set to create incentives for us to meet the outputs that our stakeholders value at efficient cost. Price Control is our core mechanism for this, and defines outputs and revenue allowances for an eight year period, based on a business plan that we produce in consultation with our stakeholders.

Our business plan for 2013 to 2021 was “fast tracked” as it was recognised by Ofgem as of high-quality. The plan embodies a range of outputs relating to reliability, how we modernise our network, how we contribute to environmental objectives, and how effectively we engage with our stakeholders. These outputs are linked to financial incentives.

Within Scotland we have a key, and strategic role to play in facilitating the connection of renewable generation, which is critical to meeting GB environmental targets. Our revenues are therefore linked directly to specific, large-scale investment schemes – so called ‘wider works’. One of the key uncertainties we need to manage is the timing, volume and location of new generation – particularly in the context of large changes to how generators are remunerated, and subsidised through Government policy.

SP Transmission
Annual Performance Report 2018/19

Our performance in summary



Executive summary

This report shows how our business has performed during 2018/19.

As we are now in our last years of the plan, we are pleased that our strong start has been maintained. We remain on course to complete our ambitious programme of network renewal. Delivery of key projects has resulted from meticulous long term planning as we continue to provide what we stated we would do at the outset of the business plan period.

Our asset replacement related programme is continuing very well with delivery of a broad range of outputs. This is evident from the extent to which we are ahead of plan – on a cumulative basis; we have delivered 67% of our total asset renewal outputs, well ahead of our RIOT1 plan of 60% for the first six years. Indeed, we are almost 75% through our overhead line replacement programme of 800km, 60km ahead of our plans at this stage. Our total spend in 2018/19 was £187.7m, £88m below our original plans, taking our cumulative investment in the RIIO-T1 price control period to over £1.8bn. Overall for the RIIO-T1 period, the position relative to allowance will vary, reflecting changes in project delivery profiles since the RIIO -T1 Business Plan was submitted and also the evolving picture of generation connections. SPT currently forecast that by the end of the RIIO-T1 period, it will have spent £76m less than allowance, through efficient project delivery and changes to forecast allowance and expenditure for generation connections.

Connections to our network increased with two new windfarms being connected in the year, both to Coalburn on the 'west' power corridor to England, delivering 140MW of new generation capacity. Kype Muir wind farm accounted for nearly two-thirds of the total. This brings the total to 1,500MW, 60% of output target of 2,503MW for the price control period. Our forecast for the RIIO-T1 period remains at 1,620MW. We continue to work closely with developers to seek earliest connections where it is cost efficient and economical to do so.

The new connections have been accompanied by a range of reinforcement projects to strengthen the network and facilitate future connections. We provided 300MVA of additional capacity in the reporting year around Coalburn and in South West Scotland areas, facilitating connection of new generation directly to our network and also enabling connections via the distribution network. Our forecast remains stable at 3,482MVA for the full period, over three times the original target.

We continue to work effectively with our stakeholders, and this is driving a wide range of benefits as reflected in our stakeholder engagement performance. This is measured through our stakeholder satisfaction survey which showed a continual improvement, with an average satisfaction score of 8.5/10, a year on year improvement of 0.2, this is significantly better than our benchmark of 7.4.



Overall stakeholder satisfaction survey – highest performance recorded for a third consecutive year, against a benchmark of 7.4.

The key indicators of our performance are also looking healthy. Undelivered energy as a result of faults on our networks was 39MWh, a reliability of 99.999805%, well below the benchmark level of 225MWh. We have achieved this despite a high level of network depletion due to the volume of project works, through meticulous co-ordination across our portfolio and robust contingency planning. Our world-class standards of safety continue to be in evidence, with zero incidents and significant initiatives to promote public safety and continue our collaboration to build the right culture of safety among our contractors.

The Western Link HVDC project, a joint venture with National Grid to increase the interconnection capacity between Scotland and England was completed in late summer 2017. This project supports the transition to a low carbon economy by providing further capacity for renewable energy schemes in Scotland whilst also enhancing the ability to import power into Scotland during periods of low renewable generation. Despite some operational setbacks, the link in October 2018 was commissioned for its full capacity North to South (2,250MW continuous, 2,400MW overload). A small number of final tests remain outstanding, inhibited for most of 2019 by the unavailability of generation from the Hunterston nuclear plant. Commercial take-over of the link is expected in late 2019. With the Western HVDC operational, the power transfer capability between Scotland and England is increased to 6,600MW, more than doubling the capacity since the start of RIIO-T1.

We have completed a cumulative 67% of non-load outputs in the reporting year. Our T1 submission forecast achieving 60% for the equivalent period, taking outages for our significant load programme in to account. Our comprehensive planning approach has enabled us to achieve more than this without increasing network risk. Works are progressing well on site for delivery of all the remaining units with the exception of one transformer project which will mobilise in 2019.

Our pipeline of innovation projects and deployment continues to expand, with the aim of addressing key future challenges for UK transmission and delivering our services efficiently and effectively. We continue to lead amongst TOs in respect of innovation and maintain our successful innovation programme whilst simultaneously delivering key outputs.

We are committed to transparency in how we report our performance, and welcome the positive feedback that this format of reporting has received to date from our stakeholders. We hope you find this year's edition to be informative, and easy-to-read.

Outputs at a glance

Output	Metric/Target	Actual (In Year)	Status	Year on Year Trend	Comment
Stakeholder KPIs	69% (Ofgem break even level)	71%			This score of 71 reflects the consistency in our performance on connection offers, engagement with connected customers and broad interest customers.
Stakeholder survey	7.4 (Ofgem break even level)	8.5			For the third consecutive year we have recorded our highest ever performance in the annual survey, with the rating for overall satisfaction increasing to 8.5 from 8.3 in 2017/18.
Stakeholder engagement Ofgem panel score	Ofgem – Target out of 10	4.94			Our rating from the panel dropped from 6.4 to 4.9.
Timely connections	100% (74 calendar days to submit final offer)	100%			104 in year connection offers made on time maintaining our high standard of achieving 100% last year.
Network capacity	1,073MVA (RIIO-T1 baseline forecast)	300MVA			Cumulative total for the price control is now 2,002MVA. Our new forecast position for the end of RIIO-T1 is to deliver 3,482MVA.
Connections to the network	2,503MW (RIIO-T1 baseline forecast)	139MW			Cumulative total for the period is now 1,500MW equating to 60% of output target. Our new forecast position for the end of RIIO-T1 is to deliver 1,620MW.
Modernisation outputs	59.9% (RIIO-T1 business plan target)	67%			We continue to stay ahead of our planned outputs for RIIO-T1, keeping us on track to deliver our network renewal outputs in full.
Energy not supplied	225MWh (Based on 10 year average pre RIIO-T1)	39MWh			Increase from the exceptionally low level of 3.0MWh recorded last year and represents 0.0002% of energy not supplied across the year maintaining our outstanding network reliability.
Contractor safety	Total Recordable Injury Rate (TRIR)	0.27			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 and we have seen a marked reduction for last year's 0.68.
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.
Environmental discretionary reward	50% to 69% (Targeted score in 'Proactive' range)	69%			No award was achieved this year, EDR decrease from last year's score by 13%.
Carbon footprint – SF ₆ leakage	788kg (2019 Licence term)	696kg			12% below 2018 target but an increase from 460kg recorded last year.
Carbon footprint – Network losses	No individual target. This is included within the Total BCF target.	203,810 tCO₂			This is an increase from last year's emissions of 186,326 tCO ₂ e.
Carbon footprint – Building losses*	6,584 tCO₂e	2,002.31 tCO₂e			This is a decrease on last year's emissions of 2,134.64 tCO ₂ e.

*Until reporting year 2018/19 we reported on metered substations only, in addition to this we were made aware of duplicate recording of energy consumed at our depots on our annual statement. We have informed Ofgem and made amendments to the start of RIIO-T1.

Status

Ahead of target On target Below target

Year on year trend

Ahead of target On target Partially Below target Substantially Below target

Financial Performance Summary

Our expenditure

This year:

Our total expenditure this year was £187.7m. This was £88m below our totex allowance. The breakdown was as follows:

Totex comparison (2018/19 real £m)	Allowance £m	Actual £m	Variance £m
Load Capex	129.9	63.1	-66.7
Non-Load Capex	119.2	87.7	-31.5
Controllable Opex	26.6	36.9	10.2
Totex	275.7	187.8	-88.0

Forecast to 2021:

We have updated our forecast expenditure for the duration of the business plan to reflect the response from generation project developers to changes to funding support for renewables. Our best estimate is now:

Totex comparison (2018/19 real £m)	Allowance £m	Actual £m	Variance £m
Load Capex	1,285.0	1,226.6	-58.4
Non-Load Capex	870.5	779.4	-91.1
Controllable Opex	206.7	280.2	73.5
Totex	2,362.3	2,286.2	-76.0

The most significant factor affecting the revised forecast has been our review on the likely scale and timing of renewable generation connections.

Our revenues

This year our allowed revenues totalled £376.3m, of which £11.5m related to past incentive performance and adjustments for under recovery.

Our performance this year earned incentive payments of £4.8m, which reflected in our allowed revenues next year.

The breakdown of incentive was as follows:

Incentive awards earned in 2018/19 (revenue received in 2020/21)

Smaller incentives earned in 2018/19	£ thousands
Stakeholder engagement	338
SF ₆ emissions	85
Larger incentives earned in 2018/19	£ thousands
Stakeholder satisfaction	1,957
Reliability	2,406

Our Return on Regulated Equity (RoRE)

Our closing Regulatory Asset Value (RAV) this year was £2,433m (up from £2,382m last year). Our performance related projected average real return over the 8-year price control period is based on totex out-performance of £74.1m (2016/17 prices):

8-year average 2018/19	Return on Regulatory Equity (RoRE) – All numbers reflecting Ofgem’s Notional Gearing methodology.
7.00%	Base Return – Set by Ofgem for the 8-year period.
0.98%	IQI Additional Income – Agreed by Ofgem as part of the price control, and is a reward for the quality of our business plan and recognition of our fast-tracking.
0.50%	Totex Efficiency Savings – Any savings we make on our investment plan are shared 50:50 with the consumer, and we are currently forecasting some savings over the 8-year period. This results in a benefit to both consumers and our shareholders, and is in addition to meeting all of our specified outputs.
0.21%	Reliability Incentive
0.01%	SF₆ Emissions Incentive
0.13%	Stakeholder Satisfaction
0.11%	Environmental Discretionary Reward
-0.05%	Network Innovation Contributions
8.89%	RoRE – Operational Performance

SP Transmission
Annual Performance Report 2018/19

Key performance areas



Serving our stakeholders and communities

SP Transmissions' focus is simple - ensuring that our network in central and southern Scotland continues to provide a safe and secure supply for around 80% of Scotland's population and playing our key role in the decarbonisation of the UK energy system. In recent years this has involved the investment of over £1.5 billion in our network with much of this activity being a direct result of the key part we play in supporting the countries move to clean energy and a more sustainable environment for the communities across our area and beyond. A crucial approach in successfully delivering this level of investment is our Stakeholder Strategy which we have continued to develop over a number of years building further on our good performance. We recognise the importance and benefit of engaging with a broad range of stakeholders and their positive feedback gives us confidence we are travelling in right direction.

Stakeholder Engagement Strategy

Our stakeholder engagement strategy is a priority in all we undertake to do. We understand that our investment programmes can at times involve and affect communities and stakeholders in many different ways and ensuring we have a clear understanding of this allows us to consider these wider requirements at an early stage as we develop and deliver our projects.

Good listening is all important

Experience has taught us the importance of being good listeners – across the business we make every effort to tune into what our stakeholders are telling us. We do this through a number of channels as we build positive long term relationships. Our planning team frequently holds public consultation events as part of the consenting process and our community liaison and project teams regularly engage with community councils, residents and business in a range of ways – advising them of work in advance and gathering local knowledge that will assist in the smooth delivery of our projects. Our project teams are strongly encouraged to be more involved when engaging with stakeholders and this is paying dividends. We regularly provide information to our supply chain and provide opportunity for them to meet with us along with attending sector events.

Community Liaison Plans

Each of our major projects are individually assessed at an early stage by the Community Liaison Team to gauge the potential impact of the work involved. Drawing from previous experience and local knowledge from communities a tailored community liaison plan is created for each project to minimise any inconvenience or disruption on communities.



Listening carefully to our stakeholders is key to our success.

The importance of everyone being involved

Successful stakeholder engagement and community liaison can only be achieved by everyone getting on board. Information sharing and dialogue between internal areas of the business allows us to plan our programmes and work dates ensuring a joined up approach in turn reducing impact on communities. The Tractivity stakeholder management system which was introduced in recent years allows different business areas to have sight across all stakeholder activities.

Supply Chain

Over 80% of our investment is delivered through our supply chain – maintaining a good relationship with this group of key stakeholders is a crucial part in our projects being delivered. The introduction of individual points of contact at SPEN for all contractors along with face to face meetings with our biggest suppliers has benefited all parties. Our biannual HSEQ Forum (Health, Safety, Environment and Quality) and annual Supply Chain Event are growing in attendance each year reflecting the efforts we are making to facilitate interaction and discussion opportunities in these settings. The quarterly supplier newsletter continues to be distributed providing a broad range of information.

Engagement with the broader community

Communicating with residents and groups directly affected by our work is central to our community engagement. Our success also lies in positively engaging with the wider community supporting a variety of events and working with schools. Our teams are often visible at local events and fairs with one of our exhibition trailers as well as taking part in a wide variety of careers related events at secondary schools throughout central and southern Scotland. We also deliver our “Techy Bites” sessions – various areas of our business will set aside time to visit groups such as elderly lunch clubs and provide an interactive learning opportunity and insight into the transmission network and how it operates.

Ensuring information is available

The SPEN website is regularly updated with information on our transmission projects – in this digital age it is important to provide easy access to information along with a point of contact should anyone want to communicate directly – our development and delivery projects are included in our investment and community consultation pages.

How we are measured

The assessment of our stakeholder engagement by Ofgem's independent panel of experts gave us a score of 4.94 which is a drop in performance from last year. We are working hard to address the identified areas for improvement.

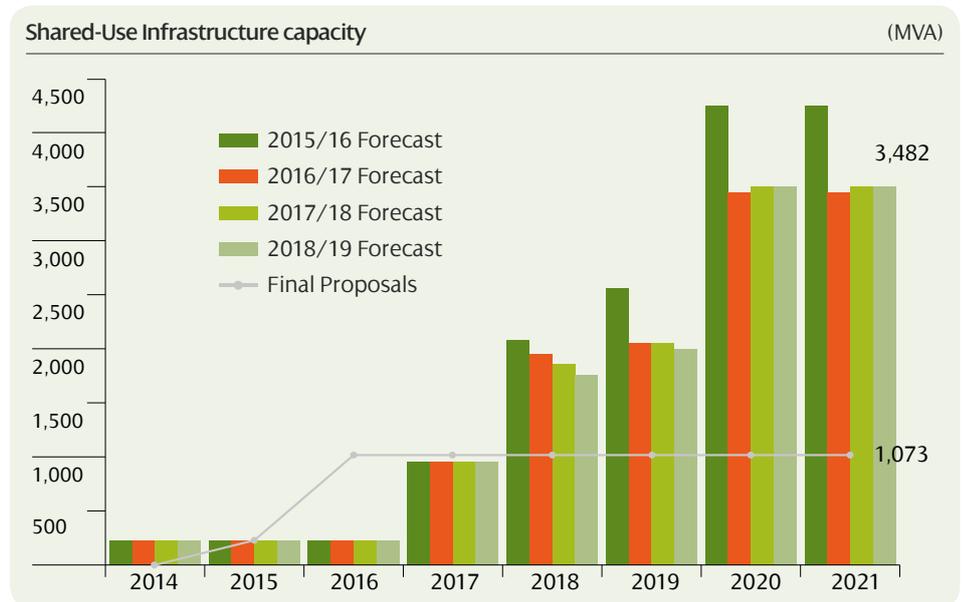
An annual stakeholder survey is carried out by an external company providing feedback and scoring from the broad range of stakeholders we interact with. We continue to work more effectively with our stakeholders and this continues to drive a wide range of benefits which has been reflected again in this year's performance. For the third consecutive year our score has increased, achieving our best ever score 8.5 out of 10.

Facilitating renewable generation

Going low carbon

We are realising the low-carbon transition in a way that represents the best value for money. Building too many assets would require excessive investment from our customers, but building too few risks costing our customers more money in the long run through constraints on low-carbon generation. Recent years have been affected by government policy changes on renewables development and the resultant uncertainty faced by our customers in the Renewables sector. Following announcements on changes to subsidy arrangements for renewable generation, we undertook an extensive exercise to gain a better understanding of likely levels of generation that will ultimately connect to our network. We regularly revisit this uncertain area of our plan.

Connecting renewable energy to the grid is key to the decarbonisation of the energy system. We are finding new and innovative ways to connect more renewables to the system quicker.



Following discussions with Ofgem, we are providing £20m (nominal prices) through the introduction of a Green Economy Fund to enable uptake of low carbon technology. The company is working with the Scottish Government and Ofgem to fund low-carbon initiatives which supports local economic growth. The Green Economy Fund focuses on the communities in which the company operates – central and southern Scotland – and will run until the end of RII0-T1. To date support has been given to 13 of Scotland’s most innovative low-carbon transport and heating projects. These include a ground-breaking new partnership with First Bus Greater Glasgow, to bring the first large passenger electric buses to Glasgow.

In Edinburgh, a mini hydro-electric scheme on the Water of Leith at Saughton Park will also receive funding as will an innovative app which tracks electric vehicle charging points.

We expect to deliver a significant increase in additional network capacity over and above the baseline target of 1073MVA delivering an overall increase in network capacity of 3,482MVA by 2021. This additional capacity will support the connection of renewable generation for the benefit of customers and facilitate the achievement of UK and Scottish government climate change targets as we continue to design the most cost-efficient and economic solutions to meet customer needs.

Facilitating renewable generation

Delivering the network capacity

This year we have continued to demonstrate our ability to deliver additional network capacity allowing new sources of renewable energy to connect to the electricity system.

We provided 300MVA of additional capacity in the reporting year around Coalburn and in South West Scotland areas, facilitating connection of new generation directly to our network and also enabling connections via the distribution network.

The challenge facing the UK is to deliver energy security and diversity while reducing carbon emissions. With the existing transmission overhead line links between Scotland and England operating at their capacity an additional link was necessary.

Construction on the Western Link HVDC was completed in late summer 2017 utilising subsea cables to provide the link. Due to damage to the facility during commissioning,

full operation was delayed. However, the Link was successfully commissioned in 'monopole' configuration allowing operation up to half full capacity (1125MW) over winter 2017/18.

Despite some operational setbacks, the link in October 2018 was commissioned for its full capacity North to South (2250MW continuous, 2400MW overload). A small number of final tests remain outstanding, inhibited for most of 2019 by the unavailability of generation from the Hunterston nuclear plant. Commercial take-over of the link is expected in late 2019. With the Western HVDC operational, the power transfer capability between Scotland and England is increased to 6600MW, more than doubling the capacity since the start of RIIO-T1.

HVDC Converter Station Hunterston



Connecting new generation

Helping individual projects connect

Two windfarms were connected in 2018/19. Both of these were connected to Coalburn on the 'west' power corridor to England, delivering 140MW of new generation capacity. This brings the total to 1500MW, 60% of output target of 2503MW for the price control period. We continue to work closely with developers to seek earliest connections where it is cost efficient and economical to do so.

The volume of connection offers we made increased to 104 this year, compared to 60 last year. Offers are continuing to be made to a diverse range of projects, including solar, hydro and CHP. Changes in the wider energy policy context are continually being assessed and reflected in our forecast level of connections and the expenditure to support them. Our forecast remains, as last year, that we will connect 1,620MW of new generation in T1. As part of our forecasting process, we classify connections into high, medium and low probability bands and our forecast for RIIO-T1 continues to be based on only the high probability connections.

Kilgallioch Windfarm



We have had a very successful year in facilitating access to the transmission network for renewable generation with the connection of an additional two on-shore wind farms.

The transmission system in south west Scotland will in the future be operating beyond its transmission capacity and solutions will need to be developed to manage the system and facilitate future generation connections. In collaboration with NGENSO we have been discussing with developers the best way forward to manage the system and facilitate their connections due to this lack transmission capacity.

A new innovative £5m Generation Export Management System is being designed. It will facilitate the connection of new users on the Distribution and Transmission systems through Active Network Management agreements, without incurring significant reinforcement cost for the end consumer.

Connected generation in the RIIO-T1 price control to March 2019

Project Name	Location	Connection Date	MWs
Fallago Windfarm Connection	Fallago	2013/14	180
Moffat 400 (TORI 15) – 132 kV (TORI 16) SS & Harestanes Connection	Moffat	2013/14	220
Blacklaw Windfarm Extension	Linmill	2015/16	69
SWS Ph 1 – Dersalloch Windfarm Connection & OHL	New Cumnock	2016/17	69
Galawhistle Windfarm	Coalburn	2016/17	55
Kilgallioch Windfarm – Connection	Mark Hill	2016/17	183
Glen App	Arecleoch	2016/17	32
Ewe Hill Windfarm & Gretna Ewe Hill (TORI 017/189)	Gretna	2016/17	39
Minnygap Windfarm	Moffat	2016/17	25
SWS Ph 2 – Afton Windfarm	Blackhill	2017/18	68
Aikengall II Windfarm	Crystal Rig	2017/18	140
SWS Ph 2 – Brockloch Rig Windfarm	New Cumnock	2017/18	75
SWS Ph 3 – Whiteside Hill – Connection (SW_Reinforcement)	Glenglass	2017/18	27
SWS Ph 3 – Sanquhar Windfarm – Connection	Glenglass	2017/18	30
SWS Ph 4 – Blackcraig Windfarm – Connection (New Cumnock)	New Cumnock	2017/18	58
Kilgallioch Windfarm - Connection	Mark Hill	2017/18	91
Kype Muir wind farm	Coalburn	2018/19	88
Middlemuir Windfarm	Coalburn	2018/19	51
		Total	1,500

Modernising our network

We maintained the strong start to our asset replacement programme, delivering efficiently against our accelerated plans for network renewal – a set of investments which are key to providing long-term, reliable electricity supplies to customers.

As part of the RIIO-T1 Business Plan we had described how we intended to target investment to manage the risk of asset deterioration on our network. We have refined our approach to make best use of developments in resource and outage availability. We therefore brought forward our replacement of overhead lines, and re-profiled replacement of transformers and switchgear.

Our strong performance on our non-load related programme has continued with delivery of a broad range of outputs. We remain firmly on track to deliver all the outputs or materially equivalent outputs that were committed to at the time of our RIIO T1 submission. We are doing so in an efficient manner. We are ahead of plan – on a cumulative basis, we have delivered 67% of our total non-load outputs, well ahead

of the planned 60% for the first six years. This has included further units delivered on 275kV overhead lines, 275kV and 132kV switchgear, 275kV shunt reactors and 132kV transformers over the last year. The network performance benefits of our modernization efforts are already being seen, and we remain on track to deliver our entire target Network Replacement Outputs for 2021.

Our transformer modernisation programme is progressing steadily. The first units at Erskine and Johnstone have now been replaced and these projects will be completed during 2019/20. A unit at Shrubhill was decommissioned and a new dual LV-wound unit was commissioned in summer 2019. In 2019 we will also commence site works at Charlotte Street in Glasgow – this will be the last modernisation project from our T1 plan

to enter the delivery phase. The remainder of the programme is progressing to deliver the outputs set out in our plan (with equivalent substitutions as noted in our forecasts).

It has continued to be productive year for the switchgear modernisation programme, with most projects progressing to plan. Our 132kV programme is on track, with Windyhill complete and significant progress at Chapelcross despite some restrictions with network outages. Our 275kV programme is delivering outputs at Currie 275/132kV, Strathaven 275kV and Wishaw 275kV which are all under construction and contracts awarded in 2019 for Kaimes. This will be the final switchgear project in the programme for RIIO-T1.

Wishaw Substation



Strathaven Substation



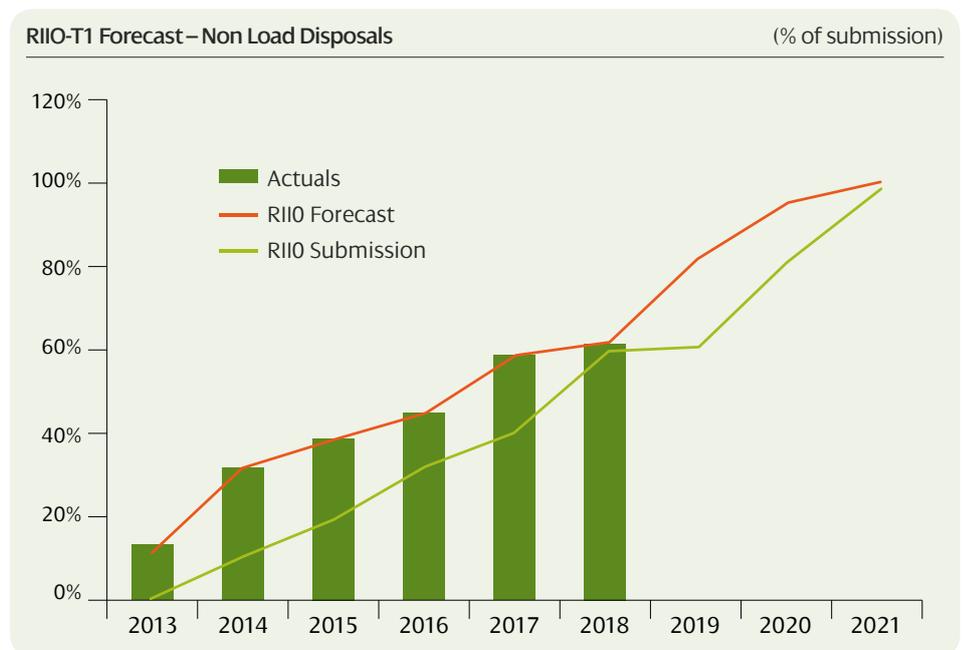
Modernising our network continued

We are continuing to perform well against our accelerated plan and managing costs efficiently. It has delivered 60km more than the amount we originally planned of 528km. We are therefore well on track to deliver our target Network Replacement Outputs by 2021.

On our overhead line modernisation programme we have works remaining – YW/YX is progressing well on site, with re-conductoring completion expected during 2019. The commencement of construction works to fully refurbish V-route (which runs between Galashiels, Hawick and Harker) 132 kV overhead line, is scheduled for completion by the end of RIIO-T1. This was the last of our overhead line routes to enter the construction phase. In accordance with the company’s asset strategy, asset replacement and refurbishment work was undertaken to improve the asset health of a number of 400 kV, 275 kV and 132 kV overhead line routes. We are continuing the work on two 275 kV routes – Kaimes to Cockenzie and Dalmally to Windyhill.

Further, the flexibility of our delivery capability, through reduced reliance on large, “turn-key” contractors, has delivered these outputs. We continue to review our delivery strategy and as we expect to continue in this manner we will have delivered significant cost savings by the end of the period – which will reduce costs to consumers.

We maintained the strong start to our asset replacement programme, delivering efficiently against our accelerated plans for network renewal – a set of investments which are key to providing long-term, reliable electricity supplies to customers.



A reliable and resilient network

This year we continued our excellent level of network reliability, with faults on our network resulting in only 39MWh of Energy Not Supplied (ENS) to customers. This represents an Overall Reliability of Supply of 99.999805%.

Our network is critical to delivering reliable supplies to customers and has delivered excellent levels of reliability this year, continuing a trend of strong performance. Whilst transmission faults are rare, they can occur and can result in large impacts. Our network was responsible for only 39MWh of unserved energy this year. This represents the annual electricity consumption of a single house and Overall Reliability of Supply of 99.999805%. This is considerably better the benchmark level of 225MWh which was derived from the 10 year average prior to RIIO-T1 review period.

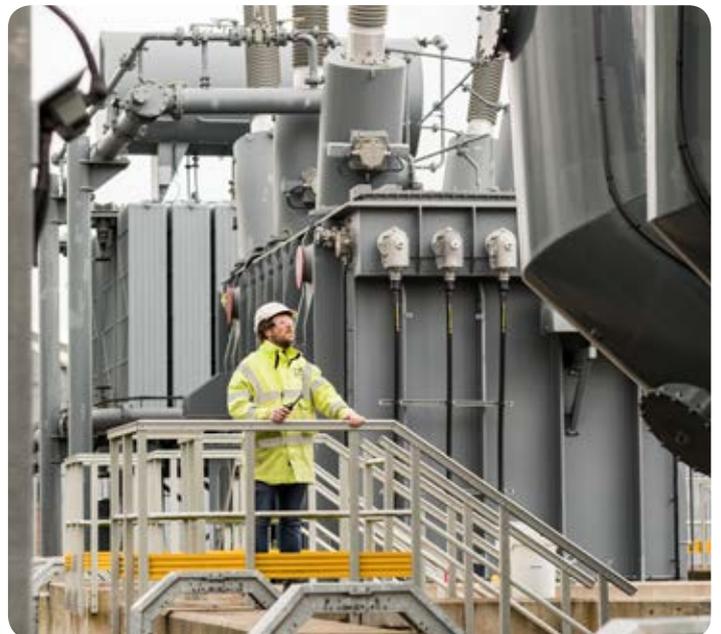
The closure of all large thermal plants in Central Scotland has significant implications for contingency planning. We are a critical service provider for 80% of Scotland's population. As such, it's important we consider every scenario and have robust emergency plans in place. One of the worst possible scenarios we plan for is a 'Black Start' – where the power goes out across the GB network and there is a race against time to get it back on. We continue to expand on our engagement in this area with the key influential stakeholders in the UK. We are

working closely with the Department for Business, Energy & Industrial Strategy (BEIS) to mitigate the risks resulting from widespread power outage. Furthermore, we have discovered new ways to restore power quickly in the event of widespread power loss.

A globally significant £11.7 million project, which will look to prove whether distributed energy resources can contribute to the restoration of electricity supplies in the event of a black start, has been given the go ahead by energy regulator Ofgem.

This partnership project between SP Energy Networks, National Grid Electricity System Operator (ESO), and TNEI, will explore how distributed generation can be put to use to get the grid up and running should a 'Black Start' event occur.

The project will test how this new approach could work across both electricity transmission and distribution networks, potentially paving the way for new techniques in electricity system restoration around the world, while supporting the shift to a decentralised low-carbon energy system without compromising network reliability.



A safe network

The wellbeing of our customers, our people, our suppliers, and the public is and always will be our number one priority. We have a duty to ensure that our infrastructure is safe.

Our culture is defined by our values, strong leadership, personal accountability and a commitment to achieving excellence.

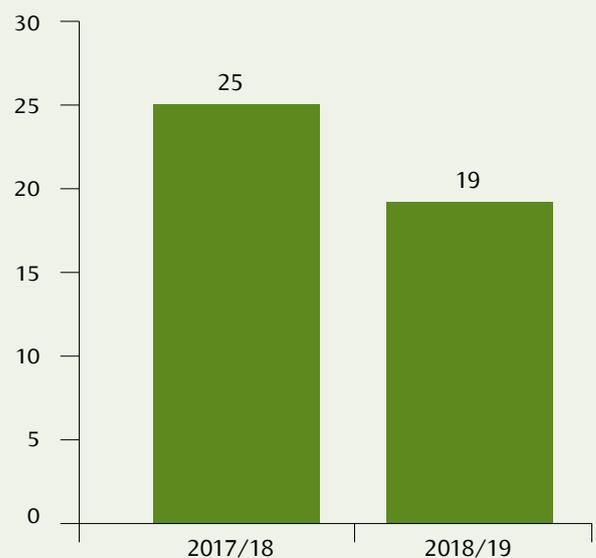
We are committed to promoting good health, safe behaviour and demonstrating care for the environment. We pride ourselves on our excellent track record in safety and constantly challenge ourselves to improve performance, which is already at a world class level.

To ensure this is achieved we continue to collaborate with our contractors, with the aim of raising standards up to and beyond current best practice. We have had very good success in recent years collaborating to deliver improvements in the areas of working at height and plant and vehicle safety. In the last year, we have also started to work together to improve performance on service strikes.

We monitor performance using Total Recordable Injury Rate (TRIR). TRIR is a widely used indicator and expresses injury levels as a factor of hours worked (injuries per 100,000 hours). Our TRIR for staff in the year was 0.27, with the total TRIR incidents our contractors experienced being 5 during 2018/19. These levels compare very favourably with norms for workplace safety in the UK.

We work closely with our Distribution colleagues both in Scotland and the Manweb area and are very proud of our reputation as an industry leader in public safety. In Transmission, we can again report that there have been zero public safety injuries from our assets or operations. This is a result of our extensive inspection programmes, public safety education initiatives, our investments in operational integrity and our embedded safety culture.

Utility Service Strikes



Sustainability & environment

Our vision is to be a sustainable networks business – efficiently managing and developing our network in support of the low carbon transition and achieving neutral or positive environmental and social impacts.

We provide a reliable, adaptive service to support long-term decarbonisation goals, opening up renewable energy to the rest of the UK and closely managing the network and its environmental impacts.

Our sustainable business model is characterised by:

- Consideration of environmental, social and economic costs and benefits in decision making.
- Collaborating with stakeholders.
- Transparency in our decision-making processes and reporting of performance.

Our Sustainable Business Strategy is built around six Sustainability Drivers, developed with stakeholders to deliver targeted activity where materiality and impact are greatest. Beyond enabling decarbonisation and reducing our environmental impacts, these drivers also deliver activities to enhance social and economic sustainability.

Sustainability Drivers



Sustainable Society



Carbon and Energy Reduction



Climate Change Resilience



Water Efficiency and Protection



Land and Biodiversity Improvement



Sustainable Resource Use

Please see our Transmission Annual Sustainability Statement for more information. The plan can be viewed here: www.spenergynetworks.co.uk/SustainabilityPlan

Sustainability & environment continued

Adapting our strategy

In line with the key principles, our Sustainable Business Strategy is reviewed annually by internal and external stakeholders, and is underpinned by expert advice and benchmarking from sustainability-focused organisations. The Strategy is reviewed and signed off by the SPEN Executive Team and governed by our Executive Sustainability Steering Group.

In 2018, the following updates were made:

- Raw material and waste drivers were combined into a single driver: 'Sustainable Resource Use'.
- Existing business carbon footprint and waste graphs updated to show actual performance as well as targets.
- All sustainability objectives were reviewed, resulting in the introduction of 12 new objectives, updates to 4 objectives, and the removal of one objective (this was split into two new objectives).
- New sections were added to reflect the opportunities and challenges resulting from recent political, scientific and societal changes and the enablers for the low carbon transition.

The specific actions to be taken in 2019 to deliver these Objectives are outlined in our 2019 Sustainability Plan: www.spenergynetworks.co.uk/SustainabilityPlan

Our Next steps for 2019-20 include:

Science Based Target

- We will formally commit to setting a Science Based Target for carbon reduction and define our methodology for setting and tracking the target.

SF₆ leakage

- We will refine our strategy for SF₆ management and leakage reduction.

Biodiversity Net Gain

- We will continue to engage with stakeholders to define our approach to Biodiversity Net Gain.

Supply Chain Sustainability

- We will continue to engage with stakeholders to define common sustainable procurement practices and environmental performance metrics.

Initiatives and Progress

We deploy a wide range of technological, commercial, process and innovation solutions to deliver the evolving aims of our strategy.

Below outlines our progress in line with our Sustainable Business Strategy, highlighting the significant initiatives that contribute to sustainability, environmental enhancement and low carbon objectives, and laying out drivers, current status, impacts, justifications, alternative considerations and next steps.

Driving Decarbonisation

- Connections for decarbonised energy, transport and heat
- Smart energy system solutions for decarbonisation

Mitigating Climate Change

- Network Losses
- Business Carbon Footprint
- Climate Change Resilience

Enhancing the Natural Environment

- Environmental Planning and Mitigation
- Environmental Management

Sustainable Resource Use

- Resource Management
- Resource Use Optimisation

Sustainable Society

- Enabling Societal Sustainability
- Promoting Sustainable Working



Carbon Footprint

Buildings Energy Carbon Footprint (Depot and Substation Energy) has reduced by 6% in the year. Transport and Fuel Carbon Footprint (Operational and Business Transport and Fuels) has reduced by 24% in the year.

Performance

Sulphur Hexafluoride (SF₆) Emissions Reduction

SF₆ emissions are the largest controllable element of our overall business carbon footprint. This year, as in past years, SF₆ leakage dominates our footprint, due to the substantial number of SF₆-filled assets on our network, the high global warming potential of the gas itself, and increasing leakage from older assets which cannot be readily fixed despite considerable effort. This issue therefore commands intense focus from our Executive, strategic and operational teams and we are committed to exploring every available solution.

Our approach to reducing these emissions is to:

- Reduce leakage on existing equipment, targeting the leakiest first where it is economically reasonable to do so;
- Collaborate with manufacturers of new SF₆ equipment and share best practice industry-wide to minimise leakage; and
- Work with manufacturers, innovators and industry peers to develop and install economically viable alternatives to SF₆.

Despite a considerable amount of effort spent in attempting to fix leaky assets, SF₆ leakage increased by 51% overall in 2018/19. Overall leakage has remained comparatively low, within target at 0.65% of total mass against a target of 0.85%, but SF₆ leakage needs to be significantly reduced in order to achieve our 2030 and 2050 carbon reduction targets.

This year, we have explored the option of installing SF₆ gas detection cameras to help to identify leakage sources and these will be installed over the coming year. We are also continuing to review our internal asset management processes to ensure that SF₆ leakage reduction is given the highest possible priority. Whilst we fix leaking assets, it is also important that we avoid the introduction of new SF₆ assets onto our system where possible.

In 2018/19, we successfully completed the construction and commissioning of a Green Gas for Grid (G3) insulated asset on our network. G3 is an insulating gas with comparable performance to SF₆, but with a global warming potential 98% lower. The installation at Kilmarnock South substation is now fully operational.



Carbon Footprint continued

Other Carbon Footprint Reduction

The remainder of our Business Carbon Footprint consists of the carbon impact of the energy used in our depots and substations, and the energy and fuels used for operational and business transport. In 2018/19, these categories represent around 16% of our total carbon footprint excluding losses and 1.3% of our total carbon footprint including losses.

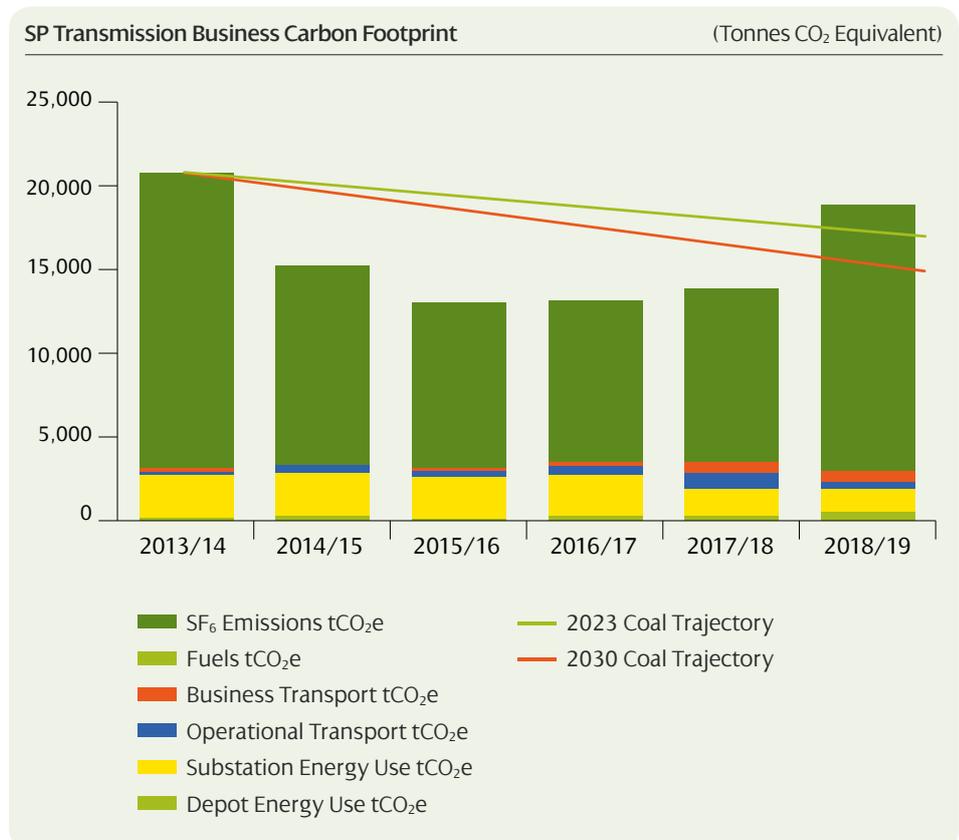
We seek to reduce impacts across these categories by installing energy efficiency measures, encouraging staff to reduce their business travel and use low carbon options, and by enabling the move towards electric vehicles.

This year, the overall carbon footprint related to these categories fell by 13%. The figures for Depot Energy Use and Business Transport rose primarily due to the inclusion of additional data which was not available in previous years, more accurate apportionment, and the increased use of flights during the development of our 2021/2026 Business Plan. Substation Energy Use footprint reduced by 20%, largely due to the reduction in the carbon intensity of electricity generated. Operational Transport footprint reduced by half, due to the introduction of more efficient vehicles and more accurate reporting processes.

During 2018/19, we installed a further 21 electric vehicle charging points at our offices and depots. SP Transmission staff now have access to a fleet of 19 electric pool cars, and can access an interest free loan and / or grant towards the purchase of an ultra-low emission personal vehicle. We are working to reduce energy consumption by installing more efficient lighting systems, passive motion sensors and improved insulation at our sites. During 2018/19, three heat pumps, three heat recovery systems, four LED lighting systems and two light sensor systems were installed at SP Transmission offices and depots.

Following on from our successful trial of electric fleet vans in 2017/18, we have reviewed operational considerations, costs, timelines and specifications with the aim of introducing electric vans to our fleet in the coming years.

We will continue to install energy reduction measures and drive the use of ultra-low emissions modes of transport over the coming years, implementing new and innovative technologies where required as they become available.



Innovation

Innovation is at the core of SP Energy Networks. We continue to hold a leadership position in innovation and remain the only TO with projects under all three of the RIIO-T1 innovation funding mechanisms.

NIC

The NIC FITNESS (Future Intelligent Transmission Network Substation) project demonstrates a reduced outage and low risk approach to future substation monitoring, protection, automation, and control by enabling faster deployment, greater availability, improved safety and greater controllability with a reduced footprint and lower cost than conventional design. The solutions enabled by FITNESS facilitate reduced network costs and constraints, significantly benefitting customers.

Since the first bay was successfully commissioned in July 2018, SPEN has organised workshops and live demonstration site visits at Wishaw for our stakeholders. To date we have hosted Ofgem, SSEN, Elia Belgium, Vattenfall Sweden, and independent consultants, demonstrating application of RIIO NIC innovation funding in practical implementations and our commitment to drive innovation to business as usual.

Construction of our Phoenix project is well underway at Neilston 275kV Substation, with the civil works phase coming to an end and the Electrical installation works

phase commencing this Autumn. We are on schedule to begin commissioning of the H-SC in early 2020 followed by a 12 month live trial during which our project partners, NGENSO and University of Strathclyde will continue with the system studies exploring a range of sizes and locations for H-SCs within the SP Energy Networks and GB Network. These results will be compared with data collected during the live trial and will be used for the Cost Benefit Analysis works where we will begin to understand the commercial value and mechanisms to incentivise the roll out of this technology within the next price control.

Ultimately, Phoenix will aid with the transition to a future Zero Carbon transmission network that can benefit from clean energy resources without compromising the security and quality of supply to customers and will enhance capacity for power flow on the network.

Throughout the year we have hosted various groups such as operations staff and Power Academy Placements at our on-site Knowledge Dissemination Room and we will continue this programme into early 2020.



Innovation continued

NIA

Our NIA innovation project portfolio will continue to be shaped by on-going stakeholder engagement, both internal and external, with a view to maintaining a balanced portfolio that will address not just the near/medium term transmission issues, during the current price control period (RIIO-T1), but also those anticipated as longer term requirements (beyond 2021).

In addition to funding smaller projects, we will continue to utilise NIA Transmission funding, where appropriate, to prepare for future NIC submissions. Our NIA projects continue to play a key role informing the development and delivery of our NIC projects and we recognise the importance of wider stakeholder engagement and knowledge sharing for the wider benefit of the industry. As a Scottish Transmission System Owner (TSO), SP Transmission invests significant efforts to safeguard our system resilience and supply reliability. Partnering and collaboration is a critical part of our innovation strategy and we believe that our projects are greatly enhanced by incorporating wider experience, knowledge and skill sets. We are delighted to be supporting National Grid Electricity System Operator with their project on the feasibility of Black Start from Distributed Resources, which in turn led to an international ground-breaking 2018 NIC project on Distributed Restoration. SP Energy Networks is delighted to participate in this important and timely initiative by leading, testing designing and trialling work packages that could ultimately lead to significant benefits for electricity customers in the UK.

Two examples are:

The Reducing Losses From Transmission Substations project, has now been successfully completed. This project has established that substation energy usage is an area with a large potential for improvement. One example of this is that we are looking at how we can run a campaign to extend the use of energy-saving and energy-reducing behaviours.

The Transient Recovery Voltage Investigation project, involves a technical analysis of Transient Recovery Voltages for circuit breakers, with the aim of improving selection and specification of circuit breakers, and improving the ability of Network operators to model and manage the risks of Transient Recovery Voltage. This will also provide a number of other use cases for the Network Owners, which will be identified through the project.



Innovation continued

Year of Innovation

SP Energy Networks has invested in its employees and is developing a culture of innovation to empower and enable employees to do things differently so we can do them better. We have set 2019 as our 'Year of Innovation' where we have developed 5 mechanisms to develop our culture. We see this work in 2019 as the foundation, not the finish line, of this initiative and we have 3 year road map to challenge ourselves to be more dynamic and collaborative.

Our highlights from 2019 are:

We have developed a strong champion cohort, which nearly doubled in size beyond our original target – demonstrating the business buy-in to our vision. Over 90 "Innovation Champions" across the business are assisting in running Lunch and Learn events in gathering challenges and ideas. These champions will also assist in future stages of innovation projects, ensuring that resources within the business can be leveraged more effectively and quickly.

We have launched a digital innovation platform where we put real business challenges to our company and seek ideas – we have 5 campaigns planned for 2019 which will cover topics such as improving Customer Minutes Lost and using new technology to improve our processes.



SP Transmission

Annual Performance Report 2018/19

Financial performance: Expenditure and revenues

“RIIO” is Ofgem’s framework for setting price controls for network companies. RIIO stands for Revenue = Incentives + Innovation + Outputs. Effectively this means that we are only rewarded for delivering exceptional performance in our incentive, outputs and innovation.



Our Costs Performance this year

Load-Related Programme 2018/19 position: £67m below allowance

Our plan continues to deal with uncertainty on timing of renewable generation and delays on some Baseline Wider Works projects. The substantive completion of the wider works projects portfolio of projects is expected to yield cost efficiencies that will be shared with consumers.

Construction on the Western Link HVDC was completed in late summer 2017 utilising subsea cables to provide the link. Due to damage to the facility during commissioning, full operation was delayed. However, the Link was successfully commissioned in 'monopole' configuration allowing operation up to half full capacity (1125MW) over winter 2017/18. Despite some operational setbacks, the link in October 2018 was commissioned for its full capacity North to South (2250MW continuous, 2400MW overload). A small number of final tests remain outstanding, inhibited for most of 2019 by the unavailability of generation from the Hunterston nuclear plant. Commercial take-over of the link is expected in late 2019. With the Western HVDC operational, the power transfer capability between Scotland and England is increased to 6600MW, more than doubling the capacity since the start of RIIO-T1.

There are two key areas of expenditure: load related i.e. projects to cater for significant increases in customer demand and renewable generation, and asset replacement to renew our existing network. The load related programme is by far the more volatile and uncertain as we and our customers/developers are subject to many external factors outwith our control.

Totex comparison Capex	(2018/19 real £m)	Allowance £m	Actual £m	Variance £m
Baseline – Wider Works (BWW)		9.1	15.4	6.3
Baseline – Other LR Capex		120.8	47.7	-73.0
Sub-Total Load Related Capex		129.9	63.1	-66.7
Asset Replacement Capex		90.9	58.8	-32.0
Other Capex		27.1	28.1	0.9
Non Operational capex		1.2	0.8	-0.4
Total Capex		249.1	150.8	-98.2

Opex	Allowance £m	Actual £m	Variance £m
Faults	1.2	1.5	0.3
Inspections & Maintenance and Other direct costs	11.2	7.4	-3.7
Indirect Costs	14.3	26.7	12.4
Adjustment for IAS 19 pension accrual	0.0	1.2	1.2
Total Controllable Opex	26.6	36.9	10.2
Totex	275.7	187.7	-88.0

Our Costs Performance this year

Opex

Our indirect costs during 2018/19 exceeded allowances by nearly £12m. The main driver for this was an increase in our Business Support costs which were impacted following a change to accounting measurement made after the RIIO-T1 bid.

We repaired a larger than expected volume of minor plant and cable defects (classified under faults), to maintain the integrity of our network. These defects are identified through our regular routine inspection and maintenance regimes. Other direct costs are lower than allowance due to timing of the contractual take-over of West Coast HVDC project.

Asset Replacement & Other Capex: £31m below allowance

Our RIIO-T1 Business Plan described how we intended to target investment to manage the risk of asset deterioration on our network. We have prioritised activity and profiled investment accordingly in the first six years, whilst delivering cost efficiency within our overhead line modernisation programme.

Whilst investment in the year is below plan, the cumulative Asset Replacement and Other Capex position to date shows almost £510m spent modernising assets, which is broadly in accordance with plan when cost efficiency is taken into account. The associated outputs are in line or ahead of submission with 588km of overhead line conductor replaced to date against the RIIO-T1 plan of 373km. Site issues at Erskine and Johnstone have been overcome

and new transformers entered service to maintain reliability of supplies to consumers. A unit at Shrubhill was decommissioned and a new dual LV-wound unit will be commissioned Summer 2019. In 2019 we will also commence site works at Charlotte St – the last project from our T1 plan to enter the delivery phase. We have entered the final phase of our T1 switchgear modernisation programme. Projects have progressed well on site with works at 132 kV (Chapelcross) and 275 kV substations (Currie, Kaimes, Strathaven and Wishaw). Despite some challenging outage restrictions we remain confident we will complete all the required works by the end of the period.



Our Costs

Forecast for RIIO-T1

Highlights of future performance

Our current forecast total expenditure (totex) over the eight years of RIIO-T1 is just under £2.3bn. As we prepare for RIIO-T2 we have increased our forecast of development expenditure for new schemes. It is approximately 3% below allowance due to cost efficiencies and innovative solutions in major projects and programmes of work. The 2018/19 RIGs and RRP derive an overall totex out-performance of £76m (£57.9m in 2009/10 prices), once revised allowances for generation connections are taken into account. Following the introduction of a Green Economy Fund with Ofgem's support SPT has been active in reviewing proposals and allocating funding to projects that enable further uptake of low carbon technology.

The forecast is our current best estimate of the scale and timing of renewable generation connections, local network reinforcement, the wider works and modernisation projects that are likely to be needed to strengthen and renew the network to support customers' needs as we move towards a low carbon future.

We anticipate that our forecasts will change over time as new information becomes available. After the UK Government's announcement (Summer 2015) on changes to subsidy arrangements for renewable generation, we undertook an extensive exercise to gain a better understanding of likely levels of generation that will ultimately connect to our network. The current forecast reflects the outcome of our review; we will continue to monitor the situation and reflect changes in future forecasts. It is recognised that such uncertainty exists, and our regulatory contract includes mechanisms that enable cost allowances and revenues to accommodate such circumstances through movement above or below agreed baselines.

Totex comparison Capex	(2018/19 real £m)	Allowance £m	Forecast £m	Variance £m
Baseline – Wider Works (BWW)		693.9	547.5	-146.4
Baseline – Other LR Capex		119.3	134.3	15.0
Uncertainty Mechanism – Generation Connections Sole-Use Infrastructure		41.7	94.0	52.3
Uncertainty Mechanism – Generation Connections Shared-Use Infrastructure		401.3	414.0	12.7
Uncertainty Mechanism – Strategic Wider Works (SWW)		28.9	36.8	7.9
Sub-Total Load Related Capex		1,285.0	1,226.6	-58.4
Asset Replacement Capex		598.8	513.9	-84.8
Other Capex		262.3	246.7	-15.6
Non Operational capex		9.5	18.8	9.3
Total Capex		2,155.6	2,006.1	-149.5

Opex	Allowance £m	Forecast £m	Variance £m
Faults	9.0	14.3	5.3
Inspections & Maintenance and Other direct costs	81.9	77.6	-4.3
Indirect Costs	115.8	184.7	68.9
Adjustment for IAS 19 pension accrual	-	3.5	3.5
Total Controllable Opex	206.7	280.2	73.5
Totex	2,362.3	2,286.2	-76.0

Our Costs Forecast for RIIO-T1

In the remaining period of RIIO-T1, we expect to only utilise one capex uncertainty mechanism – associated with generation connections – which will adjust allowances up and down. The mechanism has been triggered; it is expected to add approximately £160m to the current baseline allowance. This is slightly higher than last year's forecast due to assessment of actual civil works volumes for schemes completed in South West Scotland.

The forecast for generation connections requiring sole-use infrastructure is unchanged, at 1,620MW, and falls below the 2,503MW baseline. This results in a reduction to our baseline allowance of around £58m, which will be returned to consumers. There is still a significant requirement for additional shared-use infrastructure capacity for other generation connections, including smaller embedded generators. We expect to deliver some 3,482MVA of additional network capacity in RIIO-T1 – above our 1,073MVA target. We continue to develop and deliver a range of cost-efficient and economic

technical solutions that best meets our customers' needs. SPT continues to connect new customers to support Scottish and UK government targets for renewable generation. It is anticipated that we will incur investment, in this area, in excess of allowance by c£102m in RIIO-T1.

In our totex forecast we have assumed that as a result of the revised methodology for allocating indirect costs described in the previous section (Performance this year), approximately £62m of indirect costs will be allocated to opex instead of capex.



Our Costs

Change in Forecast for RIIO-T1

Update on Forecast from 2017/18

Our latest totex forecast of £2.3bn is very marginally higher by £27m (1%) than the view presented last year, mainly attributable to an increase in development expenditure for RIIO-T2. Overall, totex performance has marginally increased as a result of higher allowances for civil works in South West Scotland. There continues to be cost and delivery challenges in several areas including generation connections and switchgear replacement. The main changes are highlighted in the sections below.

Load-Related RIIO T1 Forecast: £32m above 2017/18 Forecast

The primary difference has been an increase in forecast development activity for load related works, mainly wider works, expected to be required in RIIO-T2. In the case of generation connections our higher forecast reflects an adjustment for lower forecast capital contributions. The forecast outputs of new generation expected to connect (c1.6GW) and the associated new network capacity (c3.5GMVA) that will be required in RIIO-T1 is unchanged from prior years.

Non-Load RIIO T1 Forecast: £7m below 2017/18 Forecast

The forecast reduction relates to updates to development investment associated with timing of RIIO-T2 schemes and scope of refurbishment of four inter-related 275kV overhead line routes in the Kincardine – Currie part of our network.

Opex

Overall, our Faults, Inspections & Maintenance and Other direct costs forecasts are similar to the 2017/18 Forecast. Whilst our forecast for indirect costs is unchanged from the prior year, we have reflected an increase in our IAS 19 pension accrual.

Totex Forecast	(2018/19 real £m)	RIIO-T1 Forecast (2018/19) £m	RIIO-T1 Forecast (2017/18) £m	Plan-on -Plan £m
Capex				
Baseline – Wider Works (BWW)		547.5	565.4	17.9
Baseline – Other LR Capex		134.3	123.3	-11.0
Uncertainty Mechanism – Generation Connections Sole-Use Infrastructure		94.0	84.2	-9.8
Uncertainty Mechanism – Generation Connections Shared-Use Infrastructure		414.0	421.3	7.2
Uncertainty Mechanism – Strategic Wider Works (SWW)		36.8	–	-36.8
Sub-Total Load Related Capex		1,226.6	1,194.2	-32.4
Asset Replacement Capex		513.9	524.6	10.6
Other Capex		246.7	243.5	-3.2
Non Operational capex		18.8	18.3	-0.4
Total Capex		2,006.1	1,980.7	-25.4

Opex	RIIO-T1 Forecast £m	RIIO-T1 Forecast £m	Plan-on -Plan £m
Faults	14.3	14.6	0.3
Inspections & Maintenance and Other direct costs	77.6	77.4	-0.2
Indirect Costs	184.7	184.6	-0.1
Adjustment for IAS 19 pension accrual	3.5	2.0	-1.5
Total Controllable Opex	208.2	278.6	-1.5
Totex	2,286.2	2,259.3	-26.9

Our Revenues

In 2018/19 we recovered £376.3m. Our revenues are set through regulation by Ofgem. They comprise an element which is fixed, an element which is linked to specified variables (such as the amount of connected generation), and an element to capture incentives and adjustments from previous years.

We recover our revenues through charges to the system operator, National Grid – who, in turn, levies charges on users of the transmission system across GB. Based on our forecast performance, the Operational Return on Regulatory Equity over the full RII0-T1 period is estimated at 8.9%.

Our revenue allowance – the basics:

An allowance is set by Ofgem.

This is calculated using a formula.

There are various components to the formula.

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

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

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

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

Incentive awards earned in 2018/19 (revenue rec'd in 2020/21)

Smaller incentives earned in 2018/19

(£ thousands)

Stakeholder engagement	338
SF ₆ Emissions	85

Larger incentives earned in 2018/19

(£ thousands)

Stakeholder satisfaction	1,957
Reliability	2,406

From our charges to customer bills:

Our charges form part of the total revenues recovered by National Grid through transmission charges.

The cost of running the Transmission network in Great Britain is spread out over consumers and generators across the country. For non-half hourly metered customers (representing domestic and small business customers), the average cost of running SP Transmission amounts to approximately £4 per customer per year. Note: Average over the 8-year RII0 ET1 price control. Calculations prepared by National Grid).

Our RoRE (Return on Regulatory Equity)

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

RAV (Regulatory Asset Value)

For every pound that we spend, we collect:

10% of the costs in the same year.

90% of the costs over the life of the asset, which gets added to the 'Regulated Asset Value' (RAV) balance.

Ofgem assume that we fund this RAV by:

55% borrowing – on which we receive interest payments of 1.91% (for 2018/19).

45% equity – on which we receive a return of 7.0%, as set by Ofgem for the 8-year price control.

The weighted average cost of **funding the RAV is therefore 4.20%** for 2018/19.

At 31st March 2019 **our RAV was £2,433m (18/19 prices)**, an increase of 2% from £2,382m (18/19 prices) in the prior year, as we continue to invest in the network.

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 09/10 prices and therefore represents an average real equity return over the 8-year price control.

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

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

Our Regulatory Financial Performance Report, available from https://www.spenergynetworks.co.uk/pages/regulatory_financial_performance_report.aspx

8-year average 2016/17	Return on Regulatory Equity (RoRE). All number reflecting Ofgem's methodology, totex out-performance of £74.1m (2016/17 prices):
7.00%	Base Return – Set by Ofgem for the 8-year period.
0.98%	IQI Additional Income – Agreed by Ofgem as part of the price control, and is a reward for the quality of our business plan and recognition of our fast-tracking.
0.50%	Totex Efficiency Savings – Any savings we make on our investment plan are shared 50:50 with the consumer, and we are currently forecasting some savings over the 8-year period. This results in a benefit to both consumers and our shareholders, and is in addition to meeting all of our specified outputs.
0.21%	Reliability Incentive
0.01%	SF₆ Emissions Incentive
0.13%	Stakeholder Satisfaction
0.11%	Environmental Discretionary Reward
-0.05%	Network Innovation Contributions
8.89%	Return on Regulatory Equity – Operational Performance

SP Transmission
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Looking forward



Meeting uncertain needs for transmission capacity

The key uncertainty facing our network – and how we develop it economically and efficiently – is the changing generation landscape; the scale, timing and location of new generation and the timing of generation closure.

RIIO-T2

In the RIIO-T2 period, the role of the network will continue to evolve as the demands on the network continue to change. The generation landscape will undergo further radical change as existing nuclear generation closes and more renewable generation connects to the system. At the same time, demand patterns are expected to change as a result of the increase in electrification of transport and heat. This will start to change the trend of reducing demand that we have seen over the last ten years. As a result of this transition, the role of the transmission network will become even more vital to the economy – transferring power across the country to facilitate greater interconnection and maintaining a coordinated national system. It has also been identified that there is a need to invest in the network at the correct time to ensure that there is no risk of stranded assets or barriers created for customers.

All of these changes create a large amount of uncertainty which the company's load related plan for RIIO-T2 has looked to accommodate. In constructing the company's load related

plan, it is critical to identify the future system requirements and also the funding mechanisms that are required to allow plans to flex to meet emerging requirements, with minimal intervention from the regulator, whilst still being suitably funded.

A number of emerging themes have been identified that have been factored into load related investment plans, including: a whole-system approach to demonstrate coordination with stakeholders and other parties in the energy supply chain; ensuring the ongoing operability of the network as the generation landscape changes to be prepared for black start or other high impact events on the system; and the risks of major load related projects being open to competitive delivery.

In July 2019 saw the submission of the first draft of our RIIO-T2 Business plan to Ofgem where we set out our plan to facilitate the connection of a further 1GW of renewable energy the equivalent of powering 715,000 homes, and with CO2 reductions of 1.2m tons per annum.



Meeting uncertain needs for transmission capacity

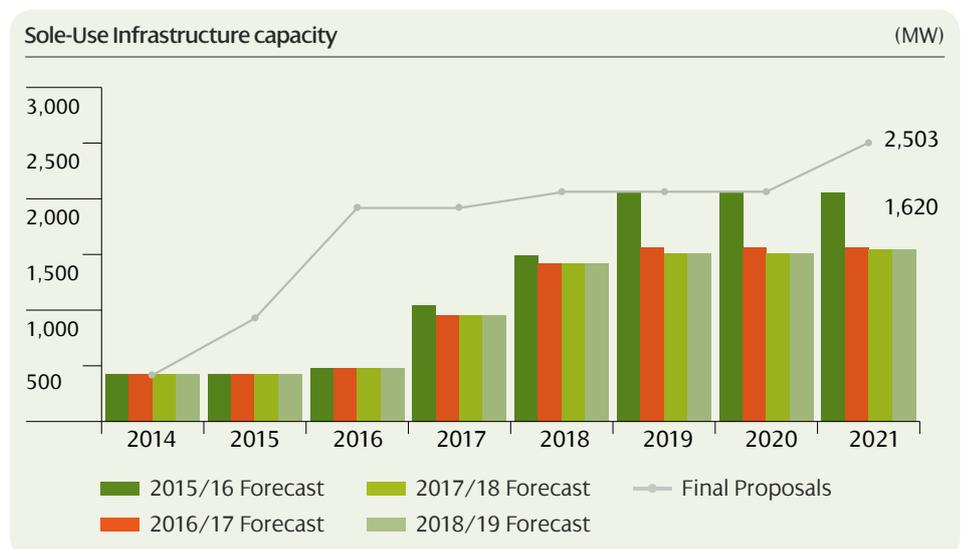
The key uncertainty facing our network – and how we develop it economically and efficiently – is the changing generation landscape; the scale, timing and location of new generation and the timing of generation closures.

Renewable Generation Volumes

Our forecast of maximum demand in our area remains relatively stable, at around 3.4GW. However, uncertainty remains around the scale, timing and location of new, renewable generation. Not responding quickly enough risks delaying the connection of new generation and therefore transition to a low carbon energy sector. But building too much or too far ahead of time leads to higher customer bills. We have an ongoing role to help to strike the right balance. To this end, we have established a dedicated team to ensure the views of users, stakeholders and consumers on future energy scenarios directly influence our next business plan. Analysing projections of the likely uptake of various low carbon technologies and building a plan which maps out the most efficient and effective way to realise the ambitions of our stakeholders. The range of uncertainty is illustrated clearly in the 2017 UK Future Energy Scenarios, published by National Grid with input from ourselves and SHE Transmission. While all scenarios show continued growth in low carbon generation, the scale, timing and location varies significantly across the scenarios. The changes to forms of financial

support provided to different renewable technologies add another layer of uncertainty, most acutely for onshore wind where levels of financial support have been scaled back. These uncertainties are important for us because of our strategic investment challenges related to transferring power from renewable generators to centres of demand, and to ensuring that there is sufficient transfer capacity to import electricity when demand is high but output from renewable generation is low, e.g. on cold, still days.

Many of the projects to connect new generation before 2021 will already have a connection offer. Therefore the total pool of projects with connection offers provides a good platform for forecasting possible investment requirements. There are currently around 6.9GW of onshore and offshore generation with connection offers. The network capacity requirements will depend on which combination of projects (and any new projects that come forward) actually proceed, and when. This is inherently uncertain – and the costs to consumers of getting it wrong can be sizable, either by investing too far ahead of time or too late.



Meeting uncertain needs for transmission capacity

Providing a resilient network and facing economic uncertainties present key challenges as we progress through our Business Plan and beyond.

Changes in the UK Generation & Transmission System

Across the GB, significant levels of thermal generation have closed and been replaced by alternative renewable sources of energy. In Scotland the picture is particularly stark, where 4.7GW of generation capacity has closed or is outside of the market, equivalent to 85% of peak Scottish demand. Whilst the traditional thermal stations have been replaced by renewable energy sources they provide quite a different contribution following a Black Start situation given their technical characteristics and intermittency. In light of the closure of Longannet in the “central belt” of Scotland this required a revised Black Start Restoration Plan to be created reliant on connections from National Grid Electricity Transmission (NGET) and Scottish and Southern Energy (SSE) to assist with the network and customer restoration. Transmission systems have a key role to play should such an event take place and the

revised plan will inform our views on how much resilience we need to plan for within our network. We have continued to engage with key stakeholders in the refinement of plans to support restoration of the Scottish Electricity System following a Black Start Event. We are also playing a key role in a GB wide working group focussed on testing, assurance and standards required to ensure the recovery timescales are within stakeholders expectations. Recent work has focused on the detailed consideration of the options to recover the SPT area from the South and from the Scottish Hydro Electric Transmission (SHET) area via a Scottish zonal restoration strategy. This would follow immediately on from execution of the SHET and SPT local joint restoration plans (LJRP). We will look to engage further with Ofgem among other key stakeholders on this area going forward across Transmission and Distribution.

Brexit

Although we are over three years on from the Brexit vote, there is still considerable uncertainty on what the Business impacts will be from Brexit. However, given that we source our materials from around the globe in a competitive market, a lower valuation for Sterling is likely to have an impact. Clearly such “market” uncertainty will also have implications for interest rates, taxation and competitive labour rates. At this point we have not reflected any impact of Brexit into our forward forecasts for RIIO-T1 but as a Business this is something we continue to monitor in detail and will engage with Ofgem to discuss going forward.





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