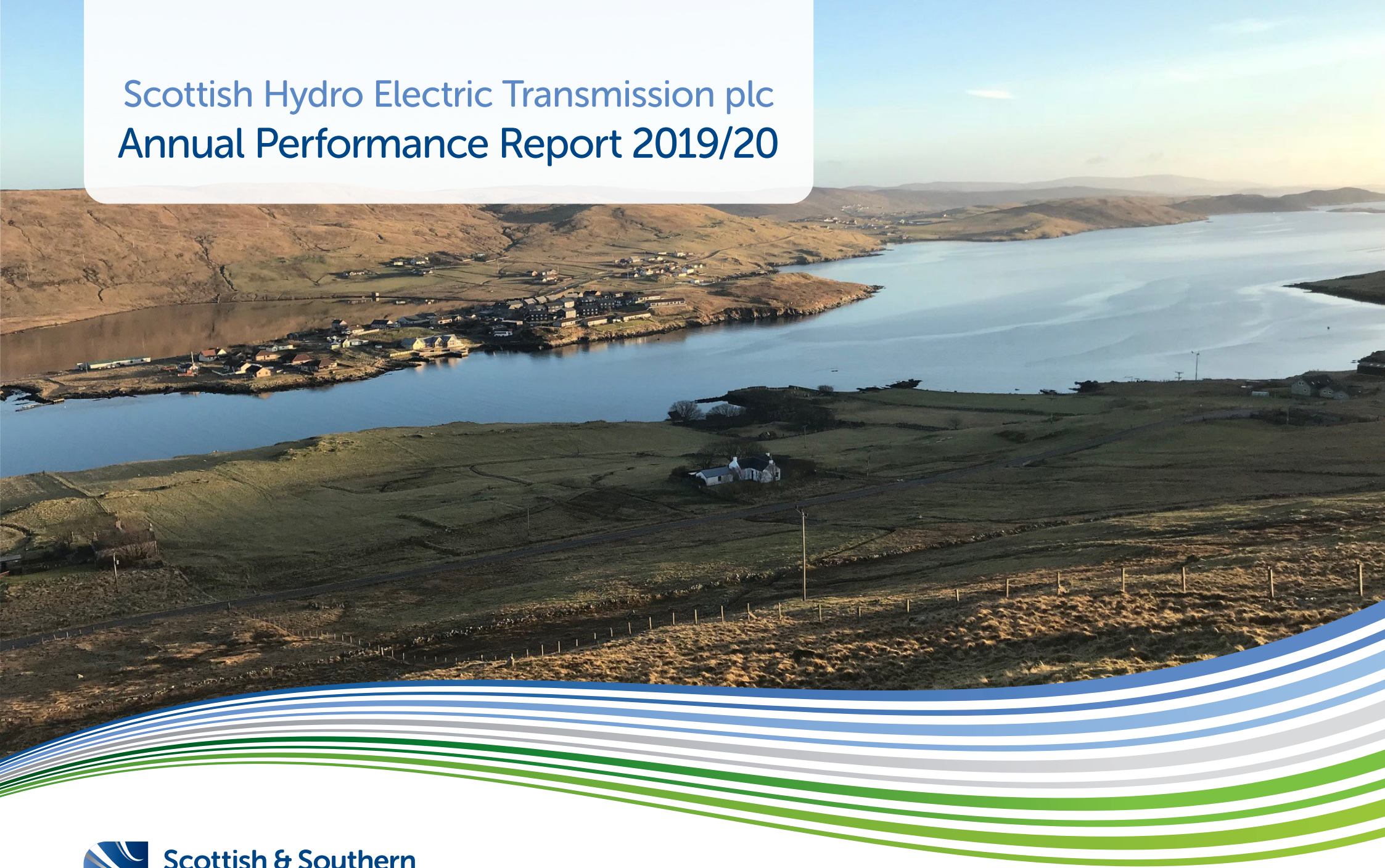
Scottish Hydro Electric Transmission plc

Annual Performance Report 2019/20



Scottish & Southern Electricity Networks

About us

We are part of Scottish and Southern Electricity Networks, operating as Scottish Hydro Electric Transmission plc under licence and are responsible for maintaining and investing in the electricity transmission network in the north of Scotland.

We own and maintain the 132kV, 275kV and 400kV electricity transmission network in our licence area. Our network comprises of underground cables, overhead wooden poles, steel towers, subsea cables and electricity substations, and it extends over a quarter of the UK land mass across some of its most challenging terrain. We take the electricity generated from onshore windfarms, hydro power stations and other generators and transport it at high voltage and extra high voltage over long distances through our transmission network to areas of demand around our towns and cities. Our first priority is to provide a safe and reliable supply of electricity to our communities. We do this by making sure our employees and contractors work safely while ensuring the network is able to function properly and meet electricity demand now and in the future.

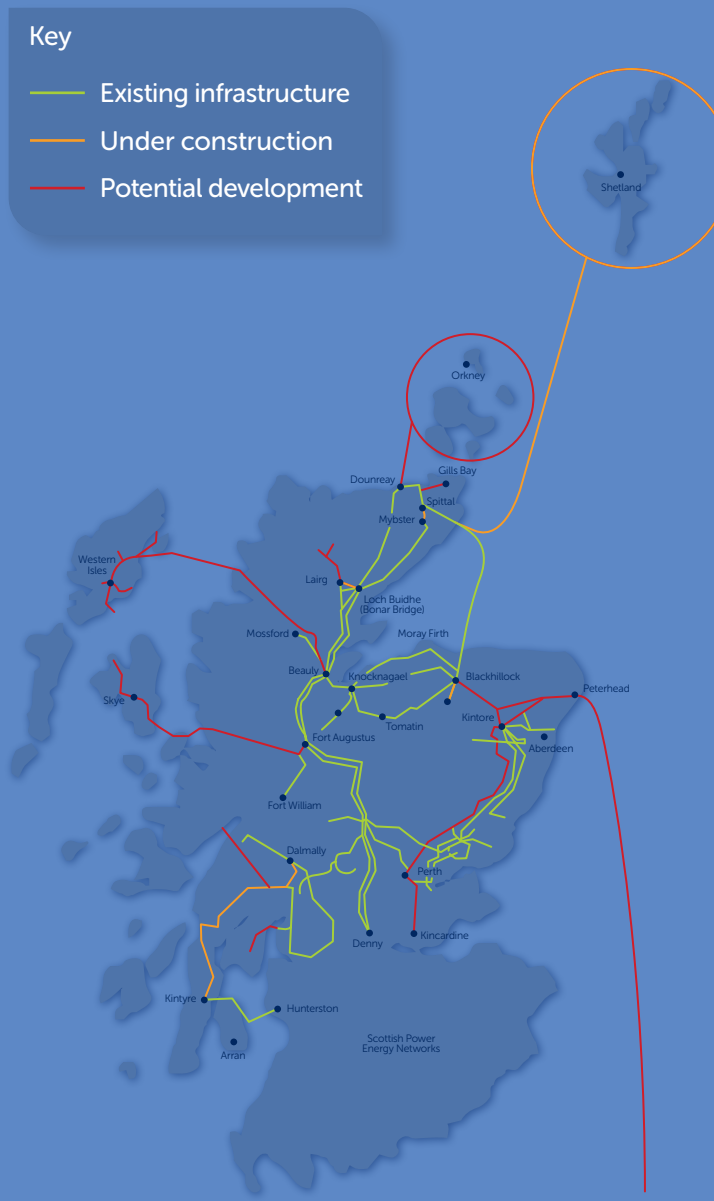
Our operating area is home to vast renewable energy resources including wind, hydro and marine generation. Working closely with National Grid, the GB Electricity System Operator(ESO), we also enable these electricity generators to connect to the transmission system by providing their connections and allowing the electricity generated by them to be transported to areas of demand across the country. As a natural monopoly, we are closely regulated by the GB energy regulator, Ofgem, who determine how much revenue we are allowed to earn for constructing, maintaining and operating our transmission network in the north of Scotland. These costs are shared between all those using the transmission system, including electricity generators and electricity consumers.

Our 600MW Shetland HVDC link has gained approval from Ofgem, unlocking significant renewable energy potential and providing socio-economic benefits to Shetland and the UK as a whole

Our network now supports 6.40GW of clean, renewable electricity, enough energy to power 5 million homes and businesses across GB and support our net zero ambitions.

Overall reliability of the SHE Transmission network in 2019/20 was:- 99.999612%

The total renewable generation connected to the SHE Transmission network has increased by 90% since April 2013 with an increase from 3.36GW to 6.40GW as of April 2020



Rob McDonald
Managing Director

Contents

Welcome

I was delighted to mark the end of my first full year in post as Managing Director within SHE Transmission with notable success on our sustainability goals as we became the first electricity network company globally to have our science based carbon reduction targets accredited in line with the most ambitious pathway to net zero. With our network being home to some of the UK's greatest resources of renewable energy, we have a critical role to play in helping the UK and Scottish Government achieve net zero emissions by connecting and transporting more renewable energy and by tackling our own emissions. This year we have continued to make significant progress in enabling more renewable generation, in 2019 we had transmission solutions in development to connect close to 3GWs of renewable generation. I am immensely proud of this and the many other achievements captured in this report.

Another of the stand out achievements of 2019/20 was the award of a 'mature' rating in the AA1000 health check for stakeholder engagement. Our engagement with stakeholders has grown significantly over the last year as we have continued to progress our projects in development and our strategic priorities.

In July 2020, following years of methodical engagement and project development, Ofgem granted approval to construct the Shetland Link which will provide an HVDC connection of 600MW. This project will land the dual goals of connecting renewable energy and security of supply for the island communities.

On safety, we brought our impactful 50by20 programme to a close. This programme, launched in 2016, set ambitious targets to reduce our safety incident rate by 50%, to have no life changing injuries, to have 50% of people active on health and to get everyone home safe. I am delighted to report that we met our target. I'm really proud of the work we have done during this time to reduce the number and the severity of safety incidents. We operate in some really challenging environments but we have made real strides to ensure that we get everyone home safe. This year we launch the 'Safe Days' initiative, further embedding a safety culture within the business.

In the space of a few months, the coronavirus pandemic has transformed society and the economy. As well as maintaining security of supply, we have worked hard to minimise the impact of the pandemic on our projects in development and in construction. By moving our engagement online we have managed to keep development programmes on track for planning consents and while our teams have been working from home we have consistently delivered new connections offers on time. We have experienced only one event resulting in a loss of supply this year, demonstrating our continued commitment to network reliability.

Recent attention has rightly focused on coronavirus, but climate change hasn't gone away and remains a critical challenge. The transition to net zero presents an opportunity for a green economic recovery and we are determined to play a leading role in this.

Safety

2019/20 saw the end of the 50by20 safety initiative, where we had set ourselves an ambitious target to reduce our safety incident rate by 50%, to have no life changing injuries and to get everyone home safe.

When this campaign was launched in 2016/2017 our combined (employee and Contract Partners) Total Recordable Injury Rate (TRIR) was 0.54. Year on year our TRIR decreased and in 2019/2020 our TRIR dropped to 0.21 achieving our 50 by 20 target set out at the start of the initiative.

We have revitalised our Local Safety Communities for our Operational and Project functions and continue to engage and collaborate with our employees and Contract Partners. We have identified improvement opportunities and are creating a workplace environment of empowered people who look out for each other's safety. The work carried out in this area is reflected in the positive statistics at the year end.

We have continued to promote mental health and wellbeing within the business. Our "Mentally Healthy" training course is in place for our people managers, as well as offering e-learning courses to all colleagues and additional training with our mental health first aiders. We continue to offer a wide range of support and initiatives to keep our workforce in the best mental and physical health.

Safety Measure	2016/17	2017/18	2018/19	2019/20
HSE Reportable Incidents	10	3	3	3
Lost Time Incidents	3	5	0	0
Medical Treatment Incidents	7	6	4	2
TRIR	0.54	0.45	0.23	0.21

Moving beyond 50by20, we have introduced a new measure 'Safe Days'. This measure will help us all stay focused on taking care of ourselves, each other and the environment. When it comes to this - every safe day counts.cA 'Safe Day' is a day where neither our employees or our Contract Partners have a minor, serious or major incident from the list below:

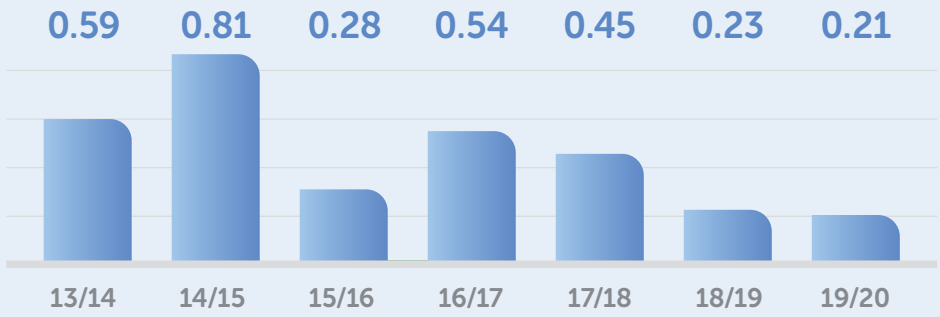
- Reportable, Lost Time (1-7days) or Medical Treatment Injury
- Major/Serious/Minor Environmental Incident/Permit Breach
- HIPOS – High potential to harm people/Environment
- Road Traffic Collision 1 (applies to Transmission employees only)

We will continue to build on the good foundations we have put in place to influence the reduction of incidents and continue to further embed the strong safety culture within our business.

Total Recordable Incident Rate

Target = 0.18

Total number of recordable incidents for staff & contractors per 100,000 hours worked



Environment & Sustainability

Setting our Science Based Target

Delivering net zero emissions and preventing the worst effects of climate change is at the heart of our business. Whilst the most material impact we have is through connecting and transporting clean renewable electricity, we also recognise we have a responsibility to take direct action to reduce our own impact on climate change.

We have therefore set ourselves extremely ambitious plans to reduce our own emissions in line with what is required to meet net zero emissions and we are absolutely delighted that our carbon reduction commitments have been recognised by the globally renowned and respected Science Based Target initiative. This means that we are the world's first electricity networks company to receive external accreditation for a science-based target in line with a 1.5°C global warming pathway.

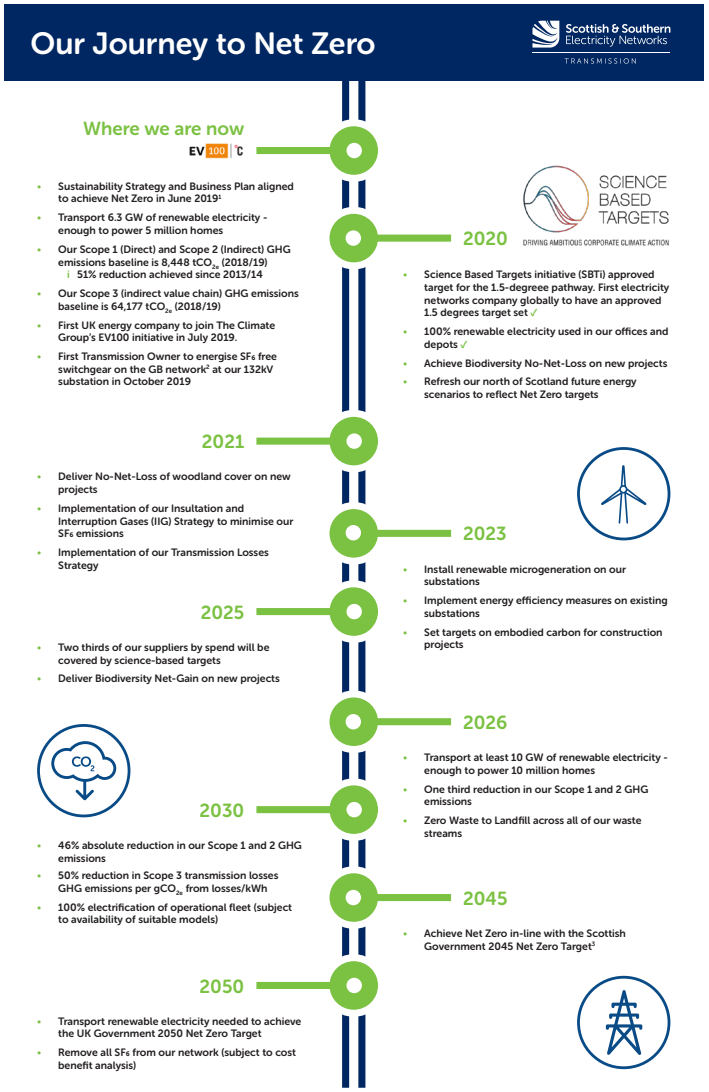
What's a Science Based Target?

A Science Based Target is a target for greenhouse gas emissions reductions that is set based on the level of reduction that science says is required to prevent the most catastrophic effects of climate change. Basing our targets on 1.5°C climate change scenarios means that they are based on the Paris Agreement's most ambitious goal.

You can read more about our sustainability ambitions for the future in our RIIO-T2 Sustainability Strategy.

www.ssen-transmission.co.uk/media/3498/ssen-riio-t2-sustainability-strategy-update.pdf

"We congratulate SSEN Transmission for becoming the first electricity transmission network operator to set emissions reduction targets consistent with limiting warming to 1.5°C above pre-industrial levels. This is the Paris Agreement's most ambitious goal and what the Intergovernmental Panel on Climate Change says is required to prevent the catastrophic effects of climate change. SSEN Transmission has cleared a high bar and is setting an example that their peers must follow" **– Alexander Farsan, global lead for Science Based Targets at World Wide Fund for Nature**



[1]In collaboration with our communities, customers and stakeholders

[2]www.ssen-transmission.co.uk/news-views/articles/2019/10/ssen-transmission-first-uk-transmission-owner-to-energise-sf-gas-free- technology/

[3]Targets beyond 2030 are indicative and will be refined as certainty around net zero pathways develops. Timing of some actions are dependent on approval and funding from Ofgem.

Environment & Sustainability cont.

Our Sustainability Strategy has been aligned with a Net Zero future

During 2019/20, we published our RIIO-T2 Sustainability Action Plan detailing how we will continue our high performance into the next price control period. The goals in this plan will build on the foundations we have established during RIIO-T1, including the sector-leading establishment of a Science Based Target for greenhouse gas emissions and a strategy to achieve Biodiversity Net Gain on our projects.

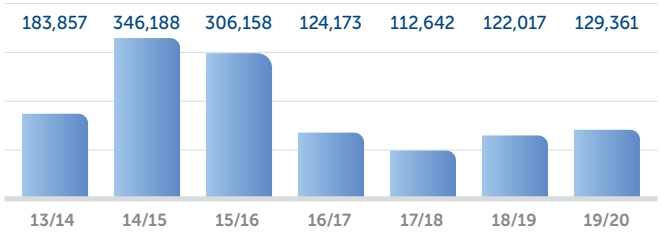
Environmental Discretionary Reward

Target = Leadership

Assessed by an expert Ofgem panel, we will receive the score for 2019/20 in October.

Business Carbon Footprint (tCO_2e)*

This measures the carbon footprint of the business in delivering our activities

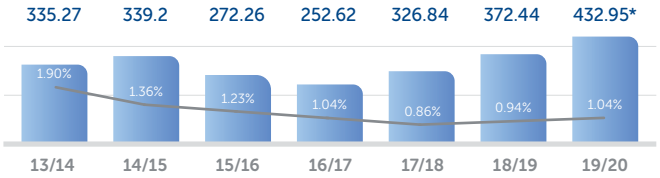


*Tonnes of carbon dioxide equivalent.

SF_6 Leakage (Kg)

Target for 2019/20 = <387.01kg

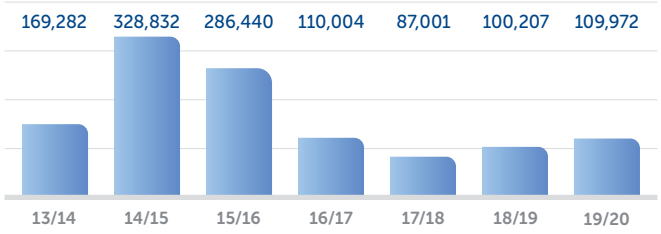
This measures the sulphur hexafluoride (SF_6) leakage from our switchgear. The target increases as the number of assets using SF_6 on our network increases. The overlaid line graph shows percentage leakage based on total mass installed.



*Exceptionally high leakage occurred at Dounreay 275kV GIS substation this year on plant that is still under warranty. We are working with contractors to find a permanent solution to the problem

Transmission Electrical Losses (tCO_2e)*

The electrical losses from our system are measured as the difference between the energy entering our system and the energy received by customers.



*Tonnes of carbon dioxide equivalent.

Environmental Awards

Green Energy Award

Best Practice Award – Approach to Biodiversity Net Gain

Green Apple Environmental Award

Environmental Best Practice - Great Yellow Bumblebee biodiversity project at Thurso South substation, and Osprey mitigation works near Alyth in Perthshire

Network Award

The Gamechanger Award - Highly commended for our Biodiversity site optioneering toolkit Project

BIG Biodiversity Challenge Award

Client Award – Caithness-Moray

Development to Facilitate Generation

A Network for Renewable Generation

Generation of largely renewable electricity in the north of Scotland significantly exceeds local demand consumption (Figure 1). Over recent years, the average electricity consumption in the north of Scotland has fallen slowly, in line with the GB trend. However, between 2016/17 to 2019/20, electricity generated on the network has increased by almost 100%. In 2019/20, the volume of electricity generated was around 3-times the amount consumed. The growing gulf between electricity generated and demand on our network drives the need for bulk power transfer from the north of Scotland to the south of the UK.

Shetland Development

In July 2020 we received final approval from Ofgem to progress the development of the Shetland link which will see the construction of a 600MW HVDC transmission link between Shetland and GB mainland. Not only will this facilitate the connection of clean, green renewable energy, it supports Shetland's future security of supply needs through being connected to the main GB grid for the first time.

Other Investment

During 2019/20, we continued to work with stakeholders on our plans for strategic network reinforcement to accommodate renewable generation. These works include reinforcement of the existing onshore transmission system in the east, as well as the construction of a new offshore High Voltage Direct Current (HVDC) link from Peterhead to England. These reinforcements will facilitate efficient bulk renewable power transfers from the north of Scotland to electricity consumers further south.

In addition, we have continued to develop transmission solutions to connect mainly renewable generation in all parts of our network. In 2019/20, we progressed development works for close to 3GW of generation capacity for projects which will connect and contribute to achieving national net zero targets.

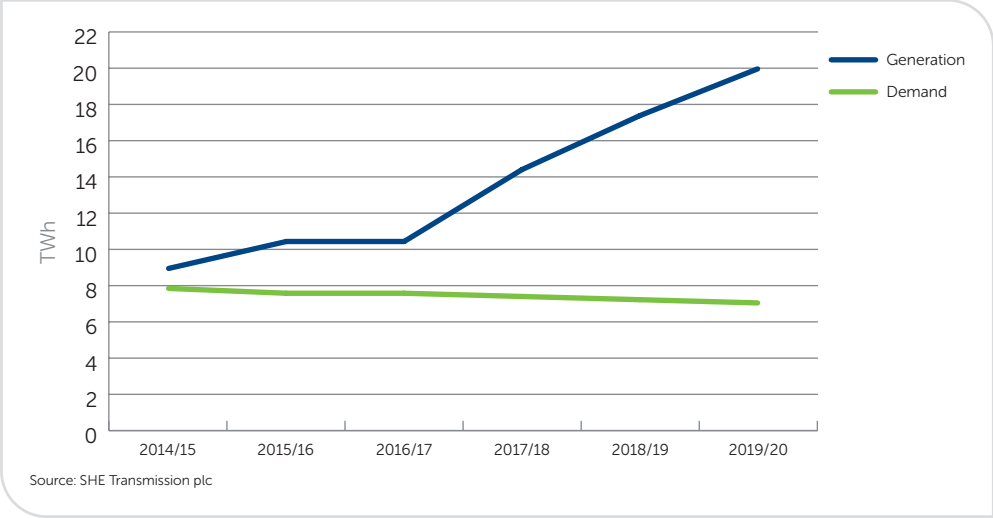


Figure 1 Historic view of electricity generated and demand in the north of Scotland


Shetland Landing Site

Innovation

In 2019, we published our Innovation Strategy which sets out our plans and ambitions for getting the most out of innovation before, during and after the RIIO T2 price control period.

The strategy has a clear objective, where we aim to enable the transition towards a low carbon economy, whilst maintaining 100% reliability in electricity supply and ensuring energy remains affordable for all.

In developing this strategy, it was vital that we defined what innovation is.

We see innovation as a means of identify and proving new ways of working for the long-term benefit of our stakeholders and our business.

To support the delivery of these objectives, we established a new Innovation Team who will take the lead in implementing a delivery framework, enabling the business to identify, assess and deliver value adding innovations which can be funded through Business as Usual (BaU) funds or across the Network Innovation stimulus.

Network Innovation Allowance	Network Innovation Competition
9 Projects ongoing in 2019/20	2 projects ongoing in 2019/20
5 new projects started in 2019/20	National HVDC Centre Project £1,109,281 spend in 2019/20
£626,377 portfolio spend over 2019/20	NeSTS Project £1,924,449 spend in 2019/20

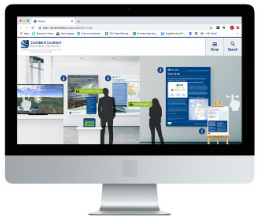
Innovation Projects

Dynamic Line Rating (DLR)

We submitted our business plan in December of 2019. The plan detailed our ambitions over the RIIO -T2 period and included an objective to develop and trial a DLR solution.

DLR is a transmission operation philosophy which is aimed at maximising line loading without compromising sag limits; as a result of thermal expansion. This project looks to develop a solution which can enable the increase of line capacity, without the need to upgrade the network at great expense.

Virtual Consultation Portal



COVID-19 brought huge levels of unrest, with distancing measures requiring many to rethink how they approach their objectives.

The Communities Team use face to face consultation to engage stakeholders on infrastructure developments, and with distancing measures in place, a new approach was needed. It's times like these were innovation plays its part in finding new ways of overcoming challenges. The team responded quickly, where a unique online consultation portal was developed, providing a novel way of keeping infrastructure delivery on time. This example emphasises how innovation can extend beyond engineering solutions to deliver benefit for our stakeholders.

TOTEM

The GB power system is rapidly evolving as we transition to a low carbon economy. Conventional carbon generating power sources are gradually being decommissioned and with the increase in new wind generation, this imbalance between generators can lead to lower inertia and potentially a weaker GB power system. To understand this better, we would like to simulate a weak, low inertial system, but current tools are limited in their detail. The TOTEM project aims to address these limitations by developing a more detailed Electromagnetic Transient (EMT) based model. Using PSCAD simulation software, the study will develop and validate a full-scale model of the GB transmission system to allow us to better understand ways of de-risking the integration of new systems.

NeSTS

The New Suite of Transmission Structures (NeSTS) project has continued to develop throughout 2019. The project will deliver a new breed of transmission towers, which are better for the environment and are set to deliver significant savings to GB customers.

Through the Network Innovation Competition (NIC), we are leading the development of the project over two phases. Phase one focused on the design, development and testing of the concept. Now in phase two, the project has moved into its implementation and construction phase where focus will be made on developing operational practices and supporting equipment.

Customer & Stakeholder

2019/20 was a pivotal year for stakeholder engagement as we developed, consulted on, published and embedded a new Stakeholder Engagement Strategy.

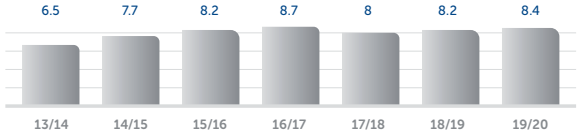
During 19/20, we published our Business Plan for 2021-2026 which we had co-created with our stakeholders. Other Transmission companies replicated our approach and published their draft plans. We remain the only TO to have openly consulted throughout on our business plan, adapting it in response to stakeholder views before it was finalised. All Directors and their reports now have a measurable stakeholder engagement objective, while we have implemented a stakeholder engagement staff training programme, tailored to specific job roles. We also trained administrators on our stakeholder management system to embed stakeholder management and tracking within directorates.

Our Customer and Stakeholder Teams continue to engage with stakeholders on projects across our network. We are now in contact with landowners that had previously been hard to reach, reducing refusals to grant access to carry out maintenance to less than 1%. Supply chain engagements are delivering multi-million pound efficiencies which will be shared with consumers. Our collaborative whole system approach for Shetland has created a ground-breaking mechanism to deliver benefits for consumers, customers and society by reallocating funding between network companies.

Stakeholder satisfaction – Survey

Target = 7.4

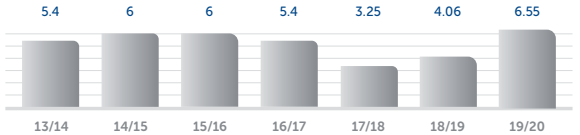
This is the output of a survey conducted by an external research company with the score solely attributable to responses to the question "How satisfied are you overall with SHE Transmission?"



Stakeholder satisfaction – Panel

Target = 5.0

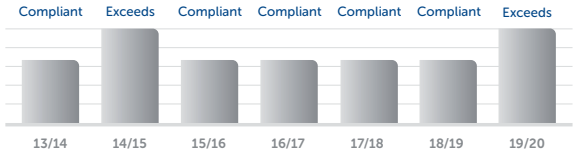
An independent panel assesses our stakeholder engagement activities. An improvement plan has been developed to significantly improve our performance in this area.



Stakeholder Engagement External Assurance

Target = Compliant

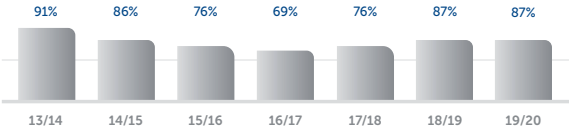
An external assurance team assesses the extent to which we have implemented our stakeholder engagement strategy and plan. The outcome of this is categorised as Non-Compliant, Compliant or Exceeds.



Stakeholder satisfaction – KPI

Target = 89%

Our performance here is measured against 19 measures and aggregated to derive a percentage performance score. We have implemented improvement actions to achieve above target performance by 2019/20.



In 2019 we set out an improvement plan for stakeholder engagement. The exceptional progress we've made in all areas has enabled us to put stakeholder engagement at the heart of everything we do.

Stakeholder Engagement is now represented at Director level, while dedicated stakeholder engagement resource has increased from eight to over twenty. We have established an approach to measuring the social, economic and environmental value of our engagements. We undertook collaborative development of a new set of Stakeholder KPIs, reviewed with our Stakeholder Advisory Panel and we have tracked and reported on these throughout 2019/20.

In February 2020, AccountAbility* conducted an independent Healthcheck of our stakeholder engagement performance against the internationally recognised Standard AA1000SES (2015). With a total score of 62% our organisation lies within the Mature stage of the AccountAbility Stakeholder Engagement Maturity Ladder.

In April 2020, ERM Certification and Verification Services (ERM CVS) conducted an independent assessment of our performance against our Stakeholder Engagement Strategy and Delivery Plan and Implementation Plan for 2019/20. ERM CVS concluded that we have exceeded compliance with our Stakeholder Engagement Strategy for 2019/20.

*AccountAbility is a global consulting and standards firm that works with businesses, investors, governments, and multi-lateral organizations to achieve opportunities, advance responsible business practices, and transform their long-term performance. For more information visit: www.accountability.org/

Network Investment

Our strategic objective for the RIIO-T1 period is to enable the UK to transition to a low carbon economy. Considerable progress has been made in the decarbonisation of the electricity generation over the past decade.

However, as we look ahead to RIIO-T2, more needs to be done to meet Net Zero ambitions. To achieve this, we need to continue to invest in the transmission network to provide a network that is capable of connecting increased renewable energy in the north of Scotland.

Connection Projects

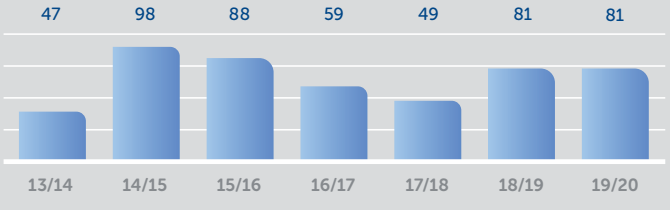
These are comprised of works to facilitate sole use connections for a single connected generator, shared use works for multiple generators, or strategic wider works (SWW) projects that provide greater network capacity and resilience to support the continued growth in generation connected to our network. This has been a non-standard year for connections, evident from the graph below, which is due to the phasing of generator requirements. Our current best view will see us increase renewable generation by 100% since the start of T1 with 6.73GW forecast to be connected by April 2021. The total renewable generation connected to our network has increased by 90% since April 2013 with an increase from 3.36GW to 6.40GW as of April 2020. With this we continue to contribute to the decarbonisation of the GB energy sector by supporting the UK in meeting national net zero targets.

6.40GW
of renewable generation connected as of April 2020

81
offers to connect to the transmission network were made to customers during 19/20.

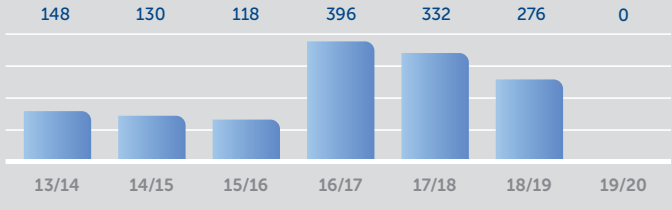
Timely Connections

Our target is for all offers for connections to the transmission network to be made to customers within the time periods set out in the industry code.



Generation MW Connected in the year

This measures the new generation connected through the sole use volume driver mechanism.



Network Awards

Network Magazine Awards 2020 – Finalists

Stakeholder Engagement Initiative of the Year – RIIO-T2 consultation (initiative 1.1)

The Game Changer Award–Networks - Biodiversity Site Optioneering

Toolkt Project (initiative 5.2) and Striving for Net Zero Project (initiative 5.1)

Engineering Project of the Year - Electricity - Fort Augustus-Fort William line upgrade

Royal Town Planning Institute Awards for Planning Excellence 2020 – Finalists

Excellence in Planning for the Natural Environment and In-House

Non load projects

Our Non-Load projects are where we replace assets nearing the end of their useful life, before failure occurs and helps to ensure we "keep the lights on".

Inveraray – Port Ann

Excellent progress has been made on the Inveraray to Port Ann project, which is Phase 1 of the Inveraray to Crossaig Reinforcement.

The driver for the project is asset condition as the existing line is nearing the end of its operational life. The new 37km overhead line will ensure a safe and reliable supply of electricity to the communities in the area for years to come and also provide additional capacity to support the increase in new forms of renewable electricity generation across the region.

Enabling works are now complete, including the felling of over 220Ha of commercial forestry and the construction of nearly 100km of access tracks. Tower installation is progressing well, and wiring will commence in late Autumn 2020.

The new assets are scheduled to be commissioned and handed over to the Electricity System Operator (ESO) in July 2021.

Dunbeath SF_6

Innovation is an important way to drive value for money and contribute towards Net Zero targets.

SF_6 gas is commonly used in electrical switchgear due to its excellent insulating properties. However, it is a known green-house gas.

SHE Transmission is working with many of the equipment manufacturers in developing and trialling new technology to replace this gas.

An example of this collaboration is the replacement of two circuit breakers at Dunbeath substation, which had reached end of life, with SF_6-free Siemens "clean air" 132kV circuit breakers in the autumn of 2019. These innovative circuit breakers use a combination of vacuum bottles and Oxygen / Nitrogen gas as the insulation medium rather than SF_6. SHE Transmission are continuing to support Siemens, to secure Energy Networks Association (ENA) approval for these new SF_6-free 132kV Circuit Breakers.

Load projects

Load Projects

Our upgrade or reinforcement(Load) projects are driven by changes in connected generation and/or demand. This includes consequential changes in network operating characteristics.

11 Major Growth projects (+6) under construction

Knocknagael - Tomatin Reinforcement Project

The Knocknagael - Tomatin Reinforcement project was a strong focus for us throughout 2019. The driver for this project is to enable onshore renewable generation to connect and export through replacing and reinforcing the existing electrical transmission network close to Inverness, increasing the capacity available to generators.

With construction commencing in 2017, the project had a number of elements.

Replacement of an existing 132kV overhead line with a larger, higher voltage line, operating at 275kV over a route length of 21km, this also improving the visual amenity in the area through the removal of the old line.

Construction of a new 275/132kV Substation close to Tomatin was required as a connection hub, alongside works to extend the existing 275/132kV Knocknagael substation to incorporate the new infrastructure, and reconfigure the network at four existing Substations and overhead lines, improving reliability and operability.

The new assets were successfully commissioned and handed over to the Electricity System Operator (ESO)in November 2019

Operations & Asset Management

Operations

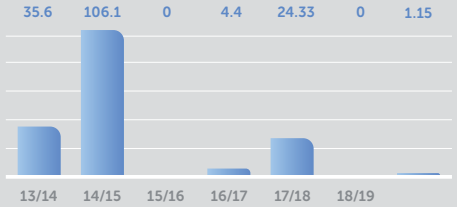
The operations team had another strong year, outperforming the Energy Not Supplied (ENS) incentive again, as well as delivering excellent safety performance with no injuries of any type recorded for the third consecutive year.

The team delivered all operational targets for inspections, maintenance and vegetation management, ensuring network security of supply and safety. Significant planning and mitigation were put in place during February and March to deal with the Coronavirus pandemic. The hard work and dedication of staff during this difficult period ensured the limitations placed on the country due to lockdown restrictions had no detrimental effect on the reliability of our network.

Energy not supplied

Target = <120MWh

The energy not supplied to customers due to incidents on the transmission system. During the year there was only one event resulting in the loss of supply



The first full year of operation of our new HVDC network between Caithness and Moray was a success with the system availability being measured at 100%, out with planned shutdowns.

Asset Management

Our Asset Management Team are at the core of our network management and provide specialised engineering and technical analysis of equipment performance and reliability as well as specifying asset specifications and standards.

The primary focus on the Asset management Team in 2019/20 was the development and delivery of key areas of our ambitious RIIO-T2 plan including: -

- Replacement / refurbishment plans for assets nearing end of life
- Resilience planning to make the network more robust
- Digitalisation of our business processes and monitoring
- Cyber security planning in conjunction with our specialist IT teams
- Development and appraisal of new innovations and technologies such as the expanded use of SF6 free switchgear
- Development of Network Asset Risk Metrics (NARMs) to assist in the planning of asset intervention on the network looking at the probability and consequence of equipment failure.

The team have also been involved in international benchmarking of both our operational performance and our asset management capability. This gives us a great insight into areas of best practice and allows us to increase our knowledge and expertise

Asset additions planned on the network during the RIIO-T1 period (2013-2021) compared to the original RIIO-T1 business plan. See table on right.

Asset Additions	Business Plan	Latest Forecast	Difference
275 kV System			
Circuit Breaker	1	3	2
Transformers	0	1	1
OHL Fittings	0	52	52
132 kV System			
Circuit Breaker	28	23	-5
Transformer	16	11	-5
Reactor	0	10	10
Underground Cable	14.8	16.6	1.8
OHL Conductor	927.2	590	-337.2
OHL Fittings	0	912	912
OHL Tower	0	235	235

Performance during the year

The majority of our total expenditure (TOTEX) in 2019/20 remained focused on the delivery of large capital projects. These large capital projects being to facilitate increased generation and associated connections to our network (Load Related), or to renew our existing network (Non-Load Related)

The table below shows our expenditure forecast for 2019/20, that we determined in March 2019 and our actual expenditure for 2019/20. We believe that comparing actual expenditure to forecast expenditure is a better indicator of performance than comparing to allowances for the same period. This is because our base line allowances were established in 2012 based on our projected programme of works at that time. This programme of works has, and will, continue to change for a variety of reasons, meaning that a comparison of actual expenditure to baseline allowances for an individual financial year is not a like for like comparison.

Return on Regulatory Equity (RoRE)

8.5% 8 year weighted average operational RoRE*

*(excluding Transmission Investment for Renewable Generation (TIRG) return and debt and tax performance).

Regulated Asset Value (RAV) at end of year

2012/13 = £1.1bn
2018/19 = £3.3bn
2020/21 = £3.7bn

The RAV is a useful indicator of the growth in the size of our network over the price control period and we are forecasting that by March 2021 it will reach £3.7bn.

Category	Forecast for 2019/20 (£m)	Actual for 2019/20 (£m)	Delta (£m)
Load Related – Strategic Wider Works (SWW)	17.4	9.0	(8.4)
Load Related – Other	254.8	220.7	(34.1)
Non-Load Related	111.8	92.4	(19.4)
Operating Costs	51.1	42.8	(8.3)
Non-Operating Costs	2.9	3.9	1.0
Total Expenditure (TOTEX)	**438.0**	**368.8**	**(69.2)**

Load Related – SWW:

Actual expenditure in this category was £8.4m lower than our forecast. Knocknagael Tomatin was successfully first energised in December 2019 and achieved full energisation as at May 2020, on time and under budget. The reduced expenditure was due to risks not materialising as we completed some post energisation works as well as the removal of Orkney and Western Isles from our best view.

Load Related – Other:

A similar story exists in this category with actual expenditure being £34.1m lower than our forecast made at the end of the preceding financial year. The reasons for this is primarily due to re-profiling of expenditure, across several schemes which have faced delays to their connection dates as a result of scheme modifications and COVID delays.

Non-Load Related:

Re-profiling of the expenditure for the our non load programme amounts to £19.4m, again due to certain projects now reflecting the latest construction programmes. This includes Non load, Vista and Physical Site Security projects.

Non-Op Capex Costs:

Our expenditure in this area has increased by £1.1m which relates to upgrading an old substation building into a training facility along with increased spend in relation to storage facilities.

Operating Costs:

Our expenditure for operating costs is lower by £8.2m, partly due to reduced expenditure on direct operating costs along with reduced overheads for running our business. Our forecast for 2021 remains at a similar level to last years reported forecast for that year.

Forecast for RIIO-T1

Category	2018/19 Forecast (£m)	2018/19 Expenditure (£m)	2018/19 Delta (£m)	2019/20 Allowances (£m)	2019/20 Expenditure (£m)	2019/20 Delta (£m)
Load Related – Strategic Wider Works (SWW)	2,026.4	1,844.8	-181.6	1,667.1	1,483.2	-183.9
Load Related – Other	1,570.9	1,317.0	-253.9	1,461.0	1,171.4	-289.6
Non-Load Related	348.0	440.6	92.6	301.4	417.6	116.2
Operating Costs	260.9	263.7	2.8	257.7	255.4	-2.3
Non-Operating Costs	9.9	25.0	15.0	10.0	32.6	22.6
Total Expenditure (TOTEX) as per RRP	**4,216.2**	**3,891.1**	**-325.1**	**3,697.2**	**3,360.2**	**-337.0**
Enduring Value Adjustments*	-149.5	-	149.5	-218.8	-	-218.8
Total Expenditure (TOTEX) as per RFPR	**4,066.7**	**3,891.1**	**-175.5**	**3,478.4**	**3,360.2**	**-118.2**

As with our actual expenditure for 2019/20, our current TOTEX forecast for the 8-year RIIO-T1 period is centred on the delivery of large capital projects, with 90% of our forecast TOTEX expected to be spent in the Load and Non-Load related categories.

We are forecasting that our TOTEX in RIIO-T1 will be £337.0m less than Allowances. This equates to a forecast underspend of approximately 9%. There are many factors that influence our forecast, including our best view on the progression of new connections to our network and our ability to continue to deliver efficiencies in our large capital project portfolio.

These figures currently exclude any assumed close out adjustments for RIIO-T1. Our current assumption is that post close out we will be circa £118m less than allowance which is approximately a 3% underspend.

The table above provides our best view at the end of 2019/20 of allowances and expenditure for the RIIO-T1 period and it sets this against our corresponding best view from the end of 2018/19.

The following narrative provides explanation of the differences between our current best view on allowances and expenditure. Furthermore, where there has been material change in this best view we set out the reasons for such change.

Load Related – SWW:

There has been a significant reduction in our expected allowances and expenditure from 2018/19 to 2019/20. This is largely attributable to the removal of Western Isles link and Orkney from our best view. As noted previously, we have gained approval for the Shetland HVDC link as of July 2020, which makes up a large portion of the forecasted SWW expenditure.

We continue to forecast a significant underspend in this category due mainly to the efficiencies that we have created through our SWW projects. Such efficiencies have been realised as a direct result of how we have:

- managed projects to eliminate risks and to mitigate the impacts of realised risks
- built productive relationships with our supply chain
- continued to build and improve our project delivery capability.

Load Related – Other:

This expenditure category has the most uncertainty due to its dependency on the progression of new generation which is heavily influenced by UK Government policy.

The volume driver mechanism within the RIIO-T1 price control was developed in response to this uncertainty.

The volume driver mechanism sets baseline targets for sole-use and shared-use infrastructure and provides the opportunity for further allowances, should either baseline be exceeded. We are forecasting exceeding both the sole-use and shared-use baseline outputs as shown in the table below:

Category	Target	Forecast Out-turn	Delta
Sole-Use Infrastructure	1,168MW	1,398MW	+230MW
Shared-Use Infrastructure	1,006MVA	2,506MVA	+1500MVA

Our forecast delivery in the shared-use category has reduced in the financial year down from 4,166MVA to 2,506MVA. This reduction is due to delayed delivery of Fort Augustus 400/132kV (960MVA) and Rothienorman Substation (580MVA) as well as 120MVA from the Farigaig SGT2 Upgrade which will not be captured under the sole use works associated with Aberarder Windfarm. Our forecast in the sole-use category has reduced from 1,549MW to 1,398MW. These changes have led to an overall reduction in cost and allowance forecast for the period and have been driven by changes to scheme connection dates. The net effect of these changes and additional forecast costs means that we are now forecasting expenditure being circa £289.6m (pre enduring value adjustments) lower than allowances.

Non-Load Related:

A reduced forecast associated with schemes to mitigate the visual impact of existing infrastructure has seen an overall reduction in both allowances and expenditure compared to last year. Our current best view of expenditure is that we will overspend against allowances by 38%. The forecast overspend is a consequence of delivering additional scope that wasn't included in the baseline business plan. The reason for the difference being that the condition of some of our assets is significantly worse than our original assessments made before the start of RIIO-T1. For example, we are currently forecasting to replace 235 no. 132kV towers that weren't in our RIIO-T1 business plan. This alone introduces significant additional expenditure whilst not attracting any increased allowances.

Operating Costs:

Our forecast expenditure in this category is broadly in line with our allowances.

Non-Operating Costs:

A large part of the forecast overspend against allowances in this category is continues to be related to investment in Maximo and other systems such as a replacement for our existing Geographic Information System (GIS) which began implementation in 2017/18. There continues to be spend on these systems as the full functionality is implemented. Forecast spend for non-operating costs also includes cyber security enhancements as we continue to protect our systems and data from an increasing global threat of cybercrime.

Incentive Performance

Primary Output		RIIO-T1 Target	2019/20 Actual	Max Reward £m	Max Penalty £m	Reward/Penalty in 2019/20[1]	Comments
Energy not supplied (ENS)		<120MWh	1.15MWh	1.2	-10.57	1.17	The output has met its target in all years of RIIO-T1
Stakeholder Satisfaction Output	KPI	89%	87%	3.55	-3.55	£1.49[2]	Our improvement plan aims to improve our performance in these outputs
	Assurance	Compliant	Exceeds				
	Survey	7.4/10	8.4				
Stakeholder Engagement Reward		5/10	6.55	1.76	N/A	TBC	Reward is to be confirmed
Timely connections		Connection offers within 60 days	81 Connections made within timescale	N/A	-1.70	-	This output has met its target in all years of RIIO-T1
Sulphur hexafluoride (SF_6) leakage,[3] kg		<377.51kg	432.95kg	0.43	This is dependent on leakage	-0.04	Exceptionally high leakage occurred at Dounreay 275kV GIS substation this year
Environmental Discretionary Award (EDR)		Leadership	TBC	£4m annual pot available across all operators	N/A	TBC	To be confimed

[1] Earned in year in nominal price and has two-year lag.
[2] Incentive/Penalty is calculated based on Stakeholder Satisfaction Survey, KPI and external assurance.
[3] <387.01kg is target for 2019/20. The target for SF_6 leakage increases as the number of our network using SF_6 increases.

Looking ahead – RIIO-T2

After years of hard work, we marked the significant milestone of submitting our final RIIO-T2 Business Plan to Ofgem in December 2019.

Our Plan

Since our last annual report, we continued to engage with stakeholders to refine our Final Business Plan. This followed an intense programme of outreach and engagement including regional roadshows and engagement with our User Group. In total we had over 2,500 engagements with stakeholder across over 50 organisations.

Our Business Plan 'A Network for Net-Zero', aims to support both the UK and Scottish Governments' net zero emissions targets. And meet the needs and expectations expressed by stakeholders through five clear, ambitious goals (see right). Our Business Plan sets out a significant investment programme of £2.4bn creating jobs and aiding the UK's Green Recovery.

This investment is essential to maintain and grow the north of Scotland transmission network to meet the certain needs of current and future electricity generators and customers, delivering a clear pathway to net zero. Our robust evidence-based approach sets out only investments which are certain, meaning billpayers aren't at risk to paying for something which is not needed. In addition to our certain view we proposed agile regulatory mechanisms to enable the timely investment in projects when they become certain. This adaptation will accommodate future growth and net zero.

What next?

In July, Ofgem published their draft decision on our Business Plan. Disappointingly, the approach set out in Ofgem's Draft Determination fundamentally fails to deliver on net zero, inadequately reflects stakeholder and customer needs, and falls short in seeking to attract the significant investment required. The proposals, as currently outlined by Ofgem, will not deliver our certain view and does not provide the agile regulatory mechanisms required to deliver net zero.

Next Steps:

- September: continue being stakeholder-led and underpinning proposals with robust evidence in response to Ofgem's Draft determinations
- September – November: continue to work with Ofgem and stakeholders to reach a deliverable final settlement
- December: Ofgem's final determination published. If significant changes are not made in we will be forced to keep all options open, to secure an ambitious, fair and balanced price control settlement that meets the needs of all stakeholders

Five years. Five clear goals

Transport the renewable electricity that powers **10 million homes**

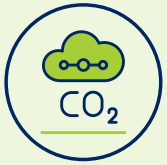
Build electricity network flexibility and infrastructure that can accommodate 10GW renewable generation in the north of Scotland by 2026.

100% network reliability for homes and businesses

Make cost-effective investment in new technology to achieve 100% transmission system reliability for homes and businesses by 2026.

Every connection delivered on time

Provide every network connection, tailored to meet our customers' needs, on time and on budget.



One third reduction in our greenhouse gas emissions

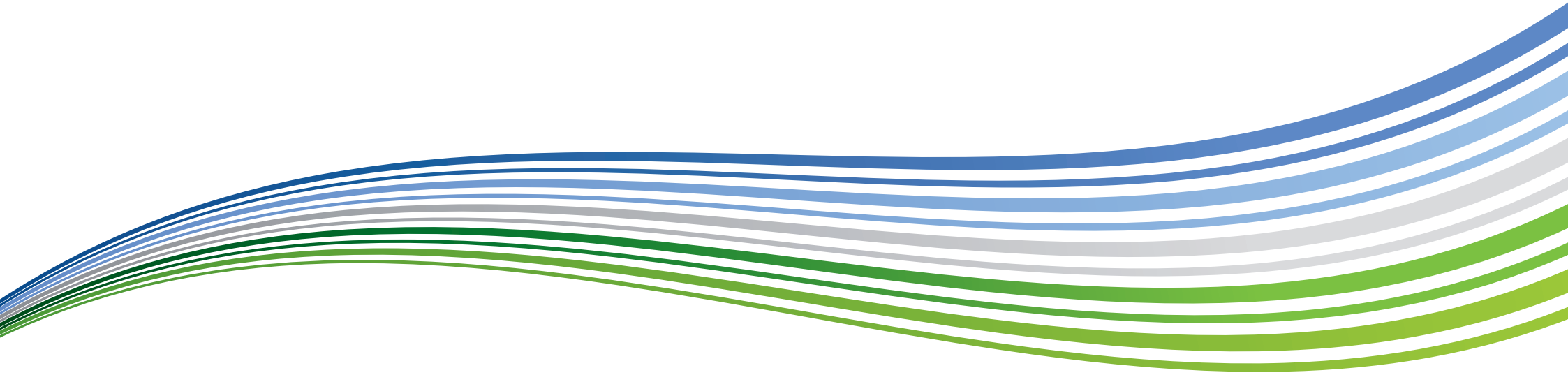
Reduce the Scope 1 and 2 greenhouse gas emissions from our operations by 33% by 2026, consistent with 1.5 degree climate science pathway.

£100 million in efficiency savings from innovation

Through targeted new technology and ways of working, achieve £100 million customer benefits by 2026.

Delivered for around £7 a year

You can get involved at: www.ssen-transmission.co.uk/riio-t2-plan



Scottish & Southern Electricity Networks