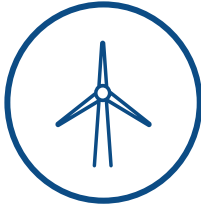


A Network for Net Zero

RIO-T2 Business Plan Summary

January 2020

Five years Five clear goals



Transport the renewable electricity that powers 10 million homes

Our RIIO-T2 Certain View will deliver an electricity network with the capacity and flexibility to accommodate 10 GW renewable generation in the north of Scotland by 2026



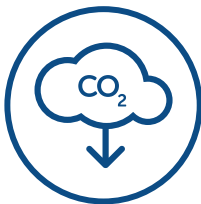
Aim for 100% transmission network reliability for homes and businesses

By investing in new technology and ways of working, when cost effective for customers to do so, we will strive for 100% transmission network reliability for homes and businesses by 2026



Every connection delivered on time

By 2026 we will provide every network connection, tailored to meet our customers' needs, on time, on budget and to our customers' satisfaction



One third reduction in our greenhouse gas emissions

Reduce the controllable greenhouse gas emissions from our own operations by 33% by 2026, consistent with a net zero emissions pathway



£100 million in efficiency savings from innovation

Our RIIO-T2 Certain View includes £100 million of cost savings through productivity and increased innovation, and we aim to go further to save more

Delivered for around £7 a year

Welcome

This is a summary of our final RIIO-T2 Business Plan for the electricity transmission system in the north of Scotland between 1 April 2021 and 31 March 2026.

The Board of Directors fully supports this final RIIO-T2 Business Plan.

Scottish Hydro Electric Transmission has a strong track record in delivering for its customers and shareholders over the past decade. It has efficiently and effectively grown the north of Scotland transmission system enabling the connection of renewable generation and putting the nation on a pathway to net zero emissions.

This Business Plan builds upon that strong track record. We have confidence in the team's ability and commitment to deliver upon these ambitious goals to further grow the network, maintain a safe and reliable service, and achieve leadership in sustainability.

The consultation activities over the past two years to develop this Business Plan have been extensive and thorough. The role of customers and stakeholders in shaping the Plan is evident and welcomed by the Board.

The team has demonstrated the rigour and assurance that has gone into producing a high quality and accurate Business Plan. We have confidence that the Plan is both deliverable and that the outputs represent good value for money for the GB energy consumer.



Gregor Alexander
Chair, SSEPD Board

Since we published our full draft Business Plan for consultation at the end of June, I've been overwhelmed with the enthusiastic reception to our proposals from customers and stakeholders across GB, as well as from our employees and supply chain partners.

This response is testament, I believe, to the national strength of feeling that we all need to play our part in tackling climate change. When asked, every single respondent to our consultation agreed that we are right to put net zero emissions at the heart of our business activities.

The consultation on our draft Business Plan resulted in some great feedback on how we could make the Plan even better. With the assistance of our RIIO-T2 User Group, we have carefully considered these ideas and incorporated many of them into this final Business Plan. I'd like to again extend my thanks to everyone who has generously worked with us over the past two years in the creation of this Plan.

Our experience over the past decade has given us an exceptional capability in delivering capital investment on time and on budget. We stand ready to deliver this Plan. Our people are ready, as are our critical supply chain. Pre-construction development work and competitive tendering is well underway, and we have detailed plans for delivery of the capital investment in the Certain View.

But it's now over to Ofgem. I'm looking forward to Open Hearings in spring 2020 where we can present our ambitious Business Plan and Five Clear Goals to Ofgem's Board. Everyone is welcome to come along and share their views, and I hope to see many of you there.



Rob McDonald
Managing Director,
SHE Transmission

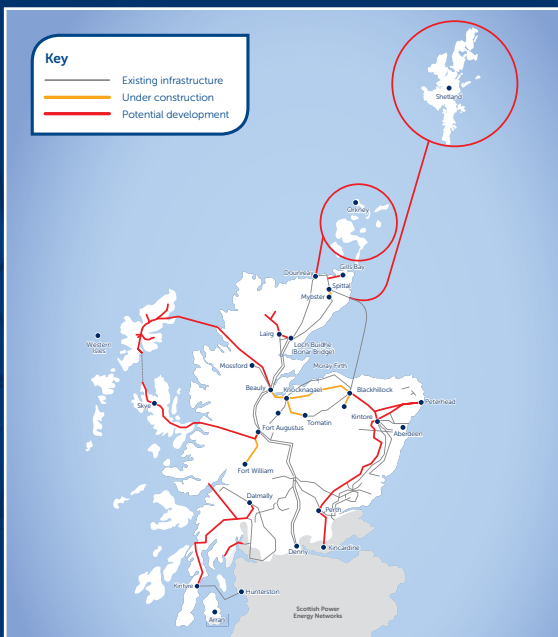
About Us and our Track Record

We are **Scottish Hydro Electric Transmission (SHE Transmission)**, part of the **SSE Group**, responsible for the electricity transmission network in the north of Scotland.

We operate under the name of Scottish and Southern Electricity Networks, together with our sister companies, Scottish Hydro Electric Power Distribution (SHEPD) and Southern Electric Power Distribution (SEPD), who operate the lower voltage distribution networks in the north of Scotland and central southern England.

As the Transmission Owner (TO) we maintain and invest in the high voltage 132kV, 220kV, 275kV and 400kV electricity transmission network in the north of Scotland. Our network consists of underground and subsea cables, overhead lines on wooden poles and steel towers, and electricity substations, extending over a quarter of the UK's land mass crossing some of its most challenging terrain.

We power our communities by providing a safe and reliable supply of electricity. We do this by taking the electricity from generators and transporting it at high voltages over long distances through our transmission network for onwards distribution to homes and businesses in villages, towns and cities.



Our operating area and network in the north of Scotland

A Network for Net Zero

Building on an exceptional track record

This RIIO-T2 Business Plan builds upon the strong service and outputs performance we have delivered for our customers and stakeholders over the past decade.



£3.5 billion

invested to grow and maintain the north of Scotland transmission network[†]



8.1 GW

of generation connected[†]



All

connection offers made on time^{*}



99.9999%

transmission system reliability^{*}



8.0

average stakeholder satisfaction survey scores (out of 10)^{*}



Leadership

scores in Ofgem's Environmental Discretionary Reward in 2017/18 and 2018/19



£28 million

invested in innovation[†], including construction and operation of the National HVDC Centre



Award winning

for our engineering and capital investment, innovation and sustainability practices

Overall, we have delivered dramatic growth in the north of Scotland transmission system for renewable energy. The network has been reliable and operated safely. We have built strong working relationships with our customers and stakeholders. Our approach to sustainability and social responsibility is sector leading.

This, we believe, is a track record to be proud of.

[†]Forecast outturn for the RIIO-T1 period, 1 April 2013 to 31 March 2021

^{*}Average to date during the RIIO-T1 period

Delivering a Pathway to Net Zero



Climate change is already affecting people, ecosystems and livelihoods around the world. Tackling climate change is the greatest challenge of our generation.

The UK and Scottish Governments have committed to net zero greenhouse gas (GHG) emissions targets. While rapid and profound progress has been made in the decarbonisation of electricity generation over the past decade, more remains to be done not least to electrify heat and transport.

Our stakeholders are clear that we must provide timely, cost effective whole system solutions to ensure national net zero emissions targets are met. But importantly, we must be evidence-based and pragmatic in our investment decisions to protect consumers from rising costs.

This Business Plan is based on the **Certain View** of the RIIO-T2 period: which is all of the investments and activities where there is strong evidence of need and we can identify the best option to meet that need. This includes the ongoing safe operation of the network, investments in the existing asset base and for security of supply, and some investments to grow the network. The total expenditure forecast for the Certain View is £2.36 billion over the five year period.

The Certain View alone will not result in the connected generation capacity required to meet net zero targets.

By the end of the RIIO-T1 period, we expect 8.1 GW of generation to be connected to the north of Scotland transmission system[†]. Under the Certain View, a further 3.1 GW will connect. However, our modelling of the requirements to meet net zero emissions targets indicates that connected generation will increase to between 13.6 GW and 15.7 GW by 31 March 2026.

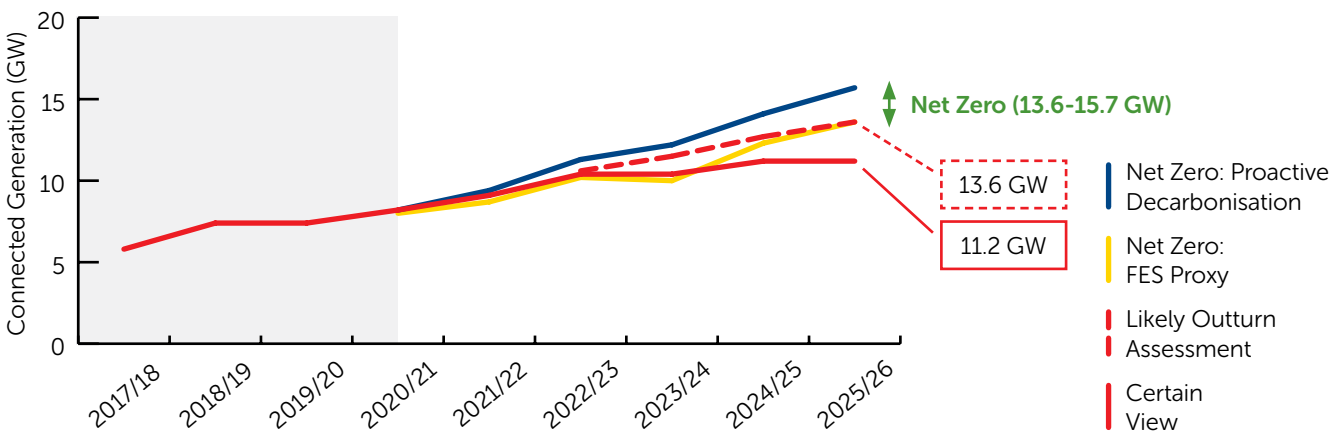
Uncertainty Mechanisms will allow us to increase expenditure during the price control period when the need can be demonstrated. This Business Plan includes 16 pre-defined uncertainty mechanisms that release funding for new generation connections, to invest in strategic network growth and to improve system operation.

Stakeholders have asked our view of the potential expenditure under uncertainty mechanisms to grow the network. Our **Likely Outturn Assessment** is that the use of uncertainty mechanisms might result in an additional £1.27 billion expenditure in network growth over the RIIO-T2 period.

The Certain View ensures we can achieve a pathway to net zero emissions, without exposing consumers to unnecessary cost.

All of the Five Clear Goals are part of the Certain View

Net zero emissions pathways for generation connected in the north of Scotland (GW)



[†]Net Zero – the UK’s contribution to stopping global warming, the CCC, 2 May 2019. Available at: www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/

[†]Includes non-renewable generation, the total connected renewable generation is expected to be 6.8 GW

Investing to Grow and Maintain the Network

CLEAR GOALS



Transport the renewable electricity that powers 10 million homes



£100 million in efficiency savings from innovation



Aim for 100% transmission network reliability for homes and businesses

A Network for Net Zero

Enabling the growth of renewable generation and the electrification of heat and transport

The north of Scotland and its islands have a significant renewable energy resource from onshore and offshore wind, hydro and (potentially) marine and tidal. At the end of 2018, 15% of the UK's installed renewable generation capacity was located in the north of Scotland¹.

Achieving national net zero targets will require more renewable generation to connect to the grid. Working with our stakeholders, we have taken a detailed evidence-based approach to assessing the need for capital investment to grow the network during the RIIO-T2 period.

This Business Plan will deliver:

- **Certain View capital investment of £761.9 million** in building infrastructure that has a certain need and **£129.1 million** to undertake development works
- **Flexible uncertainty mechanisms** that protect consumers from uncertain investment, but enable investment to proceed when the need is confirmed

This builds upon our strong track record for on time, on budget delivery of capital investment.

A Safe and Reliable Network

Aiming for 100% reliability for homes and businesses

Everyone needs energy to conduct their daily life and everyone expects reliable access to energy when and where it is needed.

The reliability of the north of Scotland transmission system is very good. Homes and businesses rarely experience a power cut due to an event on the transmission system. We consider that continuing to strive for no power cuts on our network is central to what we do.

Our approach to maintaining and operating the transmission system seeks to achieve the best possible network performance (measured by the reliability of electricity supply) for an efficient whole asset lifecycle cost.

This Business Plan will deliver:

- **Certain View capital investment of £810.2 million** in replacing or refurbishing existing network infrastructure across 28 schemes
- **Direct operating costs of £87.3 million** to undertake inspections, maintenance and repairs, vegetation management and management of inventory
- **Improved network reliability** towards our goal, where cost effective to do so, of 100% reliability for homes and businesses by 2026
- **Enhanced capabilities in asset management and operations** to achieve upper quartile international service and cost outcomes



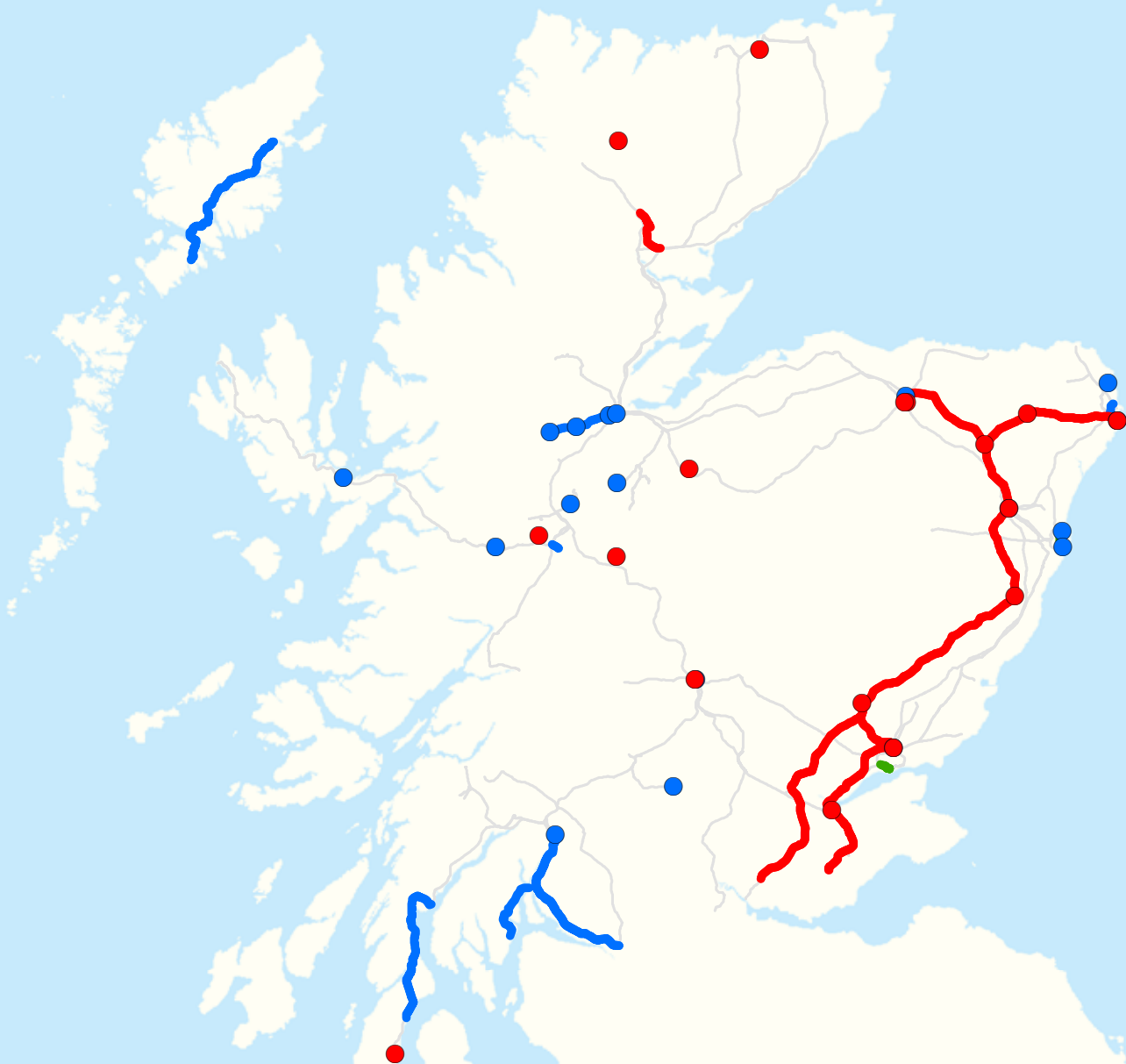
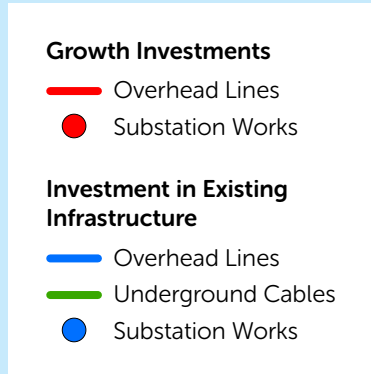
Our approach to safety is simple: if it's not safe, we don't do it. Our employees and the contractors we work with are able to stop work if they believe the situation is unsafe. Everything in our Business Plan adheres to our best in class safety practices.

¹From data published in the Digest of UK Energy Statistics 2019, BEIS. Available at: www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2019

Capital Investment: Certain View

This map shows the location of capital investments to grow and maintain the north of Scotland transmission network during the RIIO-T2 period. The majority of these investments are to replace or upgrade existing overhead lines and substations.

Further details of these investments can be found in our full Business Plan.



Security of Supply

Security of supply by protecting critical national infrastructure from natural and man-made threats

Society and the economy depend on critical infrastructure, yet this infrastructure can be susceptible to external threats. Many commentators argue these threats are increasing, for example due to climate change, international security risks and an increasing reliance on, and integration of, digital technologies.

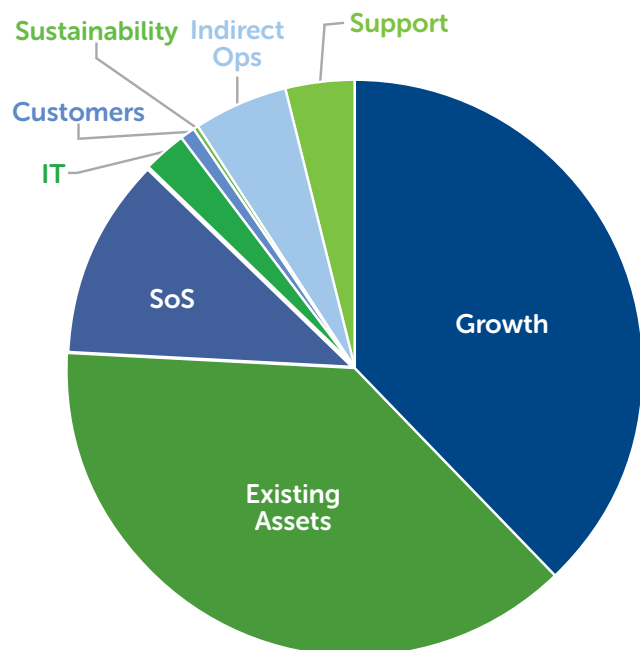
Being responsible for critical national infrastructure, our Business Plan has carefully considered the risks facing our network, and the proportionate actions we must take to deliver the most cost effective risk management response. In this context, we have incorporated the increased requirements of our growing network: the actions to protect £5 billion of asset value (by 2026) are of greater scale than to protect £1 billion of asset value (in 2013).

This Business Plan will deliver:

- **Certain View capital investment of £272.6 million** to refurbish, replace or upgrade network equipment and systems for security of supply
- **Data and IT investment of £57.8 million** in existing business IT and operational technology, and cyber resilience
- **Compliance with new regulations** including for environmental hazards, cyber security and network communications
- **Enhanced capabilities in business continuity** consistent with the larger north of Scotland transmission network and emerging threats

Total Expenditure: Certain View

The majority of RIIO-T2 total expenditure is capital investment to grow and maintain the network (72%) and investment to strengthen security of supply (12%). Independent international benchmarking shows that we remain a low cost operator for the service we provide to our customers and stakeholders.

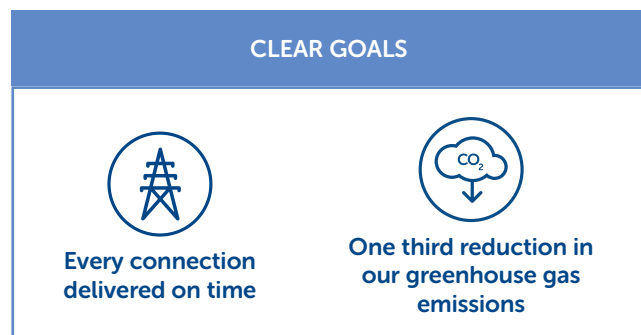


	Certain View (£m)
Growth capital investment	891.0
Investment to maintain existing assets	810.2
Direct operations of existing assets	87.3
Strengthening security of supply	272.6
Data, IT and analytics	57.8
Customers and stakeholders, including connections	17.3
Sustainability policy and reporting	9.7
Indirect operations	123.1
Business support services	87.1
RIIO-T2 five-year total expenditure	2,356.1

Value may not sum due to rounding

A Sustainable Network

A sustainable network for current and future energy consumers, that is stakeholder-led and can be trusted



As part of the SSE Group – a publicly-listed, responsibly-financed organisation – we fully recognise our enhanced public interest obligation and are leading the industry in improving levels of trust and transparency essential to a sustainable company.

This Business Plan will deliver:

Stakeholder involvement Our new Stakeholder Engagement Strategy and Action Plan fundamentally redesigns our approach to stakeholder engagement and the role of stakeholders in our activities and decision-making. Our target is stakeholders' satisfaction of more than 9 out of 10 in our annual engagement survey.

Connections on time, on budget and to our customers' satisfaction Our stakeholder-led Commercial and Connections Policy describes how we will provide tailored solutions and services for all our connection customers. Our performance will be measured by a new Quality of Connections service survey.

Leadership in sustainability In May 2018, we set out the six ambitions of our holistic Sustainability Strategy. Building on this, we have set stretching targets for GHG emissions reductions, biodiversity and woodland net gain outcomes, SF₆ gas leakage and waste and resource use.

An enhanced reporting framework Given the complex nature of the price control process, providing a clear and easy-to-understand view of the performance of regulated businesses can often be a difficult task. We have worked with Citizens Advice to develop a new reporting framework that will shine a light on all aspects of our performance through clear, meaningful reporting.

Leading our sector in performance and ambition

As part of our Sustainability Action Plan, we engaged independent consultants to undertake benchmarking of our current performance and ambitions against comparable UK and EU utilities. Of the 21 categories that were benchmarked, we were:

- The leading performer in eight categories
- "In the pack" in ten categories
- Laggard performer in three categories¹

Of the organisations in the study, we demonstrate the strongest overall performance and ambition. This outcome reflects our commitment to Leadership in Sustainability through:

- Our **strategic objective** since 2010 to enable the transition to the low carbon economy
- Being the first GB energy network to commit to set a **Science Based Target** for GHG emissions reduction
- Being the first GB energy network to commit to **biodiversity net gain** outcomes
- Being the only GB energy network to commit to **woodland net gain** outcomes
- Being the only GB energy network to commit to **noise reduction** measures
- Being the most progressive GB energy network in our commitment to **waste reduction** measures
- Showing leadership in our use of **local supply chains**
- Showing leadership in developing social, economic and environmental **cost benefit analysis**
- Showing leadership in the deployment of **whole system solutions** for the Scottish islands

This isn't just our opinion, over the past year we have won awards for Sustainable Reporting, Corporate Governance Reporting, Biodiversity Projects, Environmental Best Practice, Living Wage Champion and Health and Safety Champion.



¹This Business Plan has comprehensive actions to improve our performance in the three laggard categories: Connections Service, Resilience and Inclusion and Diversity

Cost to Customers

The GB electricity bill

GB homes and businesses buy their electricity from the competitive retail supply market. Each supplier is liable for Transmission Network Use of System (TNUoS) charges based on their overall demand consumption. TNUoS charges recover the cost of installing and maintaining the GB transmission system.

TNUoS charges are just one part of the overall electricity bill paid by homes and businesses. The electricity bill comprises wholesale, network, supplier and other costs. In addition to TNUoS, other network charges include the charge for the low voltage distribution system and the cost of the operation and balancing of the transmission system.

Ofgem¹ estimates that the average GB household electricity bill in 2018 was £587, of which £35 (6%) is due to transmission network charges. This £35 is the total charge for all of the GB transmission network including SHE Transmission in the north of Scotland.

Impact of this Business Plan on household energy bills

The revenue that we are allowed under the price control settlement is recovered through TNUoS charges. The process for doing this is complicated and so we have made assumptions to allow us to illustrate the potential cost of this Business Plan. The actual cost will vary by household and location.

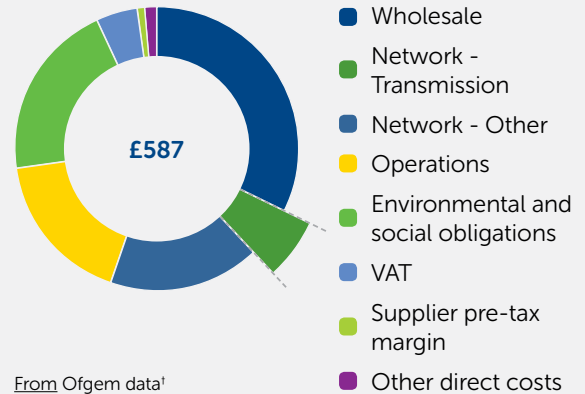
Our assessment considers:

- The Certain View and Likely Outturn Assessment
- The impact of inflation (2% per annum)
- Ofgem's assumptions for financing our Plan, including two assumptions for the Cost of Equity (4.3% and 4.8%)

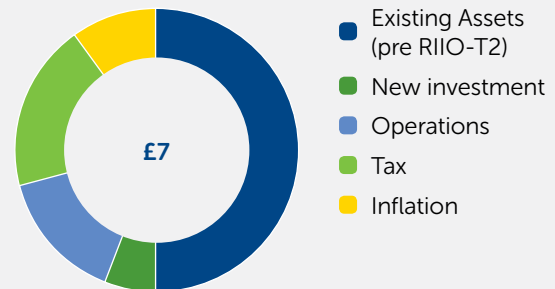
In 2019, the average GB household paid around £4.72 for the north of Scotland transmission system. We model an increase in the cost to between £5.43 and £5.96 in 2021/22 (the first year of the RIIO-T2 period). This is in part due to continued growth of the network and, in part, due to planned regulatory finance changes.

By the final year of the RIIO-T2 period, 2025/26, we forecast that the average GB household will pay around £6.80 under the Certain View. The impact of the Likely Outturn Assessment is around £1 higher for the average household bill in 2025/26.

Components of the average GB household electricity bill

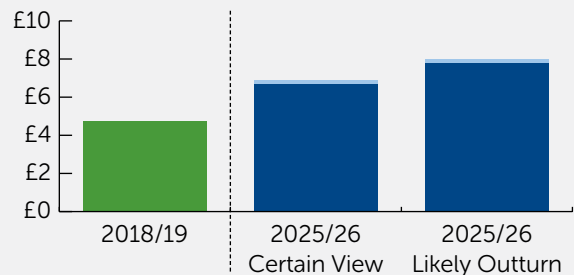


What the SHE Transmission element of the bill pays for



Note In 2025/26, The cost of borrowing and dividends to shareholders are included within the 'Existing Assets' and 'New Investment' categories

How much will the average GB household pay for this Plan?



Note Assumed consumption 3,100 kWh. Includes inflation of 2% pa. Range of outcomes in 2025/26 is due to Ofgem's two Cost of Equity assumptions

¹State of the Energy Market 2019, Ofgem, October 2019. Available at: www.ofgem.gov.uk/publications-and-updates/state-energy-market-2019

Next steps

This final RIIO-T2 Business Plan is the end point of over two years of collaboration with our customers and stakeholders on the future requirements for the transmission system in the north of Scotland. We thank every person and organisation that has contributed to and supported the development process.

The next step is the regulatory assessment of, and determination on, our Plan. The key milestones in this process are:

Date	Milestone
23 December 2019	User Group report published here .
17 January 2020	RIIO-2 Challenge Group report published on Ofgem's website
March-April 2020	Ofgem hold Open Hearings
Early July 2020	Ofgem Draft Determinations
November 2020	Ofgem Final Determinations
1 April 2021	RIIO-T2 period starts

The Open Hearing on our Business Plan will be held in Perth on 26 March 2020. You can register to attend on Ofgem's website [here](#).

Reflecting the Final Determination

Given the discretion of Ofgem in making its Final Determination, there is the potential for changes to be made to this Business Plan. We will consider this carefully, taking into account the stakeholder views that have shaped this Plan.

If required, we will publish any modifications to our RIIO-T2 Business Plan arising from Ofgem's Final Determination in early 2021.

If we disagree with Ofgem's Final Determination on our RIIO-T2 Business Plan, then we can appeal that decision to the Competition and Markets Authority (CMA). While a transparent, evidence-based price control process should obviate the need for an appeal, we reserve our right to do so. Should we decide to appeal then we will notify our stakeholders in accordance with our obligations as a UK listed public company.

This RIIO-T2 Business Plan has Five Clear Goals



Transport the renewable electricity that powers 10 million homes



Aim for 100% transmission network reliability for homes and businesses



Every connection delivered on time



One third reduction in our greenhouse gas emissions



£100 million in efficiency savings from innovation

In delivering these Goals, we will:



Protect consumers from uncertainty



Involve our customers and stakeholders



Be open and transparent

We forecast this will cost:



Total expenditure of between £470 million and £750 million each year



Around £7 a year for the average GB household by 2025/26



Scottish & Southern
Electricity Networks

TRANSMISSION



ssen-transmission.co.uk

