Annual Performance Report

SP Transmission 2013/14



Key Facts & Figures



£23m

The extra we have spent on renewing our network assets this year, compared to our original plan



4GW

The projected increase in renewables connected to our network between 2013 and 2021. In scale terms, this is similar to total nuclear and coal-fired capacity in Scotland today. 400MW connected this year



100%

The proportion of our overhead lines and substations that we inspected this year, to help us target our maintenance effectively



£7.4m

The funding we secured through the success of our Visor project in the Network Innovation Competition



237

The increase in staff between 2010 and 2014 in our in-house engineering and construction team to strengthen our delivery capability



62%

Stakeholders who expressed strong satisfaction (8 out of 10, or above) with the engagement they have with SP Transmission. Up 7 percentage points since last year

CEO Foreword



I am pleased to introduce our first annual performance report for our Transmission business. This document is designed to update our stakeholders, as part of our overall stakeholder engagement strategy, on the progress we are making in meeting our outputs and managing our costs. We have a key role to play in the transformation to a low carbon energy sector, and the work we will do over this price control period – the first period of the new RIIO framework – will be pivotal.

I can report that we have made a strong start. The scale of our investment programme is vast. In addition to prioritising the replacement of end-of-life assets to maintain a secure and reliable network for our customers, we are delivering key strategic investments to enable the high-quality renewable resources in Scotland to get to market – and to manage the changing network flows resulting from the retirement of large, thermal plant in Scotland. We have overhauled our delivery model to meet this challenge – by bringing more of the design work and engineering in-house, and by building in flexibility to how we schedule investment and work with our contractors.

The quality of our business plan for this price control period was recognised by Ofgem's decision to "fast track" our settlement. This has allowed us to get on the front foot in delivering investment. It is already paying dividends, illustrated by the agility we showed to bring forward modernisation work near Kilmarnock in order to make use of an available outage window, and more generally by the excellent progress we have made to our asset modernisation programme. We are significantly ahead of our original plans in a number of areas.

The modernisation of our network is just part of the story. We are also playing a key role in changing the shape of the GB transmission system to accommodate large scale renewables – much of which is located in Scotland. Approximately 50% of the renewable generation in GB flows across our network, and this percentage is likely to increase over time.

2013/14 has been a watershed year in delivering the transmission network fit for the 21st century mix of generation. Large increments of network capacity are planned for delivery in 2015. Because of the success of our planning, design and procurement work this year we are now much more confident of these targets being met. The technical challenge should not be under-estimated. The technology we are deploying for the HVDC sub-sea link down the west coast of GB is cutting edge innovation. Our use of series compensation to deliver more capacity across existing transmission routes is also ground-breaking.

In this context, I am delighted to set out the facts of how we are tracking against the targets and revenue allowances we have been set. These are large-scale investments in infrastructure which are critical to the nation. It is important that our progress is shown transparently. We hope, through the clear and accessible design of this document, we are making an important contribution to this transparency.

Ja/hable

Frank Mitchell





"SPEN has provided a wide range of additional material including evidence of the robustness of its processes to ensure efficiency... and provided additional information to demonstrate how it will deliver its plan. SPTL's unit costs are comfortably within our consultants' range... Overall we consider the package put forward by SPTL provides good value for consumers."

This report



About us

We are the licensed Transmission Owner (TO) responsible for the transmission of electricity in central and southern Scotland. Our role is to maintain, operate and invest in our network to secure a safe, reliable, and economic service for current and future network users.

The transmission network comprises over 4000 circuit kilometres of overhead line and cable and 138 substations operating at 400, 275 and 132kV, supplying 1.99 million customers and covering an area of 22,950 square kilometres. It is connected to the SHE transmission system to the north, the National Grid transmission system to the south and the Northern Ireland transmission system via an HVDC interconnector. Our system maximum demand is around 4.2GW and we currently have approximately 7.4GW of generation connected to our network.

We provide transmission services to National Grid, who as the GB System Operator (GBSO) then provides transmission services to generators, electricity suppliers and large customers. Scottish Power is part of the Iberdrola Group, one of the world's leading utilities.

Our vision as a business is 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, and a company that attracts and develops skills for the future from the communities that we serve.

The context we operate in

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. The core mechanism for this is our price control. It defined outputs and revenue allowances for an eight year period, based on a business plan that we produced in consultation with our stakeholders.

Our business plan for 2013 to 2021 was recognised by Ofgem as high-quality, and was "fast-tracked". 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. In many cases outputs are linked to financial incentives.

We have a key, strategic role in facilitating the connection of renewable generation in Scotland, which is critical to meeting GB targets. To this end, some of our revenues are 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 supported through Government policy.

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Executive Summary

Outputs and Incentives





Engaging with stakeholders

Improving how we operate and deliver, by working effectively and strategically with our stakeholders

We are committed to improving how we engage with our stakeholders. This year we have rolled out new initiatives as part of our stakeholder engagement strategy, in particular focusing on engaging better with the communities affected by our investment plans. We have improved our scores in our stakeholder satisfaction survey, and realised a financial award of £259,000 for our stakeholder engagement strategy, based on assessment by Ofgem's panel of independent experts.



Facilitating renewables

Delivering the strategic network upgrades to support large scale renewables

Our network is key to meeting GB renewables targets. We are currently planning for an additional 4GW of new renewable generation by 2021, well above our baseline projection of 2.5GW – and much larger increases in flows from the north of Scotland. This year has been a watershed year for the upgrade programme. We have commissioned new investment on our existing network, and hit key milestones to enable the HVDC link down the west coast between Scotland and England to progress. We are on track to deliver around 3,500MW of capacity by 2015/16.



Connecting new generation

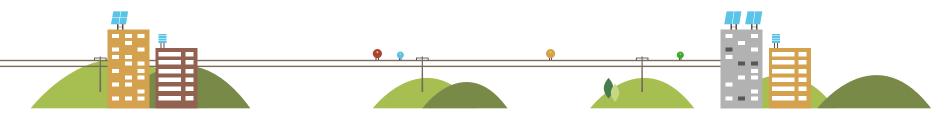
Tracking our efficiency and timeliness in supporting new connections

We also have a role to facilitate renewable generation at the level of each individual generation project. We design and deliver the physical works underpinning each offer. This year we have processed 52 connection offers and completed the connection of 400MW of new capacity. We delivered connection offers in an average of 72 days, exceeding our licence obligation.

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Outputs and Incentives





Modernising our network

Delivering a major cycle of asset renewable – reducing risks and improving performance

Over the next 16 years we are renewing significant elements of our existing network to provide for a modern, reliable network in the long term. We have made a strong start to this capital programme – investing around £65m this year which is well ahead of our original plans. We are benefiting from our new, more flexible and agile, delivery model – and from our business plan being "fast tracked" by Ofgem. We are on track to deliver our target Network Output Measures for 2021.

Network reliability and resilience

Maintaining our network so that it is reliable, and resilient against a wide range of risks

We systematically monitor and inspect our network to ensure that we maximise its performance. We are also pro-active in making our network resilient to a range of risks including flooding, severe weather and security threats. This year we inspected all of our overhead lines and substations. We have also invested in flood defences. We developed detailed return-to-service plans each time we undertook work. The amount of energy not supplied due to transmission incidents this year was 42 MWh, well below our incentivised target level.

Safety

Promoting safety – for the public and for our workforce

World class public and workforce safety is core to our vision as a business. We have continued with, and extended, the many initiatives we lead on to promote public safety, including by working jointly with our distribution business. Workforce safety is a common thread throughout our business. This year we have focused in particular on establishing the right safety culture and practices among the wider range of contractors we are now working with.

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Executive Summary

Outputs and Incentives







Targeting measures to reduce the visual impact of our network

Our role as an electricity transporter is to balance the need to provide a reliable and cost efficient network with the need to protect Scotland's diverse landscape. Overhead lines remain the most economic and efficient way to transport high voltage electricity, however this must be balanced against the potential for landscape and visual impacts . This year we have worked closely with stakeholders to identify and assess opportunities to improve visual amenity.







Managing the environmental impacts of our own business activities

We also promote environmental objectives through how we manage our own environmental impact. Transmission losses and leakage of SF₆ (an extremely potent greenhouse gas used in some of our network assets) have the most material impact, but we seek to reduce our impacts across the board. This year we have continued with the implementation of our sustainability strategy, including to reduce our total business carbon footprint by 15% by 2021. We are on track to meet this goal.





System operation interaction

Working collaboratively with National Grid to deliver good outcomes for consumers

The scale of network investment and the volume of new connections represent significant challenges to network operation. It is critical that transmission businesses work effectively with the GB system operator, National Grid. This year we have collaborated with SHE Transmission to formalise our Network Access Policy – which embodies significant improvements in the level and effectiveness of joint working. This helps to keep constraint costs down for all network users.

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Value for money







Costs

Our capital expenditure and operating costs this year

In 2013/14 our total expenditure was £208.1m. We invested £64.5m in modernising our network – £23.1m more than originally planned. We spent £104.4m on load-related investment. This was lower than in our original business plan, primarily due to both our company and windfarm developers experiencing delays to the consenting process. Construction costs on the Western HVDC link, a joint venture with National Grid, were also lower than originally forecast. We are currently forecasting that costs on our load-related investment will catch up by 2016/17. Our operating costs were £22.0m. We are currently forecasting that our total expenditure to 2020/21 will be in the region of £2.25bn. This is predicated on an expected additional 4GW of generation connecting to our network over the period. Our new delivery model – which brings more of our design and engineering in-house – is key to keeping our costs to an efficient level.

Revenues

What our regulated revenues are, and how they are set

In 2013/14 we recovered £286.3m. 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. Transmission charges comprise around 6% of the average domestic electricity bill.

Incentives

The financial rewards and penalties that are linked to our performance

Our performance in 2013/14 has earned incentives payments of £4.5m. This will be reflected in our allowed revenues for 2015/16. The major components are an award of £2.57m because actual levels of Energy Not Supplied were lower than our target of 225 MWh, and an award of £1.65m linked to improvements in our measures of customer satisfaction. Our stakeholder engagement initiatives, as assessed by Ofgem's independent panel of experts, attracted a discretionary award of £259,000.

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Executive Summary Innovation

Executive Summary Managing uncertainty





Innovation strategy

Developing and deploying innovation to increase capacity and reduce costs

Innovation is core to our performance over the RIIO-T1 period – underpinned by our innovation strategy. Our commitment is illustrated this year by the success in the Network Innovation Competition of our £7.4m VISOR project. This focuses on maximising the availability of network capacity in real time. We are also actively deploying proven innovation on our network. For example, this year we have invested in series compensation to enhance network flows across the network boundary between Scotland and England.



Meeting uncertain needs for transmission capacity

Handling the wide range of scenarios for future generation and network use

The key uncertainty facing our network – and how we develop it economically and efficiently – is the scale, timing and location of new generation, and the timing of generation closures. While the direction of travel towards renewable forms of generation is clear, there is a wide range of uncertainty over timing and scale. This year we have continued to work intensively to help understand and manage this uncertainty. This includes how we develop and use scenarios, and how we plan long-term investments – including the design of key, strategic investment options. It also affects how we run our business day-to-day.







Managing cost uncertainty

The mechanisms in place to align our costs and revenue allowances over time

In an environment where the need for and timing of new transmission capacity is uncertain, our costs will also be uncertain. Our investment will depend on whether the need for additional capacity materialises or not, and if so when. Our form of regulation recognises this cost uncertainty, and includes a number of mechanisms which permit our allowed revenues to flex as new information is revealed. At this early stage of RIIO-T1 these mechanisms are not active – with the effect of past uncertainty mechanisms forming part of our RIIO-T1 base revenues, and thresholds triggering new mechanisms not vet reached.

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Serving our stakeholders and communities

We are committed to improving how we engage with our stakeholders. This year we have rolled out new initiatives as part of our stakeholder engagement strategy, in particular focusing on engaging better with the communities affected by our investment plans. We have improved our scores in our stakeholder satisfaction survey, and realised a financial award of £259K for our stakeholder engagement strategy, based on assessment by Ofgem's panel of independent experts.

Commentary

Stakeholder engagement strategy

We have a joint strategy for stakeholder engagement with our distribution business. Our efforts to improve the effectiveness of our strategy were recognised this year by Ofgem's independent panel of expects. Our range of initiatives this year included:

Working with communities on visual amenity: Through extensive community consultation we have developed proposals for over 30 additional opportunities for visual mitigation which will assist in reducing the visual and landscape impacts on communities as a result of the new Beauly to Denny 400kV overhead line. For example, plans to use screen planting and replace landscape features to reduce the visual impact for communities on individual properties and cycling / walking routes along the route of the overhead line.

Communicating in new ways: We have

launched two new social media channels. on Twitter and Facebook, and are now sharing news of our investment and engagement with wider audiences, for example we've shared our HVDC investment, our attendance at the Scottish Renewables conference and our consultation on our Sustainability Strategy.

Preserving Scotland's cultural heritage.

St Andrew's Cross is a key city centre substation of historical significance which was saved from demolition when the new M74 motorway was built, resulting in the rerouting of the road. We worked closely with Glasgow City Council's heritage team to arrive at a design that could meet both health and safety and heritage objectives.

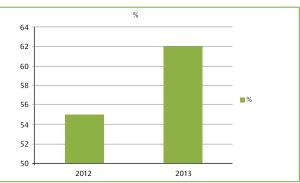
Safety: We have continued our award winning PowerWise classroom electricity safety education programme, re-writing the website content to align it to the new curriculum.

Stakeholder satisfaction survey

- 62% of respondents (up 7% from 2012) rated 8 or above for satisfaction with the engagement they have with SP Transmission.
- 57% of respondents (up 11% from 2012) rated 8 or above for their agreement with 'SP Transmission offer a good level of service to stakeholders'.
- 70% of respondents (up 2% from 2012) rated 8 or above for their agreement with the methods of engagement SP Transmission use being suitable and appropriate.
- 71% of respondents (up 8%) rated 8 or above for their agreement with 'SP Transmission is actively contributing to a secure and reliable electricity supply for the UK economy'.



Stakeholders



Rated 8 or above for satisfaction with the engagement they have with SP Transmission

"SPEN has continued to update its stakeholder engagement strategy to ensure alignment with business objectives. The strategy contains a clear aim, defined benefits for both SPEN and stakeholders as well as engagement priorities for both Transmission and Distribution stakeholders

> Independent audit report, DNV GL. March 2014

Output area Customers and stakeholders Form of Incentive

Financial - linked to satisfaction metrics and independent assessment

13/14 performance

Strong across all metrics - £1.65m award for customer satisfaction: £259k award for engagement.









Facilitating renewable generation

Delivering additional network transfer capacity

Our network is key to meeting GB renewables targets. We are planning for an additional 4GW of new renewable generation by 2021, well above our baseline level of 2.5GW – and much larger increases in flows from the north of Scotland. This year has been a watershed year for the upgrade programme. We have commissioned new investment on our existing network, and hit key milestones to enable the HVDC link down the west coast between Scotland and England to progress. We are on track to deliver large increments of capacity by 2015/16.



We are undertaking works on a number of wider works projects to increase transfer capacity across the main boundaries on our network by close to 3,500MW by 2016. 2013/14 was a very significant year for a number of these projects with a number of crucial milestones being delivered, with an associated investment of £100.1m:

- Western HVDC Link will deliver a further 2,200MW of capacity to the boundary between Scotland and England by 2016/17. During 2013/14 site works commenced for the converter station and 400kV substation at Hunterston.
- Hunterston-Kintyre delivers capacity to accommodate up to 350MW of renewable generation by 2015/16). During 2013/14 construction the detailed engineering design was completed and a contract was placed for the 220kV sub-sea and underground cable system.
- Series compensation and East-West Upgrade which will deliver a further 1,100MW of capacity to the Scotland/England boundary by 2015/16. During 2013/14, upgrade works progressed at a number of existing substation and contracts for the Series Compensation units were placed.

We also substantively completed a shunt compensation project which establishes the initial RIIO-T1 transfer capability across the B6 boundary of 3,300MW.

2013/14 was a critical year for the Beauly/Denny project. This project increases the transfer capability from the SHE Transmission area to the SPT area by 1,150MW. During 2013/14 we completed the civil platform and started plant construction for the new 400kV/275kV substation .

During 2013/14 we invested £30.1m in network infrastructure to accommodate new renewable generation projects connecting to our network. One of the key deliverables from this programme of work was commissioning of the 400/132kV collector substation at Moffat providing 240MVA of shared capacity. In addition, we carried out major works at our existing Coylton substation as part of our South West Scotland upgrade. Over 1GW of contracted renewable generation is dependant on this network upgrade.

Investment on this scale requires effective and co-ordinated planning of network outages. This is discussed further in the section on how we interact with National Grid, the system operator.







Growth In Transfer Capacity





Output area

Wider Works

Form of Incentive

Financial-penalty only, for late delivery

13/14 performance

Delivery on track







Facilitating renewable generation

Helping individual projects connect

We also have a role to facilitate renewable generation at the level of each individual generation project. We design and deliver the physical works underpinning each offer. This year we have processed 52 connection offers and completed the connection of 400MW of new capacity. We delivered connection offers in an average of 72 days, exceeding our licence obligation.



We have a good track record of delivering grid connections to our network. During 2013/14, Fallago and Harestanes wind farms were both connected adding 400MW of renewable generation in our area taking the total connected to 2,290MW.

Our RIIO-T1 baseline target is for a total of 4,393MW renewable generation to be connected in our area by 2021. However, we expect this figure to be exceeded with our current view showing nearly 6,000MW connecting by 2021.

Our current offers reflect a contracted position of over 8,000 MW of new onshore and offshore generation. Experience shows us there will be significant movement in the actual schemes that finally do connect. We are offering connections with operational tripping schemes to allow earlier completion dates with restricted available access (RAA) where possible. We have developed a more flexible land rights policy in 2013/14 and our developer engagement is leading to better offers which share cost and manage risk between developers.

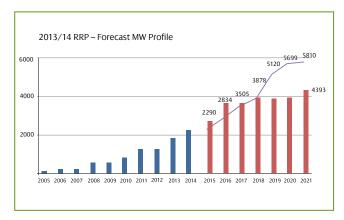
In 2013/14 52 new or modified offers were made to National Grid for renewable generation connections in our area (TOCOs). These offers are required to be issued within 74 days according to licence timescales. On average we issued our offers in 72 days with only two issued in more than this. With respect to these two offers we worked with National Grid to ensure that the connecting users were still provided with their offers on time.

Market changes, consenting, land agreement and delivery challenges are still producing significant uncertainty in this area but we are developing the necessary reinforcement and wider works projects to connect generation as early as possible. In South West Scotland the contracted capacity has increased considerably and there may be a requirement to build more transmission infrastructure beyond what we specified in our RIIO- T1 plan.











Output area

Connections

Form of Incentive

Financial - penalty only, if late offers

13/14 performance

No late offers to connecting users





Modernising our network

Over the next 16 years we are renewing a significant proportion of our existing network to ensure a modern, reliable network for our customers in the long term. We have made a strong start to this capital programme – investing around £65m this year. We are ahead of our original plans. We are benefiting from our new, more flexible and agile, delivery model – and from our business plan being "fast tracked" by Ofgem. We are on track to deliver our target Network Output Measures for 2021.

Commentary

Over the next two price control periods we will renew key elements of our network. Our investment plan has been developed utilising our Asset Risk Management policies and procedures, which reflect the nationally agreed Network Output Measures Methodology.

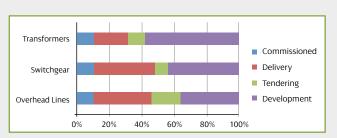
There are two key investment areas in RIIO-T1 – overhead lines and switchgear – which account for 61% of the total asset replacement and other capital investment programme.

Delivering the first half of this process in RIIO-T1 is a key output. The decision to fast track our business plan submission has allowed us to accelerate our modernisation programme for the benefit of all our stakeholders. As a result of this we are well advanced in contracting for, and designing, the work for future years.

In 2013/14 we replaced: 130km (18% of RIIO-T1 total) of overhead lines on Windyhill – Drumchapel, Kilmarnock South – Strathaven and Windyhill – Sloy routes. We also completed the replacement of ten units (9%) of switchgear at Bonnybridge substation and one transformer (5%) at Paisley. This performance is ahead of our original RIIO-T1 submission to Ofgem.

We will continue to deliver asset replacement at pace in 2014/15 and beyond. To support this, by the end of 2013/14 we had already commenced tendering for more than 40% of our full RIIO-T1 asset replacement programme.

We are therefore confident that we will meet our Network Output Measure targets; a measure of how effective we have been in renewing our network.



Modernisation pipeline at end March 14





XV Route Overhead Line Modernisation - 72km delivered in 2013/14

Output area

Network Outputs

Form of Incentive

Financial - linked to meeting Network Output Measures in 2021

13/14 performance

Strong start - ahead of plans





A reliable and resilient network

We systematically monitor and inspect our network to ensure that we maximise its performance. We are also pro-active in making our network resilient to a range of risks including flooding, severe weather and security threats. This year we inspected all of our overhead lines and substations. We have also invested in flood defences. We also developed detailed return-to-service plans for every time we undertook work. The amount of energy not supplied due to transmission incidents this year was 42 MWh, well below our incentivised target level.



Transmission is one part of the power delivery chain that determines electricity supply reliability. Between 2013 and 2021 we are extensively modernising our network. In parallel with the construction activity this brings to the electricity network, we are continuing with our comprehensive, best-practice approach to asset condition monitoring and inspection.

We review all of our assets on a rolling basis utilising a risk based approach to inspection visits. This ranges from monthly substation inspections to bi-annual helicopter inspections for our overhead lines. Assets. For example, over a two year period every Transmission overhead line will be inspected at least once by a walking inspection and once by helicopter inspection.

During 2013/14 this equates to over 3,700km of overhead line network and associated equipment we inspected by foot and by helicopter. We also carried out around 2,400 inspections of our substations.

During 2013/14 we invested ca £500,000 in tree-cutting to reduce the risk of our network being damaged in severe weather.

We utilise various technologies and techniques including thermal imaging, partial discharge detection, high resolution photography and video, Dissolved Gas Analysis, Light Detection and Ranging (LiDAR),

fault recording, remote condition monitoring and analysis.

Energy Not Supplied (ENS) measured in MegaWatt Hours (MWh) is a directly related measure of transmission faults that affect customer supplies and is based on the numbers of customers affected, the amount of energy not supplied and the duration. Our target for RIIO-T1 is for no more than 224.4 MWh of energy not supplied in each regulatory year. Our performance this year was 42 MWh of ENS which demonstrates that we have an extremely reliable network.



Form of Incentive

Financial - linked to Energy Not Served (ENS) due to transmission incidents







13/14 performance

£2.57m award - 42.2MWh of ENS against benchmark level of 225MWh

Output area

Reliability





A safe network

World class public and workforce safety is core to our vision as a business. We have continued with, and extended, the many initiatives we lead on to promote public safety, including by working jointly with our distribution business. Workforce safety is a common thread throughout our business. This year we have focused in particular on establishing the right safety culture and practices among the wider range of contractors we are now working with.

Commentary

We comply with relevant health and safety legislation, such as The Health and Safety at Work Act 1974, the Electricity, Safety, Quality and Continuity Regulations ("ESQCR") 2002 and the Electricity at Work Regulations 1989. Furthermore our management systems are independently externally assessed and certificated to the latest international standards, notably Occupational Health and Safety Advisory Services standard 18001 ("OHSAS 18001") . Compliance with the above legislation is considered the minimum requirement, with the ultimate aim being zero harm to our employees, contractors and members of the public. We are considered an industry leader in public safety through our behaviours, investments in operational integrity and comprehensive public safety education programmes.

We strive for continuous improvement and this is illustrated again by both internal and external management system assessments returning positive findings. The commitment to promptly investigate incidents to identify root causes remains steadfast and is given the highest priority with a Panel of Inquiry established whenever there is a significant incident.

During 2013/14 there was a continued focus on employee and contractor involvement in health and safety with "Safety Stand-Downs" held covering specific issues that are topical. The

stand-downs provide a forum for raising awareness and to allow employees to openly debate and improve safety by focusing on changing behaviours. This year we continued our two tier contractor management forums. The higher tier involves larger EPC type contractors that operate throughout the UK, the second tier forum for smaller contractors employed via our disaggregated model where IEC operate as principal contractor. These forums are very open and the higher tier forum is chaired in turn by one of the main contractors. The agenda includes trend analysis, incident sharing, best practice sharing and agreement on key areas of concern. We also set up four cross-contractor working groups to focus on our highest risk areas, based on recent rends; working at height on transmission tower lines, working at height within transmission substations, vehicle/plant movement and cable strikes on transmission projects.

During 2013/14 we experienced one safety-related lost time incident among our contractors. This compares with four in the previous period.

Public safety information and education promotion has continued through a mixture of internet, community and schools teaching programmes. During 2013/14 we partnered with the Royal Highland Show to promote electrical safety in the agricultural

sector and we doubled the resources to support our free 'check for safety' service, undertaking a record number of 577 checks in response to contacts from our contractors. We also led on high-profile campaigns to publicise the risks from metal theft.



one of the many safety forums held with contractors during the year"

Output area Safety

Form of Incentive

Reputational

13/14 performance

Strong reputation maintained and enhanced





Visual amenity

Electricity is an essential element of modern life but transporting this electricity can have an impact on the environment. Our role as an electricity transporter is to balance the need to provide a reliable and cost efficient network with the need to protect Scotland's diverse landscape. Overhead lines remain the most economic and efficient way to transport high voltage electricity, however, this must be balanced against the potential for landscape and visual impacts. Different designs or technologies such as undergrounding may require to be considered. The relative merits of both overhead lines and underground cables require careful consideration.

Commentary

We recognise that the major effects of an overhead line are on visual amenity and landscape character and that the degree of these effects can be reduced by careful routeing,

In 2013 we commissioned landscape architects to assist us in developing proposals for Dumfries and Galloway where we will utilise techniques to help fit the overhead line into the landscape. The development of this infrastructure will also involve considerable stakeholder and community engagement.

Visual mitigation will be considered during all stages of the development, from the consideration of technical issues such as tower type and design, any possible requirement for undergrounding, route selection, landscape planting, tower painting and the possible undergrounding of existing lower voltage lines in close proximity to the new line to remove wire-scape.

During 2013/14, as part of the Beauly – Denny 400kV overhead line, we have been consulting with local communities through drop in events and workshops to gather views on appropriate landscape and visual mitigation measures. This will help us better understand what would directly mitigate the landscape and visual effects along the route of the line.

In response to Ofgem's proposal to establish an allowance based on willingness to pay for visual amenity mitigation for existing infrastructure in National Parks and National Scenic Areas, through 2013 we have been developing our approach to considering the visual and landscape impacts of existing lines within these areas.

We also recognise that our operations can impact on visual amenity in other ways. Access tracks have the potential to leave a visual impact. In recognising this we have developed a number of techniques and approaches to reducing the visual impact of our access tracks, including careful restoration techniques in NSAs and National Parks. In 2013 we undertook an access scoping exercise in Loch Lomond National Park in advance of overhead line refurbishment works. This scoping exercise informed a project access strategy.

120km of transmission overhead line in the Loch Lomond National Park . 8 km of Transmission overhead line in the National Scenic Areas . (5km of this overlaps the National Park) 3kM of line is in the Eildon and Leaderfoot National Scenic Area in the Scottish Borders.

Form of Incentive

Demonstrate efficient use of available funding



Amenity





13/14 performance

Focus on working with stakeholders to develop options

Output area

Environmental



9

Business Carbon Footprint

We also promote environmental objectives through how we manage our own environmental impact. Transmission losses and leakage of SF₆ (an extremely potent greenhouse gas used in some of our network assets) are the most material impacts, but we seek to reduce our impacts across the board. This year we have continued with the implementation of our sustainability strategy, including to reduce our total business carbon footprint by 15% by 2021. We are on track to meet this goal.

Commentary

Targets and Goals – SP Transmission is part of the Scottish Power Group and is committed to reducing our impact on the environment. In 2010 Scottish Power set out a Big Goals framework for forward environmental targets, this sets out a 20% target for reduction of carbon emissions by 2020. SP Energy Networks has set a target of 15% reduction in non-operational buildings energy use. Over the course of RIIO T1 period we aim to reduce our total business carbon footprint by 15%.

Losses - We published our documented strategy on minimising Transmission Losses during 2013/14 and will issue a progress report later this year. We intend to mitigate losses through the replacement of ageing equipment, the purchase of new low loss equipment, the application of new technology and optimising our network configuration. However, although we strive to limit the total losses incurred across our system, the growth in our network due to

the many new renewable generation connections, which are generally located in the more remote parts of our network, and the related requirement for increased system boundary transfer capacity means that over the RIIO-T1 price control period our total transmission losses will inevitably increase.

SF_e – The historic SF_e equipment on SPENs transmission network has leakage rates of up to 3%. We already perform much better than this and over RIIO-T1 period we intend to further reduce the rate of leakage. Our SF, losses for 2013/14 equate to 17,435.05 tCO₂e based upon the SF₆ losses incentive data. We will require to install new SF, equipment as part of our load and non-load capital expenditure programmes and in so doing increase our inventory of SF, mass used in transmission equipment. Inevitably as the overall volume of SF, increases so to will the absolute leakage volume but we will aim to reduce the % level of SF.

leakage. We will however specify lower loss equipment where available and appropriate.

Sustainability – In early 2014 we set out our approach to sustainability in the form of a sustainability strategy based on 8 Key Drivers many of which recognise the concerns expressed to us by our stakeholders. . In 2014 we propose to re-organise our teams to form a Sustainability team who's role it will be to develop the Company's approach to sustainable networks. 'Carbon and Energy' is a Key Driver developing strategies across the business whether it be in connecting low carbon technologies or reducing emissions.

Buildings Energy Use – Since 2011 we have made progress by raising staff awareness of energy use, implemented site specific technology improvements and rationalised our site portfolio.

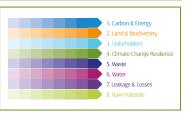
This has helped drive a medium term downward trend for the Energy Networks Business in energy use. Energy Networks Business in 2013/14 equates to 271.01 tCO2e (in 2012/13 this was 325.0 tCO2e).

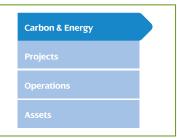
Transport – High proportion of network operation and maintenance related transport is carried out by contractors. This is reflected in a low operational and business miles emissions of 287.9 tCO2e for operational transport (in 2012 /13 this was 297.0 tCO2e) and 112.69 t CO2e for business transport (in 2012/13 this was 113.1)

Contractors – BCF reporting includes Scope 3 contractor emissions and whilst we have made some progress in mapping contractor emissions we have identified this as an opportunity for improvement going forward through the RIIO-T1 period.









We intend to deliver our investments and operate our assets in a sustainable way, through engagement of stakeholders, setting our sustainability drivers and delivering our initiatives.

Output area

Environmental

Form of Incentive

Financial - linked to SF₆ emissions and quality of sustainability strategy

13/14 performance

Award of £60,000 for SF₆. Assessment of strategy is ongoing







The scale of network investment and the volume of new connections represents significant challenges to network operation. It is critical that transmission businesses work effectively with the system operator, National Grid. This year we have collaborated with SHE Transmission to formalise our Network Access Policy – which embodies significant improvements in the level and effectiveness of joint working. This helps to keep costs down for consumers.



An integral part of our responsibilities is to co-ordinate and agree activities that facilitate the safe, secure and efficient operation of the transmission network. An example of this is in 2013/14 we had a requirement to undertake work on circuits that provide supply to two major customers and also form part of the link between us and SHE Transmission. To ensure this work caused the minimum possible disruption we negotiated with all parties to find a time when the major customers were able to maintain their supplies with their own generation while at the same time ensuring there was sufficient capacity on the remaining network to absorb the wind generation, thereby minimising constraint costs for network users. Working in close collaboration with the various stakeholders, we were able to deliver the work successfully without incident. The network diagram on the right illustrates the extent of the co-ordination needed to facilitate this agreement i.e. the green and yellow circuits which were removed from service along with the associated substations.

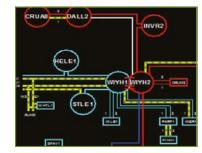
We also actively participate in the development of industry codes and technical guidance. A recent example is the leading role that we are taking in the modification of Grid Code and SQSS documents necessary to ensure that the introduction of new equipment (known as Series Compensation) and the convertor stations associated with new HVDC links did not result in issues on the wider network or impact the operation of generation connected to the network.

All transmission connected customers have their Connection Agreements with National Grid as the GBSO. However, we continually interact with the SO (and transmission customers) to resolve any technical issues around new and existing connections, to ensure that all connections are compliant with the Grid Code and the SQSS. This also includes managing responses to Grid Code or SQSS enquiries. During 2013/14 we worked closely with the SO and other TO's in the production of the Ten Year Statement (ETYS), which provides important planning information to all stakeholders. Working together with National Grid (and SHE Transmission) we frequently evaluate the economic merits of alternative transmission reinforcement strategies in Scotland, refining the scope and timing dependant on stakeholders requirements. This collaborative approach ensures we deliver a solution that considers the needs of all stakeholders.

A key principle of the Network Access policy is to ensure the effective planning and appropriate prioritisation of critical network outages. The picture (top right) shows a view of the new Denny North substation, a £200 million network reinforcement project that took priority during the major outage change that was required in 2013/14. Denny North is a key node in the Scottish transmission network and part of the main power corridor through Scotland to England and Wales. This strategic network upgrade is fundamental to connecting renewable generation and helping to minimise constraint costs for GB network users.







Output area

Network availability

Form of Incentive

No financial incentive. Prepare and maintain a Network Availability Policy

13/14 performance

Network Access Policy developed and implemented







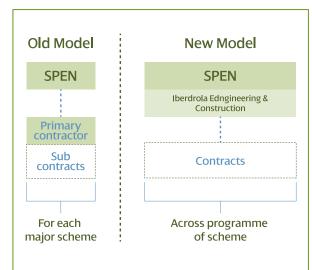




Our Costs Delivery Strategy

We have completely overhauled our delivery model for RIIO-T1 - and beyond. We have taken a strategic decision to bring much more of our engineering in-house, and take on the roles that would previously be adopted by a principal contractor. This gives us much greater flexibility in how we design, plan and schedule for work, and gives us greater control of the development and deployment of innovation. This bold, strategic move to support long-term deliverability is already realising significant benefits. Our approach underpins our plans to deliver against a wider range of our outputs.





- Disaggregates the traditional turnkey contract approach into a number of smaller contracts
- Detailed design, engineering and management delivered in-house via our sister company Iberdrola Engineering and Construction (IEC).

Why we changed

- Large scale of investment programme, and high number of schemes progressing in parallel – at least until 2030
- Leverages benefits of Iberdrola Group
- Provides more hands-on control of design and sequencing therefore more flexible and agile
- Greater ability to manage risk and cost directly
- Wider pool of contractors we work with for example, increasing from three to eight overhead line contractors



Demonstrable benefits in 2013/14

- Modernisation of 400kV line between our Kilmarnock South and Strathaven substations. Agility of new model allowed us to use unexpected opportunity in 2013/14 to take outages on this key line. We deployed resources immediately on engineering and tendering, and compressed work into one outage window.
- Deployed in-house engineering expertise to challenge traditional UK specifications on Gas Insulated Switchgear (GIS), and work with manufacturers to develop better, less costly alternatives. We have deployed at a number of sites where cost could otherwise have been prohibitive. Also reduced cost of necessary replacement of switchgear at Bonnybridge this year.





Expenditure

Our Costs Performance this year

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 (2009/10 real £m) Capex	Allowance £m	Actual £m	Variance £m
Baseline - Wider Works (BWW)	147.2	86.3	-60.9
Baseline - Other LR Capex	77.1	18.2	-58.9
Sub-Total Load Related Capex	224.3	104.4	-119.9
Asset Replacement Capex	41.5	64.6	23.1
Other Capex	25.3	16.0	-9.4
Non Operational capex	0.9	1.2	0.3
Total Capex	292.0	186.1	-105.9

Opex	Allowance	Actual	Variance
Faults	0.8	0.0	-0.8
Inspections & Maintenance and other direct costs	5.9	6.9	1.0
Indirect Costs	10.6	15.3	4.7
Adjustment for IAS 19 pension accrual	-	-0.2	-0.2
Total Controllable Opex	17.4	22.0	4.6

309.4

208.1

-101.3

Load-Related Programme 2013/14 position: £119.9m below allowance

Our £119.9m underspend against allowance for load related expenditure in 2013/14 represents a change in the phasing of expenditure. Costs that we had forecast in our business plan submission that would have been incurred in 2013/14 are now forecast to be incurred in 2014/15 to 2016/17.

It reflects the great difficulty we have as a TO predicting accurately when construction costs will occur whilst great uncertainty exists over the scale, timing and location of

renewable generation, and the potential for supporting wider works.

Baseline Wider Works - delays in obtaining landowner agreements and necessary consents (SW Scotland Collector project and convertor station for the Western HVDC link; and changes in the construction profile of the Western HVDC sub-sea link

Other LR capex – changing requirements on the generator side plus delays in the consenting process for both generators and ourselves

Asset Replacement & Other Capex - 2013/14 position: Net £13.7m above allowance due to accelerated delivery.

Our customers and stakeholders are realising the benefits of the SPT fast track decision in enabling an early start on the development and delivery of the investment programme. This is true for modernisation where a number of replacement assets have progressed ahead of plan. Of particular note, 130km of overhead line conductor was replaced in 2013/14 against the RIIO-T1 plan of zero.

This reflects a conscious decision by us to accelerate the development of projects following the fast track decision. This development activity has allowed SPT to release benefits in terms of output delivery and programme efficiency from additional outage availability and market conditions.

The current view is that delivery of modernisation outputs will remain ahead of plan for the majority of the RIIO-T1 period with all outputs being delivered efficiently.

Opex

Our indirect costs during 2013/14 exceeded allowances by £4.7m. This is primarily as a result of a revised methodology for allocating indirect costs which became effective 1 January 2013. This better aligns our accounting estimates with those applied by the Ibertrola Group.

This change came into effect after our RIIO-T1 business plan was fast-tracked and has no impact on the calculation of the Regulatory Asset Value (RAV) nor any cash impact. The adjustment had the effect of increasing opex, and reducing capex by ca £8m.







Totex (£m 2009/10 prices)	Allowance	Forecast	Variance
Baseline Wider Works (BWW)	542.9	467.8	-75.1
Baseline - Other LR Capex	298.8	287.6	-11.2
Uncertainty Mechanism - Generation Connections Sole-Use Infrastucture	69.5	60.8	-8.7
Uncertainty Mechanism - Generation Connections Shared-Use Infrastucture	182.9	182.9	0.0
Uncertainty Mechanism - Strategic Wider Works (SWW)	410.3	410.3	0.0
Sub-Total Load Related Capex	1504.4	1409.4	-95.0
Asset Replacement Capex	454.0	455.1	1.1
Other Capex	189.7	196.0	6.4
Non Operational capex	7.2	7.5	0.3
Total Capex	2155.3	2068.0	-87.3

Totex (£m 2009/10 prices)	Allowance	Forecast	Variance
Opex	88.2	120.8	32.6
Faults	6.9	6.5	-0.4
Inspections & Maintenance and other direct costs	59.1	54.8	-4.3
Indirect Costs	88.2	120.7	32.5
Adjustment for IAS 19 pension accrual	-	-1.6	-1.6
Total Controllable Opex	154.2	180.4	26.2
Totex	2309.5	2248.4	-61.1





Highlights of future performance

We are currently forecasting RIIO-T1 total expenditure (totex) to be in the region of £2.25bn, approximately 2.6% below allowance.

This forecast is a function of our best estimates of the scale and timing of renewable generation connections and the wider works projects that could be needed to provide added network capacity to support that generation.

It is very likely that our forecasts will change over time as new information becomes available. Recognising that such uncertainty exists, our regulatory contract includes mechanisms that allow cost allowances and revenues to flex the movement above agreed baselines.

We have shown our forecasts and assumed allowances for these uncertainty mechanisms in the table to the left. These mechanisms if they are triggered would add approximately £667m to the current baseline allowance.

They include £69m for the additional 1,417MW of sole-use generation connections we currently are forecasting will connect above our 2,503MW baseline: £183m for the additional 479MVA of

shared-use infrastructure capacity we expect to create above a 1,073MVA baseline; and £410m for permitted costs for large scale wider works projects that we expect will be needed (these cover 3 projects - the Dumfries & Galloway upgrade; the East coast 400kV onshore upgrade; and the Central 400kV onshore upgrade). For the latter two we have assumed that allowances will match our forecast costs.

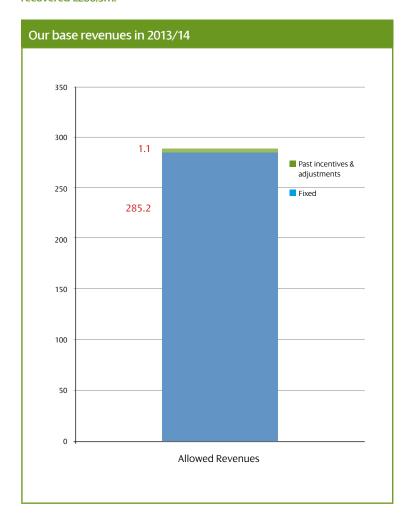
Within our £2.25bn totex forecast we have assumed that as a result of the revised methodology for allocating indirect costs; described in the previous section on "Performance this year", approximately £60m of indirect costs will be allocated to opex instead of capex.

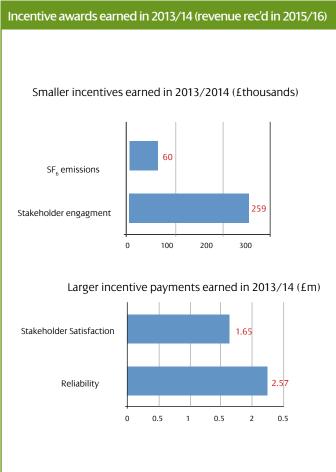




Understanding Our Revenues

We recover our revenues from the system operator, National Grid. Our revenue allowances form one part of the total pool of costs that National Grid recovers through its charges to users of the GB transmission system. Our revenue allowance each year is determined by our price control. In any given year, it will comprise elements which are fixed in advance, elements which depend on the volume of particular activities or actual level of totex, and elements which reflect incentive payments (or penalties) earned in previous years. This year we recovered £286.3m.







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.

From our charges to customer bills:

- Our charges form part of the total revenues recovered by National Grid through transmission charges
- Transmission charges account for approximately £35 of an average domestic electricity bill of £609 per year











Innovation

Innovation is core to our performance over the T1 period – underpinned by our innovation strategy. Our commitment is illustrated this year by the success in the Network Innovation Competition of our £7.4m VISOR project. This focuses on maximising the availability of network capacity in real time. We are also actively deploying proven innovation on our network. For example, this year we have invested in series compensation to enhance network flows across the network boundary between Scotland and England.





Commentary

The innovation culture within our business was already wellestablished going into 2013/14. We therefore have a strong foundation to build on. For example, our pioneering use of an optical Ethernet system on the Anglo-Scotland interconnector intertrip has enabled much more active management of this part of the network, and helped reduce costs significantly.

During 2013/14 we have been working on seven projects funded under our Network Innovation Allowance. One of these projects enables new state of the art protection devices to be installed on our existing protection systems which will contribute a saving of over £1million on installation and procurement on our Network

During 2013/14 key innovations embedded in our investment plans have progressed well:

- Series compensation, which uses innovative technology to significantly increase the power flow on suitable transmission lines. Contracts were awarded for this work in July 2013 with work commencing later in the year
- Embedded HVDC: Along with National Grid and SHE Transmission – Transmission the need case was assessed for an Eastern HVDC link using innovative multi terminal technology.

- Protection and control: Deployment of testing protocol for protection devices

Next year we are looking to update you on developments in the pipeline that will address the major problems facing the Transmission network including system stability and inertia, asset management, new material and emerging technologies

We were successful with our Network Innovation Competition bid for the VISOR Project, which means that £7.4M worth of research will allow greater transmission capacity to be squeezed out the existing asset. These increases are relatively small but can make considerable reduction in wind farm constraint costs. For the more technically minded this VISOR project will use phase angle difference across a transmission boundary as a real time measure of power transfer stability, and by seeing that the power transfer is stable operators can increase the power transfer. The VISOR project will also monitor the network for other instabilities thereby safeguarding over £2billion investment in Scottish transmission network during RIIO-T1, and reducing the operational cost. More information on the VISOR project can be found at www.spenergynetworks.com/pages/visor.asp

VISOR Project Milestones

- Signed Project Direction: December 2013
- Agreed Project Procurement Strategy: January 2014
- Project Management Team established: March 2014
- Tendering Process commenced: March 2014
- Collaboration Agreement with SSE and
- NGC signed off: July 2014
- Contract awarded to Alstom Grid: August 2014
- First Monitoring Device connected to the GB Transmission Network: December 2014
- Local Monitoring Devices- testing and commissioning: December 2015
- Device integration-testing and commissioning: December 2015
- System Go Live: June 2016
- Project Close down Report: March 2017



13/14 performance

Successful application for £7.4m of funding for Visor project. 7 projects progressing under NIA.

Output area

Innovation

Form of Incentive

Efficient use of funding under Network Innovation Allowance, and Network Innovation Competition.









The key uncertainty facing our network – and how we develop it economically and efficiently – is the scale, timing and location of new generation, and the timing of generation closures. While the direction of travel towards renewable forms of generation is clear, there is a wide range of uncertainty over timing and scale. This year we have continued to work intensively to help understand and manage this uncertainty. This includes how we develop and use scenarios, and how we plan long-term investments – including the design of key, strategic investment options. It also affects how we run our business day-to-day.



The scale of change, and range of uncertainty

The mix of generation connected to our network is being transformed between now and 2021. We anticipate having less thermal generation connected to our network (with the closure of some existing power station capacity), and a large but uncertain increase in the volume of renewable generation capacity.

The amount of renewable generation connected to our network has grown steadily since 2005, reflecting the policy support provided to renewables and the quality of renewable resources in our area. In March 2014 there was a total of 2,290MW of wind-powered generation directly connected to our network. In contrast, we do not anticipate that demand in our area in 2021 to be significantly different to the existing maximum demand of around 4GW. In this context, transmission investment is needed to transfer the power from new renewable generation to centres of demand, and to enable power to be imported into Scotland when demand is high but production from renewable generation is low, e.g. on cold, still days.

However, the pace and scale of these changes in the generation mix is uncertain. This is clearly illustrated in the range of 2014 UK Future Energy Scenarios, developed by National Grid, with input from both SP Transmission and SHE Transmission. Each of the four 2014 scenarios developed show continued growth, but with significant differences in timing and scale:

- Low Carbon Life
- Gone Green
- Slow Progression
- No Progression

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 8GW of onshore and offshore generation with connection offers, and our best view of total connected renewables by 2021 is around 5.8GW. 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.

How we seek to help manage these uncertainties

There are a wide range of our day-to-day activities that are designed to help manage these uncertainties, and minimise costs and risks for consumers:

Scenario planning:

We contribute to National Grid's annual Electricity Ten Year Statement (ETYS), which provides vital planning information to all stakeholders. We provide input to the scenarios and provide detailed system information that ensures the specific issues we are facing in Scotland are considered.

Developing strategic investment options:

We work closely with the SO and other TO's in the development of the needs case for Strategic Wider Works projects. In 2013/14 this was focused on the Eastern HVDC link and the East Coast/Central projects. Studies have begun on the Dumfries and Galloway project with routing options and stakeholder engagement workstreams scoped and underway. More generally we also develop our plans through the Joint Planning Committee as part of our STC (System Operator-Transmission Owner Code) obligations.

Optimising the investment needs:

We use common, nationally administered standards and rules for network planning. The National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS) is one of the most important as it sets out minimum criteria for the development and operation of the national electricity system. The NETS SQSS helps us determine the amount of transmission infrastructure that we will need to support user requirements.

Minimising the investment costs:

Our pro-active development and deployment of innovation is key to delivering increased capacity at efficient costs. The investment in series compensation this year is one example. Our new delivery model, and our inspection and maintenance regime, are also making a significant contribution to managing the uncertainty of investment requirements at efficient cost.





Managing uncertain costs

In an environment where the need for and timing of new transmission capacity is uncertain, our costs will also be uncertain. Our investment will depend on whether the need for additional capacity materialises or not, and if so when. Our form of regulation recognises this cost uncertainty, and includes a number of mechanisms which permit our allowed revenues to flex as new information on need for capacity is revealed. At this early stage of T1 these mechanisms are not currently active – with the effect of past uncertainty mechanisms forming part of our T1 base revenues, and thresholds triggering new mechanisms not yet reached.



Uncertainty

RIIO T1 revenue drivers - linked to cumulative volume of connected

Main Uncertainties	Mechanism	Impact in 2013/14
Volume of new generation connections	The base revenues we will earn over the course of RIIO-T1 assume connecting an additional 2,503MW of generation capacity to our Grid by 2021. Our revenues will be adjusted by £42,000 per MW upwards or downwards if we connect more or less relative to this baseline.	None
Volume of new shared use infrastructure	The base revenues we will earn over the course of RIIO-T1 also assume that in order to support the baseline level of new generation connections we will install a further 1,073MVA of asset capacity. Our revenues will be adjusted by an agreed range of unit costs upwards or downwards if we install more or less relative to this baseline.	None

Strategic Wider Works – linked to large, individual schemes

SWW Scheme	Required Transfer Capability	Key Drivers	Start date	End date
Dumfries & Galloway	Additional 1,800MW within system reinforcement	To facilitate renewables in SW Scotland and provide a secure link to Moyle Interconnector	2015	2020
East Coast (Kincardine - Harburn)	Boundary B5: 600MW	Increasing the capability of the Central Scotland transmission system and Scotland – England interconnection	2014	2018
Eastern HVDC from Torness to NE England	Boundary B6: 1,800MW	New offshore generation in Firth of Forth	2014	2019



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