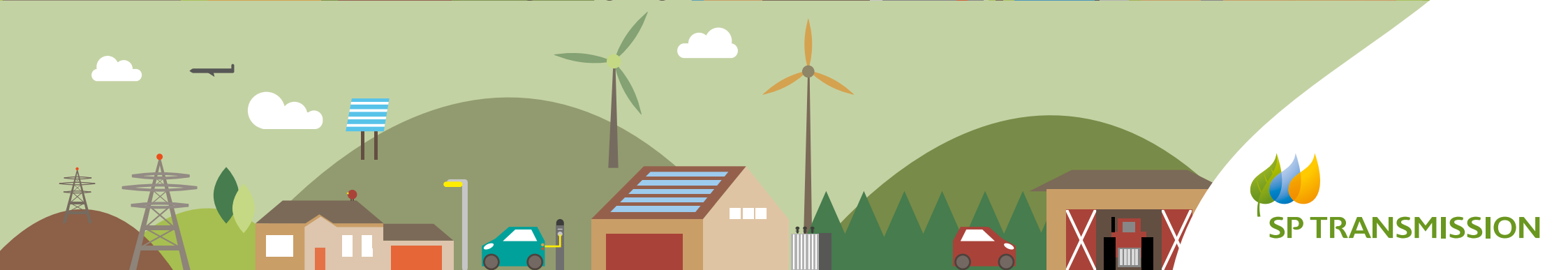
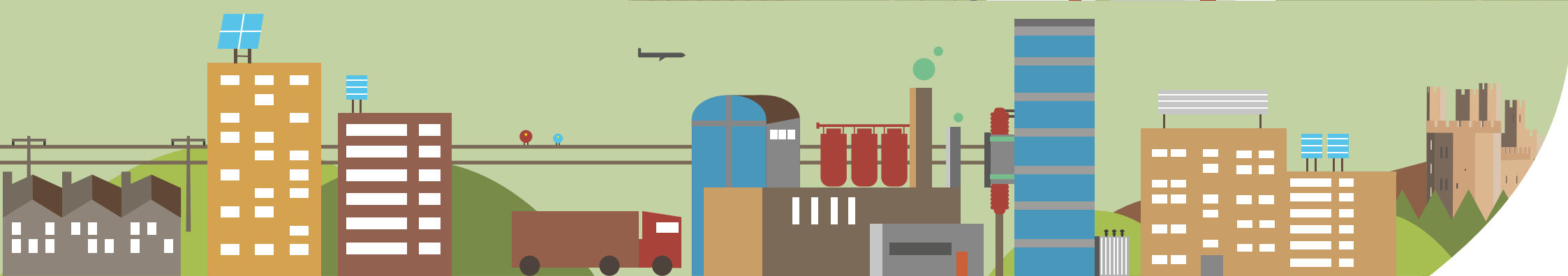


# Annual Performance Report

SP Transmission

2014/15





# Key Facts & Figures



# £142m

The investment in renewing network assets over the last 2 years, £42m more than our original plan



# 14%

The rise in overall spend during 2014/15



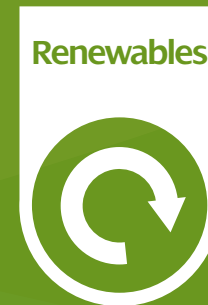
# 35%

The increase in investment to strengthen and expand our existing network



# 16%

The margin below our target of Greenhouse Gas SF6 emissions



# 1GW

The renewables capacity in South West Scotland with Planning permission secured for connection



# 88

The number of connection offers made to customers during the year



# 2.8/22m

The amount of energy (MWh) we failed to supply to our customers because of faults on our network.

# CEO Foreword



I am pleased to introduce the second annual performance report for our Transmission business. This document is designed to update our stakeholders 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 are doing in this price control period is pivotal.

In the second year of RII0-T1, we continued to deliver on our plan and increased the rate of investment in our network by 14 % over the previous year, to £283M. We are confident that we will deliver the outputs we set out in our Business Plan and that our plan continues to represent excellent value for money for electricity consumers. Although it is still early in the price control period, we are realising real savings in the delivery of our activities through commercial and technical innovation and these savings will be shared with consumers.

Our investment in asset modernisation continues to run significantly ahead of plan and with 25% of the price control period behind us, we have completed over 30% of our total plan.

We have continued to address a range of challenges on our load investment programmes, including consenting difficulties and have built considerable momentum over the year. We will complete key strategic reinforcement projects to increase power transfer capability between northern and central Scotland by the end of 2015 and are advancing the projects that will deliver a 1600 MW increase in the capacity of the existing interconnectors between Scotland and England in 2016. Our world leading Western Link HVDC project, a joint venture with NGET, is now scheduled to complete in summer 2017, following the resolution of cable manufacturing difficulties.

Activity on generation connections remained high throughout the year, both in terms of providing offers and progressing contracted connections. Although we remain confident that we will exceed the target level of new generation included in our plan, recent government announcements on renewable subsidy schemes have increased uncertainty in this area. Overall on load investment, we remain behind the expenditure profile we set out in our plan. However, our projections indicate that investment will catch up with plan over the next 3 years.

Our network operated at an excellent level of reliability through the year, causing virtually no disruption to our customers. We have also reduced SF6 gas leakage from our network and are committed to further reductions across all aspects of our carbon footprint. We are continuing to enhance our stakeholder and environmental management processes and have clear plans to improve our performance in these key areas.

Innovation is apparent throughout our business. A number of the major projects we are delivering in RII0-T1 are predicated on innovative solutions. In addition, we are the only Transmission Operator to seek to make use of all of the innovation mechanisms available in the RII0 model.

Over the course of the year, we have worked closely with SHETL and NGET to assess the impact of the changing shape of generation and demand in Scotland. For example, it is now increasingly likely that from early in 2016, there will be no large scale conventional thermal generation in Central Scotland. We are preparing for these changes by adding new equipment to our network to provide additional control capabilities and also revisiting key operational procedures affected by the changes, such as our contingency plan to recover from a blackout.



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. We are delivering large-scale investments in infrastructure which are critical to the nation and we seek in this report to present a clear description of our progress. We were very pleased to note that in their recent report on transparency in the RII0 model (Beginning to see the light, August 2015), Citizen's Advice recognised our first annual report as probably the best report they had seen from the industry. We hope, through the clear and accessible design of this document, we are continuing to set the standard and making an important contribution to the transparency of our sector.

Frank Mitchell

# This report



## About us

We are the licensed Transmission Owner (TO) for the Central Belt and South of Scotland. Our transmission network comprises just under 4000 kilometres of circuits and 135 substations operating at 400, 275 and 132kV. Our system maximum demand is around 4.2GW and we currently have over 8.5GW 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.

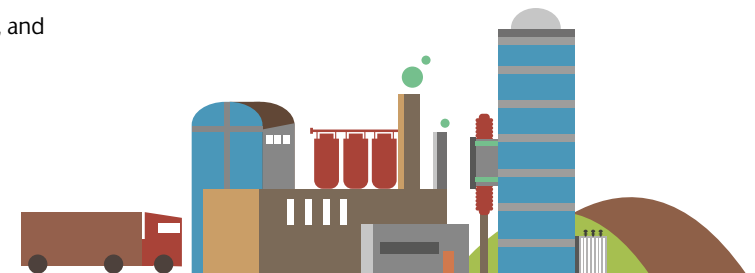
## The context we operate in

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 defines outputs and revenue allowances for an eight year period, based on a business plan that we produce in consultation with our stakeholders.

Our business plan for 2014 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. These 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 subsidised through Government policy.

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# Performance Summary 2014/15



Category	Our Performance	How we ranked against other TOs	Reward or Penalty	Trend over time
Safety	We put considerable effort into ensuring that the public are safeguarded from hazards associated with our assets and are pleased to report that there have been no injuries to members of the public resulting from our assets or operations in the year.	All 3 Electricity TOs complied with their Statutory requirements	Reputational Incentive	
Reliability & Availability	We experienced nineteen Energy Not Supplied (ENS) events with a loss of 2.8MWh – an excellent reliability performance of 99.99998%.	<b>ENS Targets</b> <b>SPT</b> – Outperformed target by 98.8% <b>SHE</b> – Outperformed target by 11.6% <b>NET</b> – Outperformed target by 97.2%	£2.7m Reward	
Customer Satisfaction & Stakeholder Engagement	On the basis of stakeholder surveys, we scored 7.1/10. Whilst this is slightly lower than last year, it is above baseline. The results of the stakeholder satisfaction survey and our stakeholder engagement submission have resulted in a reward for 2014/15.	<b>Stakeholder Survey Scores</b> <b>SPT</b> – 7.1/10 <b>SHE</b> – 7.7/10 <b>NET</b> – 7.7/10  <b>Stakeholder Engagement Discretionary Award Scores</b> <b>SPT</b> – 5.5/10 <b>SHE</b> – 6.0/10 <b>NET</b> – 6.0/10	£1.96m Reward	

## Performance Summary

Throughout this document, we have attempted to take account of the recommendations made by Citizen's Advice in their report on transparency in the RIIO model (Beginning to see the light, August 2015). In particular, we have tried to comply to the extent possible with the 5 principles set out in their report, that our document should be findable, simple, comparable, non-whitewash and timely.

We have included this upfront performance summary for the first time in this year's report in response to one of the recommendations.

We have now updated the report based on the Ofgem Transmission Annual Report issued on 10/12/15.

# Performance Summary 2014/15



Category	Our Performance	How we ranked against other TOs	Reward or Penalty	Trend over time																																													
Connections	We provided 88 offers with an average turnaround of 71 days, comparing positively to our obligation of 74 days. Our forecast is based on delivering 3552MW of new generation connections and increasing network capacity by 4185MVA in RIIO-T1 against targets of 2503MW & 1073MVA respectively.	<b>Offers Completed on Time</b> <b>SPT</b> – 86/88 <b>SHE</b> – 98/98 <b>NGET</b> – 235/235	£34k Penalty	<table border="1"> <caption>RIIO-T1 Performance (MW)</caption> <thead> <tr> <th>Year</th> <th>RIIO-T1</th> <th>Actuals</th> <th>Latest Forecast</th> <th>Prior Forecast</th> </tr> </thead> <tbody> <tr> <td>2013/14</td> <td>2290</td> <td>2290</td> <td>2290</td> <td>2290</td> </tr> <tr> <td>2014/15</td> <td>2290</td> <td>2290</td> <td>2290</td> <td>2290</td> </tr> <tr> <td>2015/16</td> <td>3800</td> <td>3800</td> <td>3800</td> <td>3800</td> </tr> <tr> <td>2016/17</td> <td>3800</td> <td>3800</td> <td>3800</td> <td>3800</td> </tr> <tr> <td>2017/18</td> <td>4000</td> <td>4000</td> <td>4000</td> <td>4000</td> </tr> <tr> <td>2018/19</td> <td>4000</td> <td>4000</td> <td>4000</td> <td>4000</td> </tr> <tr> <td>2019/20</td> <td>4000</td> <td>4000</td> <td>4000</td> <td>4000</td> </tr> <tr> <td>2020/21</td> <td>5810</td> <td>5810</td> <td>5810</td> <td>5810</td> </tr> </tbody> </table>	Year	RIIO-T1	Actuals	Latest Forecast	Prior Forecast	2013/14	2290	2290	2290	2290	2014/15	2290	2290	2290	2290	2015/16	3800	3800	3800	3800	2016/17	3800	3800	3800	3800	2017/18	4000	4000	4000	4000	2018/19	4000	4000	4000	4000	2019/20	4000	4000	4000	4000	2020/21	5810	5810	5810	5810
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Environment	We are on track to reduce our Business Carbon Footprint (BCF) over RIIO-T1 by 15%. Losses from SF6 gas, a major contributor to BCF, were 11,821tCO2e – lower than last year and 16% below our incentive target for the year.	<b>SF6 Leakage</b> <b>SPT</b> – Outperformed target by 16.4% <b>SHE</b> – Failed target by 96% <b>NGET</b> – Outperformed target by 23.1%  <b>Environmental Discretionary Award Performance Band</b> <b>SPT</b> – Engaged (No reward) <b>SHE</b> – Proactive (No reward) <b>NGET</b> – Leadership (£2m reward)	£89k Reward	<table border="1"> <caption>SF6 Leakage Performance (tCO2e)</caption> <thead> <tr> <th>Year</th> <th>Target</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>2013/14</td> <td>13500</td> <td>12500</td> </tr> <tr> <td>2014/15</td> <td>14000</td> <td>11500</td> </tr> <tr> <td>2015/16</td> <td>11500</td> <td>11000</td> </tr> <tr> <td>2016/17</td> <td>11000</td> <td>10500</td> </tr> <tr> <td>2017/18</td> <td>10500</td> <td>10000</td> </tr> <tr> <td>2018/19</td> <td>10000</td> <td>9500</td> </tr> <tr> <td>2019/20</td> <td>9500</td> <td>9000</td> </tr> <tr> <td>2020/21</td> <td>9000</td> <td>8500</td> </tr> </tbody> </table>	Year	Target	Actual	2013/14	13500	12500	2014/15	14000	11500	2015/16	11500	11000	2016/17	11000	10500	2017/18	10500	10000	2018/19	10000	9500	2019/20	9500	9000	2020/21	9000	8500																		
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Finance	We spent £283m to uprate, modernise and maintain our network against our allowance of £461m. This underspend will be recovered in future years and coupled with efficient project investment, our forecast of Return on Regulatory Equity (RoRE) is 8.75% for the RIIO-T1 period.	<b>Forecast RoRE</b> <b>SPT</b> – 8.7% <b>SHE</b> – 9.6% <b>NGET</b> – 9.4% based on Ofgem's methodology for calculating eight year average returns for the RIIO-T1 period	£49.6m	Eight Year average RoRE forecast is 8.75% over the course of RIIO-T1																																													

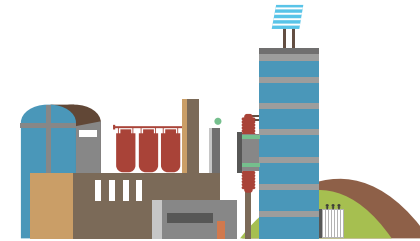
## Social obligations

At SP Energy Networks we believe we should be making a world of difference on all levels. We are the official partner of Scottish Cycling and 2014 saw the National Youth Racing Series go from strength to strength, where we supported 26 events through the year.

## Innovation

We are making use of each mechanism that was introduced as part of the RIIO-T1 price control to both encourage innovation and deliver value for money to consumers.

# Outputs and Incentives



## Facilitating renewables

### Delivering the strategic network upgrades to support large scale renewables

Good progress has been made on our strategic reinforcement projects. Working with SHETL, we are on track to increase transfer capacity between North and Central Scotland by 1200MW through the commissioning of both the new Beauly to Denny line and the Hunterston-Kintyre subsea link in late 2015. Projects to increase transfer capacity across the Scotland / England boundary have also progressed significantly, with construction of our Series Compensation units now almost complete. Some delays have impacted our East- West voltage uprating project, and we now expect to commission the western component of the upgrade in 2015 with the eastern elements being finalised in 2016. The cable manufacturing issues experienced on the West Coast HVDC link have been resolved and we expect to have the link in service by Summer 2017.

## Connecting new generation

### Tracking our efficiency and timeliness in supporting new connections

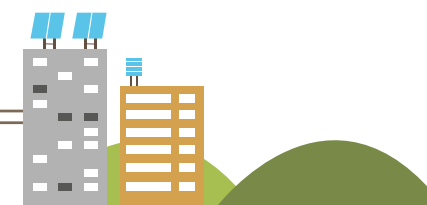
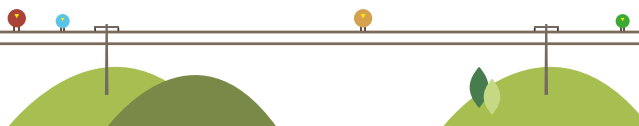
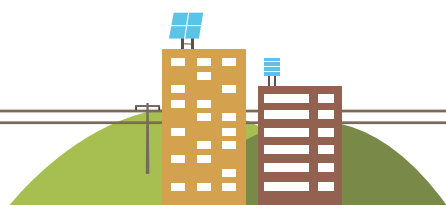
Activity level remained very high in the year and we now anticipate exceeding our original full price review targets for shared use capacity (1073MVA) and generation connected (2503MW) in 2016/17 and 2018/19 respectively. We have secured planning consents to enable 1GW of renewable connections to our network in South West Scotland. Following recent government announcements, we are reviewing our forecasts for shared use reinforcement and generation connections through to the end of the RIIO-T1 period. In the year, we processed an increased number of connection offers (88) for customers in an average of 71 days – three days better than our licence obligation.

## Modernising our network

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

Building on the strong start made last year, we continue to work hard on renewing our existing network to provide electricity consumers with a reliable system. Asset replacement investment is £42m ahead of plan through the successful acceleration of overhead line replacement whilst maintaining our switchgear and transformer programmes. We remain on track to deliver all of our target Network Outputs for 2021.





## Network reliability and resilience

### A reliable and resilient network

During 2014/15, we achieved an excellent level of network reliability, with faults resulting in only 2.8 MWh of unsupplied energy to customers, representing just 0.00002% of our total energy supplied. Looking ahead to the changing mix of generation in Scotland, we undertook a joint study with NGET and SHETL to understand the impact of the changes and have agreed actions to address the key issues. For example, our plan to recover from a complete loss of the grid ( i.e. a Black Start) must be rewritten to account for the absence of large scale conventional thermal generation in Central Scotland in the near future.

## Safety

### Promoting safety for the public and for our workforce

We aspire to achieve the highest standards in public and workforce safety. We put considerable effort into ensuring that the public are safeguarded from hazards associated with our assets and are pleased to report that there have been no injuries to members of the public resulting from our assets or operations in the year. However, we remain concerned with the level of interference with our network, with nine instances of metal theft in the year and we are working on a number of initiatives to combat this criminal and highly dangerous activity. We continue to work closely with our contractors to improve workplace safety and achieved an almost 30% year on year reduction in the frequency of accidents at our worksites.

## Visual amenity

### 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. This year we published a wide ranging review of our approach to the siting of transmission infrastructure that articulates how we will achieve that balance.

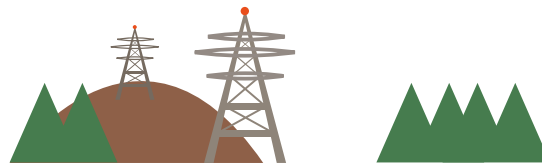
We are also considering the visual amenity impacts of existing infrastructure in National Parks and National Scenic Areas. We are collaborating with interested parties to consider ways to improve visual amenity. Our aim is to bring forward schemes for additional funding under the Visual Amenity Additional Funding Mechanism.



## Business Carbon Footprint (BCF)

### Managing the environmental impacts of our own business activities

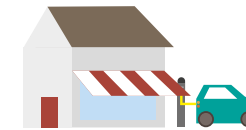
We use our annual Business Carbon Footprint (BCF) to monitor the effect of our activities on the environment. The most significant element of our BCF is the estimated level of energy lost through electricity transmission (for example the heating loss from cables). This reflects the size of our network and the demand placed on it by customers. To reduce this over the long term we adopt appropriate equipment specifications for new and replacement equipment. We made a 32% reduction in the year on the contribution to BCF from leakage of SF6 gas from our equipment through the de-commissioning of Inverkip substation.



## Engaging with stakeholders

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

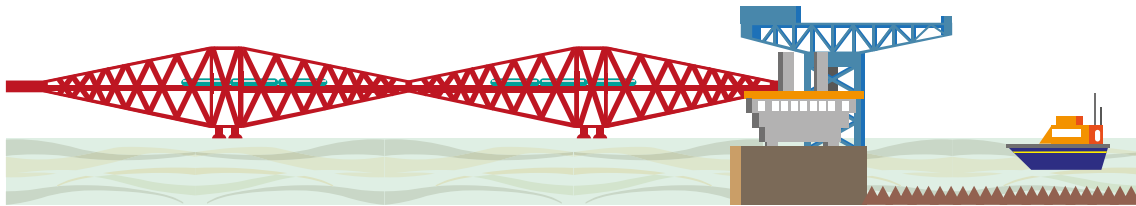
We measure how well we interact with stakeholders in three ways: by assessing the performance of key stakeholder facing processes through the use of Key Performance Indicators (KPIs), through an annual stakeholder survey and through assessment by a panel of experts. Results in the year were mixed with an improvement in the expert panel score (from 4.9/10 to 5.5/10) but deterioration in the survey (from 7.4/10 to 7.1/10). In 2015/16 we are broadening the range of stakeholders interactions and working with other transmission companies to deliver significant improvement in this area.



## 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 represents significant challenges to network operation. This year, we have collaborated closely with NGET and SHETL to develop the Network Options Assessment (NOA) process for long term system development. As part of a larger package of transmission initiatives being proposed in Integrated Transmission Planning and Regulation (ITPR), the NOA process is designed to underpin the assessment of options for major reinforcements.



## Costs

### Our capital expenditure and operating costs this year

Our most recent forecast of total expenditure to 2020/21 is £2,600m, delivering a saving of £99m on allowance which will be shared with consumers. We are delivering this saving through innovative design, asset management and project delivery approaches.

In 2014/15 our total expenditure was £283m, a year on year increase of over 14%. This continues to be lower than in our original business plan due to uncertainty on timing of renewable generation and delays experienced on some strategic network upgrade projects. We now expect our work programme to catch up by 2017/18 when a number of large projects, for example West Coast HVDC, complete.

## Revenues

### What our regulated revenues are, and how they are set

In 2014/15 we recovered £330.7m. Our revenues are set through regulation by Ofgem. They comprise an element which is fixed, an element which is linked to specified variables (such as the amount of connected generation), and an element to capture incentives and 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. Based on our forecast performance the Return on Regulatory Equity over the full RIIO-T1 period is estimated at 8.75%

## Incentives

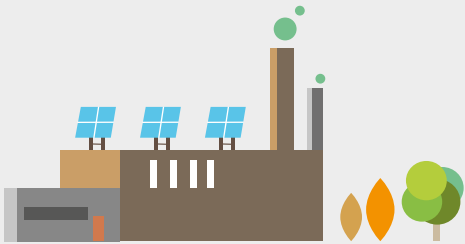
### The financial rewards and penalties that are linked to our performance

Our performance in 2014/15 has earned incentives payments of £4.7m. This will be reflected in our allowed revenue for 2016/17. The major components are a reward of £2.7m as a result of our very high network reliability and a reward of £1.96m linked to customer satisfaction.

Our environmental performance, as assessed by Ofgem's independent panel of experts, did not attract a discretionary award for this year. We will review the full findings from the panel and take action to improve for future years.

## Executive Summary

# Innovation



### Innovation strategy

#### Developing and deploying innovation to increase capacity and reduce costs

We are making use of all three mechanisms which were introduced in RIIO T1 to encourage innovation. We are progressing a number of projects focused on generating new learning about the condition and operation of our network, as well as continued implementation of our Network Innovation Competition (NIC) funded VISOR project which will establish a Wide Area Monitoring System for the GB transmission system, with the aim of maximising its capability. We have submitted a second project for Network Innovation Competition funding this year and are the only Transmission Operator to apply for funding under the Innovation Roll Out mechanism.

## Executive Summary

# Managing uncertainty



### 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 changing generation landscape, both the scale, timing and location of new generation and the timing of generation closures. To aid our decision making in this regard our starting point is the Future Energy Scenarios produced by the system operator, combined with relevant local factors. This has led us to re-assess our plans to bring forward two major reinforcement projects for Ofgem approval. The East Coast HV DC project is now unlikely to be proposed in RIIO T1 and the East Coast Onshore reinforcement will be re-assessed toward the end of the period. A third project, Dumfries and Galloway Strategic Reinforcement will still be submitted within the period. Recent government policy announcements may affect the take up of generation offers in the medium to longer term but we are yet to see any material change in the overall contracted position.

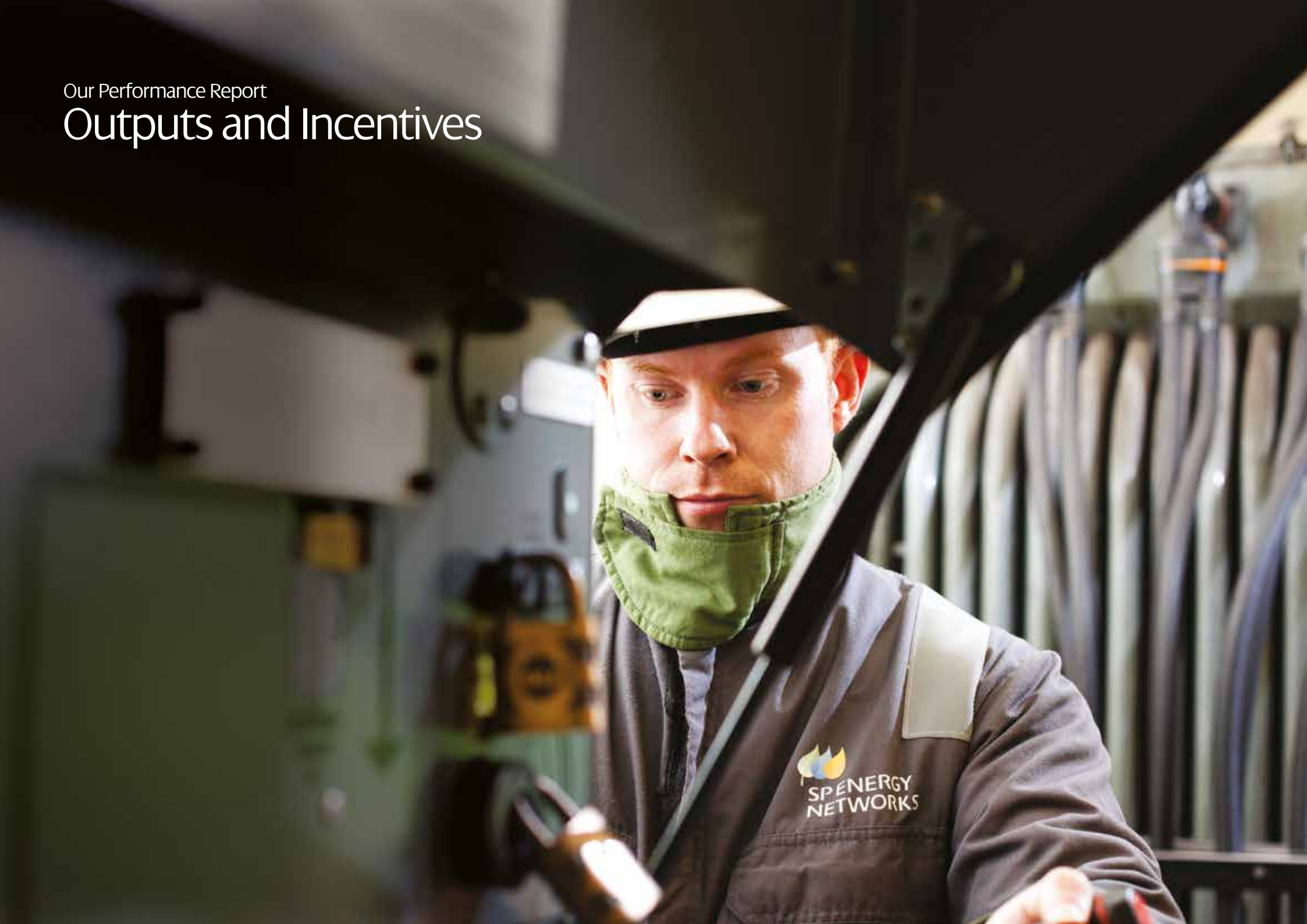
### Managing cost uncertainty

#### 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 subject to some uncertainty. 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, however the generation connection activity in our area has led to the issue of offers for connection which will trigger the use of uncertainty mechanisms in future years.

Our Performance Report

# Outputs and Incentives





# Serving our stakeholders and communities

We measure how well we interact with stakeholders in three ways: by assessing the performance of key stakeholder facing processes through the use of Key Performance Indicators (KPIs), through an annual stakeholder survey and through assessment by a panel of experts. Results in the year were mixed with an improvement in the expert panel score (from 4.9/10 to 5.5/10) but deterioration in the survey (from 7.4/10 to 7.1/10). In 2015/16 we are broadening the range of stakeholders interactions and working with other transmission companies to deliver significant improvement in this area.

## Commentary

### Stakeholder Engagement Examples

We are applying innovative, more inclusive approaches to stakeholder engagement in the long-term process of designing and delivering major infrastructure improvements.

In the Beaully-Denny Project, we have scaled up our 'Green Network' initiative, working collaboratively with local stakeholders to mitigate impacts and improve amenities affected by the project. This year it is delivering improvement schemes, with more community-generated ideas in the pipeline.

We are applying learning from our experience in Beaully-Denny to new major infrastructure proposals. For example, in our Dumfries & Galloway Strategic Reinforcement project, we set up new engagement structures including our Stakeholder Liaison Group, and applied new methods including our Stakeholder Survey to deepen our understanding and manage

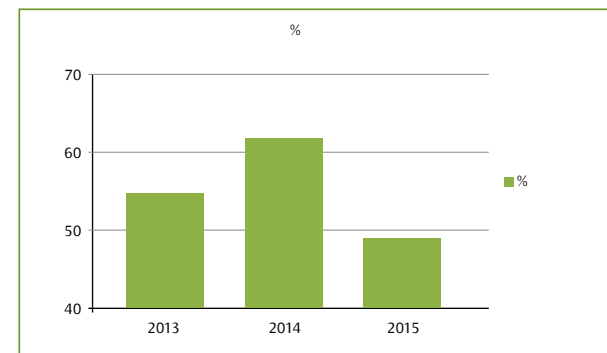
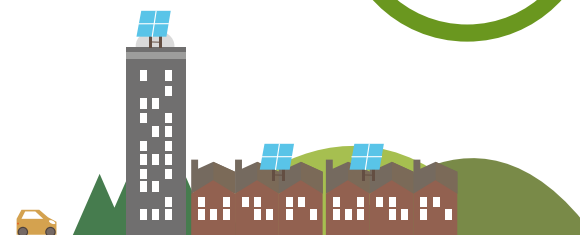
the consultation process efficiently.

To improve generation connections, we are solving complex technical and commercial challenges by taking a proactive approach to engaging with generation project developers. In one example, we facilitated collaboration on multiple connection applications affecting our substation at Coalburn, Lanarkshire resulting in significant cost and timescale reductions for the windfarm developers.

Further examples of the stakeholder engagement activities can be found on our website. [http://www.spenergynetworks.co.uk/userfiles/file/SPEN\\_Stakeholder\\_Transmission\\_Part2\\_2015\\_FINAL\\_SUBMITTED%20290515.pdf](http://www.spenergynetworks.co.uk/userfiles/file/SPEN_Stakeholder_Transmission_Part2_2015_FINAL_SUBMITTED%20290515.pdf)

## Stakeholder Metrics

- In the annual survey the average score for overall satisfaction dropped from 7.4/10 to 7.1/10
- Performance KPIs increase from 68 to 69
- The score awarded by the expert panel improved from 4.9 to 5.5



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

**“Overall SPT achieves a balanced approach to stakeholder engagement through the combination of its stakeholder strategy, stakeholder survey and KPIs. The strategy sets out its overall approach, priorities, stakeholder groups and engagement mechanisms. The stakeholder survey provides an annual independent snapshot of stakeholder opinion. The KPIs aim to track performance on key areas that impact customers and broader stakeholders. They reflect areas where SPT interfaces with National Grid as the system operator to respond to customers during the connections process.”**

Independent assurance report, DNV GL, July 2015

Output area	Customer satisfaction
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Form of Incentive	Financial – linked to satisfaction metrics
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14/15 performance	£1.96m award
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# Facilitating renewable generation

## Delivering the network capacity

Good progress has been made on our strategic reinforcement projects. Working with SHETL, we are on track to increase transfer capacity between North and Central Scotland by 1200MW through the commissioning of both the new Beaulay to Denny line and the Hunterston-Kintyre subsea link in late 2015. Projects to increase transfer capacity across the Scotland / England boundary have also progressed significantly, with construction of our Series Compensation units now almost complete. Some delays have impacted our East-West voltage uprating project, and we now expect to commission the western component of the upgrade in 2015 with the eastern elements being finalised in 2016. The cable manufacturing issues experienced on the West Coast HVDC link have been resolved and we expect to have the link in service by Summer 2017.



### Commentary

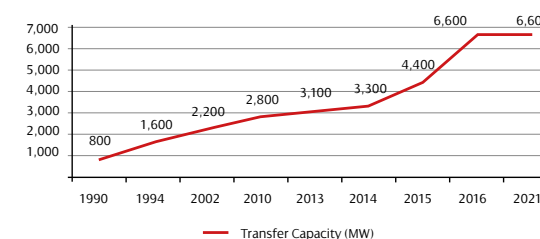
We made considerable progress in the year, overcoming a number of obstacles across these key projects.

- Significant progress was achieved on the Beaulay-Denny project. We energised the new 275kV substation at Denny North and made good progress on 132kV and distribution enabling works, as well as on the construction of the new 400kV line itself. This project increases the transfer capability from the SHETL area to the SPT area by 1150MW.
- We are undertaking work on a number of Wider Works projects to increase transfer capabilities across the main boundaries on our network by close to 3,500MW. 2014/15 was another significant year on this programme, with a number of crucial milestones being delivered, incurring an investment of £138m.
- Western HVDC Link will deliver a further 2150MW of capacity to the boundary between Scotland and England by 2017. During 2014/15, construction continued on the converter station. Off-shore cable laying commenced and the difficulties that had been encountered in the cable manufacturing process were resolved.
- Hunterston-Kintyre delivers capacity to accommodate up to 350MW of renewable generation by 2015/16. During 2014/15 construction

commenced on the new Hunterston North substation and the associated new 400kV substation at Hunterston East which will provide the connection point for both Hunterston-Kintyre and subsequently Western HVDC Link to the existing grid.

- Series compensation and East-West Upgrade will deliver a further 1100MW of capacity at the Scotland/England boundary. During 2014/15, construction work progressed at all three Series Compensation sites – Eccles, Moffat and Gretna. Enabling overhead deviation work at Gretna was completed.
- We completed a shunt compensation project which delivered a 500MW increase in transfer capacity across the Scotland/England boundary, raising current capability to 3,300MW.

Growth In Transfer Capacity



Output area

Wider Works

Form of Incentive

Financial-penalty only, for late delivery

14/15 performance

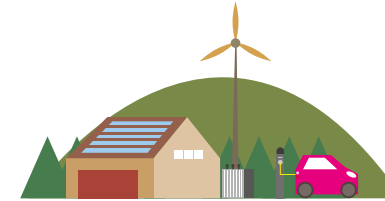
Delivery on track



# Connecting new generation

## Helping individual projects connect

Activity level remained very high in the year and we now anticipate exceeding our original full price review targets for shared use capacity (1073MVA) and generation connected (2503MW) in 2016/17 and 2018/19 respectively. We have secured planning consents to enable 1GW of renewable connections to our network in South West Scotland. Following recent government announcements, we are reviewing our forecasts for shared use reinforcement and generation connections through to the end of the RIIO-T1 period. In the year, we processed an increased number of connection offers (88) for customers in an average of 71 days – three days better than our licence obligation.



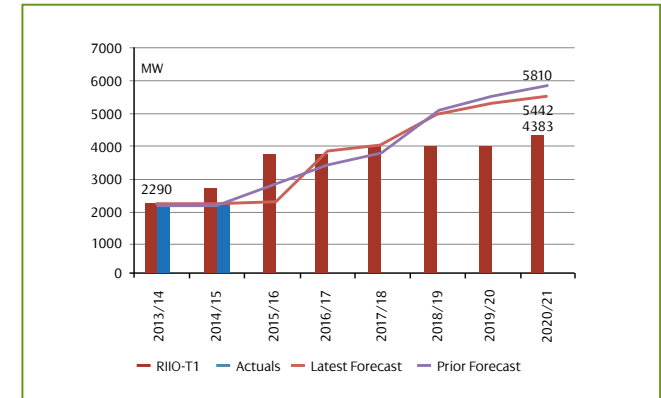
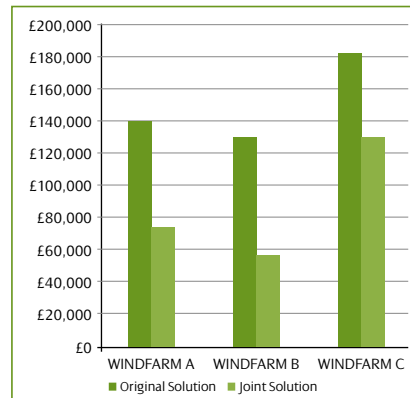
### Commentary

No new connections were completed in 2014/15. However, substantial activity was undertaken on projects with connection dates in future years. Receiving offers for connections prior to 2017 was a key theme for developers this year. To facilitate this where possible we implemented a range of solutions, including an innovative 'clustering' approach for connections around the Coalburn area.

Our RIIO-T1 baseline target is to have a total of 4393MW of renewable generation in our area by 2021. However, we expect this figure to be exceeded. Our most recent forecast, which pre-dated the latest government announcements on changes to renewable energy subsidy schemes, indicates nearly 5500MW connecting by 2021. We currently have c.6500MW of new onshore and offshore generation contracted for connection in future years.

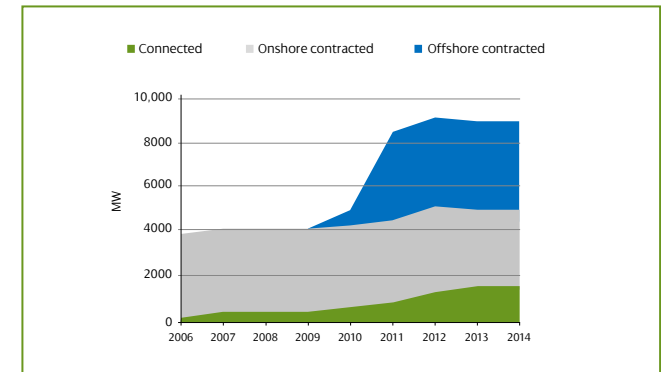
In the year, 88 new or modified offers were made to NGET for renewable generation connections in our area (TOCOs), significantly up on the 52 issued in 2013/14. These offers are required to be issued in 74 days according to licence timescales. On average we issued our offers in 71 days compared to 72 days in 2013/14. Only two offers were issued late, neither of which impacted the customers' final offers from National Grid

Market changes, consenting, land agreement and delivery challenges all contribute to significant uncertainty in this area but we are developing the necessary reinforcement and wider works projects to facilitate the connection of generation as early as possible. In South West Scotland, contracted capacity has increased considerably and consequently there may be a requirement to build more transmission infrastructure than we originally envisaged in our RIIO- T1 plan.



**"Infinis has been really impressed by the leadership, collaborative approach and flexibility demonstrated by the Scottish Power connections team on its Galawhistle project. Their initiative and industry leading approach in establishing a working group with other developers has resulted in significant programme gains, better utilisation of the assets and also lower costs for the developers, for Scottish Power, and ultimately, the consumer."**

Ryan Donovan, Head of Technical Services, Galawhistle Wind Energy



**Output area** Better offers, early connections.

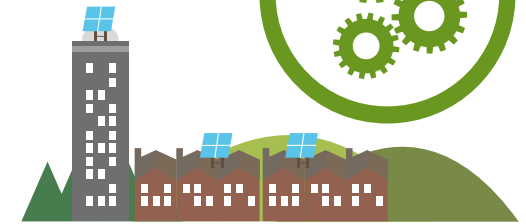
**Incentive performance** £34k Penalty





# Modernising our network

Building on the strong start made last year, we continue to work hard on renewing our existing network to provide electricity consumers with a reliable system. Asset Replacement investment is £42m ahead of plan through the successful acceleration of overhead line replacement whilst maintaining our switchgear and transformer programmes. We remain on track to deliver all of our target Network Outputs for 2021.



## Commentary

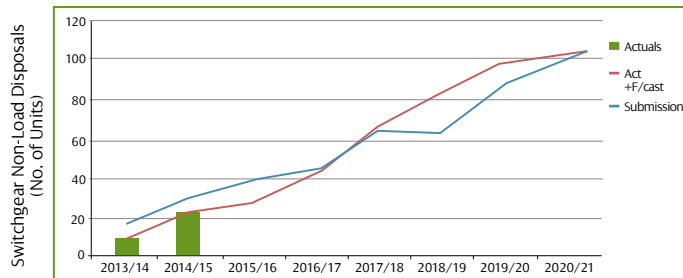
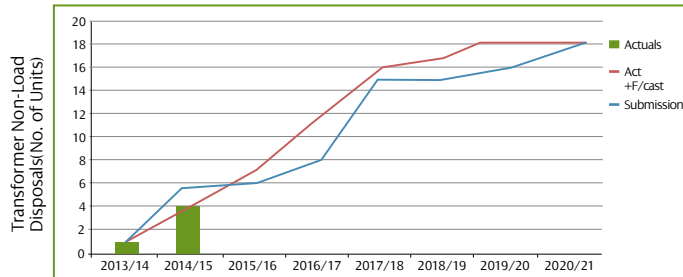
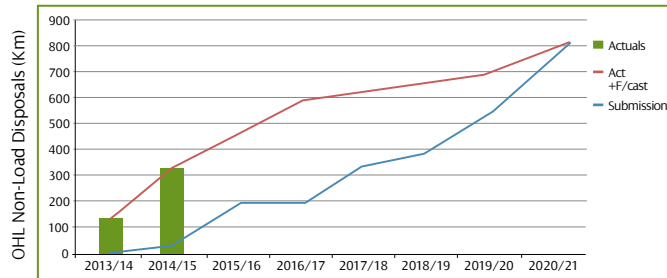
Our RIIO-T1 Business Plan described how we intended to target investment to manage the risk of asset deterioration on our network. Following the fast track decision, we refined this aspect of our plan further to make best use of developments in resource and outage availability. This resulted in an acceleration in the delivery of overhead line modernisation, whilst broadly maintaining the programme submitted for transformers and switchgear.

Our cumulative expenditure on asset replacement to date in RIIO-T1 is £42m above allowance, demonstrating the strong start we have made in this area. As a result, we have undertaken conductor replacement, a critical component of our modernisation programme, on 325km of our overhead line network. Our original

plan indicated that just 37km would be completed at this stage.

The delivery strategy for the RIIO-T1 investment programme continues to be underpinned by the disaggregated contracting approach implemented in partnership with our affiliated service provider, Iberdrola Engineering & Construction (IEC). This approach, which is now well established on substation projects, has been successfully extended this year to a number of overhead line projects, delivering benefits in timescale and cost efficiency.

We remain confident that we will meet our Network Output Measure target at the end of the RIIO-T1 period.



Output area	Network Output
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Form of Incentive	Financial – linked to meeting Network Output Measures in 2021
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14/15 performance	Significant overhead line progress
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# A reliable and resilient network

During 2014/15, we achieved an excellent level of network reliability, with faults resulting in only 2.8 MWh of Energy Not Supplied (ENS) to customers, representing just 0.00002% of our total energy supplied. Looking ahead to the changing mix of generation in Scotland, we undertook a joint study with NGET and SHEL to understand the impact of the changes and have agreed actions to address the key issues. For example, our plan to recover from a complete loss of the grid ( i.e. a Black Start) must be rewritten to account for the absence of large scale thermal generation in Central Scotland in the near future.

## Commentary

We systematically monitor and inspect our network to ensure that we maximise its reliability and availability. During the year we inspected all of our overhead lines and substations. We are making our network more resilient to a range of risks including flooding, severe weather and security threats through investment in flood defences and additional physical security measures. There are detailed emergency return-to-service plans established for every time we undertake work as a contingency against unforeseen events , for example faults elsewhere on our or other networks.

Transmission is one part of the power delivery chain that determines electricity supply reliability. Between 2013 and 2021 we are extensively modernising our network. We are also continuing to develop our comprehensive asset management processes, including enhancements to our asset condition monitoring and inspection techniques.

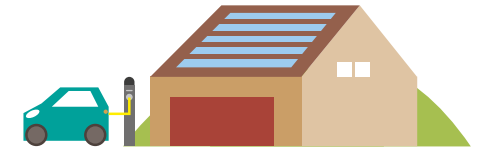
We inspect all of our assets on a rolling basis utilising a risk based approach to determine the frequency and extent of inspection visits. This ranges from monthly substation inspections to bi-annual helicopter inspections for our overhead lines, assets. For example, over a two year period every transmission overhead line will be inspected at least

once by a ground based inspection and once by helicopter inspection.

The rapid increase of renewable generation connected to our transmission network and the closure of large coal fired power stations is changing the nature of the operation of the system. We actively engage with NGET on their System Operability Framework which develops solutions to these issues. In the last year we have undertaken studies with NGET and SHE Transmission to determine what measures are required to ensure that the system voltage can be contained within operational limits at times of minimum demand. This has led to a project to install an additional 420 MVAR of shunt reactive compensation at strategic locations in our network. This project is due to complete by spring 2017.

A further consequence of the changing mix of generation is the need to re-write the plans we maintain to recover from a complete loss of grid, known as a Black Start. The plans are currently based on restoring auxiliary supplies to large thermal generators, allowing them to restart and recover supplies to the transmission network. The revised plans are in preparation and are scheduled to be completed by the end of 2015.

During 2014/15, 2 transformers were identified with slightly abnormal dissolved gas analysis trends. Using state of the art partial discharge location technology we located the problems to within 0.5 cubic metres within tanks of 48 cubic metres volume prior to switching out on site. This allowed targeted repairs for 2 minor issues during short outages that could, if left undetected, have developed in time to major faults, potentially resulting in expensive assets having to be replaced during prolonged outages with associated risks to customer supplies.



Output area	Reliability
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Form of Incentive	Financial – linked to Energy Not Served (ENS) due to transmission incidents
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14/15 performance	£2.7m award – 2.8MWh of ENS against benchmark level of 225MWh
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# A safe network

We aspire to achieve the highest standards in public and workforce safety. We put considerable effort into ensuring that the public are safeguarded from hazards associated with our assets and are pleased to report that there have been no injuries to members of the public resulting from our assets or operations in the year. However, we remain concerned with the level of interference with our network, with nine instances of metal theft in the year and we are working on a number of initiatives to combat this criminal and highly dangerous activity. We continue to work closely with our contractors to improve workplace safety and achieved an almost 35% year on year reduction in the frequency of accidents at our worksites.

## Commentary

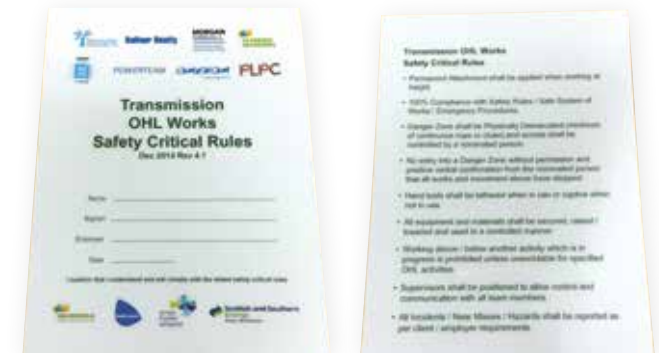
We comply with relevant health and safety legislation, including The Health and Safety at Work Act 1974, The Electricity, Safety, Quality and Continuity Regulations 2002 and the Electricity at Work Regulations 1989. Our safety management systems are independently assessed and certificated to the latest international standard, Occupational Health and Safety Advisory Services Standard 18001 ("OHSAS 18001"). We view compliance with legislation as the minimum requirement. Our true aspiration is to avoid being the cause of any harm to members of the public, our employees and contractors. In conjunction with our sister SP Energy Networks Licenced Network Operators (SP Distribution and SP Manweb), we take considerable pride in our reputation as an industry leader in public safety gained through our behaviours, investments in operational integrity and comprehensive public safety education programmes.

In 2014/15, there were no injuries to members of the public as a result of interactions with our network or from our operations. As part of SP Energy Networks, public safety information and education promotion continued through a mixture of internet, community and schools teaching programmes. In 2014, we again partnered successfully 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.

During the year, we experienced 9 instances of metal theft from our substations. We are working hard to combat this highly dangerous criminal activity, including supporting the introduction of the Scrap Metal Dealers Act 2015 in Scotland, introduction of a proactive surveillance programme with Police Scotland, publicising the dangers of metal theft across multiple media channels and offering rewards for information leading to the conviction of metal thieves.

During 2014/15 we continued with our collaborative approach to improving safety with our contractors, particularly in relation to working safely on overhead lines, which was identified as a priority area from our analysis of previous accidents and near misses. A key output from our work, which was undertaken in conjunction with SHETL was the creation of new 'Golden Rules' for overhead line workers, regardless of employer. As a result of the collaboration with SHETL, these rules apply at all overhead line worksites in Scotland.

During 2014/15, our contractors' staff suffered four safety-related lost time injuries at our worksites. This compares with one in the previous period. We utilise Total Recordable Injury Rate (TRIR) as a key measure of safety performance. TRIR is a widely used indicator and expresses injury levels as a factor of hours worked (injuries per 100,000 hours). For SPT, our contractor TRIR dropped from 1.10 to 0.73, indicating a 34% improvement in TRIR performance.



Output area	Safety
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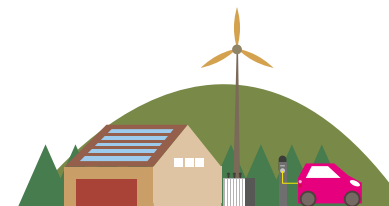
Form of Incentive	Reputational
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14/15 performance	Strong reputation maintained
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# Visual amenity

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. This year we published a wide ranging review of our approach to the siting of transmission infrastructure that articulates how we will achieve that balance. We are also considering the visual amenity impacts of existing infrastructure in National Parks and National Scenic Areas. We are collaborating with interested parties to consider ways to improve visual amenity. Our aim is to bring forward schemes for additional funding under the Visual Amenity Additional Funding.



## 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 routing. In 2014 we commissioned a panel of landscape architects to assist us in developing and updating our "Approach to the Siting of Transmission Infrastructure". This guidance was published in early 2015 and builds upon our recent experience. The document helps to explain to stakeholders and interested parties, the process which we follow and the techniques which will be employed as we develop proposals for new infrastructure. The approach ensures that stakeholder and community engagement is central to the process of developing infrastructure and that visual and landscape mitigation will be considered during all stages of the process. This can involve 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 wider wirescape issues.

In delivering the Beaulay-Denny 400kV transmission line we worked in partnership with local communities and groups to plan and develop a green network of enhanced mitigation. A large number of environmental schemes supported by communities, interest groups or conservation bodies are now being implemented alongside the overhead line project.

Building on our Green networks experience we have now progressed a project aimed at reducing the impact of Transmission Infrastructure in National Parks and National Scenic Areas, the VIEW (Visual Impact of Existing Wirescape) project. In response to OFGEM's proposal to establish an allowance for this purpose we have, in 2014/15 commissioned a team of landscape architects and established a Stakeholder Partnership Group. We have agreed with them a high level approach, detailed methodology and timetable for the further progression of VIEW. Given the challenging nature of the areas we are looking at, and given the lessons learned in Beaulay-Denny this approach involves consideration of landscape or "green network" orientated schemes, as well as more traditional engineering solutions to the impact of our infrastructure in these most valued places.



Output area

Environmental

Form of Incentive

Demonstrate efficient use of available funding

14/15 performance

VIEW project initiated





# Business Carbon Footprint

We use our annual Business Carbon Footprint (BCF) to monitor the effect of our activities on the environment. The most significant element of our BCF is the estimated level of energy lost through electricity transmission (for example the heating loss from cables). This reflects the size of our network and the demand placed on it by customers. To reduce this over the long term we adopt appropriate equipment specifications for new and replacement equipment. We made a 32% reduction in the year on the contribution to BCF from leakage of SF6 gas from our equipment through the de-commissioning of Inverkip substation.



## Commentary

**Targets and Goals** – As part of ScottishPower and the wider Iberdrola Group, SP Transmission is committed to reducing our impact on the environment. We have a long standing target (2010) to reduce our carbon emissions by 20% from our 2010 levels by 2020. In line with this, SP Energy Networks has targeted a 15% reduction in non-operational buildings energy use and more generally, over the course of RIIO-T1 we aim to reduce our business carbon footprint by 15%.

**Losses** – We calculate the carbon associated with energy transmission losses using our Published Losses Report and an agreed carbon conversion factor. We transport electricity for others to consume and the losses are to a very large degree a result of the level of energy flow and distance transported. To mitigate

this, we look to purchase low loss equipment, apply new technology and optimise our network configuration. However, the growth in our network – due to the many new renewable generation connections which are often located in the more remote parts of our network – coupled with the need for increased transfer capacity at our system boundaries means our total transmission losses will inevitably increase over the price control period. The carbon associated with losses have reported at 240,210tCO2e using the generation carbon factor as agreed with Ofgem.

**SF6** – We outperform the historic SF6 leakage rate of c3% and over RIIO-T1 we aim to reduce this rate even further. We will install new SF6 equipment as part of our capital expenditure programmes, increasing our inventory of SF6 and

hence potential for leakage. However, we aim to reduce the rate of losses by installing lower loss equipment where it is appropriate. Our SF6 losses for the period equate to 2322tCO2e, corrected for the allowable losses in the incentive scheme.

**Sustainability** – In 2014 we set out our sustainability approach in a sustainability strategy based on 8 Key Drivers. In line with this strategy, we have established a Sustainability team to support the delivery teams in reaching our goal of building and operating a sustainable network. Our Carbon footprint is a key measure and driver of our activities.

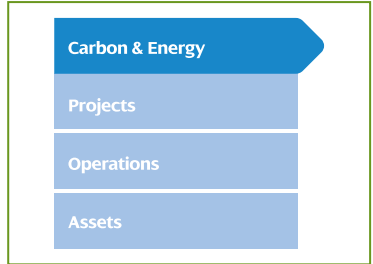
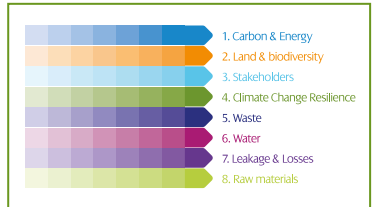
**Buildings Energy Use** – Since 2011 we have implemented site specific technology improvements and rationalised our site portfolio to reduce the underlying energy use in our

buildings. As with any property, our energy use is impacted by the local weather and other activities on site so it can fluctuate. In the reporting period, this energy use equates to 362tCO2e, an increase from last year but we are confident our actions are reducing the like for like emissions associated with our activities.

**Transport** – A high proportion of network operation and maintenance related transport emissions relate to our contractors. Our transport related emissions of 544tCO2e includes 146tCO2e for our contractors' operational transport.

**Contractors** – Our BCF reporting include Scope 3 contractor emissions and whilst we continue to progress the mapping of contractor emissions we recognise this remains an opportunity for improvement in 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
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Form of Incentive	Financial – linked to SF <sub>6</sub> emissions and quality of sustainability strategy
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14/15 performance	Reward of £89,000 for SF <sub>6</sub>
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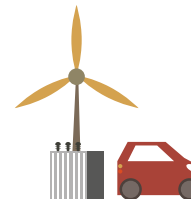


Working together



# Interaction with System Operator

The scale of network investment and the volume of new connections represents significant challenges to network operation. This year, we have collaborated closely with NGET and SHE to develop the Network Options Assessment (NOA) process for long term system development. As part of a larger package of transmission initiatives being proposed in Integrated Transmission Planning and Regulation (ITPR), the NOA process is designed to underpin the assessment of options for major reinforcements.



## Commentary

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 in 2014/15 was on the East – West upgrade project, part of a programme of works to increase the capability of the boundary between Scotland and England. We engaged proactively with the SO to adjust our construction programme, often at short notice, to ensure the continued safe and economic operation of the network.

We worked jointly with NGET, in its roles as SO and TO, to develop enhancements to the shunt compensation equipment programmes undertaken by both companies. A joint exercise identified the benefits of rapidly switching the compensation equipment into service in response to disturbances on the system. Building on previous innovations in this area, we led the development of a Wide Area Protection scheme to detect disturbances across the Scotland – England boundary and to control the shunt compensation equipment located at five sites across the SP Transmission and NGET areas. The collaborative approach taken allowed our design to meet the needs of the SO and to be adopted by NGET's TO operations for works in their area. This scheme, commissioned in December

2014, provides a very cost effective operational tool to increase the boundary capability by around 100MW when required.

We have actively participated with SHETL and NGET in the development of the Network Options Assessment (NOA) process. As part of a larger package of transmission initiatives being proposed in Integrated Transmission Planning and Regulation (ITPR), the NOA process is designed to underpin the assessment of options for major reinforcements.

Transmission customers have a connection agreement with the SO. However, SPT is continuously involved 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 Security and Quality of Supply Standard (SQSS). This also includes managing responses to Grid Code or SQSS enquiries. As the volume of connections of predominantly renewable generators has increased, the complexity of connection arrangements and associated system reinforcements has also increased. We have actively engaged with the SO and transmission customers to improve the overall awareness of operation of the system prior to the completion of major wider works programmes.



Output area

Network availability

Form of Incentive

No financial incentive. Prepare and maintain a Network Availability Policy

14/15 performance

Increased operational capability of the Scotland – England boundary

Our Performance Report

# Value for Money





# 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 (2014/15 real £m)	Allowance	Actual	Variance
Capex	£m	£m	£m
Baseline – Wider Works (BWW)	256.8	134.3	-122.6
Baseline – Other LR Capex	100.5	33.8	-66.7
<b>Sub-Total Load Related Capex</b>	<b>357.3</b>	<b>168.1</b>	<b>-189.3</b>
Asset Replacement Capex	50.8	65.4	14.6
Other Capex	31.2	20.4	-10.8
Non Operational capex	1.1	2.2	1.2
<b>Total Capex</b>	<b>440.4</b>	<b>256.2</b>	<b>-184.2</b>

Opex	Allowance	Actual	Variance
Faults	1.0	1.6	0.6
Inspections & Maintenance and other direct costs	7.1	7.1	0.0
Indirect Costs	12.7	18.1	5.4
Adjustment for IAS 19 pension accrual	0.0	-0.3	-0.3
<b>Total Controllable Opex</b>	<b>20.8</b>	<b>26.5</b>	<b>5.7</b>

<b>TOTEX</b>	<b>461.2</b>	<b>282.6</b>	<b>-178.6</b>
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**Load-Related Programme 2014/15 position: £189.3m below allowance**

Last year we re-phased our plan due to uncertainty on timing of renewable generation and delays on some Baseline Wider Works projects. The majority of costs that we had forecast in our original plan that would have been incurred in the first two years have been re-phased over the RIIO-T1 period, most of which are expected to be recovered in 2015/16 to 2017/18, as large projects complete.

Our efforts to build momentum in our load-related portfolio continue, achieving an increase of 35% over last year despite the ongoing impact of system availability and consenting challenges. The main issues on the Western HVDC link (BWW) have been resolved and significant efforts are being made to meet a revised completion date of Summer 2017.

**Asset Replacement & Other Capex – £3.8m above allowance due to accelerated delivery.**

Our RIIO-T1 Business Plan described how we intended to target investment to manage the risk of asset deterioration on our network. Following the fast track decision, we refined this aspect of our plan further to make best use of developments in resource and outage availability. This resulted in an acceleration in the delivery of overhead line modernisation, whilst broadly maintaining the programme submitted for transformers and switchgear. This is evident in

the RIIO-T1 cumulative Asset Replacement position to date, which is c£42m ahead of plan. This is matched by outputs, which are ahead of submission with 325km of overhead line conductor replaced to date against the RIIO-T1 plan of 37km at the end of year two.

The investment on Other Capex, whilst below plan, has increased year-on-year. A key telecoms contract was awarded in the year, which is expected to deliver further efficiency in future works including BT21CN.

**Opex**

Our indirect costs during 2014/15 exceeded allowances by £5.4m. This is primarily as a result of a revised methodology for allocating indirect costs which became effective on 1 January 2013. This better aligns our accounting estimates with those applied by the Iberdrola Group.

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.

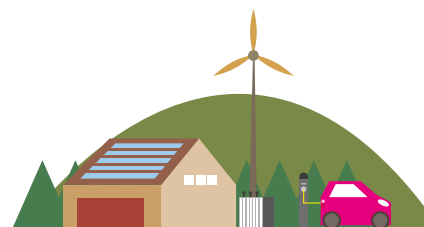
We repaired a large volume of minor cable defects (classified under faults), to maintain the integrity of underground cables.

This change came into effect after our RIIO-T1 business plan





# Our Costs Forecast for RIIO-T1



Totex comparison (£m 2014/15 real £m) Capex	Allowance £m	Forecast £m	Variance £m
Baseline Wider Works (BWW)	649.3	551.1	-98.2
Baseline – Other LR Capex	355.4	425.8	70.4
Uncertainty Mechanism – Generation Connections Sole-Use Infrastructure	61.0	73.8	12.8
Uncertainty Mechanism – Generation Connections Shared-Use Infrastructure	381.7	332.0	-49.7
Uncertainty Mechanism – Strategic Wider Works (SWW)	226.6	226.6	0.0
<b>Sub-Total Load Related Capex</b>	<b>1,674.0</b>	<b>1,609.2</b>	<b>-64.7</b>
Asset Replacement Capex	540.0	471.4	-68.7
Other Capex	293.8	289.0	-4.9
Non Operational capex	8.6	10.1	1.5
<b>Total Capex</b>	<b>2,516.4</b>	<b>2,379.7</b>	<b>-136.8</b>

Opex	Allowance	Forecast	Variance
Faults	8.2	8.0	-0.2
Inspections & Maintenance and other direct costs	70.4	71.4	1.0
Indirect Costs	104.9	144.0	39.1
Adjustment for IAS 19 pension accrual	–	-2.5	-2.5
<b>Total Controllable Opex</b>	<b>183.4</b>	<b>220.9</b>	<b>37.5</b>

<b>Totex</b>	<b>2,699.9</b>	<b>2,600.6</b>	<b>-99.3</b>
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## Highlights of future performance

We are currently forecasting RIIO-T1 total expenditure (totex) of £2,600m. This is approximately 3.8% below allowance due to efficiencies in several major projects and programmes of work.

This forecast is our best estimate of the scale and timing of renewable generation connections, local network reinforcement and the wider works projects that could be needed to provide added network capacity to support that generation.

We expect that our forecasts will change over time as new information becomes available. Our current forecast has not taken account of recent government renewable energy announcements. We will continue to monitor the situation and reflect changes in future forecasts. It is recognised that such uncertainty exists, and our regulatory contract includes mechanisms that enable cost allowances and revenues to flex the movement above or below agreed baselines.

We have shown our forecasts and indicative allowances for these uncertainty mechanisms in the table to the left, including non-load related works under Other Capex. These mechanisms if they are triggered would add approximately

£737m to the current baseline allowance.

They include £61m for an additional 1,049MW of sole-use generation connections we currently are forecasting will connect above our 2,503MW baseline and £382m for the additional 3110MVA of shared-use infrastructure capacity we expect to create above a 1,073MVA baseline. A further £227m is indicated for permitted costs associated with Strategic Wider Works projects that we expect will be needed (these cover 2 projects - the Dumfries & Galloway upgrade and a revised East coast 400kV onshore upgrade). The balance relates to non-load related works whose timing could be affected by such works. In these cases we have assumed that allowances will match our forecast costs, pending further discussions with the regulator, Ofgem.

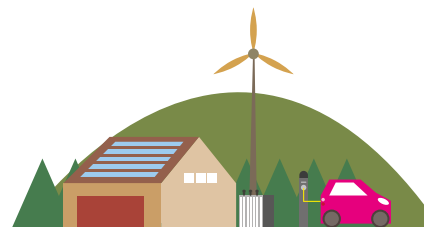
In our totex forecast we have assumed that as a result of the revised methodology for allocating indirect costs, described in the previous section on “(Performance this year)”, approximately £60m of indirect costs will be allocated to opex instead of capex.



# Our Costs Change in Forecast for RIIO-T1

Totex comparison (£m 2014/15 real £m) Capex	RIIO-T1 Forecast (2014/15 view) £m	RIIO-T1 Forecast (2013/14 view) £m	Plan-on-Plan £m
Baseline – Wider Works (BWW)	551.06	556.49	5.43
Baseline – Other LR Capex	425.84	342.12	-83.72
Uncertainty Mechanism – Generation Connections Sole-Use Infrastructure	73.77	72.33	-1.44
Uncertainty Mechanism – Generation Connections Shared-Use Infrastructure	332.00	217.57	-114.43
Uncertainty Mechanism – Strategic Wider Works (SWW)	226.56	488.08	261.52
<b>Sub-Total Load Related Capex</b>	<b>1,609.23</b>	<b>1,676.58</b>	<b>67.35</b>
Asset Replacement Capex	471.37	541.37	70.00
Other Capex	288.97	233.15	-55.82
Non Operational capex	10.09	8.92	-1.17
<b>Total Capex</b>	<b>2,379.66</b>	<b>2,460.02</b>	<b>80.36</b>

Opex	RIIO-T1 Forecast (2014/15 view)	RIIO-T1 Forecast (2013/14 view)	Plan-on-Plan
Faults	7.96	7.68	-0.28
Inspections & Maintenance and other Direct Costs	71.37	65.25	-6.12
Indirect Costs	144.04	143.62	-0.43
Adjustment for IAS 19 pension accrual	-2.47	-1.93	0.54
<b>Total Controllable Opex</b>	<b>220.90</b>	<b>214.61</b>	<b>-6.29</b>
<b>Totex</b>	<b>2,600.56</b>	<b>2,674.63</b>	<b>74.07</b>



## Update on Forecast from 2013-14

In our report published last year we stated a Totex forecast of c£2,250m (2009-10 prices) for the RIIO T1 period, which is approximately equivalent to £2,675m in 2014-15 prices. This is an administrative amendment following stakeholder feedback.

Our latest forecast of £2,601m is £74m lower than the view presented last year. Whilst it represents an improvement in overall performance it has been achieved through delivery efficiency of several key projects as they mature. There continues to be cost delivery challenges in several areas including generation connections and switchgear replacement. The main changes are highlighted in the sections below.

### Load-Related Programme RIIO T1 Forecast: £67m below 2013/14 Forecast

In our Strategic Wider Works project portfolio the East Coast 400kV onshore upgrade project has been scaled back, following a cost benefit analysis, for delivery in RIIO-T2. The phasing of Dumfries and Galloway strategic reinforcement spreads the investment into RIIO-T2.

The investment for generation connections has been updated in accordance with the current forecast of new generation expected to connect (c3.5GW) and the associated new network capacity (c4.2GMVA) that will be required.

Due to the project maturity of several projects

under Baseline Wider Works, further efficiency has been released. This is a direct result of an innovative application of Series Compensation equipment. It is expected to yield significant costs savings, which will benefit consumers.

### Asset Replacement & Other Capex RIIO T1 Forecast: £14m below 2013/14 Forecast

The primary difference has been a change to the allocation of uncertain costs for non-load related works. In 2014/15, they are included under Other Capex following review with the regulator (Ofgem). In the prior year these costs were included under Asset Replacement.

We have also forecast further efficiency associated with delivery of our telecoms investment in RIIO-T1. This follows the award of a major contract for provision of a range of services in 2014/15.

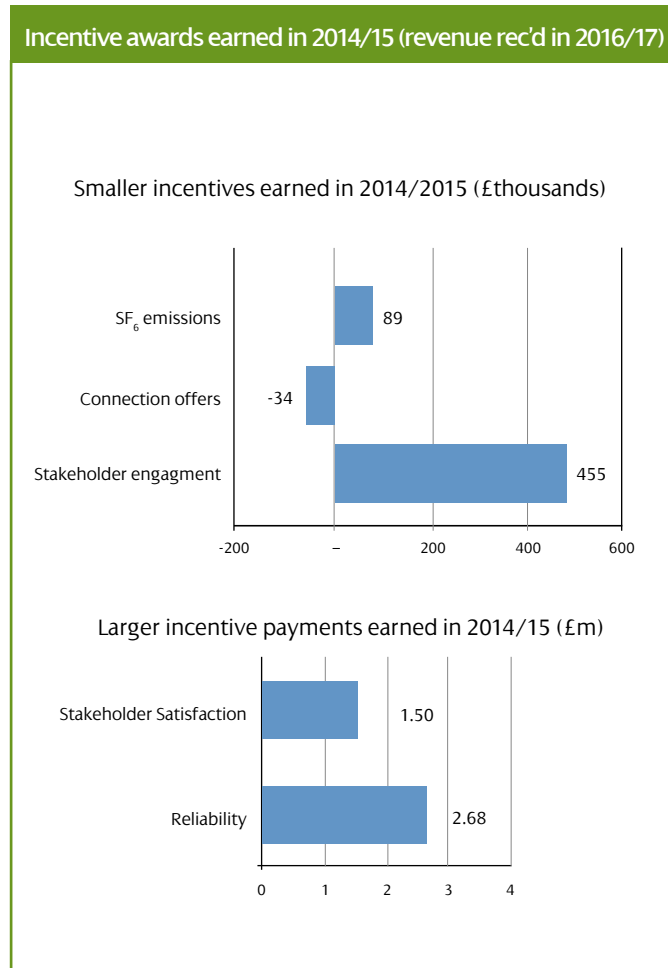
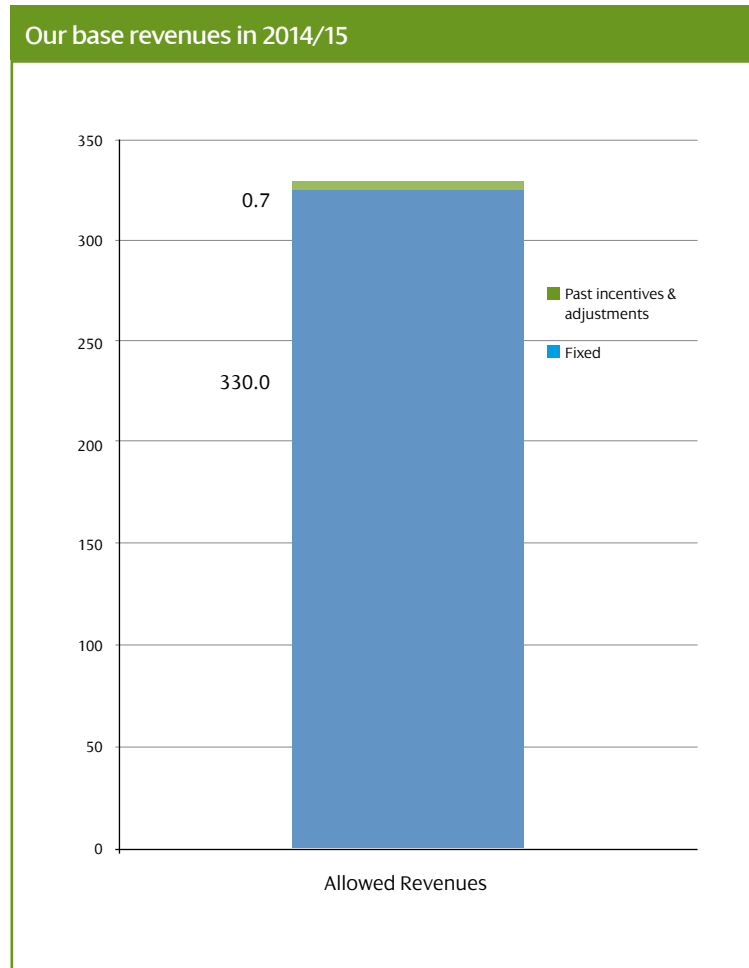
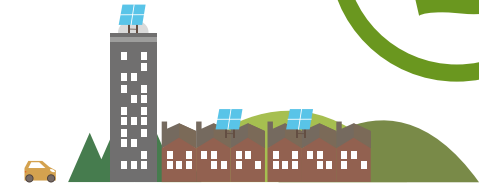
### Opex

Our Faults and Indirect costs remain broadly in line with the 2013/14 Forecast. Inspections & Maintenance and Other direct costs are forecast to increase by c£6m. This follows a review of legacy and new requirements including complex technology installations like the HVDC convertor station and new voltage control equipment.



# Our Revenues

In 2014/15 we recovered £330.7m. Our revenues are set through regulation by Ofgem. They comprise an element which is fixed, an element which is linked to specified variables (such as the amount of connected generation), and an element to capture incentives and 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. Based on our forecast performance the Return on Regulatory Equity over the full RIIO-T1 period is estimated at 8.75%



### 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
- The cost of running the Transmission network in Great Britain is spread out over consumers and generators across the country. For non-half hourly metered customers (representing domestic and small business customers), the average cost of running SP Transmission amounts to approximately £4 per customer per year.<sup>1</sup>

<sup>1</sup> Average over the 8-year RIIO-ET1 price control, in 2014/15 prices. Calculations prepared by National Grid.



# Our RoRE (average real equity return over 8 year price control) (Return on Regulatory Equity)

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

## RAV (Regulatory Asset Value)

For every pound that we spend, we collect:

- 10% of the costs in the same year

90% of the costs over the life of the asset, which gets added to the 'Regulated Asset Value' (RAV) balance. Ofgem assume that we fund this RAV by:

- 55% borrowing – on which we receive interest payments of 2.72% (for 2014/15)
- 45% equity – on which we receive a return of 7.0%, as set by Ofgem for the 8-year Price Control period.

The weighted average cost of funding our RAV is therefore 4.65% for 2014/15.

At 31st March 2015 our RAV is £1,681m (14/15 prices), an increase of 16% from £1,448m (14/15 prices) in the prior year, as we continue to invest in the network.

Consistent with the RIIO price control framework Ofgem attached a financial reward/penalty to a number of the incentives. This has the effect of changing our Return on Regulated Equity (RoRE) as follows:

8 year  
average  
2014/15

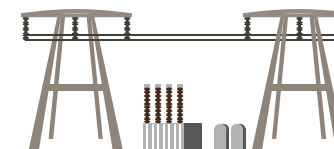
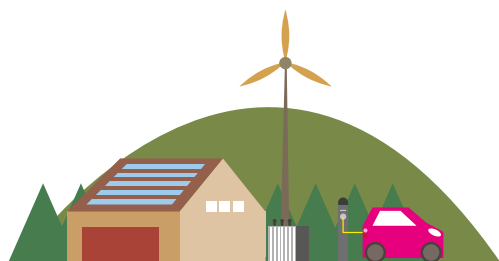
<b>Base Return</b>	Set by Ofgem for the eight-year period.	<b>7.00%</b>
<b>IQI Additional Income</b>	Agreed by Ofgem as part of the price control, and is a reward for the quality of our business plan and recognition of our fast-tracking.	<b>0.52%</b>
<b>Totex Efficiency Savings</b>	Any savings we make on our investment plan are shared 50:50 with the consumer, and we are currently forecasting some modest savings over the eight-year period. This results in a benefit to both consumers and our shareholders, and is in addition to meeting all of our specified outputs.	<b>0.78%</b>
<b>Output Incentives</b>	Reliability Incentive	<b>0.21%</b>
	Stakeholder Satisfaction	<b>0.06%</b>
	Environmental Discretionary Reward, SF6 Emissions, and Performance Under Permit incentives	<b>0.00%</b>
<b>TIRG Incentive</b>	Outperformance of cost allowances provided for projects completed within the TIRG Incentive mechanism	<b>0.18%</b>
<b>RoRE</b>	Return on Regulatory Equity	<b>8.75%</b>

RoRE is calculated based on values in 09/10 prices and therefore represents an average real equity return over the 8-year price control. Numbers may not sum due to rounding.

We have followed the methodology used by Ofgem in their Electricity Transmission Annual Report 2014/15 to ensure consistency. This is an evolving area of reporting, but we are voluntarily presenting these numbers to aid stakeholders.

The main movement in RoRE from prior year is a slight increase in the savings we expect to achieve on our total costs across the 8-year period.

For detailed information about of our financial performance, please see the SP Transmission Regulatory Accounts which are published annually, available from [http://www.scottishpower.com/pages/document\\_library.asp](http://www.scottishpower.com/pages/document_library.asp)



Our Performance Report  
**Innovation**







# Innovation



We are making use of all three mechanisms which were introduced in RIIO T1 to encourage innovation. We are progressing a number of projects focused on generating new learning about the condition and operation of our network, as well as continued implementation of our Network Innovation Competition (NIC) funded VISOR project which will establish a Wide Area Monitoring System for the GB transmission system, with the aim of maximising its capability. We have submitted a second project for Network Innovation Competition funding this year and are the only Transmission Operator to apply for funding under the Innovation Roll Out mechanism.

**Commentary** *Visibility* *Controllability* *Interoperability* *Intelligence* *Commercial mechanisms*

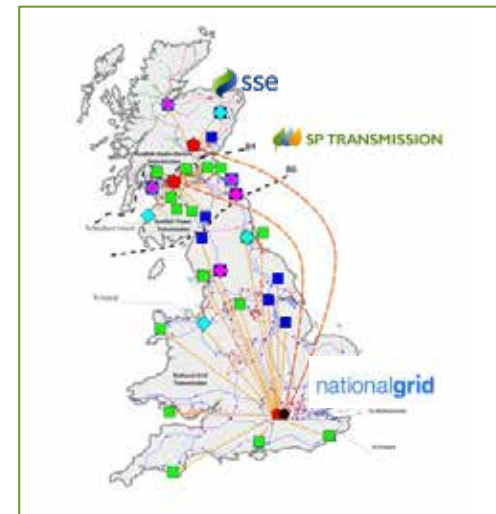
During 2014/15 we have been working on fourteen projects funded under NIA; Our Smart Transmission Zone NIA project extends the VISOR monitoring concept and High Voltage Direct Current (HVDC) modulation is a promising approach, with early indications of 400-1000MW additional network capacity possible compared with today's practices. This will enable more renewable generation.

Our flagship NIC project VISOR achieved the full successful delivery criteria for year 2014-2015 with the GB Wide Area Monitoring System (WAMS) infrastructure installation well underway. The VISOR Data Hub is installed, receiving real-time from Data Centres in the three UK transmission companies for real-time analysis. A range of applications providing greater visibility of the GB network are also planned to be delivered in 2016 allowing us to operate our network to its full capacity and thus reducing network costs. In the year, we also undertook development work on our 2015 NIC proposal – FITNESS (Future Intelligent Transmission Network Substation) which aims to utilise digital technologies to reduce the cost and timescales associated with the construction and modification of substations.

In 2014, we have been developing the deployment of High Temperature Low Sag (HTLS) conductor to address a key reinforcement requirement in South West Scotland. The use of this conductor, its first large scale deployment in the UK, enables a significant increase in the capacity of an existing overhead line without the need for modification of the towers along the route. The traditional alternative would have been to replace the line with a completely new line of higher capacity, requiring substantially greater expense and time. We have submitted this innovation initiative for consideration under the Innovation Rollout Mechanism.

Our baseline investment plan in RIIO-T1 also includes substantial elements of innovation, notably within the Western Link HVDC and series compensation projects, along with the deployment of the IEC61850 substation digital protection and control protocol.

VISOR WAMS Infrastructure GB TO and SO collaboration



Progressing NIA learning to NIC

Progressing NIA learning to NIC	
NIA Input	NIC Output
<b>NIA SPT 1303</b> IEC 61850 Integration of Substation Protection and Control	Future Intelligent Transmission Network SubStation (FITNESS) Proposal
<b>NIA SPT 1502</b> Distributed Photonic Grid Instrumentation	
<b>NIA SPT 1503</b> Protection Settings to Cater for the Evolving Transmission Network	

<b>Output area</b>	Innovation
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<b>Form of Incentive</b>	Efficient use of funding under NIA and NIC
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<b>14/15 performance</b>	Successful application for £7.4m of funding for VISOR project. 7 new projects progressing under NIA
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Our Performance Report

# Managing Uncertainty





# Meeting uncertain needs for transmission capacity

The key uncertainty facing our network – and how we develop it economically and efficiently – is the changing generation landscape, both the scale, timing and location of new generation and the timing of generation closures. To aid our decision making in this regard our starting point is the Future Energy Scenarios produced by the system operator, combined with relevant local factors. This has led us to re-assess our plans to bring forward two major reinforcement projects for Ofgem approval. The East Coast HV DC project is now unlikely to be proposed in RII0 T1 and the East Coast Onshore reinforcement will be re-assessed toward the end of the period. A third project, Dumfries and Galloway Strategic Reinforcement will still be submitted within the period. Recent government policy announcements may affect the take up of generation offers in the medium to longer term but we are yet to see any material change in the overall contracted position.

## 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 significant 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 2015 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 as reflected by recent changes in incentives for onshore wind generation. This is clearly illustrated in the range of 2015 UK Future Energy Scenarios, developed by National Grid, with input from

both SP Transmission and SHE Transmission. Each of the four 2015 scenarios developed show continued growth, but with significant differences in timing and scale:

- Consumer Power
- 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 8.5GW of onshore and offshore generation with connection offers, and our best view of total connected renewables by 2021 is around 5.4GW. 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 Future Energy 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 TOs in the development of the needs case for Strategic Wider Works projects. In 2014/15 this was focused on the East Coast and Dumfries & Galloway Strategic Reinforcement projects. Public consultation exercises have taken place for the Dumfries and Galloway project with routing corridors and potential substation areas presented to local communities. 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.

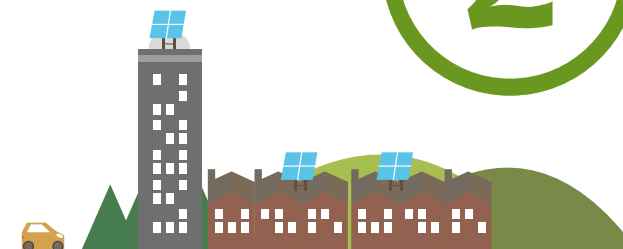
**Minimising the investment costs:** Our pro-active development and deployment of innovation is key to delivering increased capacity at efficient costs. The investment in series compensation this year is one example. Our new delivery model, and our inspection and maintenance regime, are also making a 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 subject to some uncertainty. 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, however the generation connection activity in our area has led to the issue of offers for connection which will trigger the use of uncertainty mechanisms in future years.

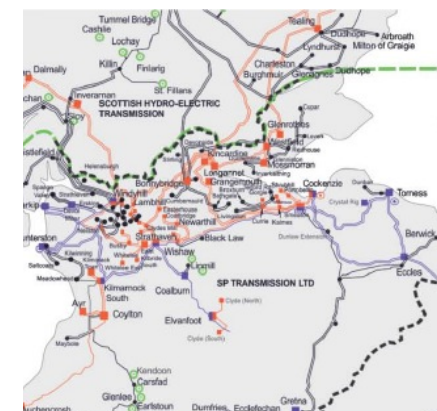


## RIIO T1 revenue drivers – linked to cumulative volume of connected

Main Uncertainties	Mechanism	Impact in 2014/15
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 £43,000 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

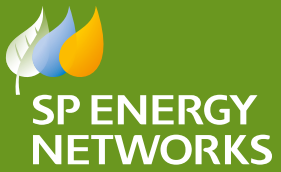
## Strategic Wider Works – linked to large, individual schemes

Strategic Wider Works Scheme	Additional Transfer Capability	Key Drivers	Current Status	Earliest in Service Date
Dumfries & Galloway	Up to an additional 1800MW within system reinforcement	To facilitate renewables in SW Scotland and provide a secure link to Moyle Interconnector	Scoping	2023
East Coast	Boundary B4 (SPT to SHE Transmission) – 600MW	Increasing the capability of the eastern transmission systems of SP Transmission and SHE Transmission to facilitate renewables.	Planning	2021



Work on the Eastern HVDC Link from Torness to NE England has ceased as the Future Energy Scenarios indicate that the renewable generation capacity is not increasing at the rates studied in the 2009 ENSG report and that the earliest requirement for the Link would be 2023. Work to assess the need and options for the reinforcement are ongoing, these include onshore reinforcement options which may be feasible.





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