



nationalgrid



Electricity Transmission

Our performance for 2013-14

How to use this document

This booklet will take you through our main activities over 2013/14 against each of the five output areas: Safety, Reliability, Environment, Customer Connections and Customer Satisfaction. In the centre pages we have provided a scorecard against each of our regulatory outputs compared with the agreed incentive targets or baseline deliverables. We also provide links to data tables and further information on the targets.

This document is structured around our five output categories that were formed as part of RIIO-T1 and we provide an overview of our performance in each output category over 2013/14. Alongside this are examples of initiatives and projects we have undertaken to facilitate the delivery of our outputs. Following this there is a final section about what impact this has on our revenue and consumer bills.

This booklet is aimed at anyone with an interest in our Electricity Transmission business; this could be our customers, stakeholders or even end consumers. In this document we extensively refer to our customers. In Transmission our customers are different to our Distribution customers. For example, a typical Electricity Transmission customer could be a power station, an electricity supplier, Distribution Network Operator, or other customers who connect directly to the transmission system.

During the formation of our business plans for the current regulatory regime, we carried out a significant programme of stakeholder engagement. In this document you will see that we have referred to what our stakeholders told us at that time in order to set the context of our activities.



Installing underground cable in South Wales

How to contact us

If you have a specific question, feedback or an opinion on our RIIO performance booklet, feel free to get in touch with us.

EMAIL: talkingnetworkstransmission@nationalgrid.com

WRITE: RIIO Performance Manager, National Grid House, Warwick Technology Park, Gallows Hill, Warwick CV34 6DA

TALKING NETWORKS WEBSITE:
www.talkingnetworkstx.com



Hello...

Welcome to the first Annual Summary of National Grid Electricity Transmission's performance under the new RIIO-T1 price control regime (RIIO stands for Revenue = Incentives + Innovation + Outputs, and this framework, established by Ofgem, sets our revenues for the period 2013/14 to 2020/21). The past financial year, 2013/14, has been one of exciting and significant change to our Electricity Transmission business, alongside a continued focus on safety, reliability and doing the right thing for our customers and stakeholders. In a challenging year in terms of adverse weather, we are pleased to report good progress against our outputs in year one of RIIO and this booklet shows some examples of how we have performed in the different output areas while maintaining a reliable network with no disruption. I hope that you find this document of use and I am looking forward to working together with you to further develop our plans for the rest of the RIIO-T1 period.

J. Pettigrew

John Pettigrew
Executive Director

Who we are and what we do

Connecting you to your energy today, trusted
to help you meet your energy needs tomorrow

National Grid Electricity Transmission (NGET) owns the Electricity Transmission network in England and Wales. The high-voltage network (predominately assets that operate at 400kV or 275kV) connects electricity generators to distribution networks and large-scale consumers. NGET also operates Great Britain's entire Electricity Transmission system, which includes the Scottish and offshore networks, ensuring that supply and demand is balanced on a minute-by-minute basis.

SUSTAINABLE, RELIABLE AND AFFORDABLE

The energy landscape within which we operate is changing. We continue to invest efficiently to deliver world-class reliability for UK stakeholders and enable our customers to connect to our network. We continue to adapt to new sources of energy, and promote the development and implementation of sustainable, innovative and affordable energy solutions that will ensure security of supply. Our business plan is based on delivering an affordable Electricity Transmission network that meets the energy security and environmental requirements of our stakeholders. National Grid's role is to connect people to the energy they use – whether it's heat and light for their homes, or to keep factories and offices running. This puts us at the heart of one of Britain's biggest challenges; how we continue to have secure and affordable energy while meeting ambitious low-carbon energy targets and connecting new sources of energy to the people that use it.

CAPITAL INVESTMENT

Over the next decade, we will be stepping up our work to modernise the country's energy infrastructure. This involves building new assets or refurbishing existing ones and what we do will affect stakeholders in many ways. We believe the best way forward is to involve as many of the people that might be impacted by these developments as possible in the decision making processes that determine them.

800

Almost 800 Super
Grid Transformers

640

Over 640km of
underground cable

300

Almost 300
Electricity
Substations

14,000

Over 14,000km
of overhead lines



To find out
more visit www.talkingnetworkstx.com/consultation-and-engagement.aspx

THE IMPORTANCE OF STAKEHOLDER ENGAGEMENT

"National Grid has recognised the importance of engaging with all stakeholders in a consistent and inclusive manner, providing clarity and transparency in their decision making. The business understands the need to listen to what their stakeholders are telling them, engage with them on the issues that matter, and discuss their concerns and ideas and then act on the feedback they are given."

Extract from the Transmission Stakeholder Advisory Panel Report 2013/14

We will... protect staff, contractors and the general public

Safety, including employee, process and public safety, remains the number-one priority for our business and our ambition is to attain world-class levels of performance. During 2013/14, we complied with all relevant safety legislation

We have focused our efforts on the key risk areas, which for Electricity Transmission are around our high-voltage equipment, working at height, mobile plant and driving. With programmes in place to reduce the risk exposure and number of incidents, these areas will continue to be a focus for us into 2014/15. We achieved an employee Injury Frequency Rate (IFR) of 0.07 and a contractor IFR of 0.21.



Watch a video of the tower replacement at <http://bcove.me/aivsmi42>

CASE STUDY: THE LEANING TOWER OF PENRHYNDEUDRAETH

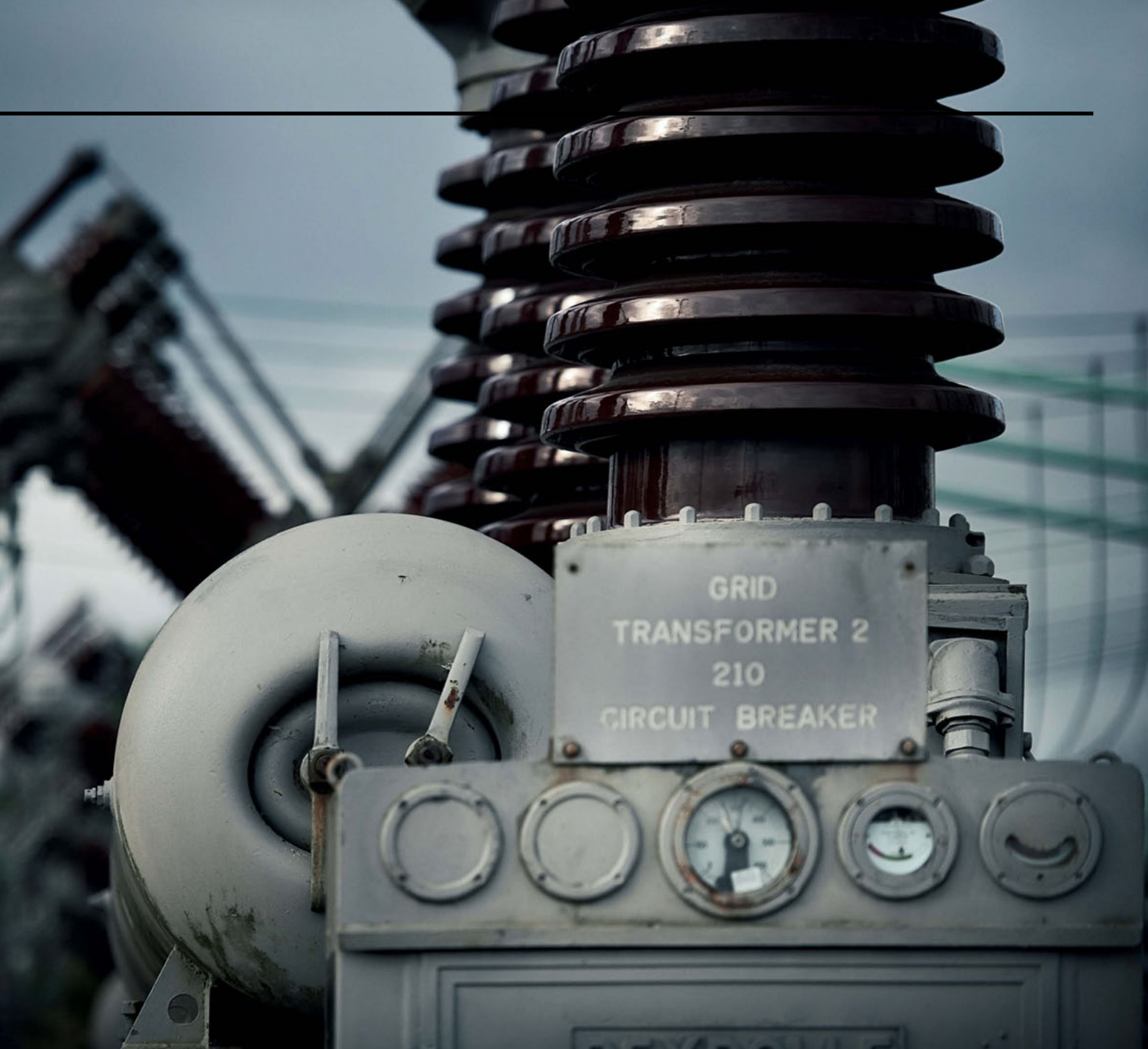
The video below captures the moment a 50-metre-tall pylon in the Snowdonia National Park was brought to the ground in a controlled demolition operation. When it was originally built in the 1960s, the pylon at Penrhyndeudraeth, in the Dwyryd estuary near Porthmadog, was on firm land. However, in recent years the course of the river has moved, immersing the pylon's feet in water and it started to tilt. A huge amount of effort was made to ensure the operation ran smoothly. This included ensuring there was no effect to local electricity supplies. The video highlights the key milestones in the project, which took place at the end of 2013, and plots the days it took to complete what turned out to be an industry record.



CASE STUDY: CIRCUIT BREAKER PROCESS SAFETY SUCCESS

Further to a number of catastrophic failures in 2011, an aggressive plan was developed to remove two types of circuit breaker family from our network. All 467 sets were removed (and replaced) by 30 March 2014 in line with programme milestones. The risk associated with these assets has been completely removed, which is a significant process safety achievement.

Prior to their replacement, risk management hazard zones were put in place to minimise the risk of injury from circuit breaker catastrophic failure. These zones kept all staff, contractors and members of the public away from any safety risk.



1 

Safety of staff, contractors and the general public is our number-one priority

0.07

The Injury Frequency Rate (IFR) for National Grid staff in 2013/14

100

As a percentage, we have completely removed all of a family of circuit breakers

0 

Number of serious injuries and deaths of members of the public, contractors and National Grid staff

“““

Attendees felt that National Grid places a strong emphasis on, and performs well, in the area of safety

Stakeholder comment

We will... maintain our world-class levels of reliability

There are two main aspects to keeping the energy on the network flowing: the health of the individual assets that make up the Electricity Transmission network, and the reliability and availability of the overall network to transmit electricity from where it is being generated to where it is needed

We aim to minimise any instances where we are unable to supply electricity to customers directly connected to our network (referred to as Energy Not Supplied events – ENS). During 2013/14, there were nine ENS events, and the total unsupplied energy was 135.9 MWh. This is out of a total amount of energy supplied in excess of 300TWh, resulting in an overall reliability of our transmission system of 99.99995% during 2013/14.

MAINTAINING AND REPLACING

The RIIO-T1 arrangements set Network Output Measures (NOMs) by which we measure the risk associated with our network and its assets by considering their criticality and health. Our asset replacement programme is designed to ensure we replace assets at the right time, avoiding unexpected sudden failures, but also ensuring that we only invest when we need to. We have an asset replacement programme designed to maintain the overall level of network risk over the RIIO-T1 period. We have progressed with this during 2013/14 and are on track to

meet the regulatory commitments we have over the eight-year period. We continue to develop efficient ways to maintain the health of our assets through techniques allowing us to have more accurate information about their detailed condition, life extensions and developing refurbishment policies rather than replacement. We hope that the case studies in this document give a flavour of some of these developments.

Security and quality of supply can be measured with reference to system frequency and voltage. There are statutory limits within which we manage these variables and during 2013/14, there were no reportable frequency or voltage excursions.

The security standards that we operate to are designed to minimise disruption when expected faults occur on the transmission system (eg caused by bad weather). In 2013/14, we experienced 384 faults where transmission circuits were disconnected automatically or by urgent manual switching. No significant customer disruption was caused.

EXTENDING AND PROTECTING

Work has continued on permanent flood defences during 2013/14. Our sites at highest risk of flooding have been prioritised and the defences at four sites were completed. The benefit of these activities was seen during the winter when flood waters around Walham Substation (previously flooded in 2007) reached the permanent defences and caused no disruption to service, as shown in the picture below.

Looking ahead, we are focused on increasing customer value from our transmission network by driving innovation in crucial areas such as the mitigation and management of new network risk, novel ways of managing and using our existing network equipment to provide more capacity and extending asset lives or reducing replacement costs. Therefore, innovation that leads to the extension of our asset lives is a very effective way of us delivering our outputs. A number of our projects are advancing specific elements of a holistic condition-monitoring approach. This helps us continually reduce avoidable costs through better prediction of equipment failures, improved forecasting of remaining usable equipment life, and improved and targeted maintenance and asset replacement regimes. The extension of the life and reliability of our assets allow us to provide the same level of service for our customers at a lower cost than if we were to replace them and reduces our consumption of natural resources.

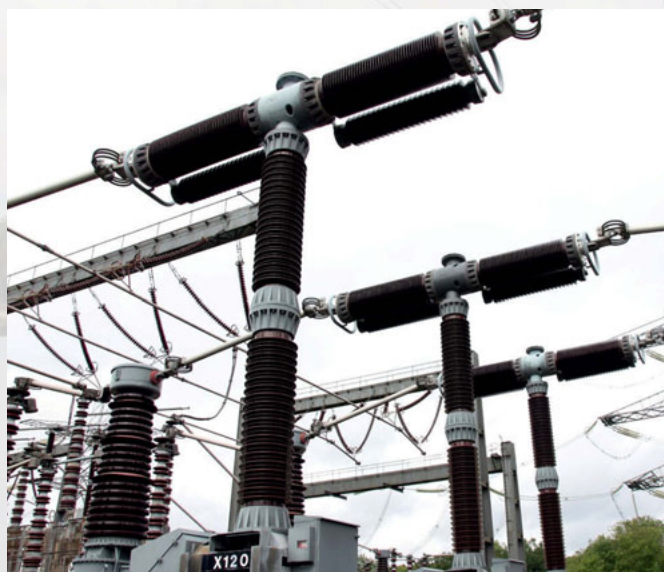


Consumers place a high value on a reliable energy service and would be more upset about being regularly interrupted than paying a little extra for reliability

Stakeholder comment

CASE STUDY: CIRCUIT BREAKER REFURBISHMENT

Circuit breaker management: The circuit breaker refurbishment strategy is a development to the asset life extension delivered from current refurbishment actions. The intent is to realise maximum benefits for consumers by aligning the lead circuit breaker and associated bay asset lives through appropriately scoped interim intervention. This will deliver value through reducing the duration and volume of the first refurbishment activities, allowing more significant works on all bay assets to be bundled later to realise both delivery and system access efficiencies.



25 Number of circuit breakers replaced in order to maintain asset reliability as part of our Network Output Measures (NOMs)

135 Amount of electricity (in MWh) not supplied to our customers in 2013/14

7 Number of Super Grid Transformers (SGTs) replaced in 2013/14 in order to meet our NOMs

64 Length in km of amount of overhead line conductor replaced to meet NOMs





CASE STUDY: LINESCOUT

Building on the 2012 innovation award from The Institution of Engineering and Technology, we are working with Hydro-Quebec to deploy LineScout to carry out live line inspections and repairs on the high-voltage electricity network. Through LineScout's four on-board HD cameras, crews on the ground can carry out detailed and highly precise inspections safely without compromising operations. That is because overhead line circuits aren't switched off, so customers aren't inconvenienced and the robot can carry out simple repairs on the conductor. The aim is for LineScout to complement other inspection processes, like ground observations using binoculars or HD cameras on the National Grid helicopter. These processes allow us to target our asset replacement programme.



Watch a video clip of the
LineScout in action at
[www.nationalgrid.com/uk/
electricity/features/line-scout.htm](http://www.nationalgrid.com/uk/electricity/features/line-scout.htm)



CASE STUDY – LONDON POWER TUNNELS

National Grid is in the middle of a seven-year, £1.5bn project to rewire the capital via deep underground tunnels in order to meet increasing electricity demand and help London access the renewable energy of the future. In 2013/14, one of the biggest achievements was the removal of one of the tunnel boring machines (TBMs), Cleopatra, when she completed her 13km section of the 32km London Power Tunnels route. Tunnelling began in 2011 and now there is less than 6km of the tunnel left to dig. Remaining tunnelling work on the project is being dug by another TBM, named Evelyn, which began work in early 2012. A third TBM, Powering Paula, dug smaller access tunnels as part of the project. All three machines were named by local schoolchildren in a series of competitions organised by National Grid.



Earlier in the year, work began to install the high-voltage cables, which will transport electricity through the tunnels once they are operational. The first section of tunnel is due to go live late next year, with the project due to be fully complete and operational in 2018.



Engaging with the community:
consultation for new Bramford-
Twinstead overhead line

We will... listen to, discuss and act on your ideas

We put stakeholders
at the heart of our
business; we listen to
you, discuss with you
and act on your ideas

We listened to customers' feedback from surveys we undertook and have refreshed many parts of our website and made contacting us easier. We have also simplified how our charges are calculated and reduced the length of time it takes for complaints to be resolved.

Examples of some of the other successful outcomes that we have achieved for our Electricity Transmission customers and stakeholders in 2013/14 include:

- Creating and publishing a transparent and consistent Network Development Policy to help customers manage uncertainty around future generation connections;
- Changing our proposals for the Hinkley Point and Mid-Wales connection

projects to better reflect what our stakeholders have asked for;

- Consulting with interested parties to assist in the development of the Visual Impact Provision policy submission. This policy has subsequently been accepted without change by the regulator;
- Restructuring our business to improve engagement with our stakeholder groups and introduced specific stakeholder-facing roles;
- Establishing our Independent Transmission Stakeholder Advisory Group. This group operates under a clear remit, including promoting

Continued on page 12...

We will... focus on the delivery of our outputs

The way that we are funded has changed from previous price controls to the current one; RIIO-T1. The money we are allowed to recover is made up of a mixture of upfront funding for delivery of agreed outputs, performance under our incentive schemes, and uncertainty mechanisms where we don't know the volume and/or value of the required investment. In later sections we will look at the impact of this performance on the average customer bill.

Performance key:

■

Met or above performance target

■

Almost met performance target

■

Below performance target

■

Performance not yet known



Safety	Performance
Comply with HSE legislation	■



Reliability and Availability	Performance
Minimise how much electricity is lost to our customers because of failures to the assets on our network	■
Keep the network reliable by carrying out effective maintenance and asset replacement programmes	■
Protect our critical assets to minimise disruption	■
Strengthen the network to be ready for new generation and demand connections	■
Deliver complex programmes to strengthen the network for large connections	■
Forecast amount of wind generation produced	■
Balance the supply and demand on the transmission system in an economic and efficient way	■



For further information
on outputs visit
www.talkingnetworkstx.com



Environment	Performance
Comply with environmental legislation	■
Minimise greenhouse gas emissions, especially SF ₆	■
Going above and beyond to deliver low-carbon solutions	■
Reduce the visual impact of assets in Areas of Outstanding Natural Beauty	■
Mitigate the visual impact of new overhead line connections	■



Customer Connections	Performance
Send connection offers to customers within 90 days	■
Connect new generation customers to our network	■
Connect new demand customers to the network	■



Customer Satisfaction	Performance
Measure the way that we have satisfied our customers	■
Gather data on how satisfied our stakeholders are	■
Going above and beyond in the way we engage with our stakeholders	■

24

Number of commitments we have consulted on and are working on delivering for our customers and stakeholders

7.5

The score that we received for the survey of our stakeholders' satisfaction

7.4

The score that we received from our customer satisfaction survey

their needs, developing a common understanding, monitoring our performance and encouraging continuous improvement and innovation;

- Establishing a new Stakeholder and Customer Strategy team to further integrate stakeholder views in decision making.

Customer and stakeholder satisfaction is measured annually via surveys, which are targeted at specific areas of our business and the customers/stakeholders that we interact with. We ask detailed questions about these business areas and ultimately ask for a score of overall satisfaction with National Grid. In 2013/14, this overall satisfaction score was 7.4 out of 10 from customers and 7.5 out of 10 from stakeholders. This score places us in the top quartile compared with other utility businesses, where the average score was

6.9/10 (UK Customer Services Institute). We use the detailed feedback from the whole survey in order to help shape our customer strategy for the future.

We have made good progress in engaging with our stakeholders. For instance, those communities impacted by our construction works for London Power Tunnels made a number of complaints about the night-time noise levels. We listened to these important stakeholders and made changes to our processes by introducing a 10pm curfew, which reduced complaints to zero. Changes to our processes like this have been recognised via the Stakeholder Engagement Incentive Scheme, where Ofgem's panel awarded us a score of 5.75 out of 10, which was stronger than other Transmission Owners, but leaves us with more work to do to compare favourably with the Distribution companies.

CASE STUDY: CUSTOMER SERVICE EXCELLENCE FEEDBACK AS WE RETAINED OUR ACCREDITATION IN 2013/14

Overall Outcome: Successful

"The Electricity Customer team are completely focused on the customer... staff have retained a very cohesive approach to gaining a more in-depth understanding of their customer groups and the drivers of their behaviours."

Customer Insight: Successful

"The Insight Strategy confirms consultation and engagement with customer and stakeholder groups, and facilitates deeper understanding of their needs and preferences."

Information and Access: Successful

"You continued to show that you support customers' receipt and understanding of information and staff spoke about use of different channels for disseminating information."

Delivery: Successful

"Customers confirmed during the assessment that they are told what they can expect from service provided at each stage of the journey. Many good examples were provided to show how you learn from best practice."

Timeliness and Quality of Service: Successful

"Customer Commitments are published on the website and additional information about timescales is stated for each customer. You have added a five-day standard for turning round the minutes of meetings."

CSE Accreditation 2013 Assessment Summary – Electricity Customer team



Over the past few years, I feel they [National Grid] have taken a lot of time, effort and care to be more responsible for their customers. They have been working hard in breaking down the old barriers they used to have and they've become more customer-focused, which is really nice to see.

Electricity Regulatory Frameworks customer

We will... facilitate access to the energy market

We work with our customers, both generators and demand side, with the aim to ensure energy can be transmitted on to and off the network when they need it

During 2013/14, we made 139 new offers or modifications to existing offers for connections to the GB Transmission System. All of these were made within the 90-day timeframe allowed for sending offers to customers. We endeavour to connect customers in the timescales they request, but there are several factors that result in later connection dates being offered. One is the large amount of onshore wind connections that want to connect in Scotland. This is driving the connection dates beyond those the customer requested due to the large number of projects that are ahead of this new request. Many of these connections are in the scoping phase and there is uncertainty as to when or if they will all proceed to connection. We are currently

managing over 80GW of agreements, with connection dates during the next 12 years. Latest intelligence suggests that less than 20GW of this planned generation will connect in RIIOT1.

Many customers have also been delaying their connection dates, resulting in a shifting profile of new generation build. These delays have, in part, been caused by the evolving nature of the electricity market and the development of the capacity mechanism and contracts for difference. During the year, we have also seen an increase in project terminations with several smaller connections in Scotland and a large Round Three offshore wind project terminating. Many other

customers are talking about reducing the capacity of their projects, which can add to the levels of uncertainty and the requirement to have multiple scenarios in play.

CONNECTING

We completed the commissioning of two Super Grid Transformers for our customers at Barking and Bramford, whose energy demand requirements had increased. During 2013/14, an additional 746MW of electricity generation was provided with access to the network.

Progress is being made with the large scale transmission reinforcement required to cope with the expected power flows across the network into the future. We are progressing with the subsea link between Scotland and England and pre-construction activities (including the consenting process) continue for a new route in the South West of England.



Reports relating to our connection activity can be found at www2.nationalgrid.com/UK/Services/Electricity-connections/Industry-products/timely-connections-report/

CASE STUDY – WESTERN HVDC



Western Link is a 420km, high-voltage direct current (HVDC) link between Hunterston in Scotland and Deeside in England. In order to deliver the Western Link project, National Grid and ScottishPower Transmission have formed a joint venture for this £1bn project, which will help bring renewable energy from Scotland to Wales and England.

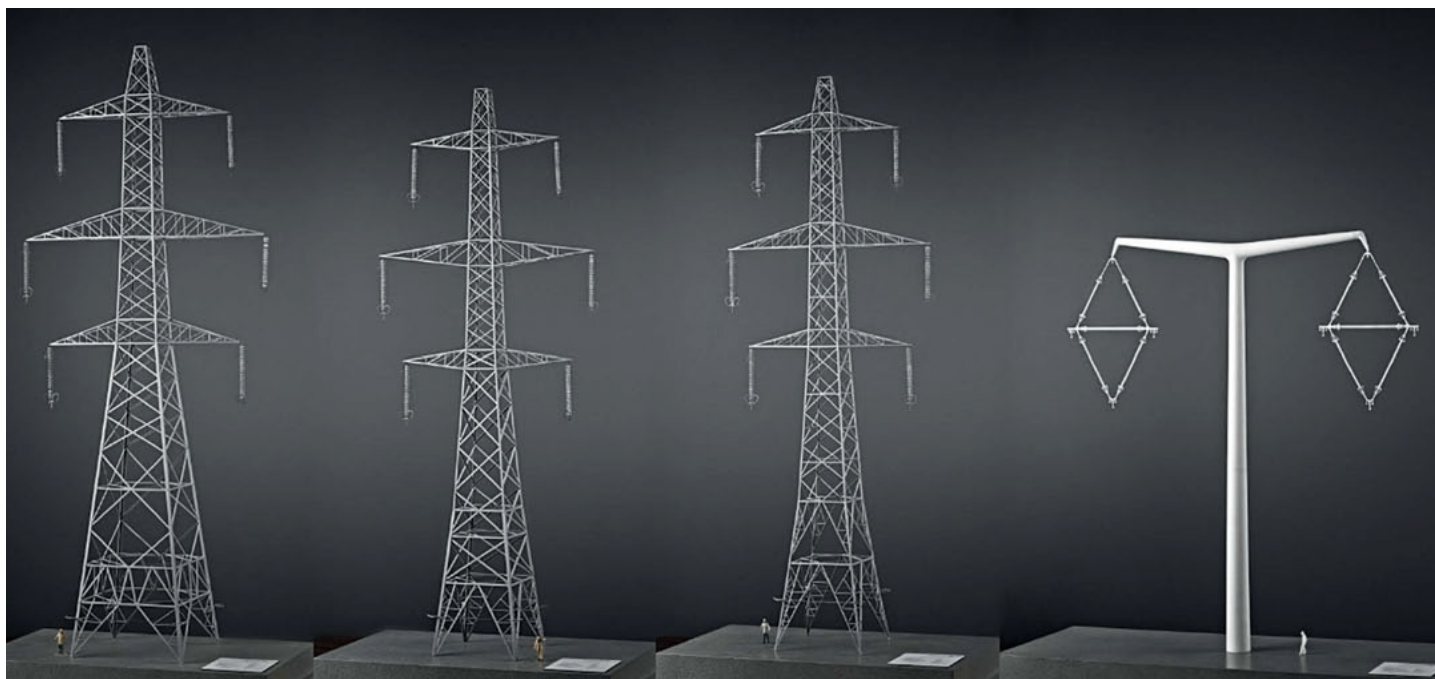
The project is made up of five sections:

- A converter station at Hunterston, North Ayrshire;
- Approximately 4km of high-voltage direct current cable to a landfall, where the subsea cable comes ashore, at Ardnail Bay;
- A subsea marine cable around 385km

long from Ardnail Bay to Leasowe on the Wirral;

- An underground high-voltage direct current cable of around 33km through the Wirral;
- A converter station in Deeside, Flintshire.

In 2013/14 the project has continued to meet construction milestones. This has included work on the Flintshire Bridge and Hunterston Converter Station sites. The manufacture of converter station equipment has been proceeding in parallel to the civil works. All 70km of land cable was manufactured and delivered to the UK in January 2014. The onshore cable route preparatory works on the Wirral, such as road construction and other civils, were ongoing throughout the year.



CASE STUDY: T-PYLON

The innovative new T-pylon is being offered for the first time in the UK for a new electricity connection in Somerset. The Hinkley Point connection, which runs between Bridgwater and Avonmouth, will be the first project that could see the new pylon design being used. The pylon will form part of a transmission system needed to carry all the new electricity generation planned for the South West. This includes the new nuclear Hinkley Point power station which will be the first nuclear power station commissioned in the UK since the mid 1990s.

The design was a clear winner in the field of 250 entries because of its innovative design features. The radical arrangement of the electrical components in a diamond shape meant it could be shorter than the equivalent steel lattice pylon. The smaller design was also judged to have less impact in many landscapes, which directly responds to the feedback received from local communities and stakeholders in relation to more traditional lattice pylon designs. Engineers from National Grid and Bystrup have led a two-year project



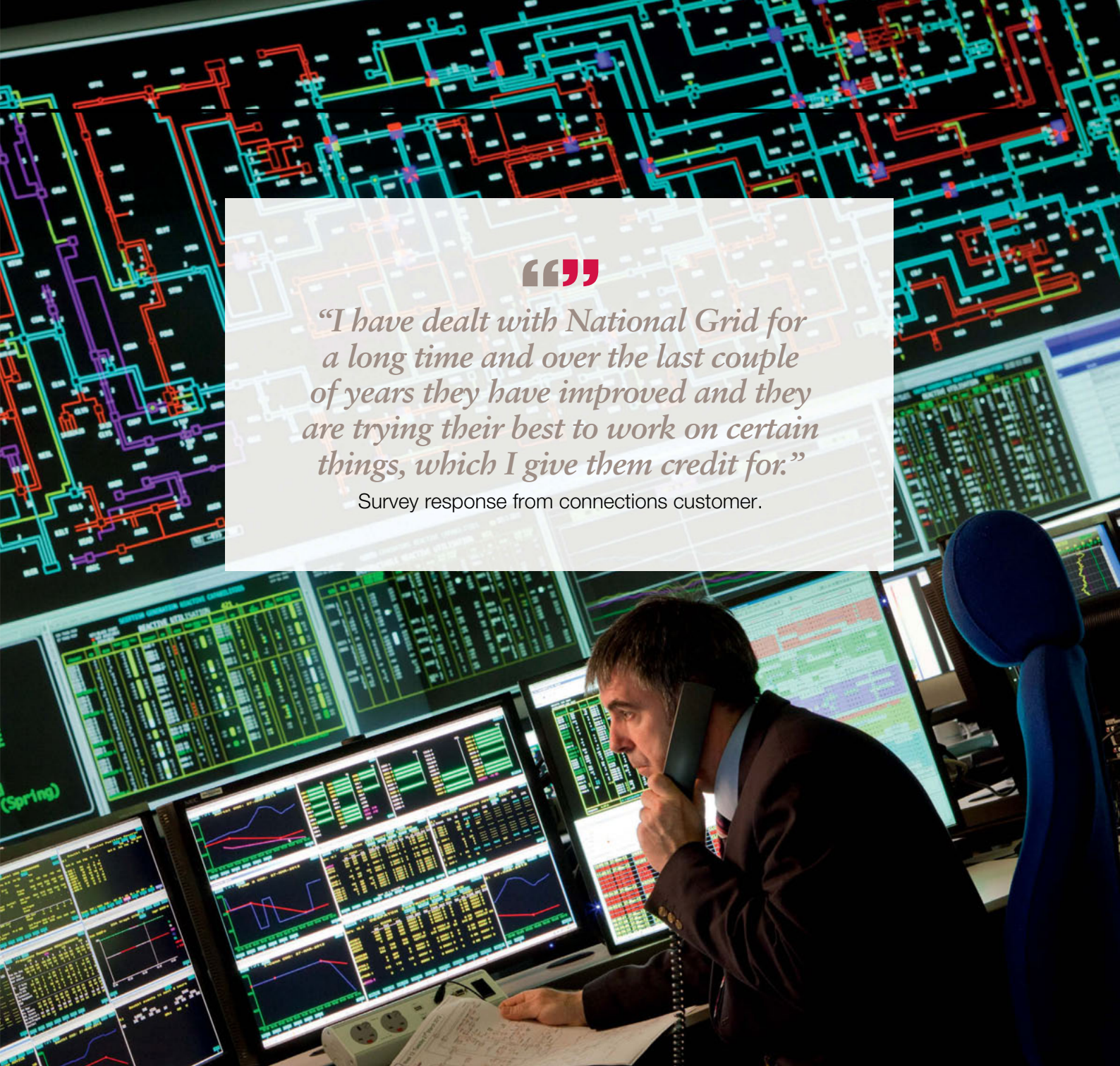
to take the winning design through to construction of full-sized prototypes standing at 35 metres.

The Secretary of State for Energy and Climate Change, Edward Davey, has praised the speed in which the prototype was produced – just 20 months from design. He said: “The T-pylon is a fantastic achievement for National Grid and the Danish architects, Bystrup, and I’d like to congratulate them on their progress. I’m looking forward to seeing T-pylon put into service; a graceful, refined structure fit for the needs of our low-carbon, 21st century.”

HARKER TO HUTTON RECONDUCTING

We completed the reconducting works on the 116km double-circuit between Harker near the Scottish border and Hutton near Preston, providing 600MW of additional boundary capacity in Northern England. These circuits are heavily utilised to bring the power generated in the north and in Scotland to the demand centres in the south of the UK. Securing outages, ie turning the power off on a circuit to work safely on these circuits, can be challenging and costly. By carrying out this work in just one year, we saved the consumer approximately £27m in avoiding additional constraint costs paid to generators. We employed a range of innovative techniques in process, contractor management and installation to allow these works to be completed in a single year – the largest investment of its type completed in this timescale by us, all delivered for 18% less per kilometre than similar reconducting schemes.

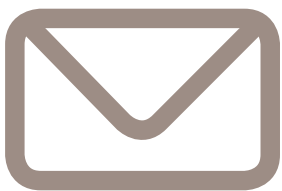




“”

“I have dealt with National Grid for a long time and over the last couple of years they have improved and they are trying their best to work on certain things, which I give them credit for.”

Survey response from connections customer.

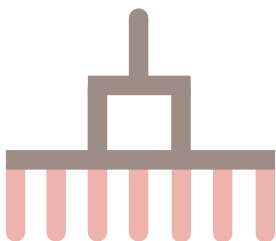


139

Number of new or modified offers sent to new and existing customers in 2013/14

746

Volume, in MW, of new generation across our network



90

Maximum number of days allowed to send a customer offer or modification to their offer

2

Number of SGTs added to the network to connect new demand requirements on the network.





We will... safeguard the environment for future generations

Our aim is for National Grid to be recognised as a leading sustainable business, recognised for its innovative approaches to minimising the impact of our activities on the environments we work in.

We are committed to undertaking our business in a sustainable way. We were recently awarded Business in the Community's Responsible Business of the Year. We have set a voluntary target to reduce our greenhouse gas emissions across our UK and US businesses by 45% by 2020 and our current forecast is that we will better this target. There were no environmental enforcement or improvement notices issued as a result of our activities during 2013/14, demonstrating compliance with environmental legislation.

The largest contributor to our direct emissions is the fugitive leak of Sulphur Hexafluoride (SF_6) from our switchgear. SF_6 is used extensively in transmission assets due to its excellent insulation properties, but it is an extremely potent greenhouse gas (it has a global warming potential of ~23,000 times that of CO_2).

Absolute SF_6 emissions fell by 19% in 2013/14 compared to 2012/13 with leakage rates falling from 1.7% to 1.28%. This significant improvement from previous years is due to a number of factors. We have instigated a programme to replace the highest leaking assets on our network.



National Grid's Bishops Wood Environmental Education Centre

This is principally targeted at SF₆ Current Transformers and we have a four-year programme aimed at replacing 55 circuits worth of the worst leaking assets. On top of this we have managed to repair some of the highest leaking assets and are continually striving to identify and plan repairs on leaking equipment in a timely and efficient manner. SF₆ leakage rates are also impacted by temperature, and the mild winter contributed to this improved performance.

RIIO-T1 makes provisions for Transmission Owners to apply for funding to improve the visual amenity of their assets in Areas of Outstanding Natural Beauty (AONB). This may, for example, be the undergrounding of lines that are currently overhead, or appropriate screening of assets. We have consulted and developed a policy for our approach to this and have formed a Stakeholder Advisory Group (SAG) chaired by leading environmentalist Chris Baines. We have tendered and awarded contracts to two landscape assessment companies to carry out the work to complete the first phase to prioritise assets for potential action.



Undergrounding and visual amenity are often highly emotive issues and opposing sides can find it very difficult to reach a compromise



Percentage reduction in our greenhouse gas emission, including SF₆ by 2020



Percentage of spoil from our London Power Tunnels projects that will be reused in remediation of old gasworks. The rest will be used in other applications



Amount, as a percentage, of SF₆ gas that leaked from our assets, a reduction from 1.7%



Number of circuit breakers, insulated with SF₆ that are higher than average leakage rates and are scheduled to be replaced in RIIO

CASE STUDY: VISUAL AMENITY IMPACT STAKEHOLDER ADVISORY GROUP

As part of our commitment to stakeholders, we wanted to make sure that their views led our thinking about how we could use the available funding to reduce the visual impact of our assets in areas of outstanding natural beauty. We have now set up our Stakeholder Advisory Group (SAG) chaired by leading environmentalist Chris Baines. We have tendered and awarded contracts to two landscape assessment companies who have carried out the work to complete first phase prioritisation. In 2014/15 the SAG will continue to meet and will deliver its recommendations based on the priorities to National Grid to enable the completion of a funding submission to Ofgem.



Protecting wildlife, relocating newts

We will... aim to manage uncertainty

Our capital investment plan is split into two main areas, non-load related (or asset replacement) investment and load related investment. We have presented a range of outcomes for our investment plan driven by the various uncertainties that influence it.

STABILITY AND VOLATILITY

The level of our non-load related investment (or asset replacement) is determined by our assessment of asset criticality and condition. We develop an asset replacement programme designed to maintain the overall health of our assets to deliver a certain level of network risk that is a regulatory target at the end of the RIIO-T1 period. This programme is not expected to be significantly influenced by external market factors or customer requirements and therefore, we have presented a single view of our non-load related investment for the RIIO-T1 period.

Load related investment is triggered by the signals we get from our customers about their requirements to connect new sources of electricity generation or demand. There are uncertainties around what these requirements will be, driven by the effect of unpredictable variables including energy policy developments, environmental legislation, energy costs and other developments in the economy on our customers' requirements. We run an annual consultative process to develop Future Energy Scenarios (FES) which help Government, our customers and other stakeholders make informed decisions. We also use FES to determine the level of load-related investment required in to satisfy the future requirements of customers. Because of the levels of uncertainty, we believe it is most helpful to customers to present a range of future outcomes within which we expect our actual level of investment to fall.

SCENARIO APPROACH

In this report we present three scenarios for the load related investment. Each is based on FES and the different scenarios we publish annually. The 'slow progression' case used FES to determine a scenario

with relatively low levels of load related investment. It is broadly based on the FES Slow Progression scenario. This scenario would require us to invest an estimated £9.7bn (13/14 prices). Our regulatory reporting process requires us to submit a single point forecast to Ofgem at the end of July. This regulatory case defines a specific outcome for load related investment in the broad range from low to high. This scenario would require us to invest an estimated £11.2bn (13/14 prices).

The 'gone green' case used FES to



To find out more about our forecast investment and to see the tables, visit www.talkingnetworkstx.com/Our-Performance.aspx

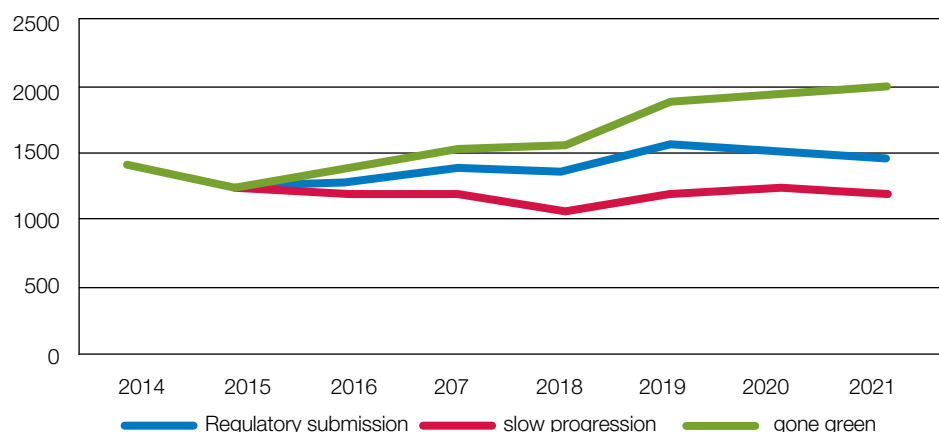
determine a scenario with relatively high levels of load related investment and is broadly based on the FES Gone Green scenario. This scenario also assumes we will use all the funding available to improve the visual amenity of our assets in Areas of Outstanding Natural Beauty. This scenario would require us to invest an estimated £13bn (13/14 prices).

PROFILES OF FUTURE SPEND

The graph shows our actual total expenditure in 2013/14 and the profile of future expenditure under each of the three scenarios over the RIIO-T1 period.

The level of outputs we would expect to deliver (for example, the volume of new generation connected) changes under each scenario as do the associated regulatory allowances. This is covered in the Value for Money section.

TOTAL EXPENDITURE (13/14 PRICES)



We will... provide value for money

Our delivery of regulatory outputs and our performance defines our allowances and the revenues we are allowed to recover from customers.

These customers are the companies that connect to, or use our network. This includes electricity generators, distribution companies, electricity suppliers and other directly connected customers.

PERFORMANCE IN 2013/14

In 2013/14 we invested approximately £1.2bn in our Electricity Transmission network assets, £670m of this is directly related to our customers' requirements and the remainder was on our non-load related programme. This expenditure contributed to the delivery of outputs seen on the scorecards on pages 10 and 11 of this booklet.

We have worked hard in the first year of RIIO to deliver our outputs efficiently. The regulator has set us challenging targets in order to keep customers' bills as low as possible. At the end of 2013/14 we announced that we had met these targets and had achieved approximately £70m of additional savings on a timing adjusted basis. Through the RIIO mechanisms customers share just over half of these additional benefits on top of the benefits of the outputs we delivered.

FUTURE PERFORMANCE AND UNCERTAINTIES

As described in the earlier section, our cost allowances and spend will vary depending on the outputs we are required to deliver. We will in all scenarios work hard to deliver outputs as efficiently as possible and drive benefits for customers.

We expect that our performance over the RIIO period will depend upon the success of our ongoing efficiency initiatives. If some of these initiatives work – and we are



confident that many will – we should be able to match or better the timing adjusted performance reported in 2013/14. This would be a good result for customers as every additional £ of efficiency directly benefits customers' bills.

CUSTOMER BILLS

Our revenues are collected from our customers via transmission charges. A proportion of all domestic electricity bills is driven by the level of transmission charges that our customers pay.

Our charges contribute around £20 to today's typical domestic customer's

electricity bill of £609. Our forecast of the expected future contribution of transmission charges to electricity bills depends upon the load related scenario that transpires and we have considered the three scenarios described earlier. Over the period 2014/15 – 2020/21 we expect the contribution from transmission charges will be between £20 and £24 per annum in today's prices. This equates to about 3% of an average bill. For less than 50p per week per household we expect to deliver £10billion or more of essential infrastructure investment which will ensure safe and reliable networks now and into the future.

WE ARE PROVIDING VALUE FOR MONEY IN OUR CAPITAL EXPENDITURE BY...

Delivery efficiencies – changing the way that we deliver our capital work, for example, changing the way that we deal with our contractors

Refurbishing circuit breakers – introducing new approaches that allow us to extend asset lives by refurbishment rather than replacing them

Recovering tower steelwork – using innovative painting techniques to recover corroded tower steel work rather than replacing it

Targeted replacement of overhead line fittings – investing in new technologies that allow us to obtain more detailed information about the state of our assets thus ensuring we only replace those that need to be replaced.



National Grid Electricity Transmission plc
1-3 Strand, London WC2N 5EH, United Kingdom
Registered in England and Wales No. 2366977
www.nationalgrid.com

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