

Our performance

2015/16



Welcome



Welcome to our Electricity Transmission performance summary for the third year under RIIO (**Revenue = Incentives + Innovation + Outputs**). We produce this document so that we can explain how we've performed to our customers, stakeholders and end consumers.

Under the RIIO contract our performance is assessed against five main outputs: **reliability and availability; environment; customer satisfaction; customer connections**; and, most importantly, **safety**. These outputs focus on delivery of outcomes that address the main challenges facing the electricity transmission network and provide services that our customers have told us that they value most.

In 2015/16, for the five output areas, we have:

- Provided customers with 99.99998% network **reliability**. Keeping the lights on is fundamental to our business.
- Developed a range of tools in our System Operator business that have enhanced National Grid's role in balancing the system to maintain **availability**. Developing demand side response solutions has been particularly successful.
- Reduced the leakage of greenhouse gases from our circuit breaker equipment. Each year of RIIO there has been less impact on the **environment**.
- Achieved the highest **customer satisfaction** levels we have ever had. We have worked hard to collaborate with our customers and stakeholders to define the future of electricity.

- Completed all of our contracted generation and demand **customer connections** on time. This has helped make sure there is adequate generation to meet peak demand.
- Further developed our plans to continue running a **safe and reliable** system and have found some great efficiencies already. This will lead to lower bills.
- Continued to keep the public safe and achieved our safety scores that are at world-class levels. **Safety** is our number one priority and we have worked hard to get these results.

This year we've delivered our outputs and have spent less than our allowances, achieving approximately £100m of savings for customers. We expect that these savings will total about £800m over the T1 price control period. This is good news for end consumers, investors and our customers and stakeholders too. For instance, domestic consumers' electricity bills will be lower than they were expected to be.

This report includes examples of how we've performed in each of the five **output** areas, describes how we expect to perform in the remainder of the RIIO-T1 period, and shows how our **revenue** forms part of end consumers' domestic electricity bills. We will describe how we are doing in the different **incentives** and what we have learnt so far.

We are proud of the progress we have made this year to provide the services our customers and stakeholders expect. We will strive to become even better in future, building on our successes so far to provide greater value for consumers.

Nicola Shaw
Executive Director, UK



Who we are and what we do

We are a Transmission Owner (TO) and a System Operator (SO). This means that National Grid Electricity Transmission (NGET) owns the electricity transmission network in England and Wales – that's the high-voltage network connecting electricity generators to distribution networks and large-scale consumers. We also operate Great Britain's entire electricity transmission system, including the Scottish and offshore networks as well as interconnectors to Europe. It's our job to balance supply and demand on a minute-by-minute basis.

Sustainable, reliable and affordable

Our 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. We have a central role to play in meeting one of Britain's biggest challenges: providing secure and affordable energy while also meeting ambitious low carbon energy targets and connecting new sources of energy to the people who use them.

The unprecedented rate of change in the energy landscape means we have to be adaptable and responsive.

That's why we invest efficiently to provide world-class reliability and enable customers to connect to the network. We also promote the development and implementation of sustainable, innovative and affordable energy solutions that will help us achieve security of supply.

At the heart of our business plan is the delivery of an affordable electricity transmission network that meets our stakeholders' needs in terms of energy security and environmental considerations.

Capital Investment now and into the future

Over the next decade we expect to step up our work to modernise the country's energy infrastructure. We know that building new assets or refurbishing existing ones will have an impact on our customers and stakeholders. So we believe the best way forward is to involve them as soon as possible in the decision-making process.

to find out more visit:
[talkingnetworkstx.com/
 general-performance.aspx](http://talkingnetworkstx.com/general-performance.aspx)

Innovation

14,000km

over 14,000km of overhead lines

300

almost 300 electricity substations

640km

over 640km of underground cable

2

interconnections with Europe

99.99998%

Electricity Transmission reliability in England and Wales

For more investor-related information then please visit:
investors.nationalgrid.com



Fundamentals of RIIO

RIIO introduces a range of new principles that are relevant to our performance.

RIIO-T1 is the first period under the Transmission RIIO framework. It started in 2013/14 and lasts for eight years. Under this framework we have a set of outputs that we have agreed with stakeholders. We deliver these outputs in return for a revenue allowance that we have agreed with our regulator Ofgem.

RIIO also introduced a range of new principles. Some of them are relevant to our performance, so we've outlined them below.

Cost performance is shared with customers

One of the principles of the RIIO framework is the concept of the sharing factor. This works by sharing any over- or underperformance against allowances between us and end consumers. It means that, for every £1, 53p of any cost efficiency we achieve when delivering outputs is passed on to end consumers. So, when we have achieved an efficient output, this flows through to ultimately reduce domestic bills. The opposite is also true, so underperformance, i.e. spending more than allowances to deliver the output, will mean this efficiently incurred overspend is shared between National Grid and end consumers.

Incentives are encouraging better ways of working

Another way that our revenue is affected is through our performance in the different incentives agreed as part of the RIIO framework. For instance, stakeholders want us to improve how we work with them and our customers (you can find more information about this in the Performance Scorecard and in the stakeholder satisfaction chapter of this report). There are other incentives to improve our environmental performance and how we keep electricity flowing to the distribution networks. We are changing the way that we work to meet the outputs that our stakeholders tell us they want.



Finding a better way in everything we do

Innovation is not only at the heart of the RIIO regulatory framework but also at the heart of everything that we do. The RIIO contract introduced three funds to support innovation projects: the Network Innovation Allowance (NIA); the Network Innovation Competition (NIC); and the Innovation Roll-out Mechanism (IRM). We've provided details about how you can find more information about this and the types of projects that we are working on at the end of this document.

Flexible and fixed allowances

In some areas (like connecting customers to the electricity system) the costs to be incurred and outputs to be delivered over the RIIO period were uncertain at the start because the extent of the work involved wasn't clear at that time. So our allowances flex using an uncertainty mechanism according to customer requirements and the delivery of an output. There's also a fixed allowance to meet a target at the end of RIIO-T1 for Network Replacement Outputs to keep the current level of network reliability. This is for the maintenance and asset replacement work that's needed in order to provide a safe and reliable electricity network.

Financial figures including customer bills

We have published, alongside this document, the tables showing (in both the TO and SO businesses) what we have spent to date and what we forecast to spend in the rest of RIIO-T1.

The first table is called total expenditure (Totex) as it includes both our capital expenditure (Capex) and our operational expenditure (Opex). Capex is broadly the costs incurred in building new assets and replacing existing ones. Opex is broadly the costs incurred for maintaining the assets and running the National Grid business.

The next table shows our forecast allowances for the first two years of RIIO, our forecast allowance for 2015/16 and for the remainder of this price control. The final table shows the difference between costs and allowances with numbers shown in red meaning costs exceed allowances.

To see these tables in full use the link below or go to www.talkingnetworkstx.com/General-Performance.aspx

Delivering outperformance and savings for customers

We have spent £1.3bn (2015/16 prices) across the NGET business in 2015/16 in delivering the agreed outputs. Delivering these outputs means we forecast that this will give us £1.5bn (2015/16 prices) in allowances. Over the full RIIO-T1 price control we forecast that we will spend £12.8bn (2015/16 prices) with a forecast of £14.5bn (2015/16 prices) of allowances.

These forecasts have changed since last year when we forecast to spend £13.4bn and receive £14.6bn in allowances. The main reasons for these changes are lower spend and allowances to reflect changes in forecast generation and demand connections; increased spend for strengthening the network but a decrease in allowances due to the mix of schemes and reduced spend on our asset replacement programme.

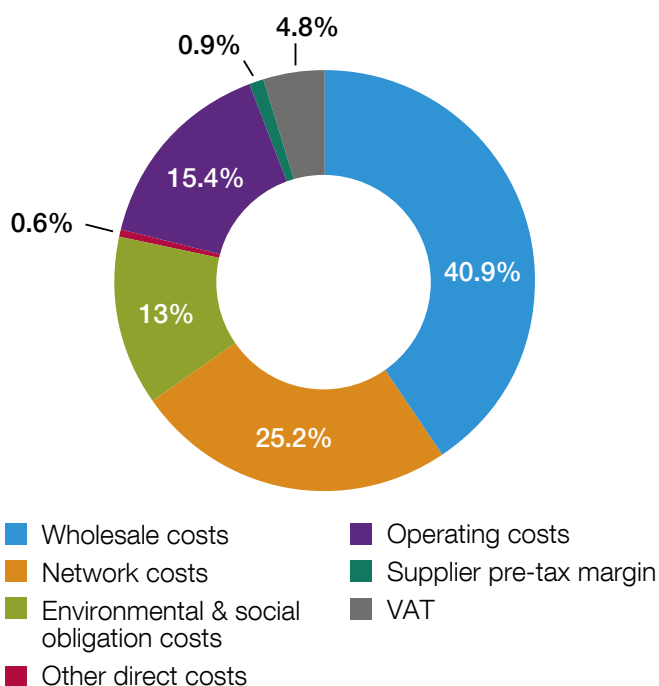
For further detail on how a domestic bill is broken down, please go to: www.ofgem.gov.uk/information-consumers/domestic-consumers/understanding-energy-bills

Network costs and customers' bills

So what does this mean for the end consumer? Our allowances are recovered through charging our customers for the services we provide. These network costs for both transmission and distribution make up about 25% of the domestic electricity bill that consumers receive from their supply company¹. Of this total bill only 3% is attributed to our costs. In 2013/14 we forecast that the customer would pay between £20–24 out of the average customer bill of £603 over the RIIO period. Last year, the average customer would pay £609 for their electricity and the network costs would make up £23.50 of this. This year, the average bill is £600 and the customer would pay £22, rising, on current forecasts, to £23.60 by the end of the RIIO price control. The savings we are making mean that the network costs are lower than forecast at the start of the price control.

To view our forecast of total spend and expected allowances go to: www.talkingnetworkstx.com/general-performance.aspx

Breakdown of an electricity bill









¹ Overall network costs account for approximately 25% of the domestic electricity bill, the majority of which is distribution network costs not transmission. Source <https://www.ofgem.gov.uk/information-consumers/domestic-consumers/understanding-energy-bills>








Performance scorecard

To help consumers understand our performance, we publish certain information about our outputs. These are the totex, ENS, SF₆, Customer satisfaction, and wider works tables that you can find in the relevant section of this document or at www.talkingnetworkstx.com/General-Performance.aspx. For completeness, we've included additional information on all of the outputs that we hope you find useful. The table below is split into the five output areas and has some detail about in-year performance, trend over RIIO-T1 to date or a forecast for the RIIO-T1 period.

In the scorecard **Red** shows where we have missed an annual output and forecast to miss the remainder of our eight-year output; **Amber** shows where we missed an annual output but are on target to progress towards the remainder of our eight-year output; and **Green** relates to the successful achievement of an annual output, showing we are on target to meet the remainder of our eight-year output.

For uncertainty mechanisms like connecting customers, the measure is whether we have met our customers' requirements, not whether we have met our baseline target.

Safety		
Output requirement	RIIO target	Performance
Comply with Health and Safety Executive (HSE) legislation	100%	100%
Reliability and availability		
Output requirement	RIIO target	Performance
Minimise how much electricity is lost to our customers because of failures to the assets on our network 99.99998% reliability of our network. Improved performance to 4.5MWh from 9MWh lost in 2014/15 and 136MWh in the first year of RIIO. This will deliver incentive allowance of £3.63m.	<316MWh p.a.	4.5MWh 
Non-load-related Network Output Measures (NOMs) We have spent the first part of RIIO working hard to find innovative ways to manage our assets' deterioration. We're behind the original plan in terms of costs and volumes of work. We are confident that we have a plan in place to deliver the target at the end of RIIO-T1.	Compliant with network risk level at end of RIIO	Lower spend and volumes than baseline but on target to deliver output by March 2021 
Protect our critical assets (physical site security) We are working hard to find ways to deliver the programme agreed in the 2015 re-opener for the allowances that were less than our submission. There are a number of sites in the construction stage and a second group of sites in the planning and scheme development stage.	Number and locations are confidential due to sensitive nature of programme	On track to meet output agreed 
Incremental wider works to strengthen specific boundaries We delivered all of the network reinforcement requirements for 2015/16, even though this is lower than the baseline. Changes in the generation background for when customers are connecting has resulted in a reduction in the amount of strengthening of the network needed at this time.	Baseline of 3600MW. Annual target based on system requirements	500MW 
Forecast the amount of wind generation produced Incentive revenue down from £822k last year even though actual forecasting had improved. Parameters change annually and were tighter in 2015/16 (summer was 4.5% and winter 6% in 2014/15).	+/- 3.5% and +/- 4.25 accuracy in summer/winter	3.91% summer 4.86% winter -£300k 
Balance the supply and demand on the transmission system We need to balance the network on a minute-by-minute basis. There are a number of ways that we do this and we aim to be as efficient as possible. We improved our performance in 2015/16 providing £283m of savings for customers and £30m incentive payment to National Grid.	Target spend £1,178m	Actual spend was £865m 

Environmental benefits		
Output requirement	RIIO target	Performance
<p>Minimise greenhouse gas emissions, especially SF₆ Target is 1.65% leakage rate. Our 2015/16 performance was slightly better than last year at 1.23% leakage rate delivering £2.27m of incentive allowance. We have implemented a number of initiatives to reduce leakage including further training, targeted replacement and innovative leakage reduction techniques which mean that leakage rates are over 20% lower than at the start of RIIO-T1.</p>	12,097kg of SF ₆ top-ups	<p>9,502kg topped up</p> 
<p>Going above and beyond to deliver low carbon solutions The Environmental Discretionary Reward panel decided that our 2014/15 submission was good enough for a score in the 70–80% bracket, a large improvement on 2013/14. This successful outcome meant we were awarded £2m from the £6m available to the different Transmission Owners. We hope to have a positive result for the 2015/16 submission and have learnt from the feedback received.</p>	50–70% is proactive 70%+ is leadership	<p>Scored in 70–80% range</p> 
Customer satisfaction		
Output requirement	RIIO target	Performance
<p>Measure the way that we have satisfied our customers and stakeholders We are learning from what our customers and stakeholders are telling us and changing the way that we work to meet their needs. In 2015/16 we received our best ever customer satisfaction score, up from 7.4 last year. The stakeholder score was slightly down from 2014/15 with the largest drop in the stakeholder group for schemes in construction.</p>	Customer 6.9/10 Stakeholder n/a ³	<p>7.54 7.53</p> 
<p>Go above and beyond in the way we engage with our stakeholders This is another incentive scheme where the award is made by an independent panel assessing our submission against agreed criteria. There has been an upward trend over RIIO from 5.75 in year one, 6.0 in year two. We are responding to feedback and learning from best practice which has helped improve the way we are working with stakeholders.</p>	5.0/10	<p>6.25/10</p> 
Customer connections		
Output requirement	RIIO target	Performance
<p>Send customer offers within 90 days We sent 280 new or modified offers to customers. There was a small increase in the number of customers who received their requested connection date.</p>	100%	<p>100%</p> 
<p>Connect new generation customers to our network We delivered all our customers' requirements for 2015/16 but this was lower than the original baseline. Our eight-year forecast, based on customer needs, is for 14GW of transmission connected generation (plus 18GW of embedded generation), an increase of 2GW on 2014/15.</p>	Target is to meet customer requirements	<p>1,328 MW No new OHL</p> 
<p>Connect new demand customers onto the network We delivered all of the demand connection requirements that our customers contracted us to complete. This volume was lower than the baseline amount. We currently forecast that we will need to connect 48 new super grid transformers (SGT) and five circuit km of overhead lines (OHL) for demand customers. This forecast is unchanged from last year.</p>	Target is to meet customer requirements	<p>4 SGTs 5.4 circuit km OHL</p> 

² Our previous years' top-up amounts have been amended to reflect the data accuracy improvements that we have made. There was a small change to the incentive revenue based on a change to target leakage rate.

³ 7.4/10 target is the current Ofgem position in the August 2016 consultation for the remainder of the price control but the stakeholder part of the incentive is turned off for the first three years of RIIO.

Safety outputs

It's important that we comply with health and safety legislation, and ensure assets are safe and in good working order.

Our safety performance in 2015/16 showed a combined injury frequency rate (IFR) of 0.11 with employee IFR at 0.05 and contractor IFR at 0.16. This is world-class performance, however, we continue our efforts to reduce these figures further, through progress in the activities highlighted in our plan for 2016/17 below. There were two employee lost time injuries (LTIs) in 2015/16 and nine contractor LTIs, continuing the downward trend since the start of RIIO.

In 2015/16 we worked on improving awareness, knowledge and process in four risk areas: safe driving, working at height, improving substation site standards and working in areas on impressed voltage. Highlights from these include:

- implementing a high-profile safe driving project
- improving our driver training and trialling new technologies to support safe driving
- agreeing the standards expected across our business for working on site
- focusing on developing a stronger site safety culture
- further increasing awareness of safety standards seen on site
- making sure we have the safest possible procedures when working in impressed voltage environments, and
- developing employees and our contractors through enhanced levels of training.

For 2016/17 we are focusing on four risk areas:

- Impressed voltage: Building on the work we did in 2015 related to this high-risk area to embed a training programme and greater levels of awareness in our substation and OHL teams. Additionally, we are networking with other TOs in the UK to benchmark and seek best practice.
- Safe driving: Our integrated Driver Risk Management System is now live and we will be at 100% compliance by October 2016. We will also begin to implement driver behaviour technology from early 2017.
- Buried assets (HV cables). We are enhancing the control and management of our buried assets, including improving our processes and procedures to maximise safe working. We are engaging with external organisations on how we can better promote safe working near our HV cables.
- Safety contract management. Our focus is on improving the safety management of our contractors and the standards and expectations of safety management of our supply chain. The focus this year is on small, ad hoc contracts.

We are delivering all of this with the cooperation of managers, safety professionals and employees working together through forums and large events, such as our staff Safety Representative Conference.

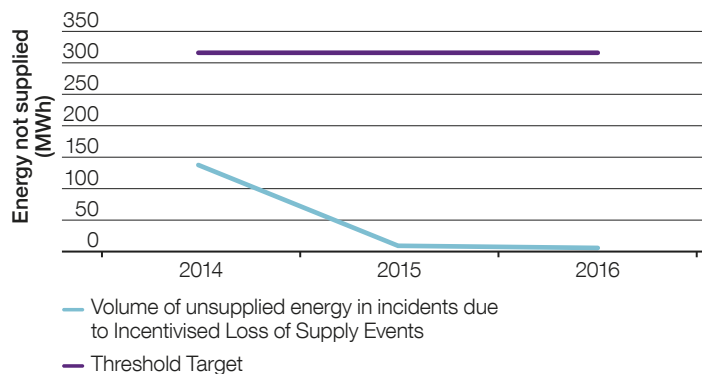


Reliability and availability outputs

Minimising how much electricity is not supplied to customers is important to us and them. Have clear policies for maintaining the network and allowing access to users.

We aim to minimise any instances where we're unable to supply electricity to customers directly connected to our network. In 2015/16 the overall availability of our network was 99.99998%, a slight improvement on last year and a continuation of the trend in having fewer occasions where energy was not supplied to our customers. These are called energy not supplied (ENS) events. As well as having fewer ENS events, we have been able to minimise the actual loss of supply, measured in megawatt hours (MWh), to half of last year's figure and more than 130MWh less than in the first year of RIIO-T1. The table and graph below highlight the trend over RIIO and shows that the network is becoming more reliable during this price control.

Energy not supplied



Another way that we can measure availability is through how we balance the network in our role as System Operator. We make savings for consumers through the innovative ways that we balance electricity supply and demand every minute of every day. Increasing amounts of intermittent generation like that from wind means that our ability to forecast accurately is important in reducing the costs required to balance the network. Our ability to forecast improved in 2015/16 but the targets were more challenging, so we must keep learning if we want to be confident in how much of this renewable energy will be needed each day.

A third output that achieves reliability and availability is our asset replacement and refurbishment programme. We need to deliver an agreed level of network reliability risk at the end of RIIO-T1 and we do this by replacing the most critical assets in a timely way. The most economical way of managing our assets is to replace them just before the end of their life. Predicting when this will be is a challenge and we have spent time to make sure that we are spending money efficiently while still meeting the output. This has meant, to the end of 2015/16, we have spent less and replaced fewer assets than in our original plan. However, we are confident that our forecasts are accurate and we will deliver the output at the end of this price control and achieve substantial savings for end consumers.



Reliability and availability outputs cont.

Case study

A mix of ways to keep circuit breakers reliable

We have made significant progress in optimising our approach to the switchgear asset health programme. We have changed how we approach replacement to reduce costs. One of the ways has been finding new ways to reuse existing plinths because the new circuit breaker is smaller. In early trials this method has provided significant benefits in unit cost and outage duration compared to traditional replacement methods.

We have identified ways to refurbish different switchgear types to give them extended asset lives. This makes sure our investment in refurbishment is in the long-term economic interests of consumers. We carry out refurbishment on a limited number of types of circuit breakers to extend the asset life of the breakers. Depending on asset type and condition, full refurbishment of circuit breakers can provide an extension of up to twenty years before the asset needs to be replaced.

We are also trialling innovative methods of switchgear refurbishment that aim to manage the asset life of circuit breakers and maximise the useful life of the associated bay assets. This includes providing the option of carrying out targeted, instead of full refurbishment – which extends the asset life initially by ten years. The results of the first trials have shown positive outcomes and we're planning more targeted refurbishments in the future.

We're also applying new ways of approaching such refurbishment work by improved resource planning and minimising system outage durations. For example, we are doing as much work as we can before and after outages, so we can be more efficient.

In summary, our overall strategy for switchgear will consist of a mix of replacements, full refurbishments and targeted refurbishments. The addition of innovative ways of working for replacements and targeted refurbishments, means we are better able to provide the most cost effective asset management solution for customers, with asset health at its core. The availability of more cost-effective and additional refurbishment options is providing clear competition to the switchgear replacement market, and this will create more efficiency in our replacement work. Because of the success of the 2015/16 trials we're planning to carry out a significant amount of work in this area from 2016/17 onwards.



Environmental outputs

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

As a group we've set a voluntary target to reduce greenhouse gas (GHG) emissions across our UK and US businesses by 45% by 2020 (baseline: 1990). We can break down emissions into areas like energy generation in the US, methane losses across the group, sulphur hexafluoride (SF₆) leakage losses, our own gas usage, and buildings and transport.

Our UK business baseline emissions level (excluding losses from overhead lines) was set at 19.6m tonnes of carbon dioxide equivalent. This was set after tracing previously published and verifiable data going back to 1990⁴. We expect to beat the 2020 target because of the changes we are making to our own gas usage and our approach to SF₆ leakage management.

Excellent insulator for safe operation of equipment, potent greenhouse gas

Sulphur hexafluoride (SF₆) has excellent insulation properties, so it's used extensively in transmission assets. However, it's also an extremely potent greenhouse gas, so we have an incentive to reduce the amount of SF₆ that leaks from our assets. In 2015/16 we saw a small reduction in SF₆ leakage from the previous year. In the table below, the leakage rate during the RIIO-T1 period shows a downward trend. We are now leaking over 20% less SF₆ than in the last year of the previous price control. This is good news because the innovations that we are putting in to place are seeing benefits to the environment.

SF ₆ leakage	pre-RIIO	pre-RIIO	RIIO-T1	RIIO-T1	RIIO-T1
	2011/12	2012/13	2013/14	2014/15	2015/16
Actual (kg)	12,200	11,900	10,110	9,544	9,502
Target (kg)	n/a	n/a	11,933	12,035	12,097
Difference (kg)			1,823	2,491	2,595

Listening to feedback and improving performance

There is a financial reward for our focus on low carbon and other environmental activities. During the year, we were delighted to receive the top score out the three TOs for our Environmental Discretionary Reward (EDR) submission for 2014/15. The panel especially liked our approach to greenhouse gas issues and our overall strategic understanding which were two areas that we gave the best evidence in. They agreed that we had listened to the feedback from them following the first submission in 2013/14 and acted on it. We have recently sent the 2015/16 EDR submission to an independent panel assessment and the case study below gives some detail of one of the activities. We believe that the benefits of working together to connect the increased volume of low carbon generation will help to meet the overall targets to decarbonise electricity generation and lead to a greener future.

Case study Distributed Generation Project

During 2015/16, we faced a rapid increase in low carbon generation wanting to connect to the electricity system. This was a problem affecting a number of the Distribution Network Operators (DNOs). We established our Distributed Generation project so we could improve the way that low carbon generation connects to the distribution network. One of the things we did as a result of this project was to re-design the connections process to meet the technical and business characteristics of the generators. By doing this, we made sure we could deal with the large volumes of low carbon generation applications that the DNOs were receiving. As a result, 7.7GW of low carbon generation has been connected since April 2015. This has provided an extra 5.7GW of low carbon generation access to the networks. Without this project we would only have achieved 2GW.

As a result of this new process, we can analyse around 1GW of prospective generation sites in one bulk process. The low carbon developer also saves money and time because there's less bureaucracy. This process also allows NGET and the DNO to support many more connections because we can get a view of the total goal of required connections and invest in innovative technical solutions that wouldn't be viable for each distributed generation project if they were submitted individually.

We trialled this new approach with two DNOs – Western Power Distribution and UK Power Networks – and we have carried out industry consultation, through a programme of workshops, to make sure that it meets the needs of all stakeholders.

⁴Our emissions data is independently verified by external consultants

Customer and stakeholder satisfaction outputs

NGET is finding a better way in how we work with our customers and stakeholders, improving how we gather and respond to customer feedback and improve customer service.

We are engaging with a much wider group in a number of different channels, actively listening to what they need, and reacting to their feedback to change the ways that we work with them. We received our highest ever score in our customer satisfaction survey and our stakeholder engagement panel award. However, we saw a drop in our stakeholder satisfaction survey score and are working with different stakeholder groups to understand how we can make their experience better.

The case study to the right shows how we have improved external stakeholder consultation. We have got better in understanding their needs when we are proposing new transmission projects that will connect low carbon generation to the network.

Case study

Giving communities a voice in planning new connections

We have to get planning consent to build new connections but we understand this is an emotive topic for the communities affected. So it's important to us, and for our reputation, that local communities trust us to always act responsibly. Effective stakeholder engagement is crucial to this. In 2010 when we first developed our major infrastructure projects, communities didn't trust us, certain stakeholders lacked the technical information they needed and the Chair of the Planning Inspectorate made it clear to our leadership that we were heading for failure.

We had to change the way that we consulted so we could rebuild trust. We changed our process to include a dedicated communications adviser to work on each project to listen to communities. We met with community representatives regularly and gave them better, up-to-date, and easier to understand information. We use our stakeholder surveys to measure what people think of us and are acting on their concerns.

We still have a lot to learn and we face an even greater challenge in the future – to continue improving what we're doing while reducing the cost and time it takes. However, we have implemented some of our learning to date with good results. For instance, in North Wales the stakeholder feedback we received was positive about how we shared information. The model we used was to communicate little and often rather than all at once, as we had done in an earlier consultation in Mid Wales. There, communities told us this was overwhelming and a blocker to good communications with them. We are also reducing costs in more recent consultations. In turn, this will help to reduce the overall cost of schemes – and ultimately, it will reduce the cost to end consumers.



We want to improve satisfaction and continuously improve the service we provide

We know that we need to improve if we are to provide the best service possible for our customers. We are really proud that our improvements have led to our customers feeling more satisfied with the service that we give them. Our stakeholders are telling us in their feedback that we are more focused on their needs and making changes to our approach to different areas of our business because we have listened to them and are acting on their ideas.

In 2015/16, our highest result in RIIO-T1 for the Stakeholder Engagement Incentive Scheme reflects improvements in how we are gathering and listening to stakeholder feedback and taking action on their priorities. We are also improving our own capabilities and processes through lessons learnt and seeking to share best practice. Improving our customer satisfaction and stakeholder engagement will help us make better informed decisions and feedback will help identify areas where we can improve.

The table below shows the trend since the start of RIIO-T1. We still have work to do to improve how certain stakeholders feel about the service that they receive. This is especially where projects are in the construction phase so we must find better ways to listen to them and satisfy their needs. This is the main reason that our score went down in 2015/16.

Stakeholder output incentives			
	2014	2015	2016
NGET Customer survey – baseline	6.9	6.9	6.9
NGET Customer survey – score	7.41	7.40	7.54
Stakeholder survey – baseline ⁵	n/a	n/a	n/a
Stakeholder survey – score	7.53	7.74	7.53
Stakeholder Engagement Incentive Scheme	5.75	6.00	6.25



⁵ 7.4/10 target is the current Ofgem position in the August 2016 consultation for the remainder of the price control but the stakeholder part of the incentive is turned off for the first three years of RIIO.

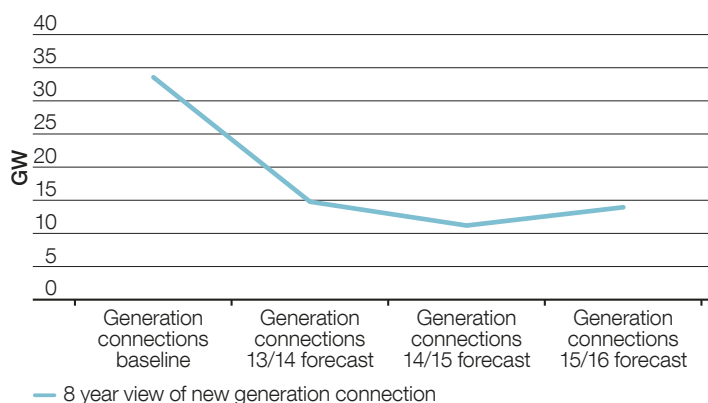
Customer connections outputs

The output in this area is to send connection offers to customers within 90 days of their application.

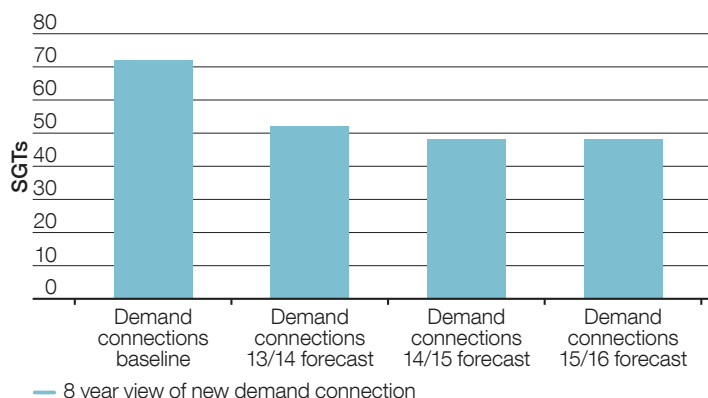
Sometimes this is for new connection requests or it is to change the date when they would like to connect. In 2015/16 we sent 280 of these connection or modification offers to customers in our role as System Operator. All of these licenced offers were made within the timescales set out in the Transmission Licence.

Approximately 52% of these offers met the customer connection date requested. The significant majority of the offers that weren't given their preferred connection date continue to be renewable projects that want to connect in the two Scottish Transmission Owner areas. Many of these connections have no planning consent in place and there is uncertainty as to when, or if, they will all connect. There are many projects that are already contracted ahead of new applications. This is driving the offered dates beyond those dates that the customer has requested. We are finding better ways of working with all of our customers to improve this process.

8 year view of new Generation Connection



8 year view of new Demand Connection



Many contracted customers have also been modifying their connections by delaying their connection date, which has resulted in a shifting profile of new generation build. These delays are, among other reasons, due to consenting issues and the uncertain financial market. During the year we have also seen numerous project terminations before construction, totalling over 6GW in capacity, and there were also a number of capacity reductions and closures. For the majority of connection project types we expect the uncertainty and churn in the connection dates to continue.

Generation connections forecast increasing

Last year we forecast that 11GW of new generation would connect onto the network by the end of RIIO-T1. As shown in the graph, we have revised this eight-year forecast to 14GW. This remains substantially below the 33GW that we forecast at the start of RIIO for the eight years. It's an example of how the RIIO framework is working as intended because we are not rewarded for inefficient spend. This means that we would not receive an allowance where an output isn't required.

The type of new generation that is contracted to connect on the network over the coming years is also changing. Higher amounts of wind and interconnectors are forecast to connect, compared to what we forecasted last year.

Demand forecasts stable

Our forecast at the start of RIIO was to connect 72 Super Grid Transformers (SGTs) over the eight-year price control. Last year we forecast 48 to be connected over the RIIO-T1 period and we do so again this year. This is because the increases in how much energy would be required during RIIO-T1 have not yet materialised. However, the customers who require grid connections have changed and so the locations and types of transformer have changed in our latest plan.

Visit: talkingnetworkstx.com/General-Performance.aspx
for wider works output table

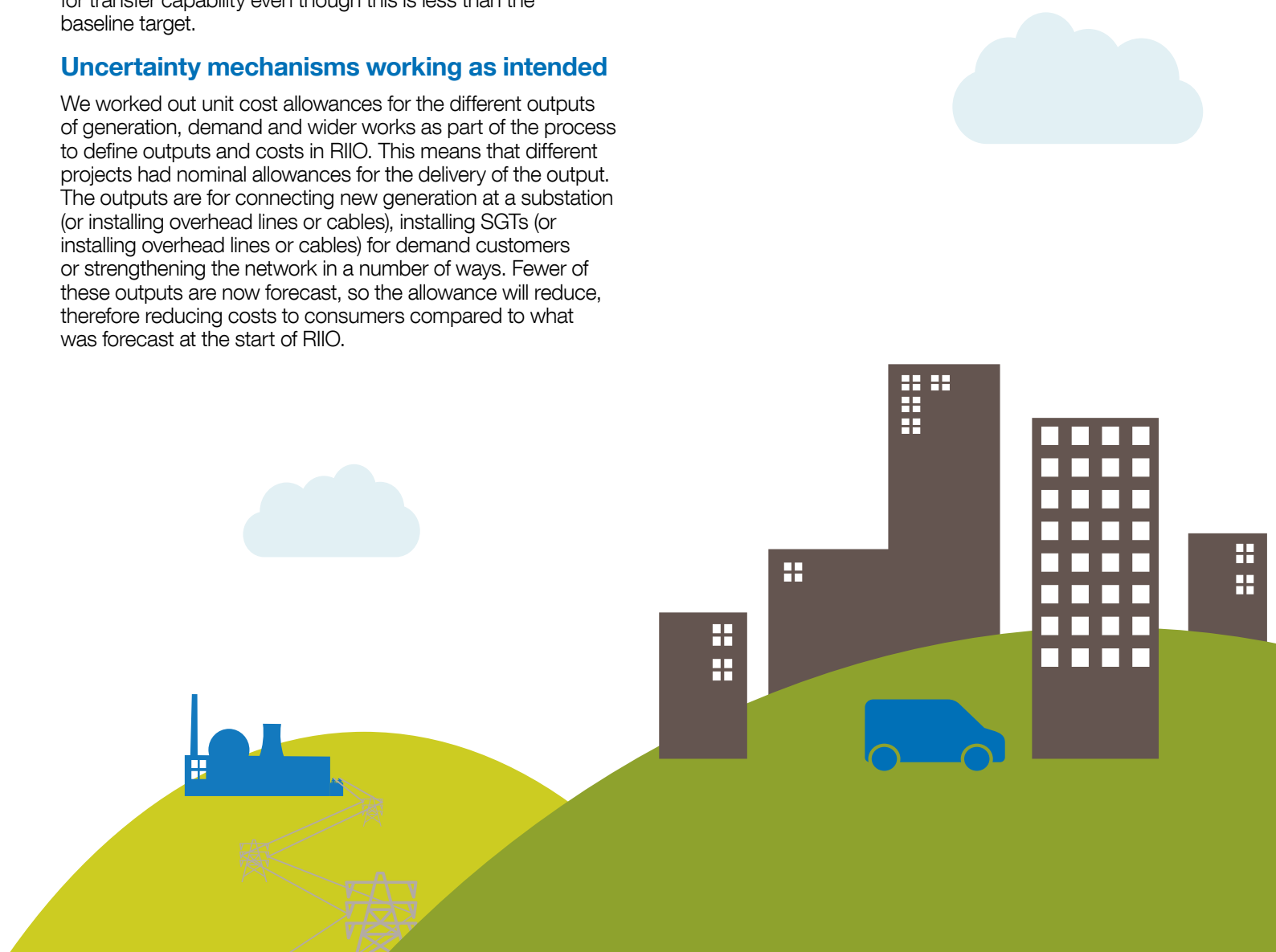
Wider works follow the same path as generation forecast

When new generation connects to the network, we may need to strengthen the network to allow this energy to be transported across system boundaries to demand centres. At the start of RIIO-T1 we forecast that sixteen separate projects would be required to deliver an increase in capability of the system of over 23GW. In addition to these incremental schemes, there were four projects that were defined as baseline wider works schemes. These are shown in the tables we've published at www.talkingnetworkstx.com/General-Performance.aspx. All apart from the Western HVDC schemes are now complete and are helping to transfer the energy north to south from generation to demand centres.

The SO carries out an annual assessment of what the most economical approach should be. Sometimes this is to delay schemes or start new ones. The forecast has reduced for how much strengthening is required to facilitate the transfer of the forecast generation. For 2015/16 we met all requirements for transfer capability even though this is less than the baseline target.

Uncertainty mechanisms working as intended

We worked out unit cost allowances for the different outputs of generation, demand and wider works as part of the process to define outputs and costs in RIIO. This means that different projects had nominal allowances for the delivery of the output. The outputs are for connecting new generation at a substation (or installing overhead lines or cables), installing SGTs (or installing overhead lines or cables) for demand customers or strengthening the network in a number of ways. Fewer of these outputs are now forecast, so the allowance will reduce, therefore reducing costs to consumers compared to what was forecast at the start of RIIO.



Our innovation strategy continues to build

We are building upon the experience and lessons learnt from the work that we did in the price controls before RIIO (the scheme was called Innovation Funding Incentive – IFI).

Big ‘I’ innovation

The RIIO framework has two specific ways of further encouraging us to provide consumers with value. The Network Innovation Allowance (NIA) funds small scale projects. One of its aims is to promote collaboration with other companies to find ways to bring benefits to network customers. In 2015/16 we spent £9.6m of our £11.7m allowable NIA expenditure. During the year we made progress on 131 eligible NIA projects aligned to our innovation.

The second mechanism Ofgem has introduced is called the Network Innovation Competition. This is where we compete with other network companies for funding. It covers the research, development and trialling of new technologies, operational and commercial arrangements. We were proud that our Off-grid Substation Environment for the Acceleration of Innovative Technologies⁶ (OSEAIT) won funding in 2015/16. This project will reduce costs and time to bring new technologies into service as we move to a low carbon electricity network.

Finding a better way – small ‘i’ innovation

Within the past year, we have made great progress in putting stakeholders at the heart of our business. This has been led by our Executive Board of Directors which has committed to ‘Finding a Better Way’ for our stakeholders. Within Electricity Transmission, we have challenged our ways of working to make real performance improvements. Through a clear strategy, we are making sure that we engage effectively with our stakeholders to fully understand their needs. Through this, we are identifying how we can work collaboratively to achieve mutually beneficial outcomes.

We continue finding new ways of lean working and call this our performance excellence journey. Parts of the business are at different stages with the majority of teams focussing on embedding the learning. Employees are constantly looking at ways to improve the existing processes and performance.



⁶Details of the OSEAIT project can be accessed at the energy networks association website at: www.smarternetworks.org/Project.aspx?ProjectID=1832#download

Case study Offline Substation Environment for the Acceleration of Innovative Technologies (OSEAIT)

The project will modify an existing 400kV substation into an easily reconfigurable, field trial facility. This off-grid facility will replicate a live substation environment to overcome the operational barriers associated with the implementation of innovative methods and technologies on the electricity network.

There is a gulf between the sanitised conditions of test laboratories and the harsh reality of the national electricity grid. This makes the cost, complexity and safety implications associated with transferring outputs of research and development to the grid significantly difficult. We are reluctant to put the quality and security of supply we provide to our customers at risk in order to demonstrate the viability of new ideas with unproven track records. This results in many projects never being implemented in the live system. There is no similar facility in the world capable of hosting live field trials of transmission and distribution applications.

The proposed environment will allow the assets to be stressed and aged in a way that allows their long-term performance to be verified. The test environment will expose equipment to a range of conditions to establish their impact on asset health, lifetime and residual risk. This is extremely difficult to achieve in a normal operational substation without putting safety and security of supply at risk. This project will remove a major barrier to the deployment of new technologies and will unlock the financial, environmental, operational, and safety benefits associated with a range of innovation projects.

The project will take advantage of a rare opportunity to secure a fully operational substation. The result will be an enduring facility that will help facilitate the transition to low carbon electricity networks. New ideas can be brought into routine deployment more quickly, reducing the overall cost of re-engineering the network and without affecting consumer security of supply. The solution proposed will conservatively deliver the breakeven point for consumers by 2021.



How to contact us and other useful links

If you have questions or opinions on this performance summary, please get in touch with us:

Email:

talkingnetworkstransmission@nationalgrid.com
or using the feedback link on our Talking Networks website
www.talkingnetworkstx.com.

To find out more about customer bills and the impact of network costs, visit www.ofgem.gov.uk/information-consumers/domestic-consumers/understanding-energy-bills

For information on our innovation activities, visit www2.nationalgrid.com/uk/our-company/innovation

To see how this fits in with how the energy network powers your home, visit www.ofgem.gov.uk/network-regulation-riio-model/energy-network-how-it-works-you

To find out more about our electricity business and the market we operate in, visit <http://media.nationalgrid.com/factsheets/>

For further information on our financial performance, visit our dedicated website at <http://investors.nationalgrid.com/>





This document contains certain statements that are neither reported financial results nor other historical information. These statements are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended.

These statements include information with respect to National Grid plc's financial condition, its results of operations and businesses, strategy, plans and objectives. Words such as 'anticipates', 'expects', 'should', 'intends', 'plans', 'believes', 'outlook', 'seeks', 'estimates', 'targets', 'may', 'will', 'continue', 'project' and similar expressions, as well as statements in the future tense, identify forward-looking statements.

Furthermore, this document, which is provided for information only, does not constitute summary financial statements and does not contain sufficient information to allow for as full an understanding of the results and state of affairs of National Grid plc and its subsidiaries, including the principal risks and uncertainties facing National Grid plc, as would be provided by the full Annual Report and Accounts, including in particular the Strategic Report section and the 'Risk factors' on pages 173 to 176 of National Grid plc's latest Annual Report and Accounts. Copies of the most recent Annual Report and Accounts are available online at www.nationalgrid.com or from Capita Registrars. Except as may be required by law or regulation, National Grid plc undertakes no obligation to update any of its forward-looking statements, which speak only as of the date of this document. The content of any website references herein do not form part of this document.

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