

## Chapter 4

# Safe and reliable

I want you to provide a  
safe and reliable network

**Electricity  
Transmission**

**nationalgrid**

## 4. I want you to provide a safe and reliable network

### What this stakeholder priority is about

Our main responsibility as a transmission owner is to ensure a safe and reliable electricity transmission network. It needs to be available to our customers, when they need it, to enable secure power supplies for consumers.

To fulfil this role, we need to maintain high safety standards that protect our employees, contractors, stakeholders and the public. To achieve the level of reliability expected by our stakeholders, we need to keep our assets in a healthy condition. This means monitoring their condition, and intervening at the right time to maintain, refurbish or replace them.

### Summary of what our stakeholders have told us so far

We understand that a safe and reliable electricity transmission network is a key priority for you. Above anything else, you want a reliable network.

You have told us that, for the T2 period, you want us to maintain a level of reliability similar to that which we currently provide. And you want it at a fair cost. You have also told us that our plans should support the future demands on the network. So the decisions we take in the short term do not limit future opportunities.

### Our current performance on safety and reliability

Safety is our number one priority and we are committed to the wellbeing of our staff, contractors and the public. Our safety performance is measured by our injury frequency rate (IFR), which counts the number of injuries sustained for every million hours worked. This has improved from an average of 0.15 in the first two years of this price control period to 0.12 in 2017/18. We continue to strive to do even better.

We are maintaining high levels of reliability across our equipment and low levels of energy not supplied (the volume of power that is lost due to faults or failures on the network). The total energy we did not supply in 2017/18 was 39.7MWh, or 0.00002% of all the energy we supply. We are also on track to meet, or exceed, our network output measures. This is the current regulatory benchmark for reliability and means we're in a good position to keep delivering high levels of reliability for consumers in the future.

Over the whole T1 period (2013/14 to 2020/21), we forecast that we will spend an average of £650m a year on safety and reliability. During this time, we have achieved cost efficiencies of around 20% on reliability. One way we have done this is by improving our understanding of the condition of our assets, which has allowed us to better target their replacement. Our innovations have also allowed us to reduce the time and cost involved in repairs and replacements.

### Our direction of travel following stakeholder feedback so far

We are in the process of building our business plan with our stakeholders. In this section, we will playback the feedback we have heard from you – and ask for your views on what we suggest could happen next.

### Benefits to consumers

Our plans for reliability will benefit consumers by:

- Ensuring electricity is there when they need it.
- Helping to lower network costs.

### Maintaining our world-class safety performance

We are committed to maintaining our world-class safety standards and we aim for zero harm to our employees, contractors, stakeholders and the public.

In our final T2 submission to Ofgem, we plan to propose ambitious outputs at efficient costs for our customers and consumers. They will be fully compatible with providing a safe environment for all our employees, contractors, stakeholders and the public. Our commitment to safety will also contribute to maintaining a reliable network. It will ensure that our workforce can effectively and efficiently do their jobs in a safe environment.

We welcome your feedback on our approach to safety, bearing in mind that it's our top priority.

### **Maintaining our current reliability**

Our stakeholders have told us they want our existing level of transmission network reliability to continue.

To meet this priority, it's our intention to keep network reliability in the T2 period close to the level we currently provide. We will embed efficiencies we have delivered in the T1 period into our T2 plans.

As we discussed earlier, one measure of our reliability performance is the volume of energy not supplied by our network. This occurs when our network fails to deliver electricity, resulting in a volume of power, measured in megawatt hours, not supplied to our customers. These events are often high-impact, but low-probability, and we cannot fully control them. However, we do carry out activities that reduce the likelihood of these events taking place. An example is our process for managing outages that could put demand at risk.

We currently have a regulatory incentive to keep levels of energy not supplied low. This has prompted a culture and internal processes that minimise energy not supplied. In our T2 plan, we will seek to retain this incentive through engagement with Ofgem and our stakeholders. The regulator is currently consulting on whether to retain this for T2: see pages 24-34 of [Ofgem's sector-specific methodology consultation annex on electricity consultation](#).

### **Ensuring long-term reliability**

A large proportion of our spending in the T2 period will be focused on making sure our assets are healthy enough to be reliable in the long term. Work in this area will include monitoring our equipment, and maintaining, refurbishing or replacing it when it's most appropriate to do so.

Our stakeholders have told us they want us to maintain our existing level of transmission network reliability. But we would welcome stakeholders' views on the level we should aim for in the longer term – beyond 2025/26 – as society becomes increasingly reliant on electricity.

### **Our growing dependence on electricity**

We are interested in our stakeholders' views on whether there's a case for higher levels of reliability in the future. Our society will become increasingly dependent on electricity as more electric vehicles arrive on our roads and we control more aspects of our homes and businesses through the internet of things. While stakeholders have told us they want us to maintain our existing level of transmission network reliability, we want to check this specific point with you as we move towards our T2 business plan.

The amount we spend on reliability in the T2 period will affect how much we need to spend after the T2 period. It is important we take account of this, and make sure our plan is fair to both current and future consumers.

We are making an important change in how we measure the health of our assets compared to our previous T1 business plan. For T2, we intend to use a new methodology, developed with Ofgem and the other energy network companies. We have been consulting on this with our stakeholders over the past two years.

The new methodology includes the 'monetisation of risk'. It works by considering the residual level of risk on the transmission network. A higher level of residual risk means lower reliability, while a lower level means higher reliability. Because assets deteriorate over time, the residual level of risk tends to increase unless we invest to reduce it.

The methodology then attributes a financial value to this risk, based on the likelihood and consequence of the failure of our assets.

We are also proposing to improve the coverage of our assets under the methodology. We are proposing to define outputs for smaller secondary assets and deliverables for very large capital schemes.

In our T2 business plan, we are currently planning for a level of spending on activities such as maintenance, refurbishment and replacement that achieves the same level of network risk at the end of T2 that we had at the start of the period. The new methodology will allow us to keep our network at the agreed risk level in the most efficient way – and deliver value for money for our customers and consumers.

### How we will continue to engage with our stakeholders

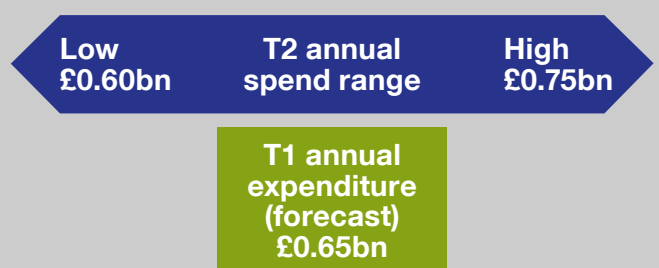
We welcome your feedback on this consultation topic of safety and reliability. In particular, we're interested in your views on whether society's increased reliance on electricity in the future means we should aim for higher levels of reliability. We'd also like to know how you think we should balance our asset health investments between current and future consumers.

We are continuing to engage with stakeholders on reliability. We're planning engagement activities, including:

- Consumer engagement supported by interactive tools to bring transmission reliability to life.
- A workshop on reliability with a diverse group of stakeholders. We plan to show them options for different network reliability targets, as well as costed options for how we'll deliver against those network reliability targets.
- Holding sessions on our approaches to asset management and reliability with distribution companies and directly connected customers.
- Exploring the case for different levels of reliability for cities. For example, we could do this by providing extra protection for our assets in urban areas.



### What it could cost



Here, we have provided an indication of what we currently believe our totex to deliver reliability could be in the T2 period. This would allow us to maintain our world-class safety performance, our current reliability and the long-term reliability of our network at broadly current levels.

Ofgem is consulting on its framework for ensuring long-term network asset health. As a result, the ranges could change. We are also talking to our stakeholders about how we can ensure long-term consumer benefits, so there could be further changes to the range.



### We welcome your views:

#### Question:

What impact do you think our society's dependence on electricity should have on our level of reliability in the future?

**Submit your feedback online [here](#):**



# How to use this document

## We want your feedback

### Who is this consultation aimed at?

We are interested in the views of all stakeholders who are impacted by what we do or interested in shaping the future of electricity transmission. This includes the views of all users of our network, government, regulatory bodies and energy industry professionals.

### Tell us what you think

This consultation is open until 31 March 2019. You may give us feedback in the ways outlined below. We particularly seek your views in response to the specific questions we have posed. These are summarised on page 9. You may respond to all questions or just those relevant to your specific views.

## Ways to feedback:

### Make notes

Throughout the document, we have provided space for you to read and make notes at the start of each chapter (opposite). Use the section numbering as a way to reference accurately. You can then type up your notes and send them in an email or submit them online.



### Interactive pdf notes

Alternatively, we will be sending out editable pdf versions of this document with note fields for you to type directly into.

### Email

We have a dedicated email address specifically for your feedback to this document. We welcome your thoughts at: **[gary.stokes@nationalgrid.com](mailto:gary.stokes@nationalgrid.com)**

Alternatively, you can put your thoughts in writing and send to: **Gary Stokes, National Grid House, Warwick Technology Park, Gallows Hill, Warwick CV34 6DA.**



### Online

You can go directly to the website and submit your comments [here](#).



You can learn more about how we are working with stakeholders by visiting our [website](#). This site makes it easy to follow our progress and shows you how to get involved.



**Please share  
your thoughts:**