Electricity Transmission

nationalgrid

Delivering your future electricity transmission system

National Grid Electricity Transmission's business plan 2021–26
Executive Summary

Please be aware that there is a complementary document that provides an explanation and reason for each redaction contained within the full version of our plan on our website.

December 2019

Executive summary

Welcome to our business plan from the Chair of our board

Nicola Shaw
Chair of National Grid Electricity Transmission

Electricity is vital to our modern lives. At National Grid Electricity Transmission we have the privilege to provide this essential service to you. We are rightly proud of the quality of the service our dedicated team has provided to you up to now, including high levels of reliability, helping reduce greenhouse gas emissions and protecting your electricity supply against external threats. But we are restless to provide an even better service to you going forward.

We have carried out our largest ever engagement exercise with our customers, stakeholders and consumers for this business plan. You provided us with clear feedback on what is important to you: a reliable and resilient network that can support the changing energy system, while keeping bills low. You also want us to care more about the communities we work in and be more open in explaining our performance.

For the first time, we have built our business plan around your priorities. We hope this will make our plan easier to understand and clearer on what we will deliver and why it matters to you. This represents an important further step in our organisation being more customer-focused and open.

Your top priority is having a reliable electricity supply. We can reassure you that reliability is at the heart of this plan.

Our plan covers a crucial period when we all expect rapid change in the energy system to dramatically reduce carbon emissions to achieve the UK's net-zero target by 2050. Our plan highlights specific opportunities within the regulatory framework, to enable and accelerate the UK's progress to net zero. We are putting forward collaborative, innovative, and whole-system solutions to support policymakers. We are reinforcing this with commitments to reduce our own emissions to deliver the UK's net-zero target and ensure no one is left behind in the energy transition.

We know that budgets are tight and that the cost of our plan matters to you. We have extensively challenged the cost of this business plan. We have benchmarked our costs against similar companies and tested our costs in the market place. The result is that we can deliver the investment required to maintain a reliable and resilient network, while keeping flat or reducing our part of energy bills, excluding inflation. In independent testing, 87 per cent of consumers (household and business combined) found our plan and its bill impact to be acceptable.

A theme we picked up from our engagement is that you don't just care about what we deliver but how we deliver it. We agree. We will continue with the deep levels of engagement we have used to develop our business plan in the future. We will work together with other organisations to achieve the best whole-system solutions to reduce carbon emissions.

Two independent stakeholder groups of experts have challenged our plan to make sure we are addressing your views. I would like to thank all of you, including the stakeholder groups, for the time and effort you have committed to creating and improving our plan.

Net zero

Our target is to reduce our own direct greenhouse gas emissions to net zero by 2050.

Executive summary

1. Executive summary

The key messages from our business plan are

- We have listened to you extensively and built our business plan around our stakeholders' and consumers' priorities. Independent stakeholder groups have challenged our plan and how well it reflects your priorities.
- Our business plan helps reduce the energy system's greenhouse gas emissions. We also propose flexibility and innovative options to help deliver the UK's net zero by 2050 target.
- We are proposing to invest **£7.1bn** to deliver this plan. This is 18 per cent higher in annual terms than in the current period, because we are investing more in the network to make it reliable, resilient and low-carbon.
- We have fully built in the benefits of our successful innovations and efficiencies from the current period, saving you at least **£707m**.
- We have challenged ourselves hard to reduce our costs further through rigorous benchmarking and are committing to finding a further **£383m** of efficiency savings.
- We are proposing a package of measures to improve the environment and to support vulnerable consumers and disadvantaged communities.
- We provide evidence for why adjustments are required to Ofgem's proposed financial framework to make sure our plan is sustainably financeable across a range of credible future scenarios.
- Our plan delivers the outputs and services you have asked for while **keeping flat, or reducing, our part of energy bills,** excluding inflation. We estimate our plan will cost **£23.60** on the annual average household energy bill.

£383m
of future efficiency savings

£7.1bn
of investment

£23.60
Cost of this plan on the average annual household energy bill

The route to net-zero emissions

We have developed our business plan since July in the context of the government's legislation for the UK to achieve net zero greenhouse gas emissions by 2050. Reducing greenhouse gas emissions has also been a key theme coming out of our stakeholder engagement.

This plan covers a crucial period for investment to help deliver the UK's net-zero target. The route to net-zero emissions is not yet clear but our business plan is flexible enough to deliver the investment needed in the 2020s.

Giving stakeholders and consumers a stronger voice

We have built our business plan around your eight stakeholder priorities and three consumer priorities.

Over the last two years we have carried out our most extensive engagement exercise ever. We have engaged with over 1,000 individuals covering all our main stakeholder groups. We have also listened to over 11,000 households and over 750 business consumers through meetings, focus groups and surveys.

We have provided more information about our emerging ideas for our business plan to you than ever before. And we thank you for your feedback.

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Your priorities

What you've said

As consumers, you've told us:

- I want an affordable energy bill.
- I want to use energy as and when I want it.
- I want a sustainable energy system.

As stakeholders, you've told us your eight key priorities as set out in the outer ring of the diagram below.

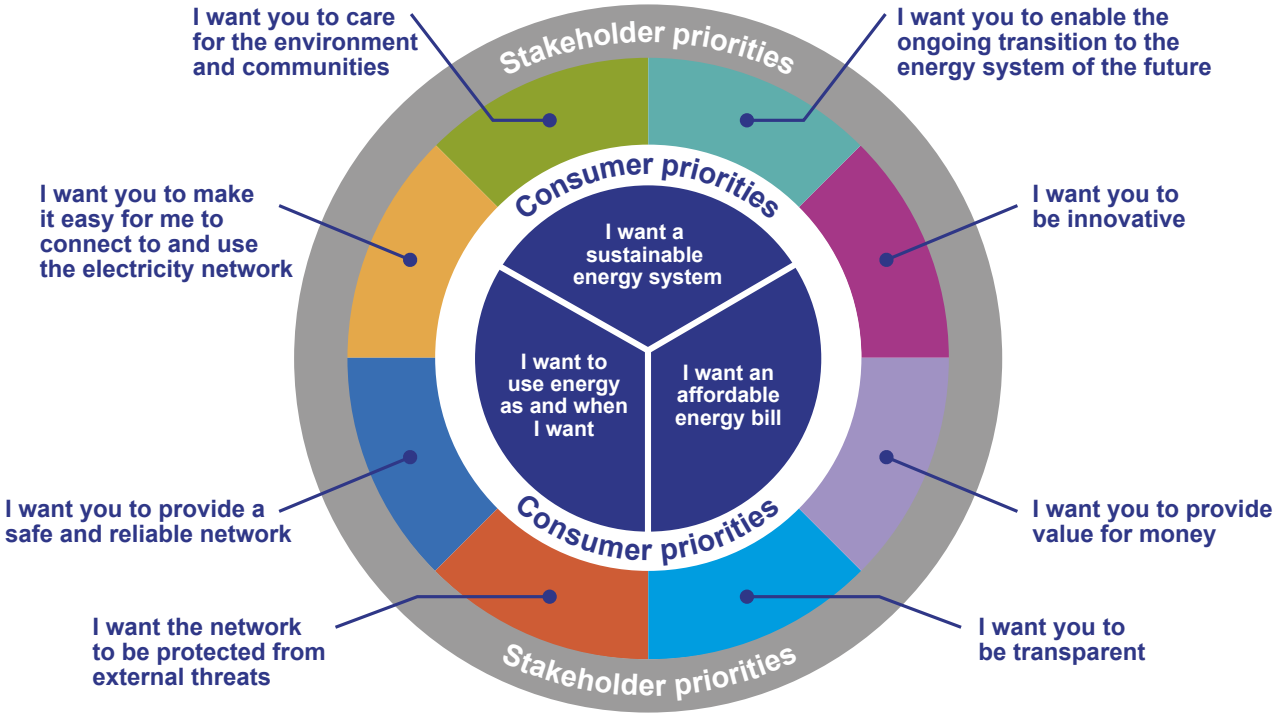
Your views have made a genuine difference to our business plan as we explain throughout this document and in the "what's changed" section.

In some areas our stakeholders have different views, for example, on how far our environmental commitments should go. We have had to make trade-offs to produce our plan and, where we have done so, we explain how we reached our view.

The independent stakeholder group has challenged us to take full account of your views and balance them appropriately.

Later in this executive summary, we explain how our plan delivers against your priorities.

Figure 1.1: The stakeholder and consumer priorities underpinning our plan



Executive summary

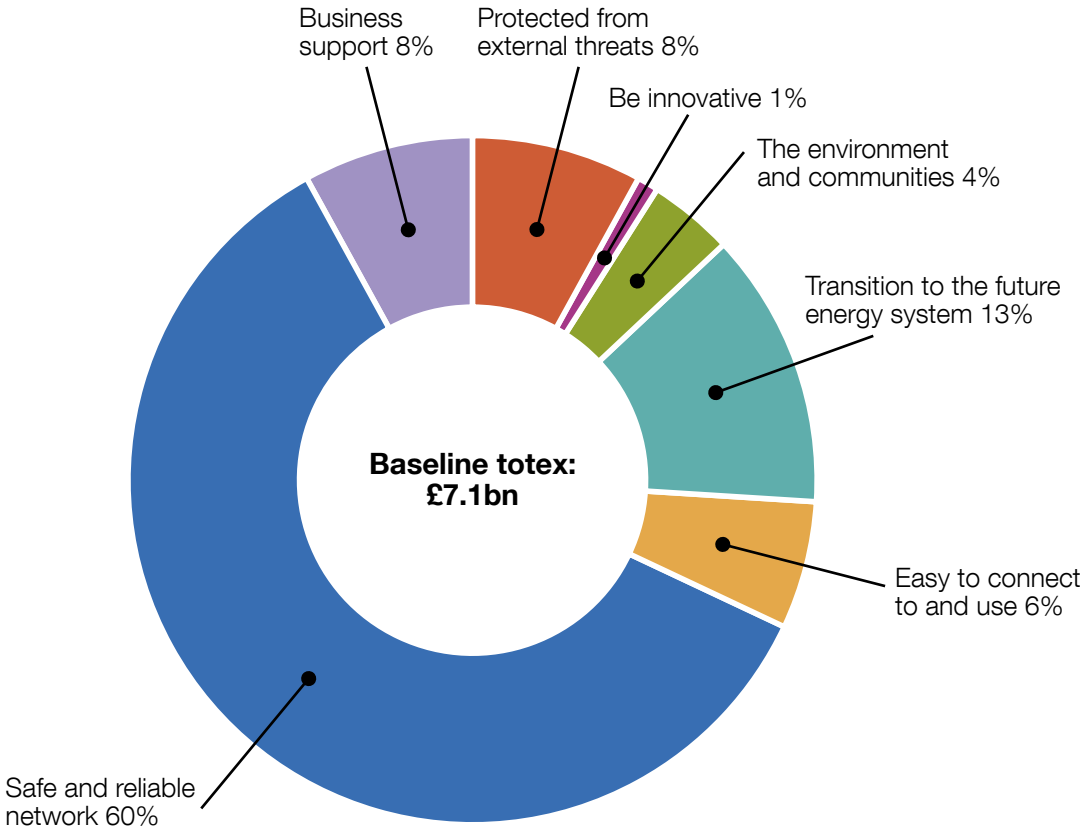
The cost of our business plan

The baseline total expenditure (totex) in our business plan is £7.1bn for the five-year period from 2021–22 to 2025–26.

The diagram below shows how our forecast baseline expenditure breaks down across your stakeholder priorities. The diagram also includes our business support costs, such as IT, finance and human resources that help us deliver against your priorities. Independent experts have benchmarked these costs to make sure they are efficient.

We have reduced our totex by £0.3bn since our first draft plan on 1 July. This reduction reflects that we have included £81m of efficiency savings into this plan as we signalled we would do in our July plan. We have also removed some expenditure from our baseline plan due to updates to Ofgem's guidance and as we have done more work on our cost-benefit analyses.

Figure 1.2: A breakdown of the baseline costs of our plan by stakeholder priority



We have only included more certain costs in the baseline funding we are requesting. Our baseline totex is high-cost confidence (a RIIO-2 regulatory term) because:

- we have benchmarked our costs against international comparators;
- we have challenged the vast majority of our costs against our past track record;
- the vast majority of our costs are subject to competitive processes; and
- we have excluded uncertain costs from our baseline and proposed more and improved uncertainty mechanisms to accommodate uncertain costs that might occur in the T2 period, reflecting changing consumer needs.

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The future is uncertain, but our plan is flexible

Our business plan uses a baseline forecast built on the common energy scenario. This is a view of future energy demand and supply patterns that we have developed with the other energy network companies (see chapter 3 for more details).

We have considered low and high-cost variations on our plan to show the differences in the outputs we would deliver for consumers.

The RIIO-2 Challenge Group has asked us to present a **low-cost variation** to our plan. It uses historical actual expenditure to set a cost ceiling for our operating costs, network reliability, resilience and the environment along with an efficiency improvement of 2 per cent per year in these areas.

This low-cost variation would reduce our baseline expenditure to **£4.9bn** for the T2 period, but does not deliver the primary outputs that our stakeholders have asked us for. Most importantly this variation would result in a very significant deterioration in network reliability, no investments to support communities or the environment and would create risks to achieving the UK's net zero target in the future. We do not consider this variation is a desirable outcome for consumers. It is a tool for exploring the consequences of lower totex. We set out this variation and the implications for consumers and stakeholders in more detail in Annex ET.11 RIIO-2 Challenge group totex sensitivity analysis.

We have also tested a **high-cost variation** to our baseline plan, that costs **£10.1bn**. This scenario consists of the £7.1bn baseline plus:

- us, rather than competing businesses, carrying out some large construction projects that are in the common energy scenario adding £1.45bn;
- uncertain customer-related expenditure such as harmonic filters, adding £0.46bn;
- the Hinkley Seabank project, adding £0.43bn; and
- additional visual impact and urban improvement projects (subject to stakeholder views) and currently uncertain cyber security expenditure, adding £0.62bn.

In addition to the high-cost variation we also have flexibility mechanisms that would allow us to deliver faster if decarbonisation accelerates towards meeting the UK's net-zero target.

We know the future will likely turn out differently to the common energy scenario. **We have built flexibility into our plan.** Our plan includes uncertainty mechanisms to adjust our outputs and revenue up or down to make sure consumers only pay for the outputs we deliver. Our plan also has whole system uncertainty mechanisms for where it is currently unclear which party is best placed to deliver the best outcome for consumers. Chapter 7 and annex ET.12 provide more information on our proposed uncertainty mechanisms.

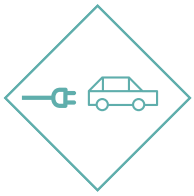
We are investing more in the network in the T2 period

Our total business plan expenditure is increasing by 18% from the T1 to the T2 period, on a comparable annual basis. Even so we are reducing the costs of operating our business in real terms during the T2 period by finding ways to become even more efficient. The increase in expenditure is because we will be investing more in our network infrastructure, for two main reasons:

- The age and condition of the transmission network means more of it is due for replacement in the T2 period than in the T1 period on a comparable annual basis. Replenishing these assets is essential to providing consumers with the reliable network they need for the future as we all become more reliant on electricity to achieve net-zero greenhouse gas emissions.
- The threat posed by cyber attacks on our systems and all electricity networks is evolving. We must invest more in technology and infrastructure to protect against the cyber threat to a highly resilient transmission network for consumers.

Executive summary

Delivering your priorities



We will enable the ongoing transition to the energy system of the future (chapter 7)

£936m
expenditure over five years

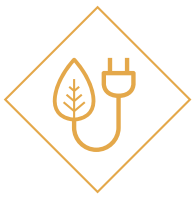
We are proposing £936m of expenditure over five years in our baseline plan for enabling the ongoing transition to the energy system of the future.

The main outputs we will deliver for you are:

- We will invest to increase network capacity by 22.5 giga-watts (GW), which will avoid system operation costs of at least £250m per year.
- We will invest in equipment and technology to support the electricity system operator (ESO) to operate a net-zero carbon electricity system by 2025.
- We are proposing to lower the cost of the energy transition by enabling flexible, competitive, whole system and non-build solutions.
- We are proposing strategic network options to accelerate the UK's progress towards net-zero greenhouse gas emissions.

Consumer benefits

Our outputs will allow the UK to make progress towards a net-zero energy system at the lowest total cost for bill payers. We will help reduce greenhouse gas emissions, benefitting future consumers and society more broadly. We will make sure the electricity network can still deliver electricity where and when it's needed to consumers even as the energy system changes.



We will make it easy for you to connect to and use the electricity network (chapter 8)

£417m
expenditure over five years

We are proposing £417m of expenditure over five years in our baseline plan for making it easy for you to connect to and use the network.

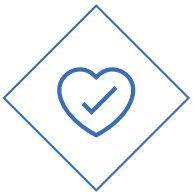
The main outputs we will deliver for you are:

- We will connect 15.3 GW of customer capacity, providing the UK with clean power, flexible storage and access to clean and cheaper power from Europe.
- We will invest in [redacted] additional transformer units to provide more network capacity for our demand-side customers.
- We will provide an agile service tailored to suit the needs of our rapidly changing customer base. We will do this by investing in our customer relationships and support systems.
- We are proposing output delivery incentives (ODIs) to manage outages better and deliver faster connections.

Consumer benefits

By linking up new generators to the network more quickly and efficiently we can help increase wholesale electricity market competition, putting downward pressure on costs for consumers. We will help reduce greenhouse gas emissions, by connecting low-carbon generators, benefitting future customers and society more broadly. We will improve our customers' experience by more effectively meeting their needs, which will help the whole electricity system run more smoothly, potentially lowering costs for consumers.

Executive summary



We will provide a safe and reliable network (chapter 9)

£4,287m
expenditure over five years

We are proposing £4,287m of expenditure over five years in our baseline plan to provide a safe and reliable network.

The main outputs we will deliver for you are:

- We will deliver world-class levels of safety and maintain our service reliability of 99.9999 per cent.
- We will invest to renew and modernise 6 to 19 per cent of our different network asset types to maintain reliability for future generations.
- We will deliver three major electricity cable projects in London, Sheffield and North Wales to maintain security of supply.
- We will divert our river-crossing on the Tyne to support growth in manufacturing (including wind turbines) in the North-East of England.

Consumer benefits

Our outputs will make sure that we protect the public from harm. We will maintain our current high levels of reliability so that electricity is available whenever and wherever current and future consumers want it.

We will protect the network from external threats (chapter 10)

£555m
expenditure over five years

We are proposing £555m of expenditure over five years in our baseline plan to protect the network from external threats.

The main outputs we will deliver for you are:

- We will improve the resilience of our business IT systems and operational technology to cyber attacks.
- We will replace the 1,850km of fibre optic cable and related equipment at 274 sites that support the transmission network.
- We will improve protection of 100 (nearly one third) of our operational sites from the risk of flooding due to climate change.
- We will deliver the expected new government standard for a Black Start recovery in the case of a full or partial shutdown of the network.

Consumer benefits

Our outputs will make sure that your electricity supply will be better protected from cyber attacks, physical attacks and extreme weather events. We will also be able to restore your electricity supply more quickly in the case of a full or partial shutdown of the network.

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We will care for the environment and communities (chapter 11)

£255m
expenditure over five years

We are proposing £255m of expenditure over five years in our baseline plan to care for the environment and communities.

The main outputs we will deliver for you are:

- We are identifying and pursuing the best way to reduce our scope 1 and 2 carbon emissions by at least one third, in-line with a path to net-zero.
- This will involve brave leadership on the SF_6 insulation gas, increasing the number of electric vehicles in our fleet and sourcing 100 per cent of our metered electricity from renewables.
- We will achieve net-zero construction emissions and 75% of our top 250 suppliers will have carbon reduction targets.
- We will increase the natural capital of our non-operational land by 10 per cent and improve our use of natural resources.
- We will use a stakeholder-led approach to reducing the visual impact of our existing assets in designated landscapes and to improving our assets in disadvantaged urban areas.
- We will support communities and wider society by providing educational and employment opportunities and by championing wage fairness through our supply chain.
- Together with our gas transmission business, we commit to up-skilling 6,000 people for the transition to the net-zero energy system, focusing on the lower-income communities we serve.

Our outputs for this priority will benefit current and future consumers by reducing greenhouse gas emissions, enhancing the natural environment and supporting communities.

We will be innovative (chapter 12)

£84m
expenditure over five years

We are proposing a programme of innovation projects that will support the delivery of our long-term strategic goals to provide a safe, reliable and resilient network, decarbonise energy networks and deliver value for consumers and society.

In the T2 period, we will continue to transform our culture to better deliver consumer benefits through our 'business as usual' activities, for which we are not seeking additional innovation stimulus funds.

To achieve consumer benefits in the T3 period and beyond, we are proposing an £84m programme of work funded through Ofgem's Network Innovation Allowance (NIA) provisions, with a compulsory contribution from us of 10 per cent.

The main outputs we will deliver for you are:

- We commit to create a more innovative, creative and performance-based culture across our organisation.
- We will explore how digitisation, artificial intelligence and data sharing could reduce our asset management costs.
- We will deliver a programme of innovation focused on reducing greenhouse gas emissions, such as finding and using alternatives to high-carbon materials on the network and opening up the Deeside innovation testing facility to all organisations.
- We commit to improve how we work with stakeholders on innovation, being more accessible, easier to work with and creating a joint innovation monitoring framework with all energy network companies.

Consumer benefits

Our outputs for this priority will benefit current and future consumers through lower costs, continued reliability of the network and quicker progress to a clean energy system.

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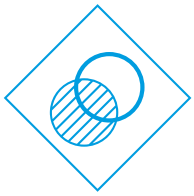


We will be transparent (chapter 13)

£1m
expenditure over five years

We are proposing £1m of expenditure over five years in our baseline plan for transparency.

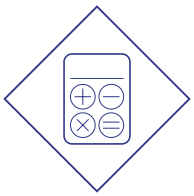
- To clearly show our commitment to this business plan we will make sure our leadership team's remuneration is linked to delivering the outputs in it.

The main outputs we will deliver for you are:

- In the T2 period, we will be clearer than ever on how what we deliver for you links to our financial performance.
- We propose that an independent stakeholder group will challenge us on our delivery of the outputs in our business plan and the clarity of our reporting.

Consumer benefits

Our outputs for this priority will mean consumers can see much more clearly what they are getting in return for paying our part of their energy bills. Consumers will benefit from an independent stakeholder group holding us to account for delivering against our commitments. A clear link between our leaders' pay and our delivery of outputs for you ensures our interests are aligned with yours.



Our total costs and how we will provide value for money (chapter 14)

£1.1bn
of past and future efficiency savings

The eighth of your stakeholder priorities is that we should provide value for money.

We recognise that budgets are tight, and we have challenged ourselves hard to reduce the cost of our business plan by £1.1bn or 13 per cent. As we explain in chapter 14, we use a range of techniques to make sure our costs are efficient, such as market testing and independent benchmarking.

We have built in the direct benefits of our past successful engineering and asset management innovations into this plan, saving at least £707m. We consider this is an underestimate of the savings because in many cases it isn't possible to quantify what the cost of our previous approach would have been.

We are also making several stretching commitments to **future efficiency savings worth in total £383m** as follows:

- We are committed to delivering the benefits of our stretching UK efficiency programme. This is an efficiency commitment of £200m.
- Independent specialist consultants have benchmarked our capital investment unit costs against similar international companies. While the benchmarking showed our plan is £100m cheaper overall than industry mean costs, we are committing to moving all the above-mean unit costs in our plan to the industry mean. This is an efficiency commitment of £43m.
- We are making a stretching commitment to improve the productivity of our operating costs and the costs in our capital plan that relate to our people by 1.1 per cent per year, almost three times the current UK productivity increase forecast. This is an efficiency commitment of £84m.
- We have benchmarked our business support costs. We will move all our support function costs to be upper quartile. This is an efficiency commitment of £29m.
- We will apply innovative solutions to address the life-limiting components of protection and control systems. This is an efficiency commitment of £27m.

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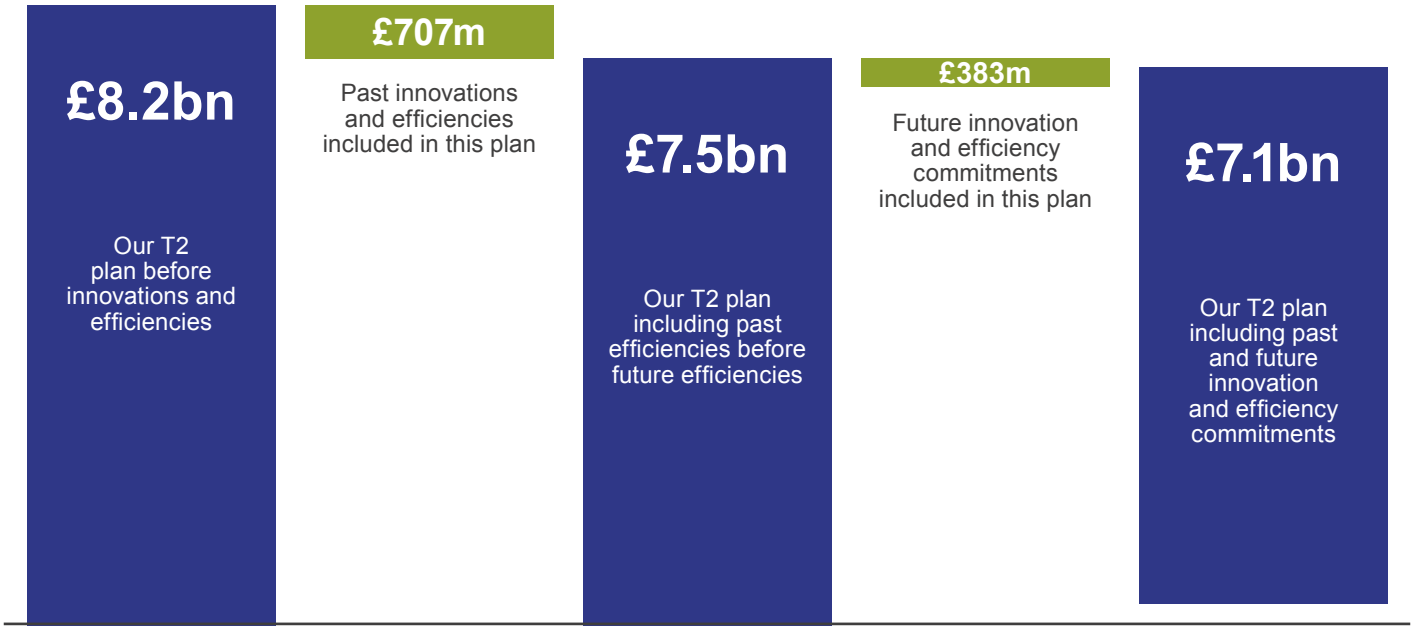
Figure 1.3 shows the £1.1bn of efficiencies we are committing to in the plan. They break down into £707m for building our past innovations and efficiencies into this plan and £383m for our commitments to future efficiency improvements in the T2 period.

We provide more detail on these efficiency savings in chapter 14.

We are committed to enhancing competition where it is in consumers' interest. In our plan we have identified the projects that meet Ofgem's early and late competition criteria. We are also committed to leveraging our scale, buying power and best practice to improve the value for money we achieve for consumers through our procurement process (which Ofgem calls "native competition"). See chapter 5.1 on competition for more details.

Figure 1.3: A breakdown of the efficiency savings in our business plan



How our plan should be financed (chapter 15)

Our stakeholders want us to take a leading role in ensuring a healthier and greener, net-zero future for the UK, while maintaining energy security at the lowest possible cost for consumers. The scale of this challenge is significant, requiring substantial investment in new technology and infrastructure to deliver clean electricity, transport, heating and industry: sectors which today make up 76 per cent of UK greenhouse gas emissions. It is vital that we have a regulatory framework that encourages long-term investment and provides an adequate financial reward for the risks we take in leading the change.

Within our plan, we provide evidence that Ofgem's proposed financial framework, including the use of 4.3 per cent cost of equity, does not enable us to maintain our current financial resilience and reduces our ability to take risks and innovate in a critical period of whole-system change. Ofgem's proposed framework reduces our bill impact in the short term, but will increase total energy bills in the medium and long term. We set out an alternative, sustainable financial framework which reduces our impact on consumer bills in the short, medium and long term, yet still incentivises investment at a time when it will be critical for the UK in achieving a net-zero future.

Executive summary

The impact on bills

The impact on household bills

Our annual average cost on a household electricity bill in the current regulatory period is just over £24 (in 2018-19 prices).

We will deliver our plan while **keeping flat or reducing our part of the household energy bill,** excluding inflation.

This is the result of:

- a lower return for the investors in our company compared with the current price control period;
- a reduction in average household use; and
- our strong commitments on efficiency, which have reduced the cost of delivering our outputs compared to what it would have been otherwise.

Our estimate of the cost of this plan on the annual average household bill is around £23.60 (in 2018-19 prices). This is a bill reduction of about 55p per year, or 2 per cent of our part of the average annual household consumer's bill.

We discussed low-totex and high-totex scenarios above. Using these scenarios and both Ofgem's and our proposed financial packages implies a range of approximately £21 to £25.50 for our part of the average annual household bill.

£7.1bn
of investment

£23.60
Cost of this plan on the annual average household bill

87%
of respondents find our plan to be acceptable

The impact on industrial, commercial and our direct customers' bills

The effect of this plan on industrial, commercial and our direct customers' charges will depend on their location, the type of contract they have and their energy use.

Customers have told us that we should give them visibility of our revenue trends over time. This will allow them to calculate their own specific bill impacts. The electricity system operator (ESO) has published its forecast for Transmission Network Use of System (TNUoS) charges over the T2 period. Our proportion of these tariffs is 58 per cent. Using the figures set out in this plan we estimate that our part of TNUoS will be broadly flat compared with the average level in the T1 period (before inflation).

Acceptability of our plan

An independent research organisation carried out acceptability testing on our business plan. 87% of consumers (household and business combined) found our plan and its bill impact to be acceptable.

Executive summary

What's changed

This is our final business plan. We have made several changes from our second draft plan in October to reflect challenges from our stakeholders, the independent stakeholder group, the independent RIIO-2 challenge group and updates to Ofgem's guidance.

What's changed

The main changes we have made to our business plan since October are:

- Reflecting the government passing its net zero target into law and your feedback, we are building further flexibility into our plan. We are proposing more uncertainty mechanisms to adapt to different routes to achieving net zero. We are proposing a net-zero uncertainty mechanism to allow new investment in the T2 period. We have strengthened our commitments to reduce our own emissions (see chapters 2 and 11).
- To explain how we will manage uncertainty in the T2 period we have provided more detail on our uncertainty mechanisms and summarised our approach in chapter 3.
- We have reduced our baseline totex by £0.1bn since our second draft plan. This reduction reflects the net effect of several changes. The main ones are: reducing the baseline due to the delay to HS2, including the costs of outputs to facilitate four potential late model competition projects; and an adjustment resulting from cost benefit analysis of two substation site strategies.
- We have explained more clearly how our T1 performance benefits consumers in our T2 plan.
- As requested by Ofgem and the RIIO-2 challenge group we are using a financial package with a cost of equity of 4.3 per cent to test our plan. We are also testing our preferred package with a cost of equity of 6.5 per cent, which is essentially the same as in our July first draft plan (see chapter 15).
- To justify our plan, we have provided more detail on how we have benchmarked our costs and more detailed breakdowns of our costs. We have added in our unit cost analysis, and provided asset-level condition information in our supporting evidence to provide greater justification for our plan.
- We have strengthened our innovation strategy, following feedback from stakeholders and obtained board support for our strategy (see chapter 11).
- For the consumer value proposition (CVP), we have added in monetised values (see chapter 5.4).
- We have defined more outputs, for example in the reliability chapter for "non-lead" assets. These provide certainty for us and stakeholders about what we will deliver (see annex ET.08).
- We have estimated the financial size of our output delivery incentive (ODI) package and provided more detail on the bespoke ODIs we are proposing in chapter 5.3.
- We have included more information on competition, including an overview of our approach in chapter 5.1.
- We have drawn out more clearly the whole system elements of our business plan (see chapter 5.2).
- We have added commitments reflecting our responsible business strategy such as upskilling 6,000 people and our employee volunteering focussed on low-income communities by the end of the T2 period.
- We provided more detail on our proposed engagement approach for T2 and we have included our future stakeholder engagement strategy as a standalone annex.
- We have included the final results of the independent acceptability testing of our plan. 87 per cent of consumers (households and businesses combined) find our overall plan and its bill impact to be acceptable.
- We have included Board assurance statements for our final plan.

We have changed our plan based on your feedback

Executive summary

Our Board's assurance statements

The Board of National Grid Electricity Transmission has been fully involved in developing this business plan and has provided review and challenge to ensure the evidence and assurance demonstrate that the plan is of a high quality. The Board has been actively involved in defining the nature and approach of the assurance carried out on the plan and in reviewing the findings of the assurance programme. This page summarises the assurance processes that we have carried out and the statements our Board feels confident to make as a result.

Our plan uses accurate, high-quality information

We have carried out a programme to make sure that our Board members have the information and confidence they need to assess the quality of the plan.

We have a strong control and assurance culture built on the tough rules that apply to us such as the London Stock Exchange listing rules and the UK's corporate governance code. Our RIIO-2 assurance plan builds on these strong existing assurance systems.

We have performed a full risk assessment of our RIIO-2 business plan and designed an assurance plan appropriate and proportionate to the level of risk.

We have mapped supporting evidence and assurance results to the statements below to give the Board confidence to make them.

We have engaged an external expert consultancy to independently review and advise us on our risk assessment and planned assurance approach. That firm has also reviewed how we carried out our assurance programme and has given its views to the Board on the validity of the statements below based on the evidence they have reviewed.

Our assurance statements

The following assurance statements are made by the Board with reference to this document only ("the Company's Business Plan"), as submitted to Ofgem on 9 December 2019:

- The Board owns the overall strategy and direction of the Company's Business Plan.
- The Board is of the opinion that the Company's Business Plan is accurate and based on high-quality data. The Board has reached this conclusion through implementing an overall strategy for data assurance and governance that has sought to deliver a Business Plan that is accurate and based on high-quality data.
- The Board has challenged and satisfied itself that, in the opinion of the Board, expenditure forecasts included in the Company's Business Plan are robust and efficient.
- The Board has challenged and satisfied itself that, in the opinion of the Board, the Company's Business Plan is ambitious.
- In the opinion of the Board, the Company's Business Plan represents good value for money for existing and future electricity consumers as a consequence of it being a robust, efficient and ambitious plan.
- The Board has sought to implement a strategy to satisfy itself that the Company's Business Plan achieves stakeholders' trust and confidence and is of the opinion that this is achieved as a result of the high levels of transparency and engagement with stakeholders during its development.

For details of the level of assurance given over the financeability of the Business Plan and key definitions in relation to these statements see annex ET.05 Assurance report.

Signed, the board of National Grid Electricity Transmission plc:

Nicola Shaw
Chair

David Wright
Director Electricity Transmission

Chris Bennett
Director Regulation

Alan Foster
Chief Financial Officer

Cathryn Ross
Sufficiently independent director

Dr Clive Elphick
Sufficiently independent director

Alexandra Lewis
Treasurer

The context for our plan

2. The route to net-zero emissions

We see net-zero greenhouse gas emissions as both a huge challenge for the UK, and a great opportunity. We believe in a future that is clean, green and thriving, where nobody gets left behind. We know we have a crucial role to play in enabling the acceleration towards net zero, while minimising the cost of this for consumers and developing critical skills for people. We are ready to lead in accelerating this transition, designing and delivering transformative, innovative engineering to help solve cross-sector challenges at scale across the country. To face this challenge, it will be essential that we all work together. The next page shows a vision of our journey to net zero with our commitments to enable the transition, as well as what's needed from policy makers, regulators, and other network companies, to deliver at the pace needed.

Our commitments for net zero

Electricity decarbonisation

We are committed to maintaining our focus on consumers' and stakeholders' priorities though our journey to net zero. For example, we will not compromise on system reliability, affordability or transparency. We will be ready to respond to an acceleration of new low-carbon connections during this price control period. We will make sure we can deliver outputs at pace, including a step change in connection delivery speed. We have also developed a series of robust, cost-reflective, automatic mechanisms to deal with up to £1.8bn of future uncertainty and provide flexibility in volume, pace and whole-system solutions. We must make £0.6billion of critical investments in the existing network to deliver net-zero system capability, and to drive down costs. This will include whole-system collaboration and innovation to develop cross-sector solutions.

Transport decarbonisation

Without the rapid development of fit-for-purpose charging infrastructure, the uptake of electric vehicles could be delayed. We will work alongside Government and industry to overcome these cross-sector challenges for electric vehicle infrastructure, deliver cleaner air for our communities, and support solutions for decarbonisation of wider transport, such as rail and shipping.

Heat decarbonisation

We recognise that the future of the heat is likely to develop as a mosaic of technologies which could include electrification and hydrogen. To support this evolution, we will proactively engage in the debate and facilitate innovation projects to make sure the electricity transmission network is ready for the transition.

Our own emissions

We will achieve net zero for our scope 1 and 2 emissions by 2050, with interim targets of a 50% reduction by 2030 and 34% by 2026, from a 2018/19 baseline. Our stakeholders have been clear that they expect us to go faster; we share this ambition and are working hard to find ways to accelerate. The biggest single contributor to climate change we have is SF_6. We will provide brave leadership with targeted investments to replace leaking SF_6 equipment and tackle the challenge. See our Net-Zero Journey for further commitments. We will also move towards a 100% alternative fuel fleet by 2030 and 100% renewable electricity for our own use, with a 20% increase in energy efficiency for our offices by 2026. For our full set of emissions commitments, please see chapter 11.

What's needed from policy makers by 2021

It's clear that we need to work together on the solutions. The country needs a clear policy framework to fairly distribute the costs of decarbonisation across households, tax-payers and businesses and we welcome the Treasury's proposed review of this issue in 2020. A standard carbon pricing methodology would ensure whole-life environmental impacts are appropriately considered for investments. This would sit alongside funding for critical net-zero investments and a confirmed approach to whole-system solutions across energy companies. A flexible, ex-ante price control framework is also needed to deliver net zero. In addition to our proposed uncertainty mechanisms, an agile anticipatory investment process would help to fairly allocate risk and funding to the parties best placed to deliver solutions, and enable a faster, more cost-effective transition for consumers. And finally, there needs to be a workable early competition model to attract the right capital at the right rate of return, giving consumers confidence they are securing an economic and efficient deal across the whole-life of large projects.

HIGH CARBON

Our Journey to Net-Zero Carbon

Electricity Transmission

nationalgrid

ONGOING COMMITMENTS

What we need from Policy

(by 2021 to deliver at the pace needed for net-zero)

- An industry agreed approach to agreeing whole system solutions
- Clear industry specific milestones for UK net-zero
- Clear policy for the distribution of decarbonisation costs
- Funding for system monitoring and protection & control
- Decision on who funds motorway service EV charging - tax payer or bill payer?
- Agreement to proposed Uncertainty mechanisms
- An agile anticipatory investment process with clear funding decision
- An agreed approach to whole-life environmental impacts with an agreed carbon pricing methodology
- A workable 'Early' CATO model for competition
- Funding for vehicle replacements, permanent SF6 removal and some offsetting

2019, £1.8bn of defined Uncertainty Mechanisms for future flexibility

2019, £5bn of initial Anticipatory Investment options developed

2019, identified four contestable transmission projects at £4bn

2020, clear statement to non-SF6 suppliers of what we need

Step change in customer service and connection delivery speed

Proactively monitor and contribute to developments

Purposeful focus on enabling a decarbonised electricity grid, with no compromise on reliability

Keep our consumer promises of transparency and affordability

Consumer-first approach through disruptive times to make sure no-one gets left behind

Activate innovation projects and facilitate rollouts where relevant

2021

43% renewable generation

27k charging points

1% electric vehicles

38% homes EPC band C or above

4.5% low carbon heating

1,900 gas or hydrogen vehicles

2021 Forecast

Electricity Demand	285TWh per year
Installed Elec Capacity	108GW
Hydrogen	<1TWh
CCUS	0%
Gas Demand	804TWh per year
Green gas production	0

2021, we believe in whole system working and will pro-actively participate

2021, design all 132kV (and below) with non-SF6 assets

2026, net-zero construction (PAS 2080 standard)

2024, at 400kV design and install non-SF6 assets (as soon as 2 market solutions are available)

2025/6

60% renewable generation (74GW)

54 motorway rapid and ultra chargers

LowC heating - all new builds

ESO can operate a net-zero grid

2026, 75% of our top 250 suppliers with carbon reduction targets

2026, 100% renewable sources on metered electricity and 20% increase in office energy efficiency

2026, £500m of network capability investments to reduce system operation costs by £250m/year

2026, £80m of critical system monitoring and protection & control investment for net-zero system operation

2026, consent development of critical path infrastructure (Eastern HVDC, Southcoast and Yorkshire)

2026, work with Government and industry to address the challenges with timely charging infrastructure delivering

2026, we will evidence and enable efficient and timely, cross sector solutions

2030

75-85% renewable, nuclear, CCUS generation (98GW)

60k charging points

25% (~11million) electric vehicles

100% homes EPC band C or above

10% low carbon heating = 2.8million homes

All sales low carbon (2035 latest)

2030, 100% alternative fuel fleet (assumes 4x4 and HGV alternatives available)

2030, 50% reduction in scope 1 & 2 emissions from 2018, in-line with a confirmed Net-Zero pathway (34% by 2026)

2040

Net-zero carbon industrial cluster

Hybrid electric aircraft

95% renewable generation

HGVs move to hydrogen

54% rail track electrified

All gas boilers replaced

New ICE cars banned

300k gas or hydrogen vehicles

210k town chargers

100% cars & vans electric

800 hydrogen fuelling stations & 90,000 depot chargers

2050 Forecast

Electricity Demand	400-600 TWh per year
Installed Elec Capacity	233-227GW
Hydrogen	270TWh
CCUS	175 MtCO2 = 29.1%
Gas Demand	204-585 TWh per year
Green gas production	71TWh to 128 TWh

2050

3,500 motorway rapid & ultra chargers

Most HGVs to hydrogen

90% homes lowC 29.5million homes

2050, we will achieve net-zero for our scope 1 & 2 emissions

Our commitments for a net-zero electricity system

KEY:

- Our commitments for electricity
- Our own ET footprint
- Our commitments for transport
- Our commitments for heat
- Our consumer commitments

NET-ZERO CARBON

In addition to our own analysis, these figures have been extracted from the CCC report and net-zero FES Scenarios

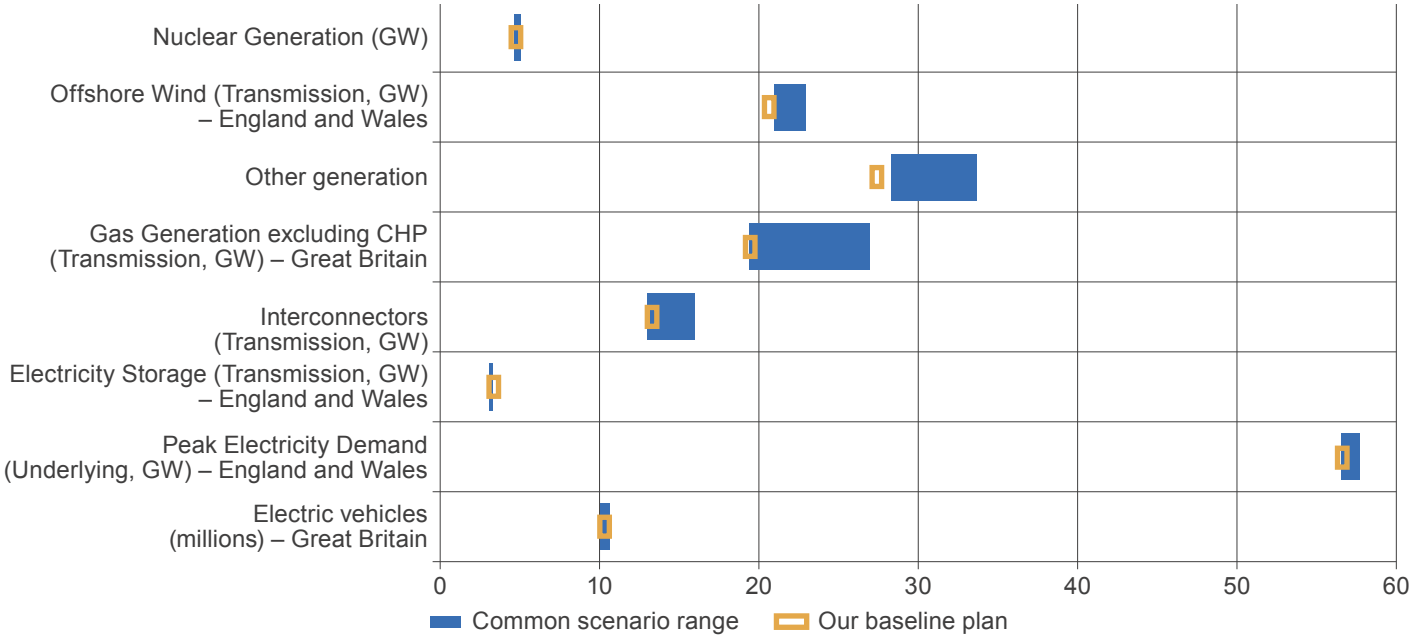
The context for our plan

3. The common energy scenario and managing uncertainty

We have built our business plan using the minimum values in the Energy Networks Association (ENA)'s Common RIIO-2 Scenario report as a benchmark. This is an Ofgem requirement. The purpose of the common energy scenario is to make sure the different network companies' business plans are based on a consistent view of the future.

The figure below shows that the main assumptions about the future in our baseline plan lie at, or below, the bottom of the ENA's common scenario range. The assumptions below the range reflect the need for us to build a self-consistent scenario for England and Wales.

Figure 3.1: Our baseline and the common energy scenario ranges for 2030



We know the future will more than likely turn out to be different from the common energy scenario. For example, the scenario does not assume a reduction in greenhouse gas emissions large enough to deliver against the UK's commitment to net zero by 2050.

We are working with other network companies to define an energy scenario that support the UK's net-zero target and to estimate the costs of it.

Our plan includes a number of uncertainty mechanisms (UMs) to adapt to different future energy scenarios as we explain on the next page.

The context for our plan

Managing uncertainty

Our plan can flex to reflect changes during the T2 period

We have taken the following approach to managing uncertainty:

- We have protected consumers by only including costs with high certainty in our baseline and proposing uncertainty mechanisms (UMs) for less certain costs.
- Our UMs make sure that if the needs of consumers or our customers change from the assumptions in the baseline plan, our allowances change so that we can invest in the outputs they need.
- Wherever possible our UMs retain the incentive for us to reduce our costs and share the cost savings with consumers.
- Our UMs are designed to allocate risk to whoever is best placed to manage it.
- Some of our UMs are designed to provide flexibility and optionality to facilitate whole-system solutions within the price control period.
- Some of our UMs are designed to adjust funding to reflect changes in externally driven requirements.

Table 3.1: The uncertainty mechanisms in our plan

Category of UM	Purpose and example
Changing energy system	We propose several UMs that automatically adjust our baseline allowances up or down at pre-defined efficient unit cost allowance (UCA) rates to reflect how customer-driven requirements turn out differently from the common energy scenario.
UM7-1: Boundary capability	
UM7-2: Facilitate competition (pre-consents)	
UM8-1: Generation connection	
UM8-2: Demand connection	
Facilitate whole-system outcomes	For some activities it is not currently clear which party is best placed to deliver the best outcome for consumers. Our whole-system UMs allows us to change the approach during the price control period to achieve the best outcome for consumers. For example, our harmonic filtering UM allows us to provide harmonic filters if we can do this more cheaply than our customers.
UM7-3 System operability (voltage)	
UM7-4: Protection and control	
UM7-5: Whole systems co-ordinated adjustment mechanism	
UM7-6 Harmonic filtering	
UM7-7: System operability (other ESO requirements)	
UM8-3: Low voltage rebuild (embedded generation)	
Protecting against external threats	There are several areas of our plan that reflect regulatory or government-driven requirements to protect the network against external threats. These UMs allow us to put only the certain requirements in our baseline and change our allowances when new requirements become clear.
UM10-1: Extreme weather	
UM10-2: Physical security	
UM10-3: Cyber security IT	
UM10-4: Cyber security operational technology (OT)	
UM10-5: Black Start	
UM10-6: Ensuring a resilient electricity network	
Net zero and stakeholder projects	Some of our UMs propose a route to seek specific project funding from Ofgem within the T2 period for certain projects that are currently uncertain or unknown. For example, stakeholder driven visual impact mitigation projects or projects to meet any new net-zero requirements.
UM11-1: SF_6 replacement	
UM11-2: Visual impact provision	
UM11-3: Urban improvement provision	
UM11-4: Net zero	
Market indexation	We have UMs that link some cost allowances and financial metrics to market-driven price changes, to reduce forecast error and ensure our allowances reflect external market conditions. These UMs include real price effects (RPEs), cost of debt indexation and indexation of part of the cost of equity.
UM14-1: Real price effects (RPEs)	
UM15-1: Inflation indexation of RAV and allowed return	
UM15-4: Cost of debt indexation	
UM15-5: Cost of equity indexation	

Further information

We provide more details on our uncertainty mechanisms in section 7 on “risk and uncertainty” in each of chapters 7 to 13. We also provide more information in annexes ET.12 Uncertainty mechanisms and ET.12A Uncertainty mechanisms snapshot table.

4. Our track record

In the first six years of the T1 period (2013-14 to 2020-21) we have delivered all our outputs, and outperformed them in some cases, at a significantly lower cost than expected at the beginning of the period. We have shared these savings with consumers and we will start the T2 period as an efficient business. All the efficiencies and innovations we have delivered in the T1 period are fully built into this business plan. We provide more information in annexes ET.04 and ET.09 and section 2 of chapters 7 to 14.

Upgrading our network
We are investing over **£4bn** to make sure we provide world-class reliability for future generations.

Protecting the electricity network
We are protecting **90** sites from external threats to keep your electricity supply secure.

High levels of reliability
We are delivering world-class network reliability of **99.9999 per cent** energy supplied.

Delivering a cleaner energy system
We are connecting and facilitating **12.6 GW** of clean generation.

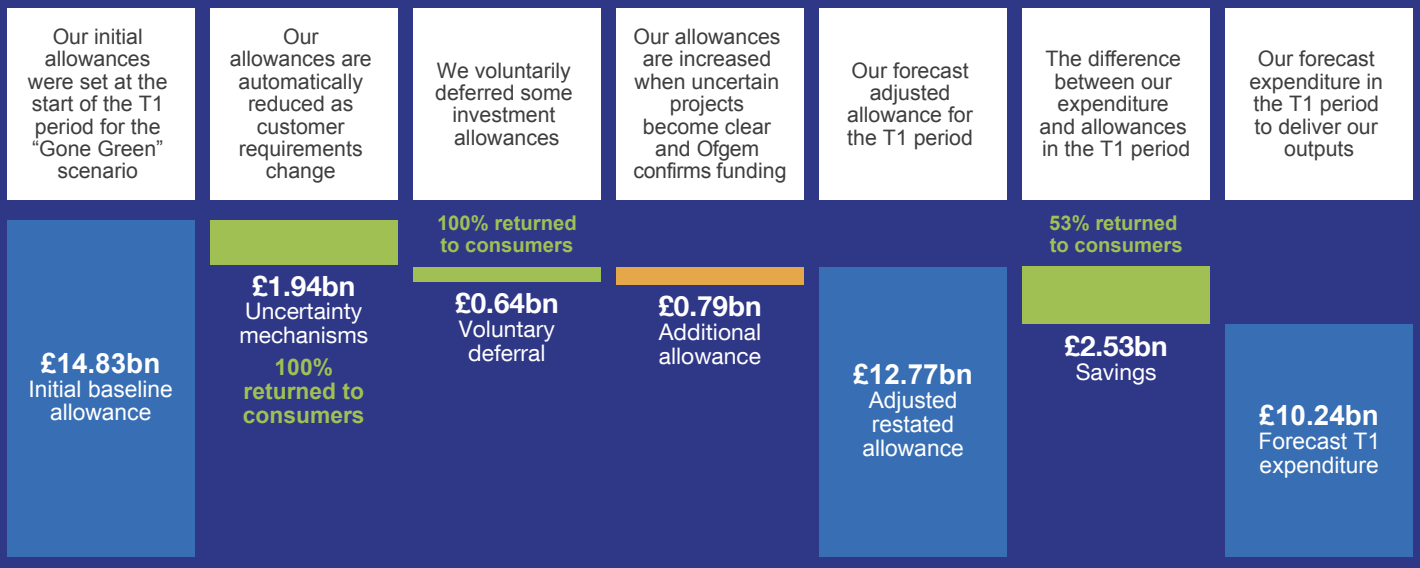
Lower greenhouse gas emissions
We have trialled the use of 30 electric vehicles to support the transition to alternative fuels.

Improving the natural environment
We have enhanced the natural environment at **30** of our sites.

Highest-ever customer satisfaction
Our connection customers' satisfaction has increased to **8 out of 10.**

Investing in communities
We have awarded **£1.24m** in grants to community projects.

We have saved consumers money in the T1 period while still delivering our key outputs



Our financial return

Reflecting our excellent performance so far in the T1 period we have earned a financial return (called the return on regulatory equity) of 10.5 per cent (adjusted for RPI). This consists of: 7 per cent for our allowed equity return; 1.9 per cent for costs outperformance; 0.5 per cent for output and innovation incentives; 1.6 per cent for our debt performance and -0.5 per cent for our tax performance.

5. Cross-cutting themes

5.1 Competition

There is an urgent need to legislate to create an early competition regime to help deliver net zero at lowest cost for consumers

We strongly support increased competition in electricity transmission wherever it can deliver benefits for consumers.

Native competition

We already use competitive tendering to achieve value for money for consumers on the vast majority of our expenditure delivered by third party contractors. This is called 'native' competition because it is a form of competition run by us to facilitate the delivery of our obligations and outputs at competitive costs.

We set out our native competition plan in chapter 14 of this business plan. The plan explains how we go further than the minimum legal requirements to get the best value out of our procurement processes and supplier base. For example:

- we continue to introduce new suppliers to our processes to increase competitiveness, improve standards and lower costs; and
- we do not favour any particular technology and we encourage innovative solutions from suppliers and contractors.

Early competition model for large infrastructure projects (>£50m)

For some of our large, separable transmission infrastructure projects there is a potential for parties other than us to deliver benefits for consumers through innovation in technology and design. This could be achieved by running a competition allowing third parties to bid for the development, delivery and operation of such infrastructure from an early stage.

To deliver net-zero greenhouse gas emissions by 2050 at lowest cost we think it is essential and urgent for Ofgem and the government to establish a competitively appointed transmission owner (CATO) early competition model. The CATO model would provide a statutory framework, with licensed entrants, that is the only approach that can achieve the benefits of competition while making sure consumers are protected.

We commit to working with stakeholders to develop a CATO early competition model for large, separable transmission infrastructure projects.

We have identified projects in our business plan for the T2 period that might be suitable for third party competition at the £50m threshold defined by Ofgem for early competition. We have identified £3.4bn worth of potential candidates for early competition.

Late competition in the provision of large infrastructure projects (>£100m)

Ofgem has also set out requirements to identify late competition candidate projects. These are projects where third parties bid for the delivery and operation of projects for which we have already completed the development and consenting phases.

The independent electricity system operator (ESO) has assessed our business plan against the relevant Ofgem contestability criteria and found four projects, with expenditure of £1.4bn in the T2 period (£5.1bn total project costs), that meet Ofgem's criteria for late competition.

Table 5.1: Projects the ESO has assessed meet Ofgem's late competition criteria

Project	Total cost
South London to south east coast	£[redacted]bn
Torness to Hawthorn Pit	£[redacted]bn
Peterhead to Drax	£[redacted]bn
Central Yorkshire	£[redacted]bn

These projects have gone beyond the point for early competition, so we have included the costs of completing the project development and consenting phases in our baseline plan (£182m) as an output. This will make it easier for Ofgem to consider late competition for these projects.

5. Cross-cutting themes

5.2 Whole systems

Achieving net-zero greenhouse gas emissions by 2050 at the lowest possible cost for consumers requires a whole-system approach to be taken across power, heat and transport. We think an important part of whole-system thinking is valuing flexibility, keeping options open and seeking to optimise where there are trade-offs between different parties.

We have built our plan in this way and are making proposals that facilitate whole-system solutions. The key ones are as follows.

A whole-system approach across power, transport and heating

Our plan includes options and flexibility to accelerate the decarbonisation of transport, power and heating:

- a network option for ultra-rapid electric vehicle charging at motorway service areas to help overcome range anxiety, which is currently a barrier to electric vehicle take up;
- uncertainty mechanisms (UMs) that facilitate the increase in demand associated with the uptake of electric transport, or approaches to heating that might have an impact on the electricity network, such as hydrogen production or heat pumps;
- UMs that facilitate the connection of low-carbon generation and enable the system operator to signal the investments required to enable it to operate a zero-carbon power system by 2025; and
- an option to build the onshore transmission network around the east coast of England to significantly reduce the whole-system cost and disruption to local communities of connecting new offshore wind farms in the North Sea to the network.

Some of these proposals require Ofgem or the government to establish a new anticipatory investment framework to enable the investment in infrastructure.

Whole-system optimisation to reduce total costs for consumers

The ESO is seeing a rising trend in system balancing costs, running to hundreds of millions of pounds each year. We are proposing a new approach to help reduce these costs where, on a targeted basis, transmission owners can provide flexibility in investment options, system access and enhanced network capability to the ESO. The ESO would weigh up the additional costs of these options against the reduction in constraint costs allowing it to make choices that reduce total costs for consumers. We estimate this new approach could save up to £200m of constraint costs annually.

Keeping options open

There is a value to keeping whole-system options open where it is not currently clear who could provide the best solution for consumers. Where our engagement activities have highlighted scope for this, we have reduced our baseline totex plan:

- by £184m by excluding costs to maintain compliance with security standards where whole-system alternatives could exist; and
- by £105m for low-voltage substation re-builds where alternative approaches could avoid the need.

We are also proposing UMs that allow us to provide transmission solutions to these issues, but only if they represent the best whole-system solution for consumers.

Innovation

Our innovation strategy for the T2 period focuses on whole-system solutions to decarbonisation. We propose exploring opportunities with other industries (such as transport, steel and cement) to drive decarbonisation, as well as finding a viable alternative to the greenhouse gas SF_6 that we use on our network, which could be deployed worldwide. We are also opening up our Deeside centre for innovation to allow cross-sector research and trials of technologies to allow whole-system innovations to be applied more quickly.

Up to £200m
of possible annual constraint cost savings

£289m
reduction in our baseline plan to allow for whole-system solutions

5. Cross-cutting themes

5.3 Output delivery incentives (ODIs)

We are using outputs extensively in our business plan so that consumers and our stakeholders can see what we will deliver for them.

For some of our outputs there is a benefit to consumers and our stakeholders of us outperforming our targets. For these, we are proposing output delivery incentives (ODIs) to align our incentives with those of consumers and stakeholders.

The table below shows the nine ODIs in our plan with a description of how they benefits consumers. The table includes an estimate of the maximum penalty or reward we could incur based on our performance.

The first five ODIs are common ODIs, that Ofgem has developed and consulted on. These apply to all three transmission owners in Great Britain.

This is a tougher ODI package than in the T1 period because the maximum penalties are higher and the targets are more challenging.

Table 5.2: The ODIs in our business plan with their financial range

Output delivery incentive (ODI) and purpose	Common or bespoke	Maximum penalty (% of base revenue)	Maximum reward (% of base revenue)
Quality of connections survey – incentivises us to improve our service to connection customers at the key moments that matter to them through the connection process.	Common	-0.6	+0.6
Energy not supplied – incentivises us to take additional actions to minimise the interruptions to energy supply on our network.	Common	-3	+0.14
SF_6 and other gases leakage – incentivises us to reduce the leakage of insulation and interruption gases that contribute to climate change.	Common	-0.34	+0.34
Timely connection offers – penalises us if we do not provide connections offers within 90 days.	Common	-0.5	0
Infrastructure projects engagement – encourages us to carry out good-quality stakeholder engagement for infrastructure projects.	Common	Non-financial	
Environmental scorecard – incentivises us to outperform the stretching commitments in our environmental action plan, and penalises us if we don't deliver them.	Bespoke	-0.25	+0.25
Outage management – incentivises us to manage outages better with the customers affected.	Bespoke	-0.4	+0.4
Accelerating low-carbon connections – incentivises us to deliver connections with shorter lead times where customers want them and where it reduces carbon emissions.	Bespoke	0	+1.0
Stakeholder satisfaction – encourages us to continually improve the way we engage with our stakeholders.	Bespoke	Non-financial	
T2 total		**-5.1**	**+2.7**
T1 total (for comparison)		**-4.3**	**+2.3**

5. Cross-cutting themes

Our bespoke ODIs

Bespoke ODIs are the ones that we have developed for our business, based on the views of our stakeholders in our engagement with them on our business plan.

In the table below we provide more information on the targets and incentive rates we are proposing for our bespoke ODIs. We provide more detail on all the bespoke and common ODIs in annex ET.06.

Table 5.3: Bespoke ODI targets and incentive rates

Bespoke ODI	Target	Incentive rate
Environmental scorecard	The environmental scorecard uses seven targets from our environmental action plan covering: 1. alternative fuel vehicles 2. reducing business mileage emissions 3. waste recycling 4. waste reduction 5. water use reduction 6. environmental value of our non-operational land 7. net environmental gain on construction Full details are in annex ET.06.	The ODI involves scoring our annual performance from -14 to +14 based on how well we have performed against the seven targets from our environmental action plan. The incentive payment is linked to the score, with the maximum penalty of £4m for a score of -11 to -14 and the maximum reward of £4m for a score of +11 to +14.
Outage management	We propose a survey satisfaction score target of 7.7 in 2021-22 increasing to 7.9 in 2025-26. The target starts at a score 0.1 above our average performance in the three most recent years. The target ends at a score that is the highest score we have ever achieved. Customer expectations tend to increase over time so the same score becomes harder to achieve each year.	We propose an incentive rate of £0.6m for a satisfaction score 0.1 below or above the target. This is based on the proportion of outage survey responses in Ofgem's T1 common incentive. We are proposing a cap and collar on the incentive of £6.5m.
Accelerating low-carbon connections	For existing contracted customers, we propose the targets are the dates in their current contracts. For new customers the target is based on the common energy scenario average delivery time for generation connections of approximately 64 months, which might need adjusting for the particular type of customer.	The incentive rate is £2,088 per month early per MW of low-carbon generation. We have derived this from the government's traded carbon price for the years 2021 to 2025. This ODI is focussed on delivering an improved service and is therefore reward only. The ODI balances the penalties we face for a poor connection service under other parts of the RIIO-2 package. We are proposing an annual cap of 1.0% of our base revenue, which is just over £16m per year.
Stakeholder engagement	We will work with the independent stakeholder group to set targets for our stakeholder engagement for the T2 period, including a non-financial ODI.	Not applicable (non-financial incentive)

5. Cross-cutting themes

5.4 Our consumer value proposition

Our business plan provides a large amount of value to consumers, including benefits from: enabling the transition to the low-carbon energy sector of the future; a highly reliable electricity supply; and supporting local communities. We are doing all this while keeping flat, or reducing, our part of the energy bill.

The consumer value proposition (CVP) covers the areas where we are going beyond Ofgem's requirements for our business plan and beyond business as usual activities to provide additional value for consumers.

An independent specialist consultancy has provided the values for those parts of our CVP we can monetise. These are summarised in the table below.

We have engaged with Citizens Advice and the stakeholder group on our monetised CVP and taken account of their views.

Table 5.4: Our monetised consumer value proposition

CVP item	Description	Monetised value (£m)
CVP1 – Optimisation of harmonic filtering	Saving consumers money by us carrying out harmonic filtering rather than our customers.	18.82
CVP2 – Whole-system alternatives to reactor investments	Saving consumers money by allowing for a whole-system alternative to reactor investment.	16.62
CVP3 – Whole system approach to low-voltage substation re-builds	Saving consumers money by allowing for a whole-system alternative to low-voltage substation re-builds.	9.48
CVP4 – Tougher energy not supplied (ENS) target	We are committing to a tougher energy not supplied target at no additional cost to consumers.	2.68
CVP5 – Caring for the natural environment	We are improving the natural capital value by 10% at our non-operational land at no additional cost to consumers.	14.67
CVP6 – Supporting local urban communities	We are proposing a new, innovative scheme to improve our assets in disadvantaged urban areas.	22.58
CVP7 – Developing alternatives to SF_6	We are innovating to find an alternative for the SF_6 insulation gas, which will reduce greenhouse gas emissions.	13.10
CVP8 – SO:TO optimisation	Saving consumers money by providing the ESO with flexible options to reduce whole-system costs.	84.88
CVP9 – Deeside innovation centre	Opening up our Deeside centre for innovation to allow cross-sector research and trials of technologies.	26.13
Total CVP		**209**

Added to the monetised CVP items are many examples of where our plan provides consumer value, but we cannot robustly quantify the value.

These examples cover areas such as providing leadership in sustainability, providing resilience advice to key network users and more sophisticated uncertainty mechanisms.

Further information

We provide more detail about our CVP in annexes ET.07 to ET.07C.

National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom
Registered in England and Wales
No. 4031152

www.nationalgrid.com