

Electricity
Transmission

Our Performance 2021/22



nationalgrid

Alice Delahunty welcome message

– Executive summary



Welcome to this, the first annual performance report for the RIIO-T2 price control period which began in April 2021 and runs through to March 2026. The work we do maintains a safe and reliable electricity transmission network whilst also strengthening it to allow new customers to connect, including low carbon generation to support the UK's move towards 'Net Zero'. In this report, we will focus on what we have delivered in 2021/22 and look forward to the rest of RIIO-T2.

We are committed to making a positive contribution to society by helping the young people of today to become the energy problem-solvers of tomorrow and tackling climate change. That's why the company's vision is to be at the heart of a clean, fair and affordable energy future, ensuring everyone benefits from the energy transition, that our part of the bill is not a burden for individuals or families, and that no one gets left behind.

Our original RIIO-T2 business plans were developed following our largest ever engagement exercise to date, with customers, industry stakeholders, businesses, and household bill payers across the country. As part of the

process, the Independent User Group (IUG) was established to provide challenge on our business plan process. The IUG consists of a cross-section of the energy industry and represents the interests of consumers, environmental and public interest groups, as well as large-scale and small-scale customers and distribution networks. It has now taken on an enduring role through RIIO-T2. It is chaired by Trisha McAuley OBE, an expert in consumer affairs. You can read her feedback later in this report.

I am proud to report that our Electricity Transmission business has continued to perform well for our customers and ultimately for end consumers by delivering safe, efficient, and reliable transmission services in 2021/22. Our performance in the areas that matter to you includes:

- **Safety** – this is a core value and something we are always striving to improve further, however, during 2021/22 we have seen our overall injury frequency rate (IFR) increase from 0.10 to 0.15. The reduction of all incidents, especially those with potential to harm, is our key focus in Electricity Transmission.
- **Reliability** – We have continued our strong performance from RIIO-T1 to exceed our reliability target in the first year of RIIO-T2, achieving an average network reliability of 99.99994%, which our stakeholders tell us is vitally important to them.
- **Customer Connections** – 408 connection offers were made. This is the most offers that have ever been made in a single year, a greater than 50% increase on the prior year.

- **Quality of Connections** – this new incentive for RIIO-T2 replaces the Customer Satisfaction (CSAT) measure from RIIO-T1 and covers the customer experience throughout the connections journey. In the first year, we exceeded the target (7.7) and achieved a score of 7.8. We have worked hard to deliver this outcome, with customers recognising we understand and resolve their issues.

- **Environment** – The Environmental Scorecard is also new; it encourages us to further reduce our carbon emissions, improve the natural environment and reduce our resource use for the benefit of current and future consumers. We are very pleased to report that we have outperformed on all elements of the scorecard this year, and continue to look at ways to further reduce our environmental impact.

This reporting year has also been important as the UK moves towards Net Zero. The Electricity System Operator published its latest Network Options Assessment along with a report called 'Holistic Network Design' as part of its 'Pathway to 2030'. These publications signalled the need to move quickly to strengthen and develop our network. This work will facilitate the connection of low carbon generation (such as offshore wind, new nuclear and interconnectors with Europe), and to respond to changing patterns of demand. Our wider East Coast strategy supports the Government's ambitious target of 50GW of new wind connections by 2030. Significant network investment will be required to achieve this, and we expect to make numerous submissions to Ofgem as these

individual projects develop over the coming years. We will need to work closely with you in the communities affected by these works and will spend significant time helping you understand the need for this new infrastructure and allow you to shape our proposed solutions.

We have continued to invest in the network for the benefit of current and future consumers. We will be replacing our assets only when there is both a solid economic and an asset health need case. The way that the RIIO-T2 price control works means that our allowances are linked with our outputs, known as price control deliverables. These allowances will reduce automatically if we don't deliver an agreed output, thus lowering the cost to our customers and end consumers. The investments that we will complete help secure long-term system reliability, which our customers have told us they value.

We are now forecasting to spend over £7.3bn during RIIO-T2 versus baseline allowances of £5.4bn which were set at the beginning of the T2 period. We have already agreed additional funding via reopeners for cyber and IT improvements and large new infrastructure investments. We also expect to make more reopener submissions for other new projects that are forecast, triggering a further £1.5bn in

RIIO-T2 allowances. To offset this increase in spend, we have an ambition to drive down costs by £0.5bn over the remainder of the RIIO-T2 period.

For our larger investments, there has been good progress against our projects in delivery.

- We are particularly proud to have installed the world's first T-Pylon during 2021. This is the culmination of 10 years of development and was designed to protect some of the UK's finest landscapes with less visual impact than traditional pylons. We have made good progress installing 47 T-Pylons to date in Somerset, out of a total of 116 planned to be erected along a 57km route, connecting six million homes and businesses to low carbon energy from Hinkley Point C nuclear power station.
- We also continue to deliver major infrastructure replacement, the largest of which being the second phase of London Power Tunnels (LPT2) which is on target to replace the underground cables between Wimbledon and Hurst by 2027.
- Our Visual Impact Provision (VIP) projects in Dorset and the Peak District are in delivery and are removing pylons

in 2022/23, whilst future schemes Snowdonia and North Wessex projects continue their development. These will ultimately underground a total of 11.5 miles (18.2 kilometres) of overhead line from these National Parks and Areas of Outstanding Natural Beauty.

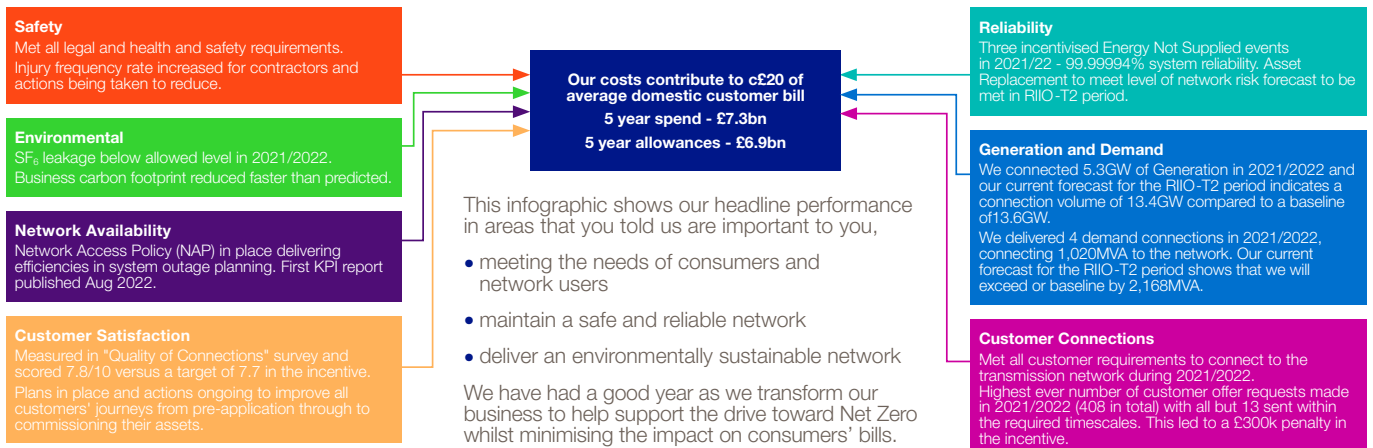
We are really proud to have continued our support and partnering of COP26 this year, demonstrating our commitment to finding ways to deliver cleaner, greener energy through the decarbonisation of the energy system and supporting the goal of reaching Net Zero by 2050. More locally, through targeted repair and replacement, we have seen an almost 20% reduction in the amount of SF₆ gas leaked from our assets. This gas is a great insulator of electricity, but it is a damaging greenhouse gas. One of our commitments is to remove all SF₆ from our network by 2050 and we're already working with our supply chain to find SF₆ free alternatives.

I hope you find this report informative and welcome your feedback on how we can improve our reporting in the future.



Performance infographic

How we have performed compared to the primary outputs in the RIIO-T1 framework.



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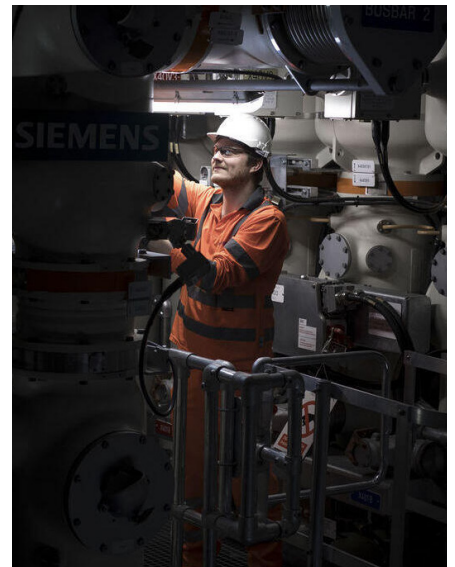
An overview of year one and forecast RIIO-T2 performance



The forecast expenditure for the whole of RIIO-T2 is £7.3bn against Final Determination Allowances of £5.4bn – a

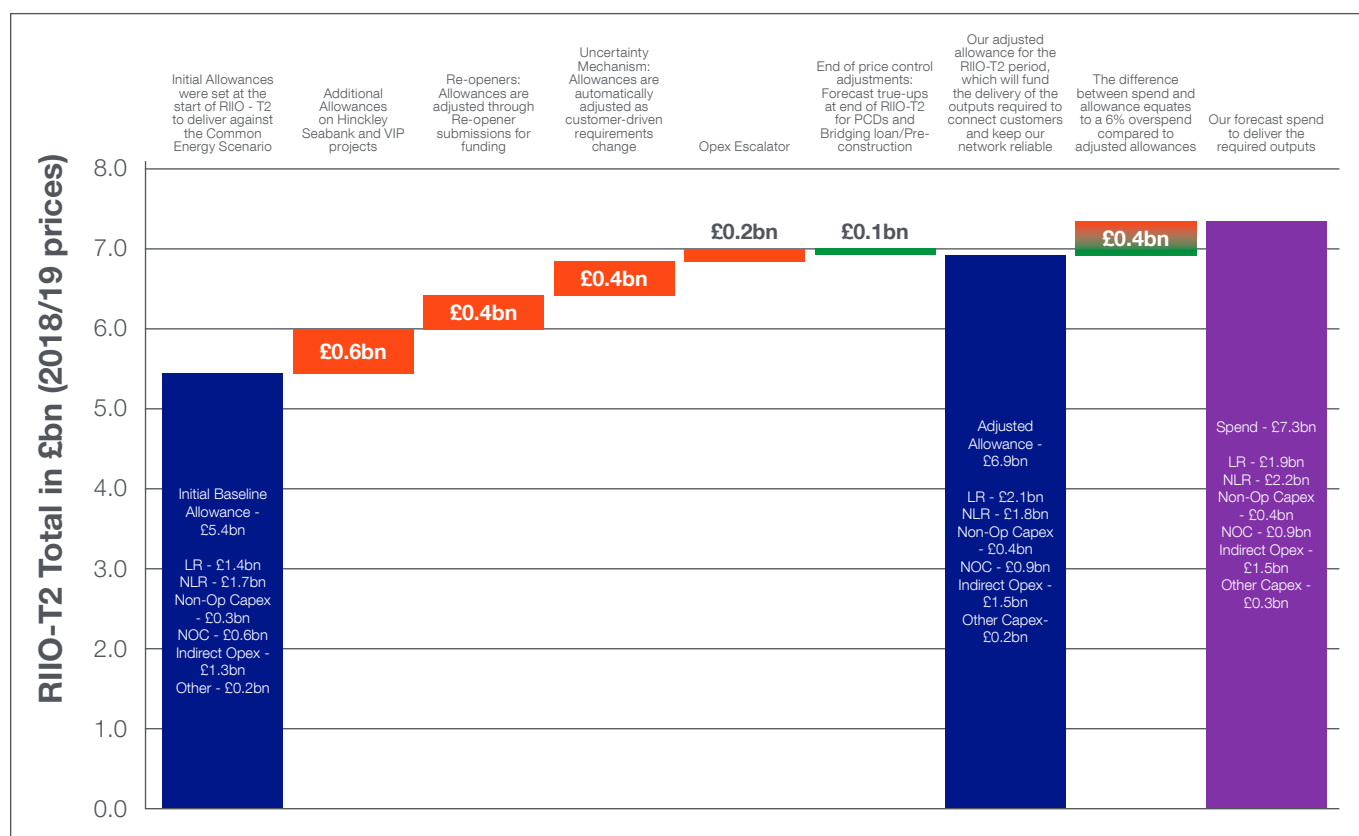
difference of £1.9bn. Since Final Determinations, there have been updates to allowances to reflect changes in the Load related plan, re-openers submitted and adjustments to allowances for investment no longer required as well as anticipated adjustments which will be enacted at the end of the price control through the relevant mechanisms. To understand our underlying performance, these updates have been included, adding a further £1.5bn of allowances over the price control period, resulting in a reported difference between spend and allowance of £0.4bn for the RIIO-T2 period. The following table shows a 5-year view of costs

and allowances and is in £bn rounded to one decimal place.



	Final Determinations	Adjustments to Allowances	Adjusted Allowances	Forecast Spent	Regulatory Performance
Load Related	1.4	0.7	2.1	1.9	-0.2
Asset Replacement	1.7	0.1	1.8	2.2	0.4
Non Operational Capex	0.3	0.1	0.4	0.4	0.0
Network Operating Costs	0.6	0.3	0.9	0.9	0.1
Indirect Costs	1.3	0.2	1.5	1.5	0.1
Other Costs	0.2	0.0	0.2	0.3	0.1
National Grid Total	5.4	1.5	6.9	7.3	0.4

The following graphic shows the five-year forecast and demonstrates how the price control mechanisms operate to adjust allowances from Final Determinations as requirements change. The graphic also demonstrates the corresponding impact on the overall difference between spend and allowance.



The overall performance that is reported in our Annual Accounts represents a different performance view and shows forecast costs below allowances of £0.9bn. There are several factors driving this divergence between the performance observed from those reported directly to Ofgem in the Regulatory Reporting Packs. The different views of the reporting are summarised in the table overleaf:

£bn 2018/19 prices	National Grid Total	Load Related	Asset Replacement	Non Operational Capex	Network Operating Costs	Indirect Costs	Other Costs
Spend vs Final Determinations	1.9	0.5	0.6	0.1	0.3	0.3	0.1
Adjusted allowances	-1.5	-0.7	-0.1	-0.1	-0.3	-0.2	0.0
Regulatory overspend per cost and volumes	0.4	-0.2	0.4	0.0	0.1	0.1	0.1
Phasing of allowances	-0.3	-0.3	-	-	-	-	-
Edge Effects	-0.5	0.0	-0.4	-	-0.1	-	-
Adjusted spend vs allowances	-0.4	-0.6	0.0	0.0	0.0	0.1	0.1
Ongoing efficiency ambition	-0.5				-0.5		
Other	0.0				0.0		
National Grid underspend against allowances	-0.9				-0.9		

There are two categories of adjustments embedded into the position which are explained further below:

- Adjustments to reflect timing of spend (phasing allowances and edge effects in the table above) of £0.8bn
- Our ongoing efficiency ambition not embedded at project level of £0.5bn

Adjustments to reflect timing of spend: when considering our performance against allowances, we have adjusted allowances to match the phasing of output delivery. This is in line with the reversal of enduring value adjustments we made during the RIIO-T1 period with allowances adjusted from the RIIO-T1 period falling into two categories:

- **Phasing of allowances:** allowances relating to load related projects initiated in RIIO-T1 but completing in the first two years of RIIO-T2 (known as RIIO-T1+2) have been re-profiled for financial reporting purposes to recognise the performance when the output is delivered. This has

resulted in an additional £332m of allowance being recognised in the RIIO-T2 period.

- **Edge Effects:** this refers to the impact on performance of projects crossing price control periods and shows an apparent over or under spend in one price control period which is offset in the other price control period. The impact of edge effects has been exacerbated in FY22 due to the challenges imposed by Covid-19 in the RIIO-T1 period, which delayed some interventions into RIIO-T2. We plan to undertake these replacements during the RIIO-T2 period in addition to delivering the commitments made as part of the RIIO-T2 contract. Financial reporting has re-profiled allowances to reflect this revised with additional allowances of £475m being reported in the RIIO-T2 period.

Our ongoing efficiency ambition: we have stated our ambition to continue to seek additional efficiency through improving and innovating its approach to operating, maintaining, replacing and extending our transmission network. There are a number

of initiatives currently being developed and implemented which has been estimated to deliver £500m of efficiencies.

Overall FY22 Performance

The difference between spend and allowance of £0.3bn in FY22 has been driven by a lower workload delivery than the position assumed in the Final Determinations. The majority of this has resulted from a re-profiling of the non-load plan following Ofgem's Draft Determinations in July 2020. The Draft Determination position did not provide funding for many of the projects included in our RIIO-T2 Business Plan and consequently much of this work was removed from the plan for the first couple of years of the RIIO-T2 period. Additional funding was subsequently provided in the Final Determinations and, although the plan was reviewed again in line with this increase, it created a delay in delivery as there is an inherent lead time to re-plan and re-commence work.

Load Related 5-year view

The load-related plan, that is the work to connect customers to the network and make wider

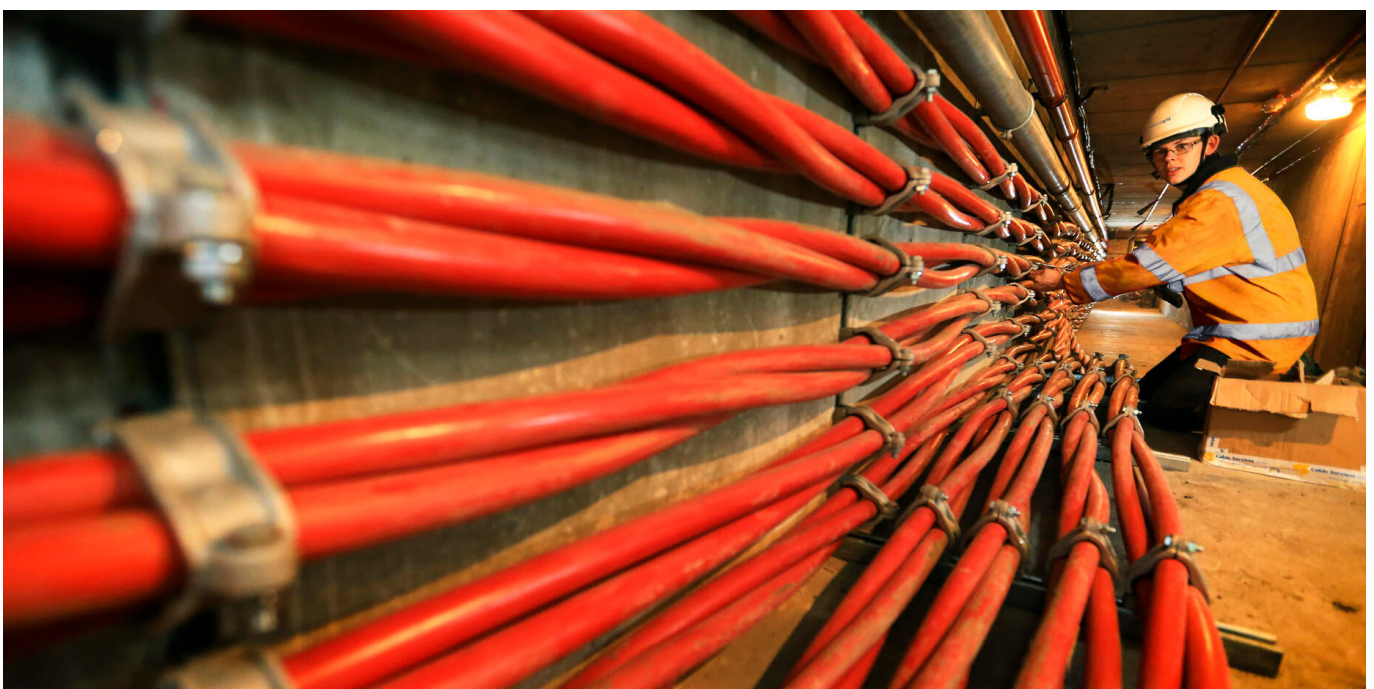
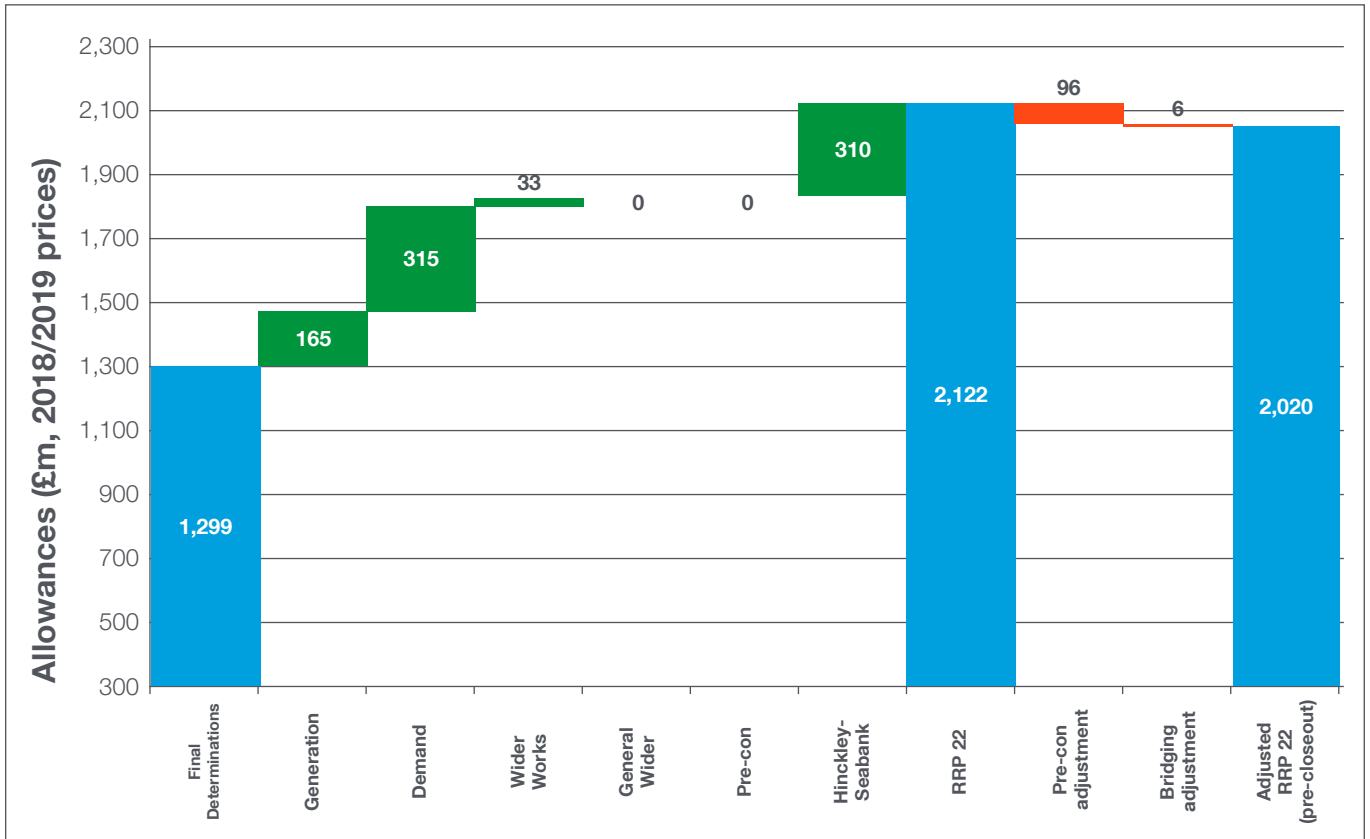
network reinforcements, is forecast to deliver the outputs required to meet customer needs for £1.89bn of direct capital expenditure, a variance of £586m from the Final Determination allowances of £1.3bn and £134m less than adjusted allowances of £2.02bn. The adjusted allowance position represents

an increase of £720m from Final Determinations, driven by:

- Increase to allowances of £823m, resulting from the considerable level of change in the future energy background, needed to reach Net Zero targets by 2050, driving an overall increase in the expected

level of customer-related outputs we expect to deliver.

- Decrease to allowances of £102m reflecting anticipated future adjustments by removing allowances for a baseline scheme no longer required and where allowances are amended to avoid double funding.



Financial Year 2021-22 view

In FY22, direct capex expenditure on the Load-Related portfolio was £301m which was £163m less than adjusted allowances of £464m. The table below shows the different types of load related works and where the costs differ from allowances. The main reasons for these variances are the phasing of allowances, higher spend on Hinkley, and efficiencies in preconstruction:

- When the allowance is a volume driven uncertainty mechanism output and the spend profile differs from the allowance profile, ie is longer or shorter than the four year allowance profile.
- When we are delivering schemes in the first two years of RIIO-T2 that started in RIIO-T1 we see higher allowances than costs, especially in 2021/22
- Some costs moved from the previous year into 2021/22 for the Hinkley-Seabank connection as works moved forward
- Some lessons learnt from other large schemes in early development have been implemented on other schemes so reducing forecasts for overall pre-construction spend.

Investment Category	2021/22 Allowances £m	2021/22 Expenditure £m	Variance
Demand	93.9	52.2	41.7
Generation	41.1	43.6	-2.5
General Wider Works	38.9	12.1	26.9
Wider Works	86.1	33.1	53.0
Pre-construction	91.4	22.2	69.2
Hink-Seab	112.9	138.2	-25.4
Total	464.3	301.5	162.8

Asset Health Related 5-year view

The RRP22 asset health related plan, which the work to replace or refurbish equipment on the transmission network, shows a forecast spend of £2.2bn over the RIIO-T2 period, which is £435m more than the Final Determination baseline allowances of £1.8bn, and £296m more than adjusted allowances of £1.9bn. The adjustments reflect allowance reductions for work not now forecast to be completed, balanced with additional allowances agreed through reopeners

The net £296m overspend has been predominantly driven by an increase in spend resulting from:

- Spend on delivery of outputs outside of the RIIO-T2 submission. These are not RIIO-T2 regulatory outputs and have no baseline allowances and therefore appear as overspend.
- Increased RIIO-T2 spend on delivery of certain outputs. This

is mainly occurring in the circuit breaker category and London Power Tunnel phase 2 (LPT2) project.

Financial Year 2021-22 view

In FY22, direct capex expenditure on the Asset Health Related portfolio was £360m which is £68m less than adjusted allowances of £429m. This difference between spend and allowance is predominantly driven by the following;

- uncertainty that existed between Draft and Final Determination at the time of planning the work for FY22. In general, the higher volumes of work allowed in Final Determination (compared to Draft) are planned to be delivered across the remaining years of RIIO-T2
- difficulties with contractor availability in FY22
- Covid-19 impacts

Non-operational Capex five-year and FY22 view

Our Non-Operational capex is spend on IT, Property and Fleet. The current expectation is that total Non-Operational Capex in the RIIO-T2 period will be broadly in line with the post-reopener allowances at £397.3m. IT investment forms the majority of this spend, alongside a focus on developing EV charging capability. This will provide an integrated charger network with the capability to provide management data and real-time engineering support to electric vehicle drivers. This is offset by a reduction in the level of investment in Fleet purchases due to the uncertainty caused by the global supply challenges faced by manufacturers.

In 2021/22, costs were £66.5m which is £7.1m lower than allowances once the additional £3.1m of allowances following the three Reopener submissions is considered. This difference between spend and allowance

reflects a combination of lower spend on IT and fewer vehicle purchases offset by a higher level of investment in Property and Electric Vehicle (EV) charging. Spend on developing our main finance system, which will modernise and digitise systems to provide financial information to drive improvements in decision-making, cost management and efficiency, continues to be the largest component of IT investment; this will provide efficiencies in data management to transform and streamline finance processes.

Network Operating and Indirect Costs five-year and FY22 view

The Network Operating Cost (NOC) spend is the total spend on faults, inspections, repairs and maintenance, vegetation management and legal and safety. It is forecast to be £939m, which is £60m higher than the adjusted allowance position of £878m for the RIIO-T2 period. The £60m over-spend has been driven predominantly by above-inflationary cost pressures on electricity and pay levels which has been offset to a small extent



from initiatives implemented to support our commitment to save £77m operating costs by 2024. In FY22, the total spend was £149.8m which was £7m more than allowances and was mainly due to the costs incurred in flood mitigation projects delayed from RIIO-T1 and incurring costs without specific allowances in FY22.

Our expenditure on indirects, that is the total costs for internal and external support staff for RIIO-T2, is forecast to be £1.5bn, £0.2bn higher than Final Determination allowances of £1.3bn.

Return on regulated equity (RoRE)

The Return on Regulatory Equity (RoRE) figure is a key measure by which Ofgem compares operational and financing performance across Network Operators. This encompasses the costs and allowances associated with a RIIO regulated business, including totex, financing, tax, incentive performance and company funded innovation costs. A key concept in the RoRE calculation is enduring value.

RoRE aims to show the full value earned by the regulated company during the price control period. This is based on the enduring value, being the true value of the regulated business over the course of the price control. The enduring value of the business factors in the financial impact of any decisions or future events, which have yet to be reflected in Revenue and RAV but are known at the time of estimation. Where possible forecasting is utilised to give a view of the true value of the regulated business, however this first reporting year does not accommodate all required adjustments. Therefore, several adjustments are applied after the completion of this first reporting year (RRP22). These adjustments either re-phase allowances in line with spend or release deferred allowances from RIIO-1 to ensure performance is recognised when outputs are delivered. The enduring value adjustments impact on the network's return and RAV and ultimately RoRE.

RoRE for 2021/22 and the RIIO-2 period comprise the following components:

	2021/22	RIIO-2 average
Allowed Return	4.2%	4.3%
Totex performance	1.2%	0.9%
Business plan incentive	(0.2%)	(0.2%)
Non-totex incentives and innovation	0.1%	0.0%
RoRE – operational performance	5.4%	5.0%
Financing	3.7%	2.5%
Tax	(0.6%)	(0.4%)
RoRE including financing	8.5%	7.1%

Impact on consumer bills

Our revenues are recovered through the ESO charging our customers for the services we provide. Of this total bill, £20.03 is attributable to National Grid's TO costs. The current increases in energy prices have not increased the network costs as the amount

that we are able to recover is fixed. This means if consumer bills go up, the percentage applicable to us goes down.

Ofgem's RIIO-T2 framework ensures that two-thirds of any efficiency savings that we have delivered are passed onto

customers resulting in lower network charges, and therefore lower electricity bills for the end consumer. For RIIO-T2, we estimated that the bill impact would be £20 at the start of the period reducing to £19 by 2025/26 and therefore our current costs are in line with the forecast.

The Independent User Group



Following the submission of our report to Ofgem on the NGET business plan in 2019, we were pleased when NGET decided to make the Group's role an enduring one despite it not being mandated by Ofgem. We saw this as a positive indication of NGET's commitment to being a stakeholder-focused organisation.

We subsequently worked with NGET to re-define our purpose within three focus areas:

- Scrutinise and challenge company periodic business plans
- Monitor, interrogate and enhance transparency of performance against commitments
- Critical friend for strategy, culture and processes in key areas.

We developed and produced an IUG framework for delivering on our purpose and maximising our impact. The framework included a forward plan, inputs we can expect from NGET, evaluation criteria, logs and dashboards to track progress against RIIO-T2 business plan commitments, and IUG planned outputs.

As part of delivering our forward plan for 2021/22, NGET shared its performance scorecard with us at each bi-monthly meeting. This provided an insight into how it was performing against its commitments, and also into the challenges it was experiencing. This culminated in a full review of NGET's year 1 performance in August this year.

In the August Review, NGET reported on performance against all business plan commitments. NGET took us through some of the highlights, citing, for example, how it had worked collaboratively and effectively with Northern Power Grid, ensuring no loss of supply during the storms. NGET also spoke about the business adding 4GW of boundary capacity within the year and achieving a customer score of 7.8 despite challenging conditions. NGET outlined the £4.5 billion worth of re-openers the business was working through and also spoke of the efforts being made – including work with the supplier chain - to remove SF6 from the network.

NGET was candid about some of the challenges being faced by the business, and steps being taken to mitigate these. In the light of the growing impact of weather-related climate change impacts on resilience, NGET highlighted challenges around system access, and the possibility of them having an even greater impact in the winter. It also highlighted challenges with the supply chain around chip shortages and long lead times and discussed with us some of the actions it was taking to mitigate the impact. We have asked to be updated regularly on how NGET is managing network challenges and system access, and for NGET to continue to update us on how they are addressing the challenges with delivering the asset health volumes of work.

NGET also talked to us about the challenges with the current framework supporting the management of uncertainty mechanisms. It is clear that a change to the framework is necessary if the targets to deliver net zero by 2050 are to be achieved. We are, therefore, keen to see the outcome of the discussions with Ofgem to come

up with a way to better streamline the regulatory process for large projects, to avoid possible delays.

Another area of interest for us is around performance on the SO:TO optimisation incentive. NGET has explained that the value of schemes submitted in year 1 of RIIO-T2 means that the cap might be reached next year. We understand that NGET has, therefore, reached out to Ofgem to relax the cap in order not to possibly curtail what may be considerable value to the consumer.

NGET reported good progress on its environmental commitments. We have, however, asked for further information on transmission losses in order that we can obtain a clearer understanding of NGET's targets in this area and the extent of stretch and ambition.

On care for the community, we have challenged NGET to consider more stretching targets and to keep us updated on its thinking. We have also challenged NGET to demonstrate ambition in working with stakeholders in local communities in order to assess how best the business can support them given the current cost of living crisis.

In conclusion, the IUG welcomes NGET's transparency on its RIIO-T2 performance to date and we have set out some key areas that we will want to monitor as we progress through the RIIO-T2 period. In our critical friend role on the major issues facing the network in delivering net zero at lowest cost, we welcome NGET's continual engagement with us at the early stages of its thinking and its responsiveness to continuous improvement in how it engages with its stakeholders. As we move towards the development of the RIIO-T3 framework, we will ensure that we review our governance to take account of Ofgem guidance.

Our output commitments

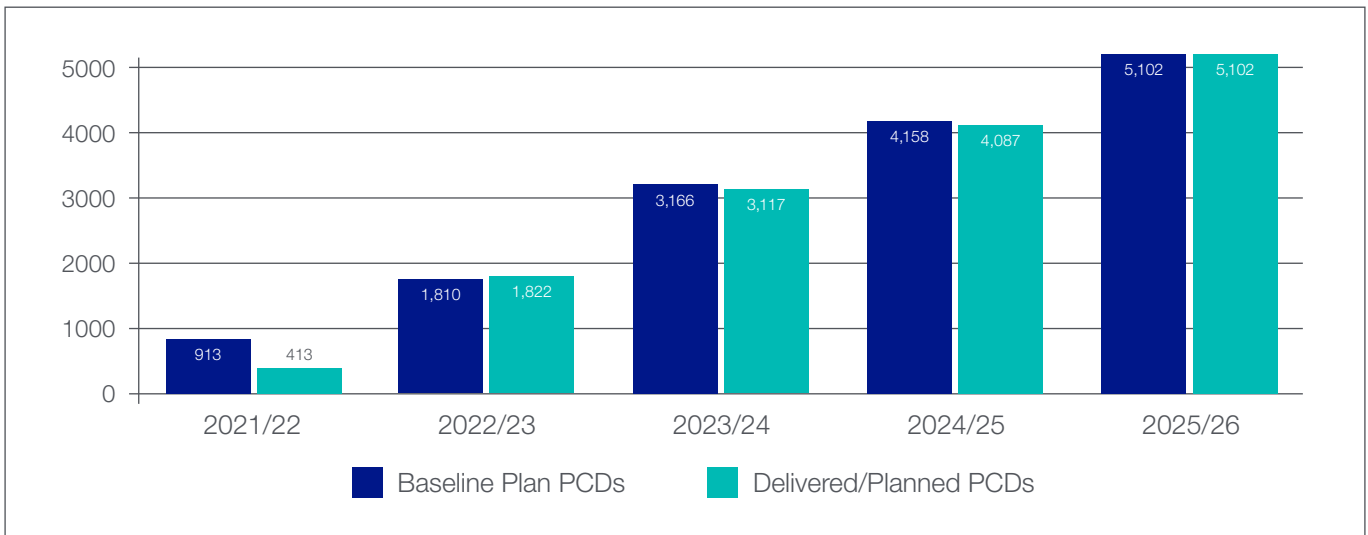
- meeting the needs of consumers and network users – load related plan, reopener pipeline
- maintain a safe and reliable network – NARMs and other PCDs
- deliver an environmentally sustainable network – include EAP, scorecard

The graph shows the cumulative delivery profile of units for all mechanistic price control deliverables (PCDs) in the NGET

licence. It shows both the baseline plan (blue) and the latest number of delivered and planned units (teal). We are required to deliver 5,102 units in total across the price control across different assets groups like OHL, Bay assets, Instrument Transformers and Protection and Control interventions). After year one, our delivery volume is less than the original plan. This is because we reduced our plan based on the uncertainty introduced at Draft Determinations (and had insufficient time to ramp back up again once we received Final

Determinations), experienced difficulties with contractor availability and enduring impacts due to COVID. We are re-optimising the plan and aim to deliver the same total of the interventions by the end of the T2 period, but this is forecast to include fewer P&C interventions and more Bay and Instrument Transformer schemes.

This will trigger an adjustment to allowances for under-delivery and no additional allowances for over-delivery at the end of the RIIO-T2 period.



There are a number of areas where funding did not get resolved in the price control and re-openers are required in the price control to secure additional allowances. We have agreed funding for Bengeworth Road asset replacement and submitted a project assessment of for Steelwork replacement. We are in the process of answering Ofgem’s supplementary questions on our Dinorwig to Pentir cable replacement project assessment and hope to agree funding autumn 2022. Our project assessment for Harker will be made in Q2 2023. There are planned to be twelve submissions during FY23 in the

different categories, with a total materiality of £0.7bn (including spend to date). We are working closely with contacts at Ofgem to share information ahead of submissions to make the decision-making process as streamlined as possible.

We are building the energy system of the future, adding over 4GW of boundary capacity in FY22 with a further 7GW expected in FY23. In addition to re-wiring south London, we have installed 53 T-pylons as part of the route connecting Hinkley Point C nuclear power station to the network. However, the complexity and scale of the infrastructure





Ofgem Final Determination and an initial assumption of delivery profile is provided.

In FY22, we completed half the sites in the baseline plan with COVID delays leading to the replanning of 2 sites. We aim to catch up in through the remainder of RIIO-T2. There are also reopener opportunities for extreme weather and physical security which may add further sites to be physically hardened against threats from potential flooding or terrorist threat.

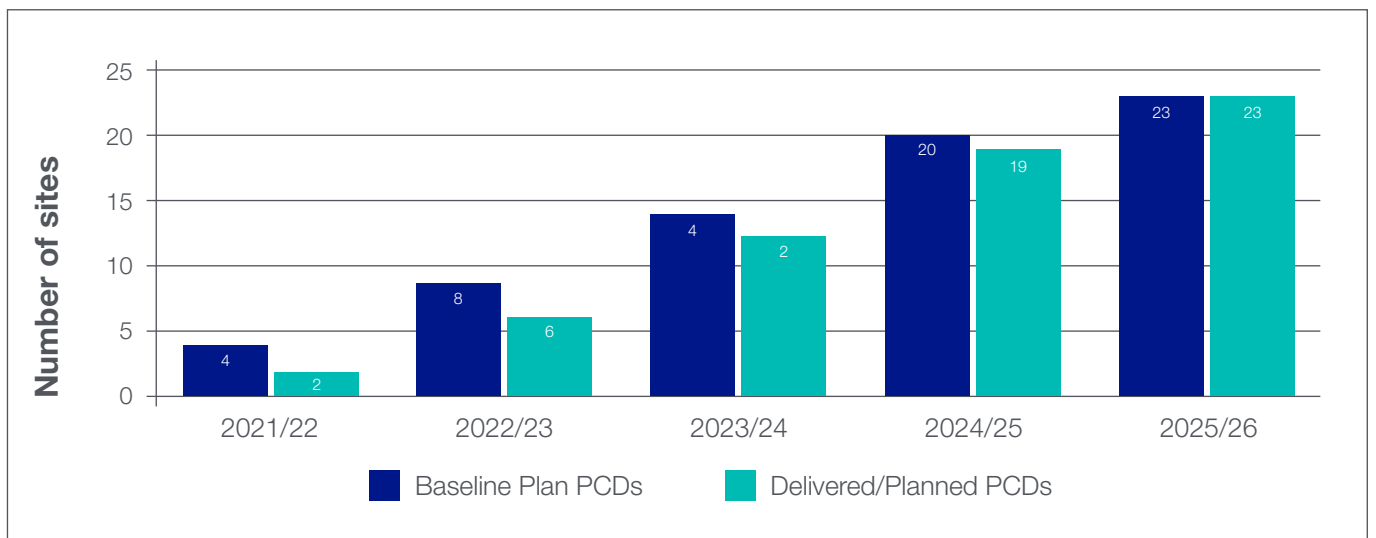
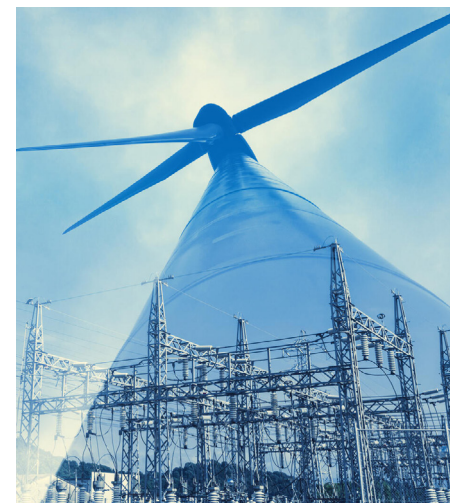
Whilst we cannot give specific details of our cyber delivery plans, we have regular dialogue with the Ofgem Cyber Team on delivery progress and are required to submit confidential 6-monthly reporting. We also have regular engagement sessions with NCSC and BEIS.

investments associated with our East Coast programme requires us to make a step change in how we work with developers, suppliers, environmental groups and local communities to find the best local and environmental solutions possible.

We delivered 4 demand connections in 2021/22, connecting 1,020MVA to the network. Our current forecast for the full 5-year RIIO-T2 period shows that we will exceed our baseline by 2,168MVA, connecting 21 SGTs and 23km of Overhead Lines and underground cables.

We connected 5.3GW of Generation in 2021/22 and our current forecast for the full RIIO-T2 period indicates a slightly lower than planned connection volume at 13.4GW compared to our baseline of 13.6GW with 78km of Overhead Lines and underground cables. When also considering the RIIO-T2+2 period, however, our forecast connection volume exceeds baseline at 22.1GW.

The graph below shows the cumulative delivery profile of number of sites completed in a year for flooding and physical security. The two have been aggregated for security purposes. It shows both the baseline plan (blue) and the latest number of delivered / planned units (teal). We are still in the process of re-optimising the profile of delivery across the period based on



As noted elsewhere in this report there were a number of outputs that were uncertain when we submitted our RIIO-T2 business plans. One area that will lead to substantial investment by us is through the Large Onshore Transmission Investment (LOTI)

framework. We are required to develop and strengthen our network to facilitate the connection of low carbon generation over the coming years and we need to show Ofgem that there is a need for this investment. This is shown as Initial Need Case

(INC) and Final Need Case (FNC) stages in the table below. We then need to agree efficient costs to deliver the output which is shown as the Project Assessment (PA) stage below. The ACL date is when the investment will be completed, and output delivered.

Project	2022				2023				2024				ACL	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Eastern Link 1: Torness to Hawthorn Pit	→	FNC				PA							2027	
Eastern Link 2: Peterhead to Drax	→	FNC				PA	→					2029		
Eastern Link 3: Peterhead to Humber													2031	
Eastern Link 4: Humber HVDC													2031	
Sealink - Kent to Suffolk HVDC	→		INC	→						→		FNC	2030	
Harker Substation					FNC	→	PA						2028	
North London Reinforcement HW UP			FNC	→		PA	→					2027		
Yorkshire GREEN	→		FNC										2027	
East Anglia GREEN	→		INC	→									2030	
Humber Trent GREEN	→		INC	→									2031	
Lincolnshire GREEN	→			INC	→								2031	
Tilbury - Grain - Kingsmouth reconductoring					FNC				→		PA	→		2027
NW Wales	→		INC	→						→		FNC	2028	

In our incentives section, we will share information about delivering an environmentally sustainable network. We will look at Environmental Action Plan and scorecard and share our performance on insulating gas leakage from our assets.



Incentive performance

The first I in RIIO is for Incentives. This part of the framework rewards or penalises us in areas that you, our stakeholders, have told us that matter to you. In the following section, we write about what the incentive is, what is being measured, how we performed in the first year, and some information about future years' forecasts.

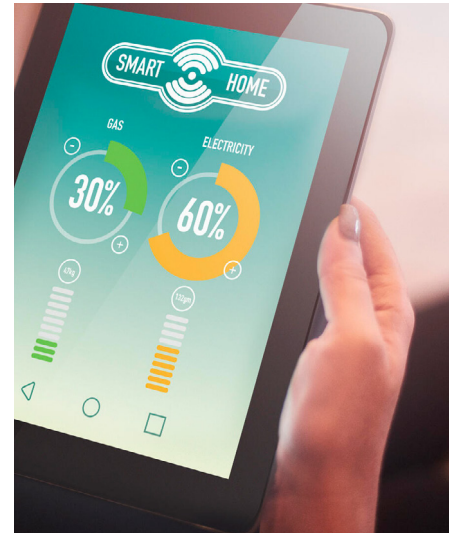
Reliability – We are committed to delivering a reliable network and have continued the strong performance from RIIO-T1 to exceed our reliability target in the first year of RIIO-T2, achieving 26.7MWh of 'Energy Not Supplied' in 2021/22 against an incentive neutral point of 147MWh. This equates to an average network reliability of **99.99994%**, which our stakeholders tell us continues to be so important to them. We have continued to invest in the network for the benefit of future consumers and customers, managing network risk and maintaining longer-term system reliability.

Customer Connections – during 2021/22, 408 connection offers were made. This is the most that has ever been made in a year; and more than a 50% increase in offers sent to customers from the prior year. However, of these, 13 offers were made outside the expected timescales, which will result in a financial penalty of £0.3m. It is noteworthy that

the total generation capacity contracted in England & Wales now exceeds 130GW, with roughly a third of this (44GW) contracted in a 12-month period. Across virtually all technology types, there is now sufficient capacity contracted to meet or exceed various pathways to hit Net Zero. Against this background, the assessment of new applications has become increasingly complex, which puts additional pressure on making timely offers (and subsequently the development and delivery of connections too).

We have significantly increased engineering and commercial resource to make offers; made greater use of digital tools (noted above); improved processes to take days of effort out of our offer lead-times; and are providing more information to help customers to help themselves. We also believe it is necessary to rebalance the cost, obligations, and value customers have when they sign a connection offer. Therefore, we are working with the ESO and Ofgem to implement a TEC Amnesty and Queue Management arrangements. Together, these have the potential to allow gigawatts of generation capacity to have an earlier connections date by removing customer projects that have stalled or are no longer viable. These initiatives are just a start, and we believe

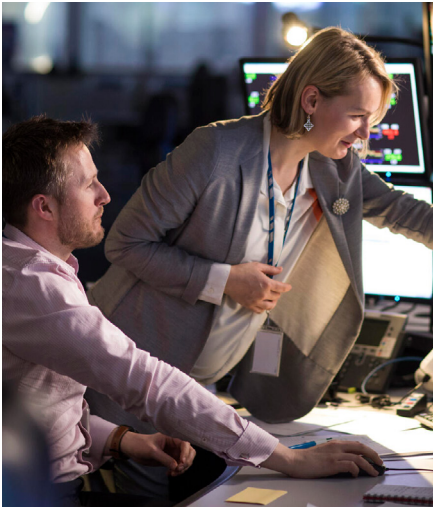
more fundamental reform of the connection arrangements will be needed, including reviewing whether the first-come-first-served is still appropriate.



Quality of Connections – this new incentive for RIIO-T2 replaces the Customer Satisfaction (CSAT) measure from RIIO-T1 and covers the customer experience throughout the connections journey. In 2021/22 we exceeded the target (7.7) and achieved a score of 7.8. We have worked hard to deliver this outcome, with customers recognising we understand and resolve their issues. However, this is against a backdrop of a significant increase in customer applications – see Customer Connections above. We have thoroughly reviewed the feedback we received and are taking steps to increase satisfaction over the remainder of RIIO-T2. This includes greater use of digital tools such as Research Assistant, which allows customer to better understand connection opportunities at the pre-application stage; and Solution Lab which will support engineers develop customer offers and connection schemes.

SO:TO Optimisation – this is a new, trial incentive designed to encourage collaboration with the





Electricity System Operator (ESO) to identify and provide additional solutions beyond business-as-usual activities to help reduce constraint costs. We are proud to report that in the first year of the incentive we delivered 6 enhanced services solutions successfully with the ESO, which is estimated to have resulted in over £37.4m in actual constraint savings. In year 2, we have identified further enhanced system solutions which the ESO are forecasting will deliver over £90m in constraint cost savings over the year. We believe this success over the trial period demonstrates the effectiveness of

the incentive in delivering benefit to consumers, and hope that this incentive will be extended to cover the remainder of the RIIO-T2 period allowing NGET to continue to seek innovative ways to provide enhanced services to the ESO to deliver constraint cost savings.

Environment – The Environmental Scorecard is a new incentive for the RIIO-T2 period, which encourages us to further reduce our carbon emissions, improve the natural environment and reduce our resource use for the benefit of current and future consumers. It incentivises us to outperform six elements of our Environmental Action Plan by rewarding us for outperformance or penalising us for underperformance. We are very pleased to report that we have outperformed on all elements of the scorecard this year and continue to look at ways to further reduce our Environmental impact. Achieving 1.4% improvement in environmental value of non-operational land is one example of how we are demonstrating commitment in this area. We introduced a 10-year habitat management plan to protect and enhance the precious

ancient woodland at our Bramley substation and have begun working with the local Basingstoke Beekeepers to increase local pollination levels. Our aim is to exceed our 10% environmental enhancement target by the end of the RIIO-T2 period.

Insulation and Interruption Gas (IIG) emissions - Sulphur hexafluoride is a potent Greenhouse Gas with a global warming potential approximately 23,000 times that of Carbon Dioxide. It is a key contributor towards Group GHG emissions so minimising leakage is integral to meeting our emissions target. We are pleased to report that our IIG emissions are below our incentive neutral point for 2021/22 to achieve the 33% reduction in annual emissions by 2026 from the 2018/19 baseline. We have continued to identify the highest leaking assets to plan and implement a prioritised intervention for both repair and replacement activities. This targeted plan of leakage repairs continues to contribute to the significant improvements we have seen in overall leakage rates over the last few years.



Innovation summary

In RIIO-T2, there are two innovation stimuli that encourage us to do more than business as usual when it came to finding a better, cheaper, smarter or more agile way of doing things.

The first way that we were and continue to be funded is via the Network Innovation Allowance (NIA). The NIA provides an allowance to network licensees to fund research, development and demonstration trials that meet six specific eligibility requirements.

Each must:

1. Facilitate energy system transition and/or benefit consumers in vulnerable situations
2. Have the potential to deliver a net benefit to consumers
3. Involve research, development or demonstration
4. Develop new learning
5. Be innovative
6. Not lead to unnecessary duplication.

There's no maximum or minimum spend criteria for projects, and each should carry a risk profile. Network licensees need to demonstrate why they cannot fund such a project as part of their business-as-usual activities. During RIIO-T2, we'll receive £49.3m of NIA funding – a 35% increase over the first RIIO regulatory period. This funding covers 90% of the cost of our projects; the remaining 10% comes from NGET. During the five-year RIIO-2 period, we will have £54.2m to spend on our NIA projects. In RIIO-T2 we have spent over £3m in the first year and expect this value to be closer to £6m p.a. for the remainder of the price control. Currently around half of the innovation ideas that are brought forward are approved

to be registered as NIA projects, with an almost 50/50 split between internal and external ideas.

For larger schemes, the second type of innovation funding is the Strategic Innovation Funding (SIF) framework, with £450m available for GB networks over the five-year regulatory period. We have secured funding for three projects already in this price control that are at the early, Discovery, phase of their lifecycle. We expect to spend approximately £370k on developing these further next year. Below are the details of some projects that started in RIIO-T1 and received funding via the Network Innovation Competition framework with

The Deeside NIC project

The Offgrid Substation Environment for the Acceleration of Innovation Technologies (OSEAIT) NIC project (also known as The Deeside Project) started in December 2015 and was expected to end in October 2021. The project aims to research, deliver and demonstrate a platform that allows the acceleration of the development of new, innovative technologies and concepts into business as usual. This increase in speed will deliver benefits to consumers faster and allow the de-risking of more complex, disruptive innovations. The project modifies an existing 400 kV substation into an easily reconfigurable facility capable of replicating a live substation environment to overcome operational barriers. The project is managed through a technical advisory board, which comprises industry stakeholders.

The project is progressing to finalise the construction works and enable innovation project trials by October 2022 and forecast is within the project budget. The construction programme has been re-phased

to manage risks related to site availability and a change request was submitted to Ofgem. The changes to the construction programme do not impact the delivery of consumer benefits.

The RICA NIC project

The Retrofit Insulated Cross Arms (RICA) NIC project is a 5-year project that started in December 2020 and is to be finished in March 2026. The project aims to develop a novel method of uprating Overhead Lines (OHLs), accelerating the low carbon energy transition by allowing quicker removal of network constraints, resulting in earlier connection of renewable generation. RICA also provides the potential for cost savings and better visual amenity compared with conventional investment options.

We continue to progress the project and the forecast spend is within the project budget. The technical advisory board has been held twice a year to supervise project delivery. The procurement event to select the R&D partner has been finalised and the contract is due to be signed in May 2022.

In the next 12 months, with the development partners selected, we will produce the first generation design works. This work will be focused on 275kV to 400kV uprating on two types of towers and includes having prototypes of RICA for testing and trials.

You can read more about these projects and our other innovation initiatives, including relaunching our strategy at the dedicated pages on our website

Who we are and what we do



National Grid Electricity Transmission plc (National Grid Electricity Transmission, NGET) is a subsidiary of National Grid plc (National Grid), based in the United Kingdom (UK). We own and operate the regulated electricity transmission network in England and Wales. We do not own the Scottish networks. Our networks comprise approximately 7,216 kilometres of overhead line, 2,551 kilometres of underground cable and 347 substations. We play a vital role in connecting millions of

people safely, reliably and efficiently to the energy they use.

Our purpose, vision, values and strategy

We work within the purpose, vision, strategy, values and priorities of National Grid to ensure we are well positioned to respond to changes in the operating environment. We have evolved our strategy in order to better reflect our purpose and in response to our business environment. The evolved strategy reflects a belief that we have a responsibility to ensure that the energy future we help to shape is one where everyone shares its benefits. We will continue to connect people to the energy they need for the lives they lead, safely, reliably and securely.

Our purpose

Having a clear sense of what we stand for as a company and what it is that binds us all together is vitally important. This is what we call our purpose. In simple terms it is what drives our desire to

serve our customers and it's that thing that makes us proud about the work we do. Our purpose is to bring energy to life. Our purpose remains to Bring Energy to Life, providing the heat, light and power people and businesses rely on and supporting local communities to prosper.

Our vision

To be at the heart of a clean, fair and affordable energy future. National Grid stands for more than profit. The company is committed to making a positive contribution to society, whether that's helping the young people of today to become the energy problem-solvers of tomorrow, supporting customers to use energy more efficiently, or tackling climate change. That's why the company's vision is to be at the heart of a clean, fair and affordable energy future, ensuring everyone benefits from the energy transition, that bills are not a burden for individuals or families, and that no one gets left behind.





Our values

Every day we do the right thing, find a better way and make it happen. These values guide our actions and behaviours as a responsible business and help us create a culture where colleagues become less cautious and take greater ownership. At National Grid Electricity Transmission, we expect our leaders to be role-models and engage all colleagues to demonstrate our values: Doing the right thing, means we act safely, inclusively and with integrity, We support and care for each other, and ensure it is safe for colleagues to speak up. Finding a better way, is all about working as a team to find solutions, embracing learning and new ideas. Making it happen, means being bold and acting with passion and purpose,

taking ownership to deliver for customers and focusing on progress over perfection.

Our strategy

National Grid’s strategy is to build, own and operate large-scale, long-life energy assets primarily in networks and renewables that deliver fair returns and high societal value. The company’s portfolio of high-quality, low-risk assets in stable geographies is underpinned by a strong and efficient balance sheet. This strategy sets the bounds of NGET’s business and will ensure it is set up to play a leading role in the energy future. It will be delivered through four priorities.

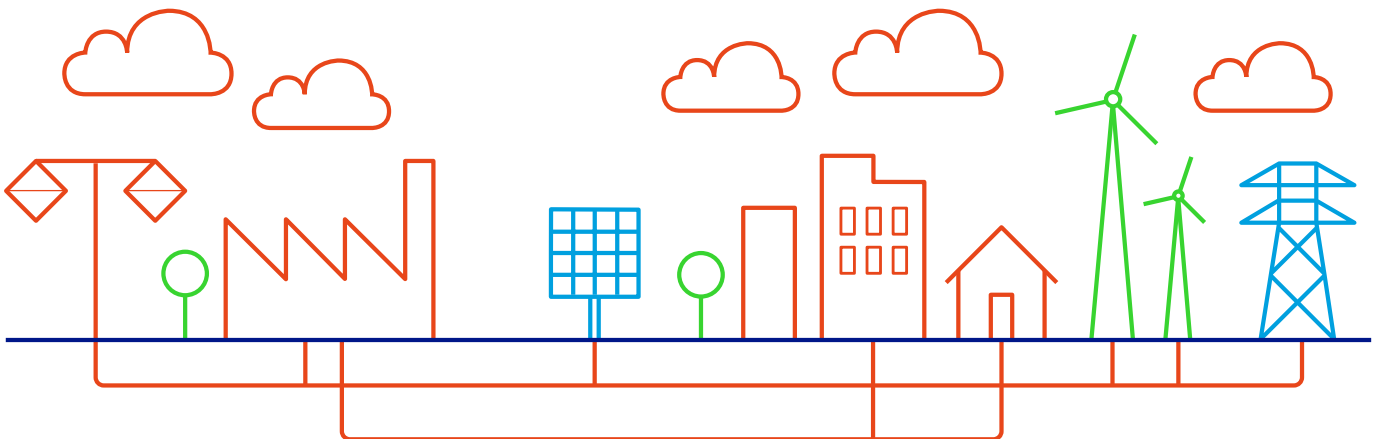
1) Enable the energy transition for all. Fully decarbonising the electricity grid through

modernisation, increased flexibility and by connecting renewables quickly and efficiently. Decarbonising transport by building electricity network flexibility and supporting charging infrastructure.

2) Deliver for customers efficiently. Providing safe, reliable and affordable energy for customers around the clock, ensuring operational excellence and fiscal discipline in everything National Grid does, building productive partnerships with regulators and policymakers, and unlocking real value for customers and the communities they live and work in.

3) Grow organisational capability. Anticipating and adapting to changes in the energy sector in faster and smarter ways, remaining at the cutting edge of engineering and asset management, and innovating more sustainable energy solutions.

4) Empower colleagues for great performance. Building diverse and inclusive teams that reflect the communities the company serves, attracting the best talent, prioritising learning and developing the skills needed now and in the future to accelerate the energy transition.



The RIIO framework



RIIO-T2 built on the learning from RIIO-T1

RIIO-T2 started in April 2021 and lasts for five years. Under this regulatory framework, we have a set of outputs to deliver (meeting the needs of consumers and network users, maintaining a safe and reliable network and delivering an environmentally sustainable network) that we agreed with stakeholders. We forecasted how much work was required to connect new customers and to maintain the assets on the electricity network as part of our business plans submitted and through a process with Ofgem, our regulator, we agreed the volumes of work and costs associated. We deliver these outputs in return for an efficient revenue allowance that we have been set by Ofgem.

RIIO-T2 also introduced a far greater number of uncertainty mechanisms where the output (i.e. the volume or cost of works) was unclear when we submitted our RIIO-T2 business plans. There are a number of reopener windows for different investment areas, from SF6 reduction to cyber security and also mechanisms in place for agreeing costs for large onshore transmission investment (LOTI) projects.

Risks and benefits are shared with customers

One of the principles of the RIIO framework was to align the interests of National Grid with those of consumers through the sharing of risks and benefits. In RIIO-T1 this was shared almost 50/50. These percentages have changed in this price control. In RIIO-T2 this means that, for every pound we save, 67p of the benefit is promptly passed on to end consumers through lower network charges. This ensures National Grid continues to be driven to find efficiencies to reduce costs and consumers benefit in both the short and long term.

Incentives encourage better ways of working

We are encouraged to improve our work across different areas of our operations through a range of incentives agreed as part of the RIIO framework. For instance, our customers want us to improve how we work with them throughout their whole connection process and we receive rewards or penalties depending on how we perform. There are other incentives to improve our environmental performance (SF6 leakage and environmental scorecard) and the reliability of our supply to the distribution networks and other customers (Energy Not Supplied). In RIIO-T2 there is also a new incentive which rewards us for going above and beyond to help the Electricity System Operator to minimise constraint payments. This SO:TO Optimisation incentive is a trial and if it drives the right behaviours to benefit end consumers will roll out through the rest of RIIO-T2

Finding a way to innovate in everything we do

The RIIO framework provides a stimulus package to support innovation: The Network Innovation Allowance (NIA) and the Strategic Innovation Fund

(SIF). Innovation is not only at the heart of the RIIO regulatory framework but also at the heart of everything that we do. There were many examples where we identified improvements because the innovation funds explored and drove benefits for consumers through innovation projects in RIIO-T1 and we continue to invest in research and development in RIIO-T2.

Flexible and fixed allowances

In some areas (like connecting customers to the electricity system) the costs incurred and outputs to be delivered over RIIO-T2 are uncertain because the extent of the work involved wasn't clear when we submitted our business plans. So, our allowances flex using an uncertainty mechanism reflecting changing customer requirements. As noted above, there are also opportunities for us to go back to Ofgem to agree the need case for and costs of new investments in certain areas.

There are fixed allowances for the maintenance and asset replacement work that was needed to continue to provide a safe and reliable electricity network (via Network Replacement Outputs), and to keep the level of network reliability high. However, if we don't deliver the volumes agreed at Final Determinations, there are mechanisms that will automatically reduce allowances for non-delivery of outputs.



How to contact us and other useful links

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

by emailing us at

or

To find out more about customer bills and the impact of network costs, visit

For information on our Innovation activities, visit

To find out more about our electricity business and the market we operate in, visit

For further information on our financial performance, visit our dedicated website at

Legal disclaimer

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' in National Grid plc's latest Annual Report and Accounts. Copies of the most recent Annual Report and Accounts are available online at

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