

National Grid Electricity System
Operator Limited

Annual Report and Accounts 2021/22

National Grid Electricity System Operator Limited
Number 11014226

nationalgridESO

Annual report and Accounts



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Foreword from our Chair

Welcome to the Annual Report and
Accounts 2021/22 for the National Grid
Electricity System Operator (ESO).



Firstly, all of us at the ESO are appalled by the Russian invasion of Ukraine. We stand with Ukraine - doing everything we can to support, through our work with the UK Government or through our international partners in the global system operator and research communities.

We all know that the impacts of Russia's unjustifiable aggression are being felt beyond Ukraine and these events are challenging us all to look again at security of supply within the British energy system. We have seen dramatically escalating wholesale gas prices which have led to significant increases in the energy price cap and multiple retail supplier failures. We are acutely conscious that these price increases are extremely challenging for people across the country, and we are taking every opportunity to examine our own costs and industry or market costs to ensure that they are efficient and delivering value for consumers.

The future of the ESO has continued to be a point of discussion over the last twelve months, as the government and Ofgem look at how best to address the challenges and opportunities of reaching Net Zero. Starting with the Energy Future System Operator consultation last summer and concluding with the Secretary of State's statement in April, it is now clear that the ESO's future exists outside of National Grid Group. Whilst this is a significant step, it is one that we approach with excitement and determination. In the coming months we will continue to work closely with the Government, the regulator, and National Grid plc to begin the process of establishing the ESO as a fully independent organisation.

We refreshed our Mission and Ambition in early 2022 with a key update to align to the UK Government mandate to achieve a fully decarbonised power system by 2035. Our refreshed Mission is *"To drive the transformation to a fully decarbonised electricity system by 2035 which is reliable, affordable and fair for all"*. Our revised set of Ambition statements are now more clearly action-oriented and highlight the critical importance of both people and technology in achieving our Mission. They provide the context for our 'RIIO-2 Business Plan 2', which will be finalised and submitted to Ofgem in August 2022, with all activities now explicitly aligned to our Ambitions.

During the last year the Covid-19 pandemic continued to impact how we work and live. However, as we set out in the 2022 Summer Outlook, the impact of Covid-19 on electricity consumption has reduced compared to 2020.

Earlier this year we published the initial findings from elements of our Net Zero Markets Reform project which examines options for how the GB electricity markets need to evolve to facilitate Net Zero while ensuring that consumers are protected. In the next phases, alongside BEIS and Ofgem, we will be undertaking further analysis to assess, among other things, the benefits of adopting a new pricing mechanism that will more accurately reflect the cost of electricity at a local level across Great Britain.

Elsewhere, I have been proud to see the delivery of the Holistic Network Design as part of our work on the government's Offshore Transmission Network Review. It is truly a first of a kind project that re-evaluates how to design future networks, both onshore and offshore, to make sure we support the coordinated connection of offshore renewables, and the efficient development of the network to enable Great Britain to reach its Net Zero targets.

Finally, we are pleased to set out in our Annual Report and Accounts for 2021/22 expanded public interest reporting and have included new disclosures which set out our performance across the areas of; Environmental, People, Community, Economy and Governance. These new disclosures are set out in the Strategic Report under Responsible Business.



Fintan Slye

Fintan Slye

Chair, Electricity System Operator

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Operator Limited
1-3 Strand, London WC2N 5EH
Registered in England and Wales
Number 11014226

About the Electricity System Operator

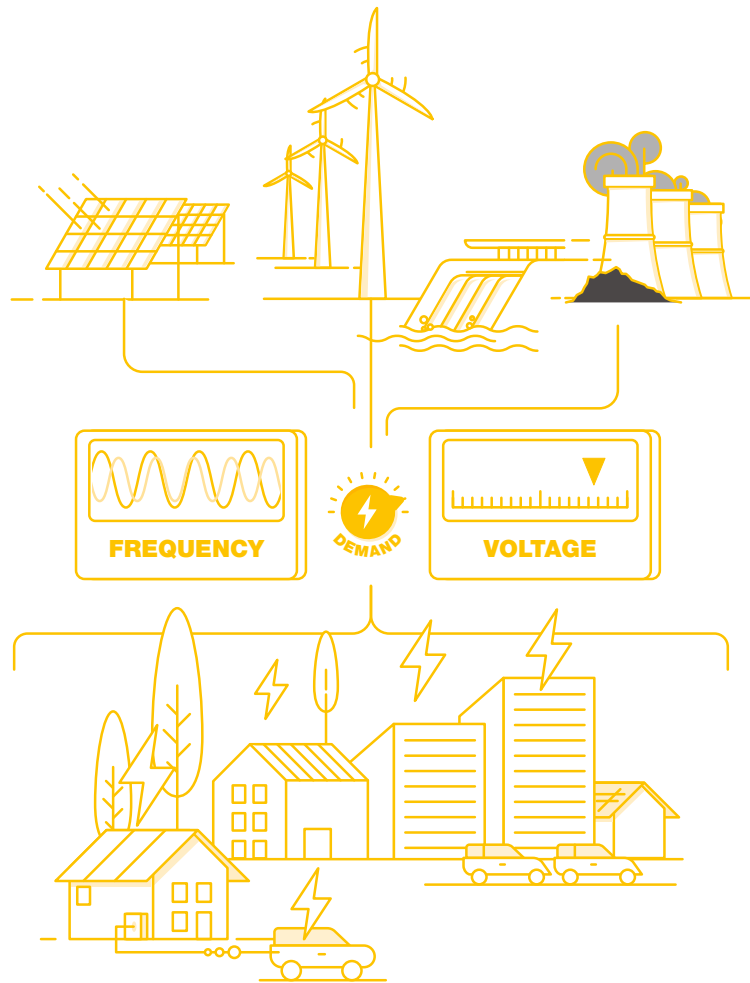


What we do

i) Our Role

Electricity is the life blood of society and the economy. When someone flicks a light switch in their home or office, they know the light will come on. That, in a nutshell, sums up our primary responsibility.

We move high voltage electricity from where it's generated, such as a wind farm, through the energy system. We make sure that Britain has the energy it needs by making sure supply meets demand every second of every day.



To achieve this we perform three core roles:

- 1** Control Centre Operations: reliable, secure system operation, to deliver electricity when consumers need it.
- 2** Market development and transactions: transforming participation in smart and sustainable markets.
- 3** System insight, planning and network development: unlocking consumer value through competition and driving towards a sustainable, whole energy future.

You can learn more about these roles, and how we will deliver them in our RIIO-2 Business Plan, [here](#).

ii) Energy Future System Operator – how we are evolving

As we set out in greater detail in our Key Events of 2021/22 section, the ESO is changing following the decision by government that the ESO should adopt new roles and responsibilities to support the delivery of Net Zero.

This evolution of the ESO will see us move outside of National Grid Group to ensure that the ESO can perform its extended functions as the future system operator, free of any concern regarding impartiality.

To support the delivery of this new organisation we have provided an initial outline of this transformation alongside our April 2022 draft RIIO-2 Business Plan 2, which can be read in full [here](#). Over the coming months we will be working closely with government, Ofgem and National Grid plc to ensure that this transformation is delivered at pace, whilst ensuring that our world-leading colleagues are supported through this process, allowing them to drive forward our existing decarbonisation ambitions.

iii) A refreshed ESO mission and ambitions

We have refreshed our mission and ambition statements.

A key update is that our mission is now strongly aligned to the UK Government mandate to achieve a fully decarbonised power system by 2035.

Our revised set of ambition statements are now more clearly action-oriented and highlight the importance of both people and technology in achieving our mission. They provide the context for our Business Plan, with all activities now aligned with at least one of our ambitions.

Our refreshed mission is /

To drive the transformation to a fully decarbonised electricity system by 2035 which is reliable, affordable and fair for all.

This includes preparing Britain's electricity system to be able to run on zero-carbon electricity by 2025.

Over the last five years, we're proud to say the amount of carbon-based electricity in our system has reduced by an impressive 53%. But there's still plenty more to do before we reach our zero-carbon target.



Ensuring the electricity system can operate carbon free by 2025



Driving competition for the benefit of consumers



Being innovative, digital and data driven



Engaging as a trusting partner



Being the Net Zero employer of choice

One of our ambitions is to be able to run a carbon free electricity system by 2025, which will be crucial in helping the UK meet its wider net zero target.

Achieving this will make us the first system operator to transition away from a system dependent on fossil fuels, to one that can be operated safely using only zero-carbon generation sources.

iv) Our Values

We know that how we deliver is as important as what we deliver. If our mission sets out ‘what’ we want to achieve, our values are the ‘how’. They help shape what guides us.

We adapt and develop our values to align with the expectations of our customers and communities, without losing sight of the things that make us strong today.

Every day we do the right thing by:

- keeping each other and the public safe, complying with all relevant rules, regulations and policies;
- respecting our colleagues, customers and communities;
- saying what we think and challenging constructively.

Every day we find a better way by:

- delivering excellent performance for our customers;
- sharing knowledge and implementing best practices for continuous improvement;
- embracing opportunities to grow ourselves and the business.

We make it happen by:

- delivering positive outcomes and achieving results;
- making decisions in a timely way;
- getting things done efficiently.

Who we are - Board

Fintan Slye
Chair of the Board



Fintan is the Executive Director of the ESO and Chair of the Board, he joined in 2018. Prior to that he was Chief Executive of the EirGrid Group, the electricity system and market operator in Ireland and Northern Ireland.

He has previously worked for McKinsey & Company and ESB Group.

Baroness Gillian Merron
Independent Non-Executive Director



Baroness Merron of Lincoln is a Life Peer and Shadow Minister for Health and Social Care and the Department of Digital, Culture, Media and Sport. Formerly Chief Executive of the Board of Deputies of British Jews, she was the MP for Lincoln between 1997 and 2010.

During this time, she served in government as a Minister in the Health, International Development, and Transport departments as well as in the Cabinet and Foreign Offices.

Hannah Nixon
Independent Non-Executive Director



Hannah has extensive experience in economic regulation across a range of industries. She was the inaugural CEO of the Payment Systems Regulator and a senior partner at Ofgem, where she had responsibility for the networks division.

She is currently Chair of the Single Source Regulations Office, a NED of Thames Water and a NED of the Financial Reporting Council. She was formerly a NED of the Jersey and Guernsey Competition and Regulatory Authorities.

John Linwood
Independent Non-Executive Director



John has held senior technology roles in Microsoft and Yahoo and was formerly Chief Technology Officer at several companies including BBC and Wood Mackenzie.

He has been a NED of both FTSE and AIM listed companies since 2012 and is currently on the Board of Brooks Macdonald, an AIM listed Wealth Management company where he is also the Chair of the Remuneration Committee. He is also Strategic Technology Advisor to the UK Ministry of Defence.

Paul Plummer
Independent Non-Executive Director



Paul is an experienced business leader and strategic thinker now working as Professor of rail strategy at the University of Birmingham and a NED in the housing sector for Network Homes.

Until recently he was CEO of the Rail Delivery Group and Association of Train Operating Companies. Prior to that he was on the Board of Network Rail where responsibilities included the system operator activities. His early career spanned the regulated utilities as an economist and adviser working for governments, companies and regulators.

Regina Moran
Independent Non-Executive Director



Regina is an experienced CEO and NED. She is Vice President of Strategic Projects and Change with Fujitsu. Formerly CEO of Fujitsu UK and Ireland, she has extensive experience in digital transformation across a number of different sectors. She has served as President of Engineers Ireland and as a NED of EirGrid.

Kayte O'Neill
Executive Director of Transformation



Kayte joined National Grid as a graduate in 2002. She has previously held positions as Head of Markets in the ESO, and in Corporate Strategy and Regulation in the US for National Grid. Earlier this year she joined the Board of Jersey Electricity as a NED.

Gregg Smith
Executive Finance Director



Gregg joined in 2020 after 21 years with IMI plc. He is a qualified Chartered Management Accountant (ACMA and CGMA) and held several senior international roles across IMI during his career.

Zoe Morrisey
Non-board: ESO Legal Counsel and Company Secretary



Zoe joined National Grid in 2012 and has worked across various UK business units. Prior to that she worked for Ofwat and in private practice in the competition and procurement team. She qualified as a solicitor in 2008.

Who we are - Executive Team

Fintan Slye

Executive Director



Kayte O'Neill

Director of Transformation



Gregg Smith

Finance Director



Zoe Morrissey

Legal Counsel



Craig Dyke

Acting Head of National Control



Craig first joined the ESO in December 2018 from National Grid Gas Transmission where he was heading up gas network development. He graduated in Electrical and Electronic Engineering and has an MSc in Power Systems & Management. He worked in the ESO as Head of Networks in 2019 and Head of Strategy & Regulation in 2020. Previous roles for National Grid include being the first Head of International Decarbonisation, taking a leading role at COP26. He became Chair of the IET Power Academy in May 2022.

Matthew Wright

Head of Strategy and Regulation



Matthew joined the ESO in April 2021. He has over 30 years of experience in the utilities sector, most recently as Managing Director of Ørsted in the UK. Matthew has also served as CEO of Southern Water and EVP of Power Delivery at US electric utility PacifiCorp. He is a Board member of POWERful Women, a professional initiative to advance gender diversity within the energy sector.

Julian Leslie

Head of Networks and Chief Engineer



Julian joined National Grid in 1992 as a graduate. He has a degree in Electrical and Electronic Engineering, and is a Chartered Engineer and a Fellow of the Institute of Engineering and Technology. He has worked for National Grid in the UK and the USA, and previous roles include building a new network planning function across the USA and being the ESO Head of National Control.

Huma Ali

Senior HR Business Partner



Huma joined National Grid in 1990. Previous roles include Senior HR Business Partner to other Group business units. She is a Chartered member of the Institute of Personnel and Development. Huma is a lead mentor in 'Business in the Community' for diverse senior leaders.

Shubhi Rajnish

Chief Information Officer



Shubhi joined the ESO in July 2022. She joined from British American Tobacco where she was Head of Digital and IT. Prior to this she spent 15 years at BP in senior roles leading digital transformation.

Jake Rigg

Director of Corporate Affairs



Jake joined the ESO in September 2021 from Affinity Water. Starting out as a journalist he has also worked on sustainability issues as a consultant to clients including DuPont and 3M, and was an advisor to a former Secretary of State for Energy and Climate Change. He has a Modern History degree from Oxford and is currently completing research on quantifying political and regulatory risk at Yale.

David Wildash

Acting Head of Markets



David has been in the energy industry for 18 years having developed a broad industry perspective through multiple roles within National Grid. Previously in his career he has undertaken a number of differing management roles covering regulation, corporate strategy as well as operational roles.

The Year In Review

Key statistics

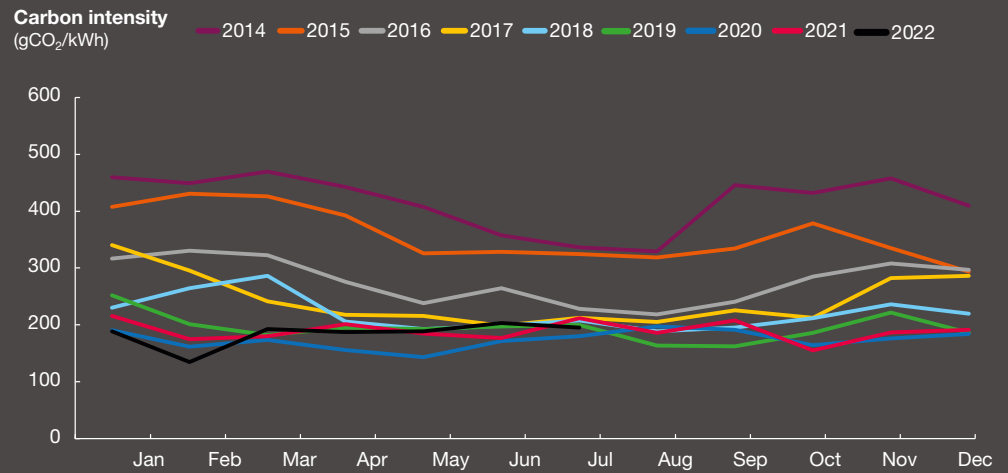
Wind



Carbon intensity

Early January also saw the lowest level of carbon dioxide on the network, with a record low of **39gCO₂/kWh**.

The greenest month in history is now February 2022 with a carbon intensity of **126.5gCO₂/kWh**.



↓ **65.5% decrease** from 2013 to 2021

2013 **529** gCO₂/kWh
 2014 **477** gCO₂/kWh
 2015 **443** gCO₂/kWh
 2016 **330** gCO₂/kWh
 2017 **266** gCO₂/kWh

2018 **248** gCO₂/kWh
 2019 **215** gCO₂/kWh
 2020 **181** gCO₂/kWh
 2021 **188** gCO₂/kWh
 2022 **177** gCO₂/kWh*

*year to date



Despite several weeks of low winds to start 2022, high winds towards the end of January caused by Storm Malik saw a new record for electricity generation, **with 19.5GW meeting 51%** of electricity demand at the time. This record has been exceeded following year end on 25 May 2022, when wind **generation reached 19.9GW producing 52%** of electricity demand at the time.

Generation mix

Zero carbon (wind, nuclear, solar and hydro) sources continue to make up a growing share of electricity generation.

In total, on average they contributed **45%** across the year. The **largest % zero carbon share was 84.6%** coming at 5am on the 3rd January 2022.

By 2025 it's our ambition, when the market presents enough zero carbon generation, to **make it possible to be able to operate the system at 100% zero carbon.**



● Gas	36.5%
● Wind	23.1%
● Nuclear	15.5%
● Imports	10.1%
● Biomass	6.4%
● Solar	4.1%
● Hydro	1.9%
● Coal	1.7%
● Storage	0.7%

Role 1 On A Page: Control Centre Operations



What we do

The Control Centre moves electricity around the country second by second to ensure that the right amount of electricity is where it's needed, when it's needed – always keeping supply and demand in perfect balance. Our control room employees move high voltage electricity from where it's generated, such as a wind farm, through the energy system to ensure it can be used as required. This service continues every day as we work tirelessly to operate a safe, reliable and affordable electricity system. We have all sorts of engineers and experts working in the Control Centre from people who forecast the weather to those who monitor the frequency of our electricity ensuring it stays at 50 Hz.



What have Control Centre Operations achieved for consumers?

- Control Centre architecture and systems on track to deliver £305m of consumer benefit over RII0-2;
- Control Centre training and simulation activity on track to deliver £35m of consumer benefit over RII0-2;
- Restoration activity on track to deliver £115m of net benefit from 2025 to 2050;
- Implementation of the Frequency Risk & Control Report (FRCR) has driven savings of approximately £435m in one calendar year;
- System security is vital. We developed our capabilities with new power system modelling tools to help us detect issues such as system oscillations observed in Scotland, as well as new inertia monitoring tools;

- We've continued to work closely with our counterparts in the EU under the Trade and Cooperation Agreement. The signing of a Memorandum of Understanding between the ESO and ENTSO-E allows us unfettered access to tools and processes to support security of supply between GB and Europe;
- We continue to improve the transparency of the data we use to support our stakeholders and customers and also made good progress on restoration, both with innovation projects and driving towards the new Restoration Standard;
- Our forecast total expenditure for role 1 in BP1 is £246m, which is 18% higher than the benchmark of £208m (both in 18/19 prices). This is largely due to the new plans for our Balancing Mechanism Programme.

Control Centre Operations Plan Delivery in 2021/22

- Successfully operated the system under challenging conditions;
- Launched a review of the Balancing Market and produced a balancing cost strategy. The volumes of balancing actions were lower in 2021/22 and multiple actions were taken to reduce balancing costs;
- Continued with high levels of transparency and communication through the weekly Operational Transparency Forum;
- Refreshed our Digitalisation Strategy and Action Plan;
- Developed new power system modelling tools and innovative inertia monitoring tools;
- Working with academia to design ESO-specific training modules;
- Conducted another successful significant long-distance system restoration 'black start' test, and made good progress on the electricity restoration standard.

Control Centre Operations Performance:

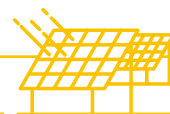
To view our success against performance metrics and key indicators please see Role 1 content in the ESO End of Year Performance Report [here](#).

Role 2 On A Page: Market Development and Transactions



What we do

One of our ambitions is to see competition everywhere, and at the ESO we are continuously developing the market to ensure we can meet the nation's diverse needs both now and in the future. This will deliver value for money for consumers. We're continually finding ways to innovate and adapt electricity markets to keep supply flowing reliably to homes and businesses across Great Britain. Our teams are identifying and developing the necessary market and auction platforms to procure the balancing services we require to operate the system - now and in the future. The team also facilitates any necessary changes to the existing suite of governing Grid Codes and the network charging regime.



What have Market Development and Transactions achieved for consumers?

- We delivered Capacity Market Auctions, Contracts for Differences (CfD) allocation processes, an update to the Electricity Market Reform (EMR) Portal and provided ongoing advice to BEIS and Ofgem on their policy and regulatory change programmes;
- We launched Dynamic Containment on the EPEX platform in September 2021. This has allowed us to introduce more granular, and integrated day-ahead procurement to help reduce costs in the balancing mechanism and drive consumer benefits. This resulted in a saving of c.£20m for consumers;
- We have followed this with pre-fault services, Dynamic Moderation and Dynamic Regulation, which have progressed through EBR Article 18 consultation approval. The first auctions ran in April and May 2022;
- Building future balancing services and wholesale markets on track to deliver £106m of consumer benefit over RIIO-2;

- Transform access to the Capacity Market is on track to deliver £74m of consumer benefit over RIIO-2;
- Working with all stakeholders to create a fully digitalised, whole system Grid Code by 2025 is on track to deliver £10m of consumer benefit over RIIO-2;
- Reforming Balancing Services Use of System (BSUoS) charges is now expected to lead to an estimated saving of £68m over RIIO-2;
- Our forecast total expenditure for role 2 in BP1 is £160m, which is within 1% of the benchmark of £159m (both in 18/19 prices).

Market Development and Transaction Plan Delivery in 2021/22

- We have completed 49 out of the 65 milestones planned for this 12-month period. Of the 16 milestones which are not complete, 5 are ESO-related delays, 10 are outside of ESO control, and 1 is delayed in order to deliver an improved outcome for consumers;
- Set out the Net Zero Market Reform programme and set up the Markets Advisory Council;
- Delivered the foundational release of our Single Markets Platform to allow onboarding;
- Completed our suite of fast-acting frequency response products, with ongoing refinements;
- Supported customers in migrating across to our new EMR Portal;
- Updated day-ahead Short Term Operating Reserve in response to market conditions;
- Progressed and delivered numerous code changes such as GC0137;
- Engaged with key stakeholders on potential areas for SQSS change.

Market Development and Transactions Performance:

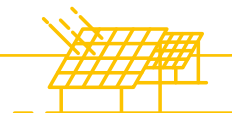
To view our Markets success against performance metrics and key indicators please see Role 2 content in the ESO End of Year Performance Report [here](#).

Role 3 On A Page: System Insight, Planning and Network Development



What we do

The flow of electricity in Great Britain is getting more complex. At the ESO we annually develop plans for our future networks to ensure we can meet Great Britain's electricity system requirements. We're also preparing to operate at zero-carbon by 2025 as part of the UK's Net Zero target for 2050. Our System Insight, Planning and Network Development involves looking for solutions to challenges faced by both the ESO and other industry stakeholders in the electricity system. Ultimately, we want to find innovative new ways to operate the electricity system of today and tomorrow, and keep costs down for consumers. Some projects that look for these solutions include Voltage, Stability and Constraint Pathfinders as well as Regional Development Programmes.



What have System Insight, Planning and Network Development delivered for consumers?

- Network Options Assessment (NOA) enhancements are on track to deliver £663m of consumer benefit over RIIO-2;
- Taking a whole energy system approach to promote zero carbon operability is on track to deliver £548m of consumer benefit over RIIO-2;
- Improved network access planning on track to deliver £224m of consumer benefit over RIIO-2;
- Stability Pathfinder Phase 2 was successfully tendered, the bids chosen will deliver 11.55 GigaVolt Amp seconds (GVAs) of Short Circuit Level and 6.75 GVAs of inertia worth a total of £323 million. Future savings are £130m compared to the counterfactual of procuring these services from a single source;
- Our forecast total expenditure for role 3 in BP1 is £141m, which is within 2% of the benchmark of £139m (both in 18/19 prices). This balance is primarily due to the ESO taking on new roles in Offshore Co-ordination and Early Competition (not included in the original Delivery Schedule or cost benchmark), offset by reduced IT expenditure.

System Insight, Planning and Network Development Plan Delivery in 2021/22

- We have completed 93 out of the 116 milestones planned for this 12-month period. Of the 23 milestones which are not complete, 10 are ESO-related delays, 9 are outside of ESO control, and 4 are delayed in order to deliver an improved outcome for consumers;
- Delivered network planning activities via the Network Options Assessment and FES. NOA 2021-22 was improved to make it more concise and easier to understand;
- The Electricity Customer Connections team grew to address significant additional application volumes and is working with the Transmission Owners (TOs) to find improved ways of working;
- We investigated how to better facilitate access for Distributed Energy Resources (DER) to ESO markets;
- We collaborated with Distribution Network Operators (DNOs) to progress regional development plans;
- We made significant progress on Constraint Management Pathfinder, with contracts awarded under the Pennines Voltage and Stability Phase 2 Pathfinders;
- We had a leading role in whole systems planning, engaging with BEIS and Ofgem on their respective reviews (OTNR and ETNPR) nearing completion of the world's first integrated offshore design as well as moving to implementation of Early Competition.

System Insight, Planning and Networks Development Performance:

To view our Networks development success against performance metrics and key indicators please see Role 3 content in the ESO End of Year Performance Report [here](#).

Key Events

i) Energy Future System Operator

Since the ESO's last annual report, the work established by Ofgem in their 2021 Review of System Operation was further developed into a joint consultation with the Department for Business, Energy, and Industrial Strategy for an Energy Future System Operator which ran from July to September 2021.

As outlined in the Government's response to this consultation the future of the ESO is now clearly outside the National Grid Group, to ensure that no future claim of market conflicts can be attributed to the ESO, as it undertakes new roles and responsibilities to support the delivery of Net Zero by 2050 and a low carbon energy network from 2035. We warmly welcome this decision and will now be working closely with the Government, the regulator and National Grid plc to enable a smooth and successful transition.

Since the launch of the consultation on the future of the ESO in 2021, we have regularly engaged with colleagues to ensure that they are as well informed as possible during this period of change. Working with an external consultancy we have consulted colleagues on their views, through interviews, surveys and focus groups and incorporated these views into the ESO's final consultation response to BEIS and Ofgem. Throughout the transition process to becoming an energy future system operator we will continue to have open and honest conversations with our staff, to ensure they are supported throughout this process, to ensure we retain their world class expertise as we move to adopt new roles and responsibilities in future.

An outline of this transformation was submitted alongside our RIIO-2 Business Plan 2 and can be read in full [here](#).

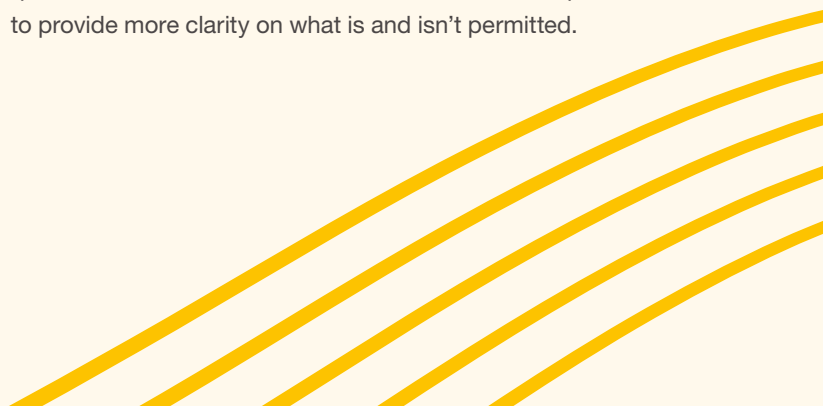
ii) Gas price security

The interaction between gas and electricity in the Great Britain energy system has been elevated over the 2021/22 winter, with the increase from October 2021 onwards in wholesale gas prices affecting consumers directly as well as impacting balancing prices on the electricity network. The knock-on impact of the price increases has been significant for the retail market and consumers. In the retail market, bad debts by ESO customers increased in the year with 26 customers going bankrupt during the year against 2 in the prior year. This cost £19m in 2021/22 compared to bad debts in the prior year of £3m. This amount is fully recovered through RIIO-2 revenues.

To support industry, we facilitated the BSUoS deferral cap scheme that ran from mid-January to the end of March and deferred £44m of balancing costs for customers into FY23.

International sanctions relating to the Russian invasion of Ukraine have impacted the price of gas as nations seek alternative sources for natural gas, resulting in a continued spike in gas prices into the Summer of 2022.

In December 2021, we launched a Balancing Market review as part of a wider drive to review and reform electricity markets. The Balancing Market review has primarily looked to understand if there are any fundamental issues with existing market mechanisms that can be adjusted. The full report is expected to be published imminently. In summary the review has found that the high costs have been driven by system tightness combined with accepted offers of up to £4,000/MWh across a large amount of coal and CCGT capacity. The size and inflexibility of the relevant units meant that the ESO had to accept offers of up to £4,000/MWh across multiple hours just to cover peak demand. There was no clear evidence of behaviour that was inconsistent with the market rules, however there are questions around whether market rules need to be updated to provide more clarity on what is and isn't permitted.





Whilst it is too early to comment on the continued impact of heightened gas prices into the 2022/23 winter, the ESO is already taking steps to prepare for high gas prices. In September 2022 we will publish our annual Winter Outlook report to set out our operational view at that time. Leading up to this period the ESO will be working closely with BEIS and other Government Departments to support the new security of supply statement and with industry participants to ensure that the most accurate data is available on market availability and capacity over the Winter months.

iii) The Covid-19 Pandemic

Whilst Covid-19 continued to impact how electricity was used in Great Britain in 2021/22, it had a reduced effect on demand in the year as vaccination programs led to a relaxation of public health measures and a gradual return to more normal conditions, from a network perspective, with electricity demand returning to pre-pandemic levels.

While Covid-19 had a reduced effect on demand, the impact of earlier lockdowns continued to play a role in the management of the network, as issues faced during the summer of 2020 and 2021 have had a knock-on impact on the maintenance schedule of generators across the industry. Delays to maintenance had a noticeable impact on the operation of the network during the 2021-22 Winter period as a number of generators remained offline due to maintenance, at the same time as network demand trended back towards pre-pandemic levels.

These knock-on implications of Covid-19 from 2020 and 2021 have also influenced wider sector issues, such as the production of gas and coal, increasing prices in these areas as discussed below in more detail.

Protecting our colleagues remained a priority over the last twelve months, with our operational colleagues in the control room continuing to observe more stringent hygiene measures than our non-operational colleagues, to ensure that variants and spikes in infection rates did not impact on their critical roles.

Away from our control room our non-operational colleagues have been returning to the office as part of a hybrid approach that recognises the advantages of home working and office collaboration.

iv) Delivering RIIO-2

In April 2022 we submitted our draft plans for the ESO's second RIIO-2 business plan, to cover the next stage of the five-year RIIO-2 period. Whilst the ESO's work is governed by our 2019 RIIO-2 Business Plan and the funding associated with it, due to the unprecedented level of change in the energy sector, Ofgem have allowed the ESO to break the five-year RIIO-2 period (2021-2026) into smaller planning cycles, so that we can respond more effectively to these changes.

This draft second business plan therefore incorporates new government targets into its planning, including the Government's target for the delivery of a Net Zero electricity network by 2035 and outlines how the ESO will work to deliver these targets, including through a refreshed mission and ambitions.

Alongside the publication of the draft business plan we have also set out an initial cost and plan for the work we will now undertake to deliver the energy future system operator.

You can view the ESO's RIIO-2 Business Plan 2 and Future System Operator (FSO) documents [here](#).

v) ESO led projects

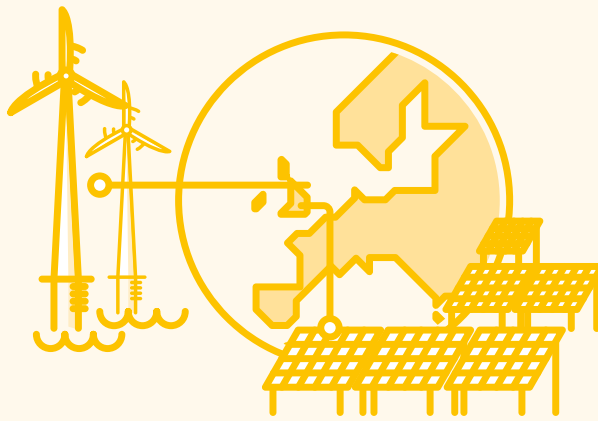
The ESO continues to play a leading role in major transformational projects. These will deliver significant positive impacts for consumers by promoting competition, holistic thinking, and putting consumer interest at the heart of what we do. Five examples are set out below;

Offshore Coordination

As part of the second phase of the BEIS-led Offshore Transmission Network Review (OTNR), the ESO has been asked to support three strategic workstreams to support the delivery of offshore wind generation to meet Government targets for 2030. These workstreams are:

- Early Opportunities – To work with Offshore Wind developers and other industry partners to find solutions for the connection of offshore wind projects already in train to deliver by 2025; To this end a total of 50GW, with 17.5GW in Scotland will be included in the HND plan published later this year. A further iteration will be published in 2023 to incorporate the ScotWind, Celtic Sea and INTOG projects that are not included in the first iteration of the HND.
- Pathway to 2030 – To deliver a strategic blueprint or Holistic Network Design (HND) to provide an outline for coordination of offshore wind projects connecting between 2025 and 2030; To support the integration of the above Phase Two outcomes of the OTNR the ESO has taken the decision to produce two Network Options Assessments in 2022. Our first report was published in January 2022 and this provides an interim finding for Transmission Owners, allowing them to continue consenting work for projects that are expected to be critical to the delivery of future offshore coordination, as well as the growth of onshore generation. A further report later this year will incorporate the findings of the HND, in order to integrate offshore coordination as standard in future network design work.
- Enduring Regime – To re-evaluate the offshore connections model to identify reforms required to deliver coordination as standard for connections after 2030.

The scale of this work, particularly the Pathway to 2030 and HND workstream has grown significantly over the last twelve months following an increase in prospective generation. This has primarily been driven by the award of 25GW of offshore wind leases by the ScotWind leasing round in January 2022 by Crown Estate Scotland. Given the scale of this growth we have had to review the scope of the HND, to ensure it remains deliverable against its current timeline.



Net Zero Market Reform

In March 2022, the ESO presented the findings from Phase 3 of its Net Zero Market Reform programme at an industry event alongside the Energy Minister and other energy sector leaders. The conclusions were that the status quo market design is not fit for purpose for Net Zero, and that dynamic locational signals are needed to solve some key market challenges such as rising constraint costs and inefficient dispatch in the wholesale market. The ESO looked at options from versions of the current national price through to zonal and nodal pricing. The analysis suggests that neither national nor zonal pricing would properly solve the aforementioned challenges, but that nodal pricing (or locational marginal pricing) would provide strong incentives for supply and demand side assets to locate and dispatch efficiently, minimising whole system costs and enabling low-cost, low-carbon electricity to be harnessed when and where it is most abundant. This could also drive industrial growth in areas of the country where older fossil fuel and energy intensive industry is set to fall away.

We will now work with Ofgem, industry and policy stakeholders to further assess the implications this change in market design could have for consumers, generators and suppliers, as well as assessing what other market reforms would be necessary to deliver the investment necessary to achieve Net Zero.

Frequency Risk & Control Report

As part of our changing approach to managing frequency on the national electricity network we have worked to create a new Frequency Risk & Control Report to analyse and assess the operational requirements for managing different frequency issues and the cost of securing the system.

This is a world first approach and has allowed the ESO to reduce the overall spend on frequency management, ensuring that system security continues to be delivered, whilst delivering additional benefits for consumers.

Dynamic Containment, Regulation and Moderation

Alongside the Frequency Risk & Control Report the ESO has also implemented three new frequency management tools, with the introduction of Dynamic Containment, Regulation and Moderation to provide a quicker response to different frequency fluctuations, from significant trips to second-to-second balancing of network frequency needs.

By drawing on a diverse mix of technologies, including variable generation, storage, and demand-side participants these services also offer greater competition, which alongside a move from month-ahead to day-ahead auctions contribute to both improved security and cost efficiency for consumers.

Stability Pathfinder

As part of our ambition to deliver a zero-carbon capable network by 2025, which will help pave the way for a Net Zero electricity network by 2035, we have continued to progress our stability Pathfinders. These Pathfinders will bring new innovative solutions capable of delivering inertia, voltage and short circuit infeed management tools, without needing to produce electricity in the process, increasing the proportion of low-carbon electricity in the generation mix as a result.

In March 2022 we supported the launch of a world leading inertia project in Scotland to help manage inertia on this part of the network in future years. As we continue with this and similar projects we will continue to understand and refine these critical tools for future network operation.

Progress against objectives

ESO has a range of metrics against which overall performance is measured. The key metrics in this section are aligned to our strategy and reflect a consistent set of metrics against 2020/21.

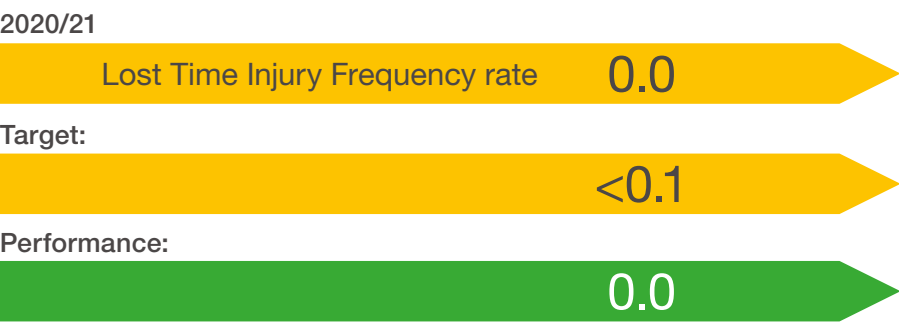


1) Health, Safety & Wellbeing

The health, safety & wellbeing of our employees is paramount. Each year we undertake a safety survey with our employees to gauge attitudes to safety, how effective our safety culture is and where employees believe we can improve. We also measure safety using the Lost Time Injury Frequency Rate metric. This industry standard approach measures the number of lost time injuries occurring for every 100,000 hours worked.

Progress in 2021/22

This year's result was strong again, with no injuries causing lost time during 2020/21. The ESO's Health, Safety & Wellbeing team and their Safety, Health and Wellbeing Champions in the business continue to improve our targeted plans to address areas of concern and build on the work done to date.





2) Balancing costs

Today electricity can't be efficiently stored in large quantities in a cost-effective way, so part of the ESO's role is to find ways to match supply with demand. We call it balancing, and we do it minute by minute. To help us with balancing, we buy in services from suppliers. These are "Balancing Services" and we use them to keep the transmission system running reliably and economically.

The target is based on a rolling average over five years (with adjustments for significant cost drivers, such as actual wind generation).

Progress in 2021/22

Balancing costs in 2021/22 were higher than benchmark owing to a number of factors – including the Covid-19 pandemic and the external socio-economic factors – which created a challenging operational environment. Frequency control and the management of voltage, stability and thermal constraints were operational challenges and the main areas driving these costs. Several factors influenced the cost of balancing the system in 2021/22:

The effects of the Covid-19 pandemic and the Ukraine crisis on the electricity system were seen, affecting demand in summer 2021 and supply in spring 2022. This uncertainty meant while we took fewer actions in securing the system, costs rose. Although balancing proved more costly than hoped in 2021/22 due to both demand and supply challenges, we foresee these costs rising further over the coming decade due to the difficulty of balancing the grid with a heavier renewable mix.

While higher balancing costs are also a feature of a system with higher volumes of renewable generation, our work to transform the system, so that it can be safely operated using only zero-carbon generation, will give us the tools to utilise more renewables rather than pay constraint costs.

The growth of renewable generation and consequent changes to the generation mix would normally increase the volume of balancing services we use – the higher volume of renewable generation is less predictable and controllable than conventional generation. Due to our new approaches this was not the case in FY22.

2020/21

Balancing Costs £1,875m

Target:

£1,321m

2021/22

£3,153m



3) Financial Performance

The financial results are set out on [pages 44-50](#).

Progress in 2021/22

The ESO delivered underlying Financial Performance largely in line with expectations. Revenues increased in the year by £1,359m compared to FY21 largely due to increased pass through charges to balance the system as set out on the previous page. Adjusted Operating Profit of £50m was down £12m against FY21 of £62m due predominately to higher depreciation of intangible IT asset investments as per the ambitious transformational RIIO-2 plans as well as asset impairments for IT work that may no longer be required.

This was partly offset by improved Incentive performance. Capital investment reached £108m in the year, £20m higher than prior period, primarily driven by critical IT projects needed to deliver the RIIO-2 Business Plan. Further information is set out within the financial review later in this report.



4) Employee Engagement and Enablement

Our employees are our biggest asset and the best advocates for our business and what we aim to achieve. They are at the heart of everything we do, so it is vital for us to be aware of their thinking on a wide range of issues about our business: what it's like to work for us; things we do well; things we could do better and much more.

Progress in 2021/22

Our employee engagement and enablement scores demonstrate an improvement on 2021/22.



Target:



2021/22



5) Customer Satisfaction

It is vital we understand what customers think about our business and how well we are carrying out our operations to serve their needs. That is why we regularly survey our customers to ask how satisfied they are with our service.

Progress in 2021/22

Both the customer and stakeholder satisfaction scores are based on responses from more than 200 surveys. The results are below our target for the year and highlighted a need for greater transparency and co-creation with our customers and stakeholders. It is critically important to us that we listen and respond to this feedback, and are engaging as a Trusted Partner with all of our customers.

Our customer strategy for 2022/23 will focus on creating a customer centric culture, upskilling all teams to ensure we have strong relationship management at the heart of everything we do. To support this we will embed new Customer Impact Assessments at the start of our projects to ensure that customers are considered consistently and at an earlier stage of engagement. From this platform we can build engagement plans with our customers that are collaborative and are clear, from the outset, on our decision-making processes. Central to this is the gathering of meaningful insights the organisation can act on - facilitating a greater understanding of customers, stakeholders and consumers, their characteristics, and what actions the ESO can take to add value to them as we make progress through the energy transition.

2020/21



Target



2021/22



Strategic Report

The Directors present their Strategic Report on the Company for the year ended 31 March 2022. This includes an overview of the ESO's structure, 2021/22 performance and strategic outlook, including risks and uncertainties.



Our people

Our people are fundamental to the ESO's success and achieving our 2025 ambitions and beyond. To operate the system of the future and deliver a whole energy system strategy that supports Net Zero by 2050 successfully we have focused on delivering a blended talent sourcing strategy to ensure we have the right people with the right capabilities at the right time. The ESO's success will be built on our sustained ability to attract, retain, train, motivate and engage our people. We need to continue this momentum to deliver our commitments, whilst we enhance a resilient, agile, capable and diverse workforce with the capabilities required to take us to Net Zero.

i) Diversity, Equity and Inclusion (DEI)

ESO	Gender Split	Ethnic diversity
Workforce	64/36	30%
Executive team	64/36	18%
Board	50/50	0%

Our diversity metrics have continued to improve, and since the RIIO-2 Business Plan 1 our actual workforce diversity has increased from 31% to 36% for women, and from 25% to 30% for ethnicity minorities (as at 31st March 2022).

Several actions have contributed to this increase including the creation of our Belonging Forum, which exists to fulfill three roles:

- To understand the extent to which our employees currently feel that they can 'belong' in the organisation, and what are the barriers to belonging;
- To take (or recommend) actions to remove those barriers and to educate our employees about DEI and Belonging topics;
- To create a network of Belonging Champions to support each other in making DEI and Belonging part of our everyday conversation and embedded in our culture.

The Belonging Group piloted a Microaggressions and Workplace Boundaries course which is now being rolled out across all our employees. This will increase their understanding of microaggressions and the impact that they have on individuals and deepen the understanding of banter and when it crosses a line into bullying.

We have also promoted our DEI Knowledge Hub to educate and upskill our people on current best practice and offered employees access to a variety of virtual courses designed to build knowledge and confidence with conversations on DEI.

These activities have contributed to the National Grid Group's DEI agenda, which has seen National Grid win the most Outstanding Employer at the 2021 Ethnicity Awards as well as being featured in the 2022 Financial Times Diverse Leaders listing.

Our DEI vision is to "be more representative of the communities we serve in all aspects of diversity".

In order to achieve this vision we remain committed to:

- Increasing the overall proportion of our workforce from diverse backgrounds in order to mirror the communities we serve;
- Monitoring the number of hires from diverse backgrounds and aiming to appoint a greater proportion;
- Monitoring the number of colleagues promoted who are from a diverse background and aiming to promote at a greater proportion than we have today;
- Continuing to build an inclusive company culture.

We have also played an active role with the Energy Networks Association (ENA) in developing their DEI charter. This will benefit the whole energy industry by focusing on; attracting a diverse pipeline of talent and ensuring that our industry is seen as a sector where everyone is welcome and can thrive.

ii) Employee engagement

We engage and consult regularly with employees to make sure they are up-to-date on the Company's performance, plans and priorities and give them the opportunity to raise questions or concerns.

We also conduct an annual employee engagement survey, providing an opportunity for all our employees to share their views on the employee experience at the ESO and providing the Board with a barometer of the workforce's confidence in the strategic direction, optimism for the future, overall engagement and pride in the organisation.

Given the impact of the Energy Future System Operator consultation on the future working conditions of ESO employees, we took additional steps to ensure that their views were incorporated into the ESO's official response, as well as a supplementary report, shared with BEIS and Ofgem, reflecting views expressed in interviews, surveys and focus groups over Summer 2021.

We've continued to face challenging working conditions throughout 2021/22 due to the changing response to the Covid-19 pandemic. Engagement with staff throughout this has been paramount in importance. The Executive Team has continued to work with the Board to improve engagement, remove barriers and create a positive working environment for all. New initiatives include refreshing laptops, encouraging discussions on returning to the office and hybrid working, and introducing new development opportunities through different mediums. Regular all employee calls, leadership calls and visibility sessions have continued to have positive impact, and will be sustained as an effective communication channel. These actions have led to an increase across all indexes in the recent 2022 Grid:Voice survey; the engagement score increased from 78% to 80% and enablement from 70% to 72%. Of particular note is the Safe to Say index, up 10% to 79% in the year demonstrating the positive impact these actions have had.

iii) Training

As the ESO is going through a period of significant growth linked to the expansion of our role as the Energy Future System Operator and the journey to Net Zero, we are ensuring that we have the capabilities we need now and into the future. In 2021/22 we focused colleagues on prioritising their development and moving towards a more learning-centric culture.

We launched an online People and Capability hub that will help colleagues on their learning journey and in thinking about their career aspirations within the ESO. We have centralised these new development resources. This hub contains all the recommended learning material, new and existing, to develop the required ESO capabilities, making it easy to find upskilling resources.

We also developed two new foundational e-learning modules for new starters: Introduction to Power System Operations and an Introduction to the Electricity Industry to help colleagues understand the wider context that we operate in and to onboard new starters more effectively.

In addition to these, we have created an engaging Career Map, a visually compelling representation of the diversity of careers in the ESO. This interactive tool also shares a more detailed view of what careers in engineering, data and commerciality could look like and support on development planning so that candidates and colleagues can get a detailed understanding of the many and varied career options available at the ESO.

iv) Rewards and benefits

By developing our people and providing a wider programme of benefits, we aim to have an engaged and productive workforce. To attract and retain employees, we make sure our remuneration package is both fair and competitive. We do this in line with National Grid processes through a regular review of our salaries and benefits against appropriate peer groups to make sure we remain competitive in the relevant market. The primary focus for reward comparisons is UK general industry and energy services companies; these peer groups are considered appropriate for a large, complex and predominantly regulated business.

To ensure fairness from both external and internal perspectives, we review salaries annually and broadly target mid-market total remuneration levels of our peer group. In addition to market data, we also consider factors such as business performance and individual contribution, the individual's skills and experience, scope of the role and include any changes in responsibility.

Furthermore, while pay increases are generally aligned to salary increases received by the wider workforce (other Company employees) and to market movement, increases above this may be made at the company's discretion. This may include circumstances such as a significant change in responsibility, progression if more recently appointed in the role, and broad alignment to mid-market values.

v) Health and safety

The safety of our employees is of paramount importance. This includes mental and physical health and wellbeing of our employees as they work from home, in the office, work shifts and operate in a rapidly changing and challenging industry. The ESO has been carefully tracking the direct and indirect impact of the Covid-19 pandemic on its employees as well as introducing measures and providing guidance on a wide range of fronts to help protect and support them. This includes protective measures for those critical or vulnerable workers that cannot work from home, redeploying teams to other areas of the business to support prioritised work, helping those with caring responsibilities and allowing time off work to support volunteering efforts.

Changes in the workplace and working practices due to the pandemic, led us to create a forum called Build Back Better which was made up of volunteers from each area of the business. The focus has been to create interventions to support a variety of working arrangements to support our employees with the transition into a hybrid way of working.

We know that flexibility is key for our employees and as government guidelines changed in the year, we continued to be agile and adapt our support mechanisms, recognising the importance home working brings in terms of work life balance but also the benefits such as collaboration and creativity you gain from being together in the office. We gather employee insights via surveys so that we can target what will work well for our different employees across multiple locations.

We organised welcome-back initiatives focusing on bringing people together again and promoting wellbeing.

Safety remains our priority therefore when government guidelines change, we respond quickly with action and communication. This reflects our value to do the right thing.

We have almost doubled the number of Wellbeing champions across the ESO to help raise awareness of topics, facilitate campaigns and cascade key messages across the business. "Managing mental wellbeing in the workplace" training has been assigned to all managers to provide important knowledge on how to recognise signs and symptoms of poor mental health and what actions to take to address issues.

vi) Employee regulation

Our values, outlined on Page 9 help to guide our strategy, decisions, processes and culture. The values are defined in the National Grid Group 'Code of ethical business conduct' and outline the behaviour we expect of all our employees, from the Board down.

The Board has adopted the National Grid standards and policies for governance, human resources, finance, digital risk and security, safety, health and environment, procurement, anti-slavery and human trafficking, and anti-fraud and bribery. All employees undertake training to embed the principles into our culture and values.

Senior management submit an annual declaration confirming the steps they have taken during the year to promote a positive ethical culture in line with the requirements of the Ethics Business Management System and that all employees are aware of the 'Code of Ethical Business Conduct' and complete its e-learning module.

If any employee wishes to highlight any potential breaches to the Code of Conduct, they can contact the independent whistleblowing services provider and a formal investigation follows, with anonymous reporting to the National Grid Audit & Risk Committee.

Our business environment

ESO operates in a changing environment, one that is driven by concerns over climate change and the need to achieve Net Zero by 2050. That is why our business plans are designed to enable the transition to a flexible, low carbon energy system. Our operating environment is regulated, with our business plans developed in collaboration with stakeholders and reviewed by Ofgem.

	21/22 H1	21/22 H2	22/23 H1	22/23 H2
Role 1:		Define future system architecture and design	Deliver first new balancing application components Develop foundational architecture	Deliver new core situational awareness tool
		Engage with academia on new courses		Run new university modules in system operation
	Start data platform foundation work	Data platform requirements and design work	Deliver data platform foundation Integrate data platform with digital engagement platform and single markets platform	
			Commence build of restoration decision support tool Establish proof of concept for Distributed Restart	
Role 2:	Trial day-ahead frequency response market. Delivered week ahead Frequency Response auction trial			Single day-ahead response and reserve market Single integrated platform for ESO markets Design and implement reformed reserve products Reserve products integrated with foundational single markets platform
	Day-ahead response market integrated with foundational single markets platform			
		Communication next steps to reactive procurement		
	Stakeholder engagement and consultation on the process to amend our codes	Create and consult with stakeholders on plan to deliver the transformed codes process	Licence changes to support transforming the process to amend our codes	Transform the process to amend our codes - go-live
		Minimum Viable Product delivery of platform		
Role 3:			Further development and testing of the hub with customers	Implementation of phase 1 of the connections hub
				Generation Export Management Scheme (GEMS) RDP South East (UKPN) MW dispatch RDP Publication of roadmap for national roll-out Midlands Storage (WPD) MW dispatch RDP South West (WPD) MW dispatch RDP Connection wider works trials, in selected geographic regions, in NOA Implement stability assessment tool
	Support framework change to reduce barriers to entry	Support framework change to reduce barriers to entry Improve tender processes and identify new areas of system need	Constraint management pathfinder phase 1 progressed	Implement improved tender approaches that enable more participants to enter the market
	Engage with DNOs on their ED-2 plans and with the Open Networks project	Engage with DNOs on their ED-2 plans and with the Open Networks project	Share FES building block data Develop and share data reports and insights (with DNOs) to develop regional assumptions	Implement new energy demand model

i) Our business plans

We are regulated by Ofgem, and in December 2020 Ofgem delivered their final determination on our next price control period (known as RIIO-2). The table below provides a high-level summary of our future RIIO-2 business plans, and you can read the full detail [here](#).

23/24 H1	23/24 H2	24/25	25/26
Enhanced balancing capability delivered Ability to schedule and dispatch all parties 1MW and above		Deliver full capability of new situational awareness tool	Further iterations based on priority needs
Training integrated with new balancing capability		Training integrated with new situational awareness capability	Fully integrated training and simulation capability
Integrate data platform with enhanced balancing tool		Integrate data platform with new situational awareness tool	Continued data platform expansion
ESO facilitating annual assurance process against new restoration standard		Deliver restoration decision support tool	Distributed resources able to fully provide restoration services
Start balancing and wholesale market review			
Implement change to codes required to create whole system Grid Code. Implement digitalised grid code - dependent on external stakeholder			Digitalised Whole System Grid code
			Phase 2 of the connections hub
		Further RDP (to be determined) finished	

In April 2022 we submitted our draft updated plan for the ESO RIIO-2 Business Plan 2, to cover the next stage of the five-year RIIO-2 period. Whilst the ESO's work is governed by our 2019 RIIO-2 Business Plan and the funding associated with it, due to the unprecedented level of change in the energy sector, Ofgem have allowed the ESO to break the five-year RIIO-2 period (2021-2026) into smaller planning cycles, so that we can respond more effectively to these changes.

This draft RIIO-2 Business Plan 2 incorporates new government targets into its planning, including the government's target for the delivery of a Net Zero electricity network by 2035 and implementing Early Competition, and outlines how the ESO will work to deliver these targets, including through our refreshed mission and ambitions.

Alongside the publication of the draft updated plan we have also set out an initial cost and plan for the work we will now undertake to deliver the Energy Future System Operator. You can view the ESO RIIO-2 Business Plan 2 and Energy Future System Operator (Annex 5) documents [here](#).

Our commitment to being a Responsible Business

In today's world, Business needs to be a positive force for good. This belief is central to the way we work and why we do what we do. Businesses are a key part of their communities, and we believe they should leave a positive legacy for future generations. At the ESO, we work hard to exceed the expectations of our customers, shareholders and communities. We are passionate about operating our business in an environmentally responsible way. It is the right thing to do – for society and for us. Sustainability shapes our thinking and decision-making. It means we aim to run our business as efficiently as we can, provide value for our customers, and protect the environment. For us, being a Responsible Business means being a good citizen and driving social change, which covers every aspect of our work. What we do helps to underpin the prosperity of our communities.

In October 2020 the ESO adopted the National Grid Group Responsible Business Charter and this year we are including new metrics in our Annual Report and Accounts below, to enhance the visibility of our progress across our five areas of focus:



1. The environment

We will enable a fair and affordable transition to a clean energy economy and reduce our own emissions.

Our biggest impact in this area is our ambition to be able to operate carbon free by 2025. This year we saw ground-breaking projects come forward to move us along this path. These include Dynamic Containment, the first in a suite of new fast-acting electricity market products, which is boosting the network's ability to respond rapidly to disturbances in the flow of energy around the grid, and the Regional Development programme, where we are working with regional networks to help the generators connected to them access the network and provide a wider range of services.

In 2018 we developed an internal Environmental Sustainability Business Management Standard (BMS) that brings together the commitments from our Responsible Business ambitions and our Environmental Policy. This gives clarity to all our employees and puts sustainability at the heart of our environmental management systems. Since then we have been hard at work each year to drive down waste in our offices and take excellent care of our land.

We are working with the global electricity community on the path to Net Zero. Last year we set up the Global Power System Transformation consortium (G-PST) to work with other system operators on decarbonising power grids. We shared this with the world at COP26 and have also been supporting international efforts through Mission Innovation to demonstrate that by 2030 power systems in different geographies and climates are able to effectively integrate up to 100% variable renewable energies in their generation mix.

Alongside those activities, we have established the Engineering Advisory Council, containing members from academia and European Transmission System Operators with the aim to direct research into the engineering challenge of zero carbon grid operation.

Reducing greenhouse gas emissions is very important for us. We have committed to implementing the Task Force on Climate-related Financial Disclosures' recommendations, demonstrating how climate change risk and opportunities are central to our thinking, with clear targets to measure progress.

The ESO are tracking our emissions and will be working year on year to reduce these. The data for FY22 is set out below against the FY21 comparator. Whilst this comparator is heavily affected by the impact of the coronavirus pandemic, our emissions are still down versus long-term benchmarks. We will continue to work hard to be a more sustainable organisation as we work toward the zero carbon operation of Great Britain's electricity transmission network.

Data explaining our Responsible Business approach to the environment:

Metric	FY21	FY22
ESO energy consumption (Gas & Elec)	11.6 GWh	11.2 GWh
Energy consumption (Gas & Elec) per person	0.01 GWh pp	0.01 GWh /pp
Scope 1 – Building heat & Business vehicles ▲	348 tonnes CO ₂ e	208 tonnes CO ₂ e
Scope 2 – Electricity ▲	1,065 tonnes CO ₂ e	1,121 tonnes CO ₂ e
Scope 3 – Purchased services, Flights & Other travel ▲	57,262 tonnes CO ₂ e	207,934 tonnes CO ₂ e
Total ESO employee miles travelled by air ▲	11,560 miles	68,237 miles
ESO employee miles travelled by air per person	14 miles pp	77 miles pp
% of electric mgmt. vehicles (Mgmt. company car fleet)	60%	65%
Total office waste	68.3 tonnes	90.7 tonnes
Office waste per person	0.08 tonnes pp	0.10 tonnes pp
Waste diverted from landfill	100%	98%

▲ denotes FY22 metric included within PwC's limited assurance scope, see note on page 40.

Case Study

Earlier this year the Science Based Targets initiative (SBTi) provided official validation of the ESO's emissions reductions target, finding that they aligned to the most ambitious targets of keeping global warming to 1.5°C above pre-industrial levels for Scope 1 and Scope 2 emissions reductions. This places the ESO in a strong position to continue to advocate for emissions reductions across the energy industry and demonstrates our commitment to delivering a Net Zero future.

2. Our communities

We will deliver sustainable energy safely, reliably and affordably. The ESO is part of the fabric of the communities we serve – we keep the lights on, we keep homes powered, we help economies to thrive. We are an operator, an employer, and we use local suppliers. We support our communities with the time and expertise of our people, and through corporate giving programmes.

Two years ago we introduced a community fund to help local communities during the pandemic. In 2020 we donated £85,000 and in May 2021 we donated £100,000 to fund projects close to our employees' communities, predominantly surrounding the Warwick and Wokingham sites such as a food bank, a children's hospital, a community centre and other care services. In May 2022 we ran a third funding round and allocated a further £100,000 to support local projects.

ESO are tracking the impact on its communities. The data for FY22 is set out below against the FY21 comparator.

Data explaining our Responsible Business approach to our communities:

Metric	FY21	FY22
No. of young people given access to skills training	0	100
Volunteering hours	0	63
ESO contribution to UK consumer electricity bills	£1.61 (0.14% on average)	£1.80 ▲ (0.15% on average)
Service Quality – Number of Voltage & Frequency Excursions	0	0
Lost time injury frequency rate	0.0%	0.0%

▲ denotes FY22 metric included within PwC's limited assurance scope, see note on page 40.

Case Study

In 2021 we again supported our local communities through the ESO Community Fund, with a particular focus this year on supporting efforts to combat food poverty, with 8 of the 18 organizations supported focused on these efforts.

Food is something that so many of us take for granted but the UK's food poverty rate is among the highest in Europe. Nearly six million adults and 1.7 million children were struggling to get enough food between September 2020 and February 2021.

3. Our people

We will develop the right skills to enable and accelerate the energy transition and strive to build a diverse work force and inclusive culture. To make sure we have the right skills to meet the challenges of the future and deliver on our ambitious RII0-2 business plan, we will be recruiting c150 roles across Warwick and Wokingham in the next year. You can read more about our commitment to our people on [pages 29-31](#).

Data explaining our Responsible Business approach to our people:

Metric	FY21	FY22
Ethnic diversity of senior leadership	20%	18%
Gender diversity of senior leadership (% female)	50%	36%
Ethnic diversity of workforce	30%	30%
Gender diversity of workforce (% female)	35%	36%
Managers completing mental health support training	91%	100%
Living Wage Paid	100%	100%
Employee engagement score (Grid:Voice)	78%	80%
Employee enablement score (Grid:Voice)	70%	72%
Mean 'base' gender pay gap	12.6%	12.0%
Mean 'incentive' gender pay gap	(5.9)%	20.3%
ESO CEO to Median remuneration ratio	10:1	9:1

Case Study

Bright Green Future (BGF) is an environmental leadership & empowerment programme for young people, aged 16 to 19, across the UK. It is provided at no cost to ensure it is accessible and inclusive, enabling us to bring together a diverse cross section of society. In 2021/22 the ESO's partnership with BGF has enabled c.100 students to develop their skills and ambition to pursue environmental careers. Six ESO employees participated in delivery of the programme.

BGF is centred around a carefully curated programme of in-person and online activities giving students the skills, confidence, and connections for their journey towards a meaningful energy or environmental career and enabling them to bring a sustainability perspective to every job. By partnering with the Centre for Sustainable Energy in the delivery of BGF we will contribute to the ESO's Responsible Business targets and support our ambitions including:

- Increase employee volunteering hours. Through volunteering, our people will help equip the next and future generations to participate in the clean energy transition.
- Develop skills for the future, with a focus on lower income communities, providing access to skills development for young people.
- Achieve greater diversity in all ESO new talent programmes.

4. The economy

Our economic contribution to society comes primarily through delivering secure and reliable electricity. We power businesses and homes, and partner with regulators, our business partners, suppliers and other key stakeholders. We make sure energy reaches homes and businesses safely, reliably and efficiently. But our contribution as a responsible, purpose-led business also comes as an employer, a tax contributor, a business partner, a community partner and a member of the B Team movement. Commitments include:

- Maintain reinvestment in our infrastructure and show the consumer benefits of our delivery plans;
- Continue to invest in developing technologies and innovations that benefit the industry and society;
- Meet or exceed the B Team Responsible Tax Principles;
- Work across our supply chains to ensure that, together, we reflect the diversity of the communities we serve;
- Continue to influence our supply chain to operate as Responsible Businesses.

Data explaining our Responsible Business approach to the economy:

Metric	FY21	FY22
Supplier payments made to contractual terms	81%	84%
Suppliers with a carbon reduction target	Data unavailable	74%
Corporation tax (received)/paid	£(10)m	£17m
Other taxes paid	£7m	£7m
VAT collected	£669m	£763m
Innovation spend	£7m	£8m
Employment (jobs at 31 March)	818	884

Case Study

In November the ESO announced innovation plans to create a Virtual Energy System to support future industry collaboration through shared data to best support the transition to Net Zero.

The Virtual Energy System will combine a series of digital twins, replicas of existing physical components that are capable of accurately recreating in real time the conditions we face in managing the electricity transmission network and the electricity markets connected to the network.

By constructing and sharing this resource across the industry the Virtual Energy System will create a world leading tool to support decision making, energy forecasting and investment across the energy sector. Which will help to deliver Net Zero and will create long-term value for consumers and the industry.

5. Our governance

We will make sure our governance mechanisms reflect our values and commitments, and that the principle of responsibility guides us in everything we do. This approach covers nine areas of focus and is common across National Grid Group.

Human rights

Respect for human rights is incorporated into our employment practices and our values, which are integral to our Code of Ethical Business Conduct.

Our Global Supplier Code of Conduct (GSCoC) makes sure our suppliers comply with all legislation relating to their business, as well as the principles of the United Nations Global Compact, the International Labour Organisation Minimum Standards, the Ethical Trading Initiative Base Code, and the UK Modern Slavery Act 2015. For UK suppliers we also include the requirements of the Living Wage Foundation.

Preventing modern slavery

We expect our suppliers to be compliant with the Modern Slavery Act and to publish a Modern Slavery Statement if required. Each year National Grid updates the Group's Modern Slavery statement and publishes this online [here](#). The Statement is independently reviewed by the Business and Human Rights Resource Centre.

National Grid is a member of the United Nations Global Compact Working Group, focusing on Modern Slavery, and is working with Achilles to develop a community approach to the issue and review our procurement process, so that modern slavery criteria and identifying risks, forms part of our sourcing process.

Anti-bribery and corruption

In National Grid there is a company-wide framework of controls to prevent and detect bribery. We thoroughly investigate all allegations of ethical misconduct and, where appropriate, take corrective action and share learnings. We record trends and metrics – only a small percentage of these relate to bribery or corrupt practices, so we do not consider them to be material for reporting purposes.

Data explaining our Responsible Business approach to anti-bribery and corruption:

Metric	FY21	FY22
Employees completed anti-fraud and bribery training	99%	100%

Governance and oversight

We regularly review our framework to be sure procedures remain proportionate to the principal risks. The National Grid Group Ethics and Compliance Committee (ECC) oversees the Code of Ethical Business Conduct and awareness programmes. Cases alleging bribery are referred to the ECC so its members can make sure cases are investigated promptly and acted on. Lessons learnt are communicated across the business.

Data explaining our Responsible Business approach to Governance:

Metric	FY21	FY22
Gender diversity of the Board	50%	50%
Ethnic diversity of the Board	0%	0%

Anti-bribery policy

The National Grid Group Policy Statement 'Anti-Fraud and Bribery' sets out our zero-tolerance approach. It applies to all permanent employees, temporary agency staff and contractors. To make sure of compliance with the UK Bribery Act 2010, we conduct annual fraud and bribery risk assessments. We have an e-learning course for all employees setting out our zero-tolerance approach.

Whistleblowing

Confidential external whistleblowing helplines are available 24/7 to all employees so concern can be reported anonymously. This helpline is publicised internally and on the external website. Our policies make it clear that we will support and protect whistle-blowers and any retaliation will not be tolerated. This process is a shared service within National Grid Group and there is also an independent mechanism for reporting System Operator Financial Information concerns, for issues arising due to legal separation.

Ethical business conduct

Our Code of Ethical Business Conduct sets out the standards and behaviours we expect from all employees. It is issued to all employees and is supported by a communication and training programme to promote a strong ethical culture.

Data explaining our Responsible Business approach to ethical business conduct:

Metric	FY21	FY22
Employees completed ethics training and compliance statement	94%	99%

Suppliers

Our Supplier Code of Conduct sets out our requirements that have procedures in place to prevent and detect bribery and corruption, in accordance with all applicable local, state, federal or national laws or regulations, including the UK Bribery Act 2010. We provide guidance and briefings for high-risk areas, so contractors, agents and others acting on behalf of ESO do not engage in any illegal or improper conduct. The National Grid Group Procurement team carries out regular supplier screening to identify any requirements for prosecutions or sanctions within our supplier base.

Compliance framework

All business areas in the ESO and across National Grid Group support functions are required to consider their specific risks and maintain a compliance framework, setting out their controls to detect and prevent bribery. As part of our compliance procedure, the ESO assesses its controls and provides evidence that supports its compliance.

Assurance

We engaged PricewaterhouseCoopers LLP (PwC) to undertake a limited assurance engagement using the International Standard on Assurance Engagements (ISAE) 3000 (Revised): 'Assurance Engagements Other Than Audits or Reviews of Historical Financial Information' and ISAE 3410: 'Assurance Engagements on Greenhouse Gas Statements'. PwC have provided an unqualified opinion in relation to the KPIs that are identified with the symbol ▲ and featured on [page 35-36](#).

A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in terms of the risk assessment procedures which include an understanding of internal control, as well as the procedures performed in response to the assessed risks. Non-financial performance and, in particular, greenhouse gas quantification is subject to more inherent limitations than financial information. It is important to read the Responsible Business information in this report in the context of PwC's full limited assurance opinion and the ESO Responsible Business Reporting Methodology document, which can be found [here](#).

For reference, the National Grid Responsible Business Report can be found [here](#).



Internal control and risk management

The Board is committed to protecting and enhancing the ESO's reputation and assets, while safeguarding the interests of our stakeholders. The ESO is exposed to threats, opportunities and uncertainties that could impact its financial situation, its operational results, and its reputation. The ESO's risk management and control framework is in place to identify, assess, manage, monitor and escalate risks and ensure internal controls are implemented to provide mitigation. The Board sets and monitors the amount of risk the ESO is prepared to seek or accept in pursuing its strategic objectives through the implementation of its risk appetite.

The Audit and Risk Committee is responsible for overseeing the effectiveness of ESO's risk management framework and the Board is responsible for the appropriate identification of our principal risks and the effective implementation of mitigating activities for these.

i) Risk management process

The ESO accepts that it is not possible to identify, anticipate or eliminate every risk and that taking appropriate risks is an inherent part of doing business. However, the risk management process provides assurance that we understand, monitor and manage the key risks and uncertainties we face in delivering our objectives.

The ESO has an approved Risk Management Framework in place which is supported by risk champions who aid the business in its application. The ESO identifies appropriate risk owners to be accountable for controlling and mitigating their respective risks.

Our risk profile contains the risks that cover the enterprise activities of our business, of which the ESO had identified 9 Principal risks in April 2021 reducing to 7 by the end of March 2022. These Principal risks are agreed through discussions with the Executive Team and the Board. The risks are reported and debated with the Executive Team and the Board on a regular basis. We report on our enterprise risk landscape quarterly to the Audit and Risk Committee and conduct at least monthly dashboard reporting.

ii) Risk appetite

The ESO operates a 3-point appetite framework for which there have been no changes through the year. As a result of our risk framework review in 2021/22 (more details in iv) we are moving to a five point scale (Averse through to Risk taking) from April 2022 and taking the opportunity to lift appetite up to the highest level. The Board's appetite continues to be used by the business to help assess risks.

iii) Top down, bottom-up assessment

The ESO has a 'top-down, bottom-up' approach where all key business areas identify key risks. Each risk is assessed by considering the financial, operational and reputational impacts, and how likely the risk is to materialise. The risk owner identifies and implements mitigation, to manage and monitor the risks. The most significant risks are highlighted in our executive risk profile and reported to the Audit and Risk Committee and the Board.

iv) Changes during the year

The Board undertook a detailed horizon scanning, emerging risk and current risks landscape workshop in July 2021, the outputs of which were used to validate and enhance the existing principal risks and control frameworks. In addition, the Board approved a review of the risk framework focusing on the risk taxonomy, principal risks, Board appetite and supporting risk tolerance ranges. This review was completed in March 2022 and will be implemented in April 2022 and does not introduce any material change in appetite allocation. From April 2022 we will move to 14 Principal risks (from 7) with a further 2 under development and 13 appetite categories (from the equivalent of 11 in 2021/22).

The ESO has built a risk reporting tool, which is fed from the enterprise risk management system. The reporting tool enables risk and control owners to select from various risk indicators and performance measures to help inform decision making.

While our principal risks continue to evolve, the underlying focus of these risks have remained static through the year. We have introduced a new Trusted Partner risk and evolved our previous 'RIIO-2 Readiness' risk into the current 'Delivering RIIO2 Commitments' risk. The risk and control material provided in this report is as at year end 2021-2022. The ESO Board approved a new risk framework, including new principal risks with effect from April 2022 which will be provided in next year's report.

Principle Risk	Description	Mitigation
ESO Critical National Infrastructure (CNI) systems	Ensuring our CNI systems remain available and resilient to malicious or other threats. Maintaining and transforming these systems to facilitate the needs of our customers now and in the future	<ul style="list-style-type: none"> Established cyber security monitoring and testing; Active system health monitoring; Tactical upgrade programmes; Strategic system change programmes are in flight.
Significant Energy Disruption	The ability for the ESO to predict and respond to significant disruption of electricity energy that adversely impacts our customers and/or the public	<ul style="list-style-type: none"> Long and short-term energy forecasting and market information provision; Network design and analysis; Codes and obligation management; Emergency exercises and industry testing.
ESO Cashflow	Our role in undertaking industry revenue management could negatively affect ESO cashflow in the short to medium term	<ul style="list-style-type: none"> Governance and testing; Strong credit management process; Significant credit facilities; Bad debt management and recovery; Sox controls.
Power Systems Transition	Failure to adapt as the power system transitions to be more sustainable leads to high costs and or system security issues	<ul style="list-style-type: none"> Strategic programmes have been set up to focus on the following: <ul style="list-style-type: none"> Whole System Zero Carbon Operation Competition Everywhere Proactive engagement to shape policies and public debate to ensure stakeholders understand the role of the ESO in a decarbonised system.
Trusted Partner	Failure to identify, develop and engage our differing stakeholders in a way that is tailored to them	<ul style="list-style-type: none"> Public affairs & Policy strategy; Strategic engagement strategy; Customer experience strategy; Trusted partner road map.
Delivering RII02 Commitments	Ensuring we meet our commitments set out within our ambitious RII02 business plan	<ul style="list-style-type: none"> Annual Business Plan; ESO Programme Review Board; Portfolio Assurance Programme; ESO Design Authority.
Business Resilience	Inability to respond to an event outside the ESO's initial control (Excludes CNI)	<ul style="list-style-type: none"> Compliance with ISO22301 and internal Business Management Standards for data management and business continuity management; Regular testing; IT support contracts and monitoring for key systems; Provision of equipment and systems to enable remote working.

v) Assurance

Corporate Audit provide independent assurance to the Audit and Risk Committee as to the effectiveness of controls put in place to mitigate risks. Internal Assurance is in place to support the first line improve the maturity of their risk and control landscape.

Financial review

Revenue for the year 2021/22 was £3,486m (2021: £2,127m) with an adjusted operating profit of £50m and operating profit of £21m (2021: adjusted operating profit £62m and operating profit £41m). The reduction in adjusted operating profit of £12m reflects an increase in intangible asset impairments of £8m and a £7m cumulative adjustment against intangible assets for previously capitalised customisation and configuration of cloud computing arrangements. Further details relating to the collection of revenues can be found in Note 2 of the financial statements.

As a result of high gas prices, we saw increased balancing costs in the Autumn and Winter period. This is reflected in increased Balancing Service Use of System ('BSUoS') costs in 2021/22, which are pass-through in nature, with Revenue up by £1,359m in 2021/22.

We worked with industry and Ofgem on a financial support package relating to BSUoS charges. We provided temporary support to Suppliers and Generators to defer the payment of an element of the Winter excess BSUoS costs because of high gas prices. This cost £44m and will be recovered in the coming financial year 2022/23.

Bad debts increased in the year because of the unprecedented increase in gas prices in the Autumn. 26 customers went bankrupt during the period against 2 in the prior year. This cost £19m in 2021/22 compared to bad debts in the prior year of £3m. This amount is fully recovered through RIIO-2 revenues.

Our funding position continues to be strong and we are carefully monitoring our liquidity and working capital. Our balance sheet at 31 March 2022 showed cash, cash equivalents and financial investments of £269m up from £216m at 31 March 2021 and we had undrawn external facilities amounting to £550m.

Our position and that of the market will continue to be monitored closely throughout the duration of the current high gas prices and geopolitical situation.

RIIO Price Control

As we operate as a monopoly, our business is regulated by Ofgem. The regulator puts in place an incentive regime that ensures our interests are aligned with those of customers and society.

Ofgem's regulatory regime for the energy industry is titled RIIO, which stands for Revenue = Incentives + Innovation + Outputs. It is designed to encourage companies to invest in efficiency and innovation.

RIIO-2

The RIIO-2 price control period started on 1st April 2021 and introduced a new bespoke funding framework for the ESO. The framework builds on the existing regulatory funding arrangements already in place for network companies, whereby licensees earn an allowed return on their Regulated Asset Value (RAV), but also provides additional funding for risks and activities that do not have an associated RAV. Additionally, the ESO funding framework has been designed to encourage the ESO to be agile and adapt quickly to market evolution through the introduction of a passthrough funding approach for efficiently incurred expenditure. Finally, the framework incentivises the ESO to deliver on its ambitions and to provide value for money for consumers through the inclusion of incentive scheme.

Every year allowed revenue to fund an efficient level of expected costs ("totex") is split between RIIO "fast" and "slow" money categories using specified ratios that are fixed for the duration of the price control period. Fast money represents the amount of totex we can recover in the year of expenditure. Slow money is added to our Regulatory Asset Value ("RAV"). In each year we can recover a portion of the RAV (regulatory depreciation) and a return on the outstanding RAV balance.

In the year, RAV grew by 23% driven by slow money expenditure (capital expenditure) and inflation adjustments in-line with CPIH offset partly by regulatory depreciation. 2022 Opening RAV was adjusted for the inclusion of the Electricity National Control Centre from the start of the RIIO-2 period, following refreshed guidance. This accounts for the full variance to the closing balance of £222m in 2021.

	2022 £m	2021 £m
Opening Regulated Asset Value (RAV)	240	211
Asset additions (slow money) (actual)	97	58
Performance RAV or assets created	-	1
Inflation adjustment (CPIH)	15	3
Depreciation	(56)	(51)
Closing RAV	296	222

Brexit

Brexit has not posed a key risk for the ESO. Mitigating action during the Brexit transition phase regarding our access to energy markets supported our ongoing activities, and negotiations around shared technology and platforms will continue to be monitored with the risks and uncertainties managed through our existing risk processes, particularly regarding access to exchange replacement reserves.

Use of adjusted profit measures

In considering the financial performance of our business, we analyse each of our primary financial measures of operating profit, profit before tax and profit for the year attributable to equity shareholders, into two components.

The first of these components is referred to as an adjusted profit measure, also known as 'underlying' or a 'business-performance' measure. This is used by management and forms part of the incentive target set annually for remunerating employees and Executive Directors. The adjusted profit measure excludes exceptional items, re-measurements and timing differences. These are reported collectively as the second component of the financial measures in actual profit.

We believe that by presenting our financial performance in two components it is easier to read and interpret financial performance between periods, as adjusted profit measures are more comparable having removed the distorting effect of the excluded items. Those items are better understood when separately identified and analysed.

The presentation of these two components of financial performance is in addition to, and not a substitute for, the comparable total profit measures presented.

Management uses adjusted profit measures to monitor financial performance. These measures are also used by National Grid Group in communicating financial performance to its investors in external presentations and announcements of financial results.

Reconciliation of adjusted profit measures

Reconciliation of adjusted operating profit to total operating profit:

	Years ended 31 March	
	2022 £m	2021 £m
Operating profit	21	41
Timing in respect of BSUoS revenues	29	21
Adjusted operating profit	50	62

There were no exceptional items or remeasurements included within operating profit and adjusted operating profit for the year ended 31 March 2022 (2021: nil).

Under the regulatory arrangements the level of actual revenues collected from customers can differ to the allowed regulatory revenues. This can give rise to timing differences.

As detailed in Note 2 of the financial statements, for 'TNUoS' revenues we act as agent for the GB Transmission Owners and for certain revenues relating to UK Interconnectors. As agent we recognise an asset or liability for such timing differences.

BSUoS revenues are based on daily calculated tariffs allowing revenues to collect balancing costs and most other regulatory allowed revenues in-line with the regulatory allowed revenues. £6m of allowed regulatory revenues were not collected in the year including bad debt costs and anticipated incentive awards. These will be collected in 2022/23 and form part of the timing adjustments.

In Autumn 2021, there was a significant increase in gas prices as the world began to live with Covid-19. Ofgem issued CMP381, an industry support scheme, to defer the impact of part of the increase in balancing system costs in to 2022/23. This resulted in £44m under-recovery of BSUoS collections which is reported within adjusted operating profit for 2021/22. This compared to a Covid-19 supplier support scheme in 2020/21 which deferred £21m of BSUoS collections into 2021/22, the collection of which reversed the timing in the current year.

Income statement commentary:

	Years ended 31 March	
	2022 £m	2021 £m
Revenue	3,486	2,127
Operating costs	(3,465)	(2,086)
Total operating profit	21	41
Finance income	1	1
Finance costs	(2)	(2)
Profit before tax	20	40
Taxation	(7)	(7)
Profit after tax	13	33

Revenue

Revenue for the year ended 31 March 2022 was £3,486m (2021: £2,127m). The ESO is the system operator for Great Britain, which involves the procurement of services to balance the electricity transmission network. For this activity the company applies a BSUoS charge, which is payable by generators and suppliers of electricity. The ESO also holds the role as revenue collection agent for charges to customers on behalf of the owners of the transmission network. These TNUoS revenues are collected in accordance with IFRS 15 and revenues are shown on a net basis. Further details relating to the collection of revenues can be found in Note 2 of the financial statements.

Most revenues, £3,418m (2021: £2,076m), are earned through the operation and balancing of the electricity system. This includes recovery of costs directly incurred to balance the electricity system on a 'pass-through basis', recovery of incentive revenue and amounts allowed under our regulatory framework to cover the internal costs of our operations.

The ESO Forward Plan incentive scheme outcome for financial year 2021-22 is expected to be £6m. The scheme rewards performance on progress against an ambitious plan to meet the ESO commitments and targets in relation to the future energy transformation. Under RII0-2 performance is assessed at the end of the second year. The scheme is evaluative with the outcome determined by Ofgem following the recommendations of a performance panel including industry stakeholders. The final award for the 2-year period will not be known until August 2023.

TNUoS revenues of £68m (2021: £51m) reflect the recovery of costs we directly incur through the regulatory arrangement, including Ofgem licence fees and property rates. This includes £6m directly recovered or repaid to Interconnectors under their cap and floor regimes. Further detail on this can be found in Note 2 of these financial statements.

Operating costs

Operating costs for the year ended 31 March 2022 were £3,465m (2021: £2,086m). Of this, £3,153m (2021: £1,875m) relates directly to balancing system costs which have increased due to lower electricity demand, high gas prices and record levels of renewable energy generation being brought onto the transmission network, which requires additional balancing work. Other costs of our operations of £229m (2021: £164m) included payroll, pensions deficit, licence payments and other running costs. Depreciation, amortisation and impairment totalled £83m for 2022 (2021: £47m), driven substantially by depreciation of intangible IT assets which are seeing a significant increase in the level of investment over the transformation RIIO-2 period as well as asset impairments for IT work that may no longer be required and a cumulative adjustment against intangible assets for previously capitalised customisation and configuration of cloud computing arrangements.

Under the separation agreement with National Grid Electricity Transmission Plc, and in accordance with the regulatory requirements set by Ofgem, the company paid £12m (2021: £12m) of pension deficit contributions into the National Grid Electricity Group of the Electricity Supply Pension Scheme (NGEG of ESPS).

Net finance costs

For the year ended 31 March 2022, net finance costs before exceptional items and remeasurement were £1m (2021: £1m). This includes interest paid on the fixed term loan to National Grid plc offset by interest received on centrally managed treasury banking arrangements. The Company also pays fees to external providers of working capital facilities. Interest is also charged on balances owed from or to external customers during the normal course of business.

Taxation

The tax charge on profits before exceptional items and remeasurements was £7m (2021: £7m) at a rate higher than the standard UK tax rate of 19% due to deferred tax impacts of the change in future corporation tax rates from 1 April 2023.

Statement of financial position commentary:

Commentary	Years ended 31 March	
	2022 £m	2021 £m
Non-current assets	405	488
Current assets	1,012	747
Total assets	1,417	1,235
Current liabilities	(1,089)	(859)
Non-current liabilities	(50)	(45)
Total liabilities	(1,139)	(904)
Net assets	278	331

Non-current assets

Property, plant and equipment

The total net book value (NBV) of property, plant and equipment was £116m (2021: £128m) as at 31 March 2022, including capital additions of £20m.

Intangible assets

The total net book value (NBV) of intangible assets was £288m as at 31 March 2022 (2021: £250m).

This included additions of £89m in year relating to software projects, offset by £69m of amortization and impairments.

The remaining amount within Non-current assets relates to our investment in joint ventures (£0.6m relating to Coreso SA).

Other Non-current assets in 2021 included £109m related to TNUoS timing differences that were collectible after more than one year in 2022/23. The closing March 2022 TNUoS timing differences are presented within Current assets as this will be collected within the next 12 months, detailed below.

Current assets

Trade and other receivables

Trade and other receivables totalled £743m at 31 March 2022 (2021: £531m), with the main component being accrued income of £468m (2021: £361m). The accrued income element comprises of TNUoS billing accruals of £265m (which will be invoiced in June following the annual demand reconciliation) with the remaining balance including BSUoS income accruals of £203m.

Trade receivables of £113m (2021: £106m) were held as at 31 March 2022, net of £36m of bad debt provision (2021: £17m).

Other receivables of £162m (2021: £62m) includes £79m for TNUoS revenue timing differences that will be recovered in 2022/23. The remaining balance relates to capital contribution amounts not yet invoiced to customers.

Other current assets of £269m (2021: £216m) relate to balances classified within net debt, for which the in year movement is explained in the cash flow statement commentary.

Current liabilities

Trade and other payables

Trade and other payables as at 31 March 2022 were £946m (2021: £737m), chiefly relating to £323m (2021: £288m) of trade payables and other accruals; this was mainly generated by £235m of BSUoS cost accruals at the year end.

Deferred income as at 31 March 2022 of £235m (2021: £180m) was generated through the deferral of TNUoS revenues. This is caused by differences in our forecast TNUoS usage for billing and actual customer usage and will be credited to customers following the annual demand reconciliation in June.

Social security and other taxes as at 31 March 2022 of £244m (2021: £133m) related predominantly to £243 million of quarterly VAT payable. The large VAT balance is driven by two key factors:

- a. The Company is part of the National Grid Group VAT group and settles VAT quarterly. This leads to the large VAT liability reflecting TNUoS and other charges from National Grid Electricity Transmission not being subject to VAT.
- b. Cost incurred on Balancing the system are largely subject to the Domestic Reverse Charge with nil net effect on the VAT liability, but the BSUoS invoicing is subject to VAT leading to an asymmetry and net liability.

Capital contributions for the year ended 31 March 2022 were £104million (2021: £85m). These relate to revenues collected on behalf of the Transmission Owners for construction projects for which the ESO have not yet been invoiced for.

Other current liabilities of £40m (2021: £51m) chiefly comprise of amounts due to fellow subsidiaries of National Grid plc, £30m (2021: £38m), for amounts yet to be settled for services they provide to the ESO for centralised Support Services.

Provisions

Total provisions remained unchanged at £2m with £1m relating to restructuring provisions and £1m relating to IT Licences.

Borrowings

Borrowings amounted to £141m (2021: £120m) relating to a loan due to the ultimate parent undertaking and a bank overdraft.

Non-current liabilities

Deferred tax liabilities

The net deferred tax liability as at 31 March 2022 is £11m (2021: £18m). This is a decrease in liability of £7m, predominantly driven by a £5m movement in advanced capital allowances.

Other non-current liabilities

Other non-current liabilities totalled £39m (2021: £27m) as at 31 March 2022. This consisted of £39m (2021: £25m) for application fees (relating to advance payments by customers for feasibility studies and connections).

The remaining balance in 2021 was £2m deferred income (relating to TNUoS revenue).

Net debt

The net debt position as at 31 March 2022 was cash positive at £128m (2021: £96m) and is detailed further in the following Section.

Cash flow statement commentary

Cash inflows and outflows are presented to allow users to understand how they relate to the day-to-day operations of the business (operating activities); the money that has been spent or earned on assets in the year, including acquisitions of physical or intangible assets; and the cash raised from debt or share issues and other loan borrowings or repayments (financing activities)

Reconciliation of cash flow to net debt:

	2022 £m	2021 £m
Cash generated from operations	225	(69)
Net capital expenditure	(108)	(88)
Business net cash flow	117	(157)
Net interest paid	(1)	(2)
Tax (paid)/received	(17)	10
Net disposals of short term financial investments	14	–
Net proceeds from loans	(72)	160
Dividends paid to shareholders	(67)	–
(Decrease)/Increase in cash and cash equivalents	(26)	11
Increase/(decrease) in financial investments	59	(160)
Increase in borrowings and related derivatives	(21)	–
Net interest received on the components of net debt	–	1
Net debt increase/(decrease)	12	(148)
Opening net debt	96	244
Closing net debt	128	96

Our electricity system operations are subject to a multi-year regulatory agreement.

For the year ended 31 March 2022 cash flow from operations was an inflow of £225m. This was driven by operating profit adjusted for depreciation, amortisation, and provisions of £103m and a working capital inflow of £122m, largely driven by an increase in VAT payable that resulted from the high balancing costs in the last quarter of 2021/22. Prior to the current year ESO bore cash flow risk relating to the timing of collection of TNUoS revenues. This risk has now transferred to onshore Transmission Owners increasing the cash flow stability for the ESO.

Net capital cash expenditure

Net capital investment was £108m (2021: £88m) in the year to 31 March 2022. This is mostly software and computer hardware within IT system development projects.

Net interest paid

The net interest paid was £1m (2021: £2m).

Dividends paid

Last year on 20 July 2021, reflecting the financial position of the ESO and in light of our residual dividend policy, the Board recommended a final dividend of £67m which was paid in July 2021 (2020: £nil).

Section 172 Statement

The ESO aims to achieve high standards of leadership and governance. For the year ended 31 March 2022, under The Companies (Miscellaneous Reporting) Regulations 2018, we have applied the Wates Corporate Governance Principles for Large Private Companies, set out in the Corporate Governance section on [pages 52-63](#). These serve as a framework for the Board in managing long-term strategic business decisions that promote the success of the Company, while having regard to the matters set out in section 172(1)(a) to (f) of the Companies Act 2006 (“CA 2006”).



Corporate governance

Corporate governance statement



1 Principle Purpose and leadership

An effective board develops and promotes the purpose of the Company, and ensures that its values, strategy and culture align with that purpose.






Purpose

We run the UK's network of high voltage electricity wires, making sure that Great Britain has the essential energy it needs by ensuring supply meets demand every second of every day. At the same time, we need to partner with the energy industry to meet the challenges of the future, delivering clean and affordable electricity.

Strategy

The ESO is driven by its mission of enabling the transformation to a fully decarbonised electricity system by 2035 which is reliable, affordable, and fair for all. The ESO's ambitions have been recently revised to better reflect the evolving operating environment and increasing complexity of our business.

The ESO's ambitions are:

-  Ensuring the electricity system can operate carbon free by 2025;
-  Engaging as a trusted partner;
-  Driving competition everywhere;
-  Being the Net Zero employer of choice;
-  Being innovative, digital and data driven.

As part of the ESO's drive to become more sustainable and transparent, the Board is focussing on matters of environmental, social and governance ("ESG") strategic importance – these are discussed on [page 34-40](#).

Considerable effort has gone into ensuring that the strategy of the ESO continues to align with our purpose and that our business and people are organised and deployed in a way that ensures the future success of the ESO and the UK energy market in the long term. For further details in this regard, please refer [here](#).

2 Principle Board composition



Effective board composition requires an effective chair and a balance of skills, backgrounds, experience and knowledge, with individual directors having sufficient capacity to make a valuable contribution. The size of a board should be guided by the scale and complexity of the Company.

Balance, Diversity, Size and Structure

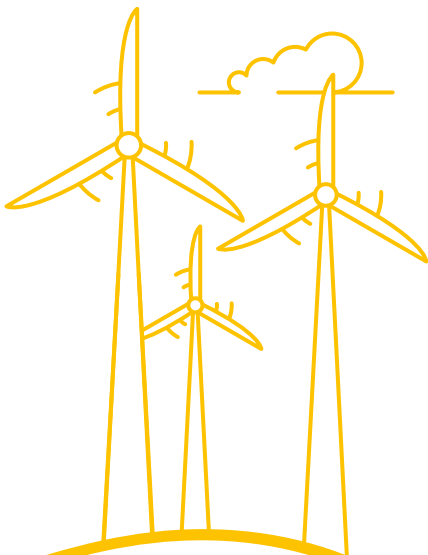
As of 20th July 2022, the Board comprises a majority of five Non-Executive Directors (NEDs) and three Executive Directors. The Chair of the Board is also the Executive Director of the ESO; this is considered appropriate for ESO as a subsidiary company of a large group.

The NEDs bring a range of experience, perspective, and challenge from outside the energy industry, including experience in technology, digital transformation and engineering. The size and composition of the Board is appropriate to the ESO's size, nature, and complexity of the business. It also complies with the requirements of our licence.

There are an equal number of male and female Directors on the Board. The Board recognises that diversity is a challenge for the energy sector and makes diversity an integral part of its agenda. A biography for each Board director can be found on [page 10](#).

There is open debate and constructive challenge at meetings, with Board members demonstrating good engagement with the business and a sound understanding of the ESO's strategy, risks, and challenges. As the business must balance costs against the prudent management of risks inherent in the operation of the electricity system, there are often trade-offs between different stakeholders over the longer-term and the directors carefully consider this as they evaluate decisions. The NEDs bring independent and objective judgement to Board deliberations, challenging and monitoring performance of executive management and obtaining assurance that the Company's legal and regulatory requirements have been met. The Directors have equal voting rights when making decisions, except the Chair, who has a casting vote in the event of a tie. All Directors have access to the advice and services of the Company Secretary and may also take professional advice at the Company's expense.

All Board appointments are made in consultation with our Shareholder and in line with National Grid's Procedure for the Appointment of Directors to Subsidiary Companies.





Effectiveness

In 2021, the Board instigated an effectiveness review, facilitated by an independent external advisor. The review assessed that despite being relatively newly formed (April 2019) it is ambitious, aligned around the ESO's mission, competent and well run. These solid foundations offer the potential to become even more effective through a series of small changes. The Board has an action plan to implement the recommendations of the review.

Directors update their knowledge and familiarity with the ESO by meeting with senior management and by attending company events and visiting operations. Induction materials and briefings are provided to new Directors.

The Board receive updates and presentations on key operational matters and specific initiatives within the business and the wider operating environment to strengthen their knowledge and understanding of the business and operational matters. These visits and briefing sessions create further links between the business and the Board room.

3 Principle Director responsibilities

Accountability



The Board and individual Directors should have a clear understanding of their accountability and responsibilities. The Board's policies and procedures should support effective decision-making and independent challenge.

The Board recognises the importance of a strong corporate governance framework and is collectively responsible for governance and oversight of the business, and compliance with all relevant laws and regulations, including compliance with its obligations under its ESO Licence. To facilitate this, we have established a comprehensive governance framework, which is aligned to the wider National Grid plc governance framework, as is required and applicable.

The Board had eight principal meetings in the year. These are scheduled in advance providing all Directors with sufficient notice to attend. Board attendance is set out below and expressed as the number of meetings attended out of the number possible or applicable for the individual director during the year to 31 March 2022.

Attendance

		Attendance
John Linwood	Non-Executive Director	8 of 8 (100%)
Baroness Gillian Merron	Non-Executive Director	8 of 8 (100%)
Regina Moran	Non-Executive Director	8 of 8 (100%)
Hannah Nixon	Non-Executive Director	8 of 8 (100%)
Paul Plummer	Non-Executive Director	8 of 8 (100%)
Fintan Slye (Chair)	Executive Director - ESO	8 of 8 (100%)
Kayte O'Neil	Director of Transformation - ESO	8 of 8 (100%)
Gregg Smith	Finance Director - ESO	8 of 8 (100%)

Additional supplementary Board meetings were scheduled to allow discussion of urgent issues or to allow greater focus on specific matters, there were 5 in 2021/22 covering topics such as FSO consultation, RII0-2 Business Plan 2, strategy and risk sessions. All Directors were either present or provided feedback to the Chair prior to the meeting.

The Board determines the strategic direction of the ESO, establishes policies for corporate management, makes decisions on major initiatives and ensures the leadership is in place to implement these policies and decisions.

The Board operates a forward agenda of standing items appropriate to the operating and reporting cycles and receives regular and timely information on all key aspects of the business, including risks and opportunities, operations, financial and regulatory reporting, market conditions, relationships with regulatory bodies and human resources, legal, compliance, and regulatory matters, supported by a KPI Scorecard allowing supervision of safety, financial performance, the organisation and customer satisfaction.

The Directors have a clear understanding of their roles and responsibilities. The five NEDs are wholly independent in that they have no business or relationship with the ESO or the wider National Grid Group that would compromise their influence or objectivity.

The ESO is proud of its reputation for operating one of the most reliable electricity systems in the world. Our licence to operate is dictated by the way we are perceived by stakeholders, so the Board gives high priority to maintaining a reputation for high standards of business conduct. It identifies and monitors external developments likely to impact on our reputation and ability to run our business as a good corporate citizen. For more information see our section on acting as a Responsible Business on [pages 34-40](#).

Areas of focus in 2021/22 were

Governance	<ul style="list-style-type: none"> • Embedding the ESO Health, Safety and Wellbeing Committee; • Updating the Terms of Reference for the ESO Nominations Committee; • First Board evaluation review; • Board Effectiveness Workshop; • Customer & Stakeholder Engagement Plans.
Strategy	<ul style="list-style-type: none"> • ESO Annual Business Plan; • Delivery of RIIO-2 Business Plan; • RIIO-2 Business Plan 2 (2023-2025); • Refresh ESO Mission and Ambitions; • ESO Innovation Strategy 2021/22; • Early Competition Programme; • Offshore Coordination project; • Holistic Network Design – Pathway to 2030; • Net Zero Market Reform.
Finance	<ul style="list-style-type: none"> • Capital Expenditure Considerations; • Approval of the annual financial plan; • Oversight of Financial Performance; • Financial sustainability and industry support schemes (including BSUoS); • Approval of Annual Report & Accounts; • Approval of Working Capital Facilities.
Risk and opportunity	<ul style="list-style-type: none"> • Risk Framework and Risk Appetite Review; • Evolution to an independent Future System Operator; • Changes to the UK's energy landscape; • UK's Net Zero carbon commitment by 2035; • Security of Supply; • Balancing Market Review.
Corporate Social Responsibility	<ul style="list-style-type: none"> • Commitment to being a Responsible Business; • ESO Community Fund and volunteering commitment; • Delivering on our 2025 zero carbon operation ambition.

Integrity of information

Financial information is collated by our finance function from its accounting systems to enable the Board to assess financial performance. Internal control systems help ensure the financial information generated is reliable, consistent, timely and complete. Financial information is externally audited by Deloitte LLP annually and financial controls are routinely reviewed by the National Grid's central internal Assurance and Corporate Audit functions. Other key information is prepared by the relevant business and internal functions, which are also subject to periodic reviews by the ESO's Assurance function.

Committees

The Board has delegated certain governance responsibilities to Committees that have the knowledge and experience to make recommendations to the Board, each of which have documented terms of reference. Each committee is chaired by a NED and the NED members provide independent challenge and support for effective decision making.

The Board and its committees regularly review terms of reference to ensure that they remain fit for purpose, are adapted to promote good governance and meet the requirements of the Company as they evolve. At each Board meeting, directors receive reports on the key discussion items, activities and recommendations from the Chairs of the Committees that have met in the period.

Committee	Activity
Audit & Risk Committee	The Audit & Risk Committee (ARC) monitors the effectiveness of internal controls; risk management; integrity of financial statements; and the performance of the internal Assurance and Corporate Audit department and independent auditor. In November 2021, John Linwood was appointed to ARC as a NED Member to strengthening the skill and experience of the Committee.
Nominations Committee	The Nominations Committee makes sure the Board remains balanced and effective and that its structure, composition and skills align to the ESO's strategic objectives, and has due regard for diversity. The Committee's primary objective is to identify and evaluate candidates for future NED appointments and in doing so, it takes advice from external recruitment consultants. During the year, the Terms of Reference of the Nominations Committee were expanded to include oversight of: (i) the succession plans for the Executive Leadership within the ESO; (ii) Executive remuneration and benefits (including discretionary elements); and (iii) input on the remuneration and benefits framework applicable to the Executive Director to the Shareholder.
Business Separation Compliance Committee	The Business Separation Compliance oversees the duties and tasks of the ESO Business Separation & EMR Compliance Officer with the focus upon compliance with the business separation licence and EMR licence conditions.
Health, Safety & Wellbeing Committee	The ESO is dedicated to ensuring the highest standards of health, safety and wellbeing for all staff, going beyond compliance with legal requirements and adopting a good practice model that benefits everyone. To support the Board with this ambition, it established the Health, Safety & Wellbeing Committee, with responsibility for nurturing and promoting a positive attitude to health, safety and wellbeing as an integral part of the ESO's activities and to maintain an overall assessment of the key ESO health, safety and wellbeing specific risks.

Below is a summary of the committee structure and members:

	Audit & Risk	Compliance	Nomination	Health, Safety & Wellbeing
John Linwood*	●		●	●
Baroness Gillian Merron*		●	●**	
Regina Moran*	●			●**
Hannah Nixon*	●**		●	
Paul Plummer*		●**		●
Fintan Slye			●	
Kayte O'Neill	●			
Gregg Smith		●		

*NED **Chair

The Board also delegates certain powers and responsibilities to the following:

Electricity System Operator Executive Team

ESO Executive Team meets at least weekly and comprises individuals responsible for strategic business units and key functions. Duties include formulating strategy proposals for Board approval and ensuring the strategy is implemented in a timely and effective manner. The Executive Team receives reports from its two sub-committees: ESO Programme Review Board (including investment sanctioning) and the ESO Design Authority. The ESO Executive Team makes sure that the values, strategy and culture align, are implemented and are communicated consistently to our employees and external stakeholders. The gender balance in the ESO Executive Team is 64/36.



4

Principle Opportunity and risk



The Board should promote the long-term sustainable success of the Company by identifying opportunities to create and preserve value, and establish oversight for identification and mitigation of risks.

Opportunity

The ESO's strategy is based on a long-term vision for Britain's electricity system to be able to run on purely zero carbon electricity by 2025, supporting the UK's 2050 Net Zero commitment. The Board explores opportunities that align with this purpose - such as Early Competition and Offshore Coordination, supported by the RIIO-2 cost pass-through mechanism.

Major opportunities in excess of thresholds are considered and approved by the Board in accordance with the Company's Articles of Association and Delegated Authorities. Interesting and significant initiatives are presented to the Board alongside these.

Risk

Effective risk management is fundamental to our long-term success.

The Strategic Report on [pages 41-43](#) includes an assessment of the ESO's principal risks and uncertainties and describes our internal controls and risk management.

At Board level, oversight for the identification and mitigation of risk is delegated to the Audit & Risk Committee. The ESO has been on a significant programme of change over the last two years for the management of risk. This has seen the implementation of a new risk framework and a move to a new risk management system. In 2021, work moves to focus on the quality of information and effectiveness of the controls.

The Audit & Risk Committee reviews the ESO's internal control and risk management systems and receives reports from management on the effectiveness of the established systems and conclusions of any testing carried out by internal and external auditors. The Committee approves the annual internal audit and ESO assurance plan, ensuring that these are aligned to the key risks of the business. The plans are sufficiently flexible, to help react to and address new and emerging risks. The Committee receives regular summaries of this work and monitors and reviews the effectiveness of these activities and any mitigating action plans in the overall context of the ESO's risk management system. The Audit & Risk Committee's Chair is responsible for keeping in touch on a continuing basis with key people involved in the ESO's governance including the ESO's Finance Director, Corporate Audit and the external audit lead partner.

The Board approves the Company's risk appetite and undertakes an assessment of the Company's risk management framework annually to ensure that it remains appropriate.

5 Principle Remuneration



A Board should promote executive remuneration structures aligned to the long-term sustainable success of a company, taking into account pay and conditions elsewhere in the Company.

Directors are not separately remunerated for their Board role, except for the NEDs, who are paid an annual fee to attract and retain a balanced skill set and provide strong stewardship and governance.

Directors' remuneration is determined in accordance with National Grid's remuneration policies for employees. See the Annual Report and Accounts of National Grid plc for further information. In accordance with the requirements of the ESO licence, incentivisation of the executive Directors is linked to the performance of ESO only.

The ESO is committed to ensuring all employees are paid fairly for the role they undertake and our gender pay data is scrutinised and discussed by the Board at least annually. For further details, please refer to the Company's latest Gender Pay Gap Report which can be found [here](#).

The Nomination Committee is responsible for reviewing, and where appropriate, making recommendations to the Shareholder in respect of the remuneration policies and benefits framework for all ESO employees to ensure that they support the strategic objectives, culture and values of the Company.

6

Principle Stakeholder relationships and engagement

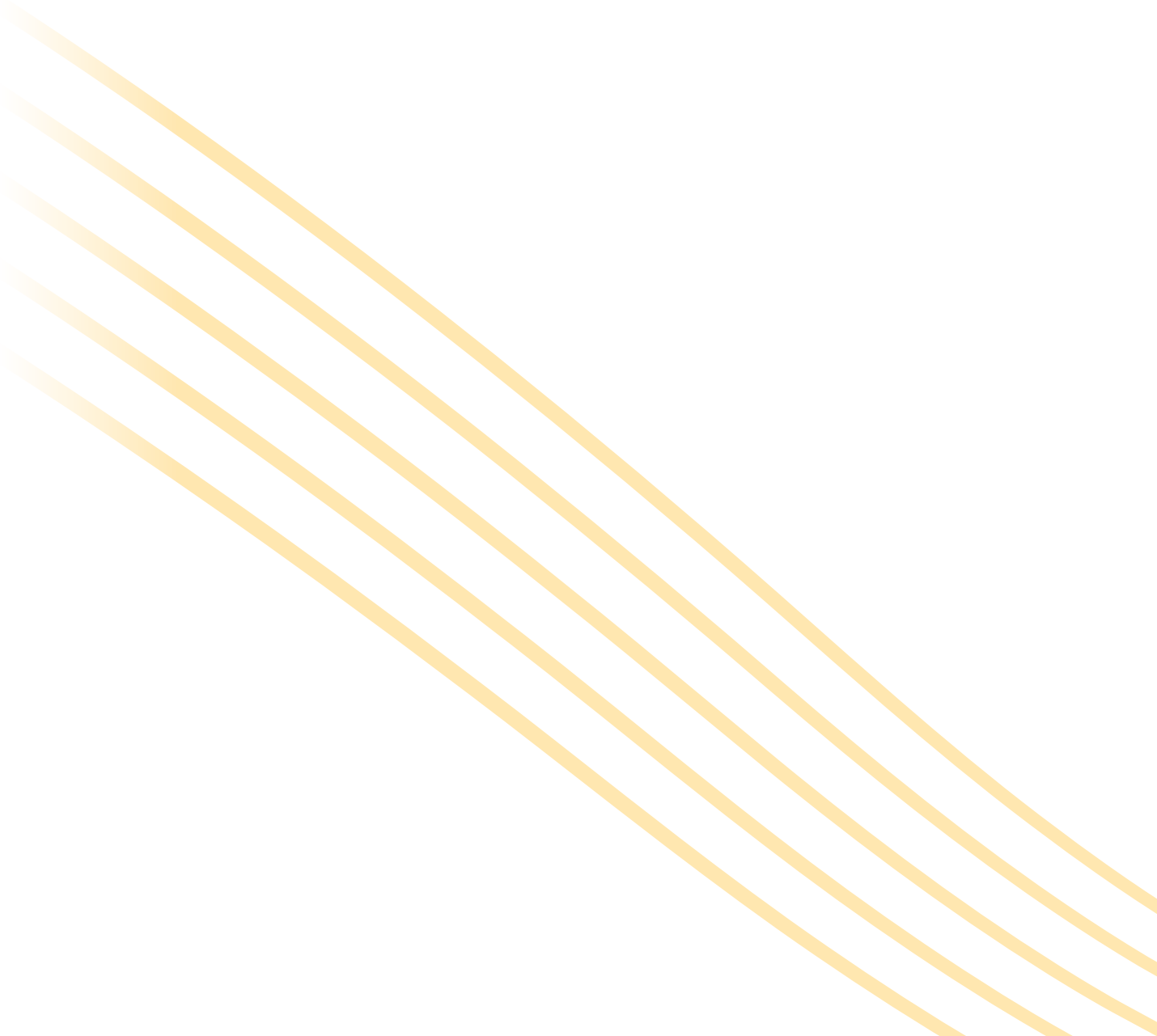


Directors should foster effective stakeholder relationships aligned to the Company's purpose. The board is responsible for overseeing meaningful engagement with stakeholders, including the workforce, and having regard to their views when taking decisions.

The Board promotes meaningful engagement and transparency with employees, customers and external stakeholders and considers their views when taking decisions.

Many of our business initiatives require detailed stakeholder input, such as our Towards 2030 and Future Energy Scenarios publication and our annual Network Options Assessment. We engage with the wider stakeholder community via our core channels, which include website, social media, live events, webinars, knowledge shares and newsletters.

We run a UK and European public affairs engagement programme to engage with and inform key industry stakeholders. We are members of industry collectives such as the Energy Networks Association, Coreso and ENTSO-E.



Shareholder

As a wholly owned subsidiary, the Board duly considers the views and interests of its ultimate Shareholder, National Grid plc, as part of any major decisions and transactions, where this is appropriate in the context of its licence obligations around legal separation.

National Grid Group, as ultimate shareholder of the ESO, is responsible for ensuring the long-term viability and prudent financial management of the National Grid Group. Arrangements are in place to both enable appropriate Group oversight but also enable the ESO to operate sufficiently independently within the National Grid Group.

The Articles of Association and Matters Reserved to the National Grid Group Board describe the remit of the public limited company (PLC) and are available on the National Grid website. To bring this interaction to life, the areas of ESO activity that have visibility or require approval at Group Board level include things like:

- approval of the ESO's annual budget;
- review and approval of the ESO's long term rolling financial forecast;
- visibility of the ESO's financial performance against its annual business plan;
- visibility of the ESO's principal risks;
- approval of any material extension of the ESO's activities into new business areas or any decision to cease to operate any part of the ESO's business;
- authorisation of changes affecting the capital structure of the ESO;
- approval of the long-term strategic objectives of the ESO and any major changes to the size and composition of the ESO Board and its committees; and
- unforeseen issues that have significant or material impact on the Group (e.g. financial, reputational or principal risks).

To support operational and managerial separation of the ESO, and independence of the ESO Board, there is a Group level committee, the ESO Committee. The ESO Committee ensures all ESO ringfenced information required to support good corporate governance by the ultimate shareholder is viewed separately from other subsidiaries in the National Grid portfolio. The ESO Committee is not involved in the day-to-day operation of the ESO.

Matters reserved for the National Grid Group Board are published on the National Grid website [here](#).

The NEDs hold an annual meeting with the Chief Executive of National Grid plc. There is also an annual meeting held between the respective Chairs of the National Grid plc Audit Committee and ESO Audit and Risk Committee.

The Strategic Report was approved by the Board of Directors on 20 July 2022 and signed on its behalf by




Fintan Slye, Chair

National Grid Electricity System Operator Limited
1-3 Strand, London WC2N 5EH
Registered in England and Wales Number: 11014226

Directors' report

For the purposes of the UK Companies Act 2006, the Directors present their report along with the audited consolidated financial statements of the Company for the year ended 31 March 2022, which comprises the Corporate Governance Statement on [page 52](#) and the Statement of Directors' Responsibilities on [page 69](#).





The Strategic Report sets out those matters required to be disclosed in the Directors' Report which are considered to be of strategic importance. Further details of matters required to be included in the Directors' Report are detailed below.

Directors

The Directors of the Company who were in office during the year and up to the date of signing the financial statements were:

Fintan Slye

Regina Moran (NED*)

John Linwood (NED*)

Baroness Gillian Merron (NED*)

Hannah Nixon (NED*)

Paul Plummer (NED*)

Kayte O'Neill

Gregg Smith

*Non-Executive Director

Directors Indemnities and Insurance

The Company has made qualifying third-party indemnity provisions for the benefit of its Directors during the year; these remain in force at the date of this report.

Principal activities and business review

A full description of our principal activities, business, key performance indicators and principal risks and uncertainties is contained on [pages 6 to 43](#) of this report.

Material interests in shares

National Grid Electricity System Operator Limited is a wholly owned subsidiary undertaking of National Grid Holdings One plc. The ultimate parent company of National Grid Electricity System Operator Limited is National Grid plc.

Dividends

In line with the Board's residual Dividend policy, the Board is not recommending the payment of a final dividend for the year to 31 March 2022 (2021: £67million).

Share capital

The share capital of the company remains unchanged. See Note 17 to the financial statement for further details.

Articles of Association

The Company's Articles of Association may be amended by a special resolution of the Company's shareholders. The current Articles were adopted by shareholders on the date of incorporation, 16 October 2017.

Conflicts of Interest

The Company's Articles permit the Board to consider and, if deemed fit, authorise situations where a Director has an interest that conflicts, or may possibly conflict, with the interests of the Company. If a Director becomes aware that they have an interest that may arise in a conflict, they are required to notify the Board. Internal controls are in place to make sure that any related party transactions involving Directors are conducted on an arm's length basis. Directors have a duty to update changes to these conflicts. The Board considers the procedures in place for reporting and considering conflicts of interest are effective.

Political donations

During the year, the Company made no political donations.

Research and development

Expenditure on research and development was £7.6m (2021: £2.6m) during the year.

Future developments

Details of future developments are contained in the Strategic Report in [pages 31-40](#).

Business relationships

Details of how the Directors have had regard to the need to foster our business relationships with suppliers, customers and other stakeholders and their effect on the decisions taken by the Company during the financial year are contained in the Strategic Report on [pages 28-40](#).

Employee engagement

The average number of people employed by the Company during the year was 823. The ESO recognises that our employees are fundamental to our long-term success. Details of how the ESO maintains a close relationship with employees and how Directors have had regard to employee interests in their decision making is contained in the Strategic Report on [pages 28-40](#).

Diversity policy

The ESO is an equal opportunities employer and our core values are grounded in creating an environment where our employees can perform at their best and feel fulfilled and confident in their work, regardless of age, nationality, disability, marital status, ethnic origin, religion, gender or sexual orientation. The ESO gives full and fair consideration to applications for employment made by disabled people. The ESO strives to empower all our employees to realise their full potential and ambitions through a culture of development and we endeavour to re-train and adjust the environment of employees who become disabled during employment with us.

See [page 29](#) for further details. Women represent 50% of the ESO Board and 36% of our Executive Team. Overall, women make up 36% of our workforce and hold 50% of senior roles.

Fair and appropriate remuneration

We are voluntarily reporting our ESO Chair to Median remuneration ratio which is 9:1. The ratio is based on total pay and taxable benefits (2021/22) and comprises salary, pension, and other benefits including an estimated vesting value for the 2019 Long Term Performance Plan award which is expected to vest in early July 2022. Excluding this estimated Long Term Performance Plan award the median pay ratio is 6:1.

Energy and carbon

Details of the Company's energy impact and carbon emissions across Scope 1 and 2 are detailed below:

tCO ₂ e	2021/22	2020/21
Buildings	1,308	1,336
Transport	21	77
Total ▲	1,329	1,413

▲ denotes FY22 metric included within PwC's limited assurance scope, see note on page 40.

Disclosure of information to auditors

The auditors have made the requisite enquiries, and so far as the Directors in office at the date of the signing of this report are aware, there is no relevant audit information of which the auditors are unaware. Each Director has taken all reasonable steps to make themselves aware of any relevant audit information and to establish that the auditors are aware of that information.

Post balance sheet events

There were no post balance sheet events for the year ended 31 March 2022.

This confirmation is given and should be interpreted in accordance with the provisions of s418 of the Companies Act 2006.

Going concern

The ESO Board has a reasonable expectation that the Company has adequate resources to continue in the operational existence for the foreseeable future. Despite the challenges arising from the unprecedented circumstances driven by the war in Ukraine, the ESO has demonstrated its operational and financial resilience and ability to manage business risks successfully. Further details can be found within the Basis of Preparation on [page 77](#). Accordingly, the financial statements set out on [pages 74-101](#) have been prepared on the going concern basis.

Acknowledgement

The Directors wish to convey their appreciation to all ESO employees for their continued commitment and contribution to delivering our ambitions.

The Directors would also like to extend their thanks to all other key stakeholders for their continued support of the Company and their confidence in its management.



Fintan Slye
Chair

20 July 2022

National Grid Electricity System Operator Limited
1-3 Strand, London WC2N 5EH
Registered in England and Wales Number: 11014226

Introduction to the financial statements

Throughout these financial statements, we have provided explanations of the disclosures and why they are important to the understanding of our financial performance and position.

Notes

Notes to the financial statements provide additional information required by statute, accounting standards or other regulations to assist in a more detailed understanding of the primary financial statements. In many notes, we have included an accounting policy that describes how the transactions or balance in that note have been measured, recognised and disclosed. The basis of preparation section provides details of accounting policies that apply to transactions and balances in general.



Statement of Directors' responsibilities

The Directors are responsible for preparing the Annual Report and the financial statements in accordance with applicable law and regulation.

Company law requires the Directors to prepare financial statements for each financial year. Under that law the Directors have elected to prepare the company financial statements in accordance with International Financial Reporting Standards (IFRSs) as adopted by the UK and, FRS 101. Under company law the Directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the company and of the profit or loss of the company for that period.

In preparing the company financial statements, the Directors are required to:

- Select suitable accounting policies and then apply them consistently;
- Make judgements and accounting estimates that are reasonable and prudent;
- State whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the company will continue in business.

In preparing the financial statements, International Accounting Standard 1 requires that Directors:

- Properly select and apply accounting policies;
- Present information, including accounting policies, in a manner that provides relevant, reliable, comparable and understandable information;
- Provide additional disclosures when compliance with the specific requirements in IFRSs are insufficient to enable users to understand the impact of particular transactions, other events and conditions on the entity's financial position and financial performance; and
- Make an assessment of the company's ability to continue as a going concern.

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the company's transactions and disclose with reasonable accuracy at any time the financial position of the company and enable them to make sure that the financial statements comply with Companies Act 2006. They are also responsible for safeguarding the assets of the company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The Directors are responsible for the maintenance and integrity of the corporate and financial information included on the National Grid ESO website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

On behalf of the Board



Gregg Smith
Finance Director

20 July 2022

Independent Auditor's report to the members of National Grid Electricity System Operator Limited

Report on the audit of the financial statements

Opinion

In our opinion the financial statements of National Grid Electricity System Operator Limited (the 'company'):

- Give a true and fair view of the state of the company's affairs as at 31 March 2022 and of its profit for the year then ended;
- Have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice, including Financial Reporting Standard 101 "Reduced Disclosure Framework"; and
- Have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements which comprise:

- The statement of profit or loss;
- The statement of other comprehensive income;
- The statement of changes in equity;
- The statement of financial position;
- The statement cash flow; and
- The related Notes 1 to 23 of the financial statements.

The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting Standard 101 "Reduced Disclosure Framework" (United Kingdom Generally Accepted Accounting Practice).

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the auditor's responsibilities for the audit of the financial statements section of our report.

We are independent of the company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the Financial Reporting Council's (the 'FRC's') Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

In auditing the financial statements, we have concluded that the Directors' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the Company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the Directors with respect to going concern are described in the relevant sections of this report.

Other Information

The other information comprises the information included in the Annual Report, other than the financial statements and our auditor's report thereon. The Directors are responsible for the other information contained within the annual report. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the course of the audit, or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether this gives rise to a material misstatement in the financial statements themselves. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in respect of these matters.

Responsibilities of directors

As explained more fully in the statement of Directors' responsibilities, the Directors are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the Directors determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Directors are responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Directors either intend to liquidate the Company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the FRC's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditor's report.

Extent to which the audit was considered capable of detecting irregularities, including fraud

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

We considered the nature of the Company's industry and its control environment, and reviewed the Company's documentation of their policies and procedures relating to fraud and compliance with laws and regulations. We also enquired of management about their own identification and assessment of the risks of irregularities.

We obtained an understanding of the legal and regulatory framework that the Company operates in, and identified the key laws and regulations that:

- Had a direct effect on the determination of material amounts and disclosures in the financial statements. These included UK Companies Act, FRS 101 and tax legislation; and
- Do not have a direct effect on the financial statements but compliance with which may be fundamental to the Company's ability to operate or to avoid a material penalty. These included the Company's operating licence and environmental regulations.

We discussed among the audit engagement team including relevant internal IT specialists regarding the opportunities and incentives that may exist within the organisation for fraud and how and where fraud might occur in the financial statements.

In common with all audits under ISAs (UK), we are also required to perform specific procedures to respond to the risk of management override. In addressing the risk of fraud through management override of controls, we tested the appropriateness of journal entries and other adjustments; assessed whether the judgements made in making accounting estimates are indicative of a potential bias; and evaluated the business rationale of any significant transactions that are unusual or outside the normal course of business.

In addition to the above, our procedures to respond to the risks identified included the following:

- Reviewing financial statement disclosures by testing to supporting documentation to assess compliance with provisions of relevant laws and regulations described as having a direct effect on the financial statements;
- Performing analytical procedures to identify any unusual or unexpected relationships that may indicate risks of material misstatement due to fraud;
- Enquiring of management, internal audit and in-house legal counsel concerning actual and potential litigation and claims, and instances of non-compliance with laws and regulations; and
- Reading minutes of meetings of those charged with governance, internal audit reports and reviewing correspondence with relevant regulatory authorities.

Report on other legal and regulatory requirements Opinions on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- The information given in the strategic report and the directors' report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- The strategic report and the Directors' report have been prepared in accordance with applicable legal requirements.

In the light of the knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified any material misstatements in the Strategic Report or the Directors' Report.

Matters on which we are required to report by exception

Under the Companies Act 2006 we are required to report in respect of the following matters if, in our opinion:

- Adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or
- The financial statements are not in agreement with the accounting records and returns; or
- Certain disclosures of directors' remuneration specified by law are not made; or
- We have not received all the information and explanations we require for our audit.

We have nothing to report in respect of these matters.

Use of our report

This report is made solely to the company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the company and the company's members as a body, for our audit work, for this report, or for the opinions we have formed.



Jane Whitlock ACA (Senior Statutory Auditor)
For and on behalf of Deloitte LLP
Statutory Auditor
Birmingham, United Kingdom

20 July 2022

Statement of profit or loss and other comprehensive income

for the years ended 31 March

	Notes	2022 £m	2021 £m
Revenue	2	3,486	2,127
Operating costs	3	(3,465)	(2,086)
Operating Profit		21	41
Finance income	4	1	1
Finance costs	4	(2)	(2)
Total profit before tax		20	40
Tax	5	(7)	(7)
Profit after tax/Profit for the year attributable to owners of the parent		13	33
Total comprehensive income for the year attributable to owners of the parent		13	33

Statement of changes in equity

	Notes	Called up share capital £m	Share premium account £m	Retained earnings £m	Merger Reserve ¹ £m	Total equity £m
At 1 April 2020		3	327	109	(142)	297
Profit for the year				33		33
Total comprehensive income for the year		—	—	33	—	33
Share-based payments				1		1
At 31 March 2021		3	327	143	(142)	331
Profit for the year				13		13
Total comprehensive income for the year		—	—	13	—	13
Equity dividends	6			(67)		(67)
Share-based payments				1		1
At 31 March 2022		3	327	90	(142)	278

¹Analysis of merger reserve has been provided within Note 18.

Statement of financial position

as at 31 March

	Notes	2022 £m	2021 £m
Non-current assets			
Intangible assets	7	288	250
Property, plant and equipment	8	116	128
Investment in joint venture	23	1	1
Other non-current assets	9	—	109
Total non-current assets		405	488
Current assets			
Trade and other receivables	11	743	531
Financial assets and other investments	10	263	204
Cash and cash equivalents	12	6	12
Total current assets		1,012	747
Total assets		1,417	1,235
Current liabilities			
Borrowings	13	(141)	(120)
Trade and other payables	14	(946)	(737)
Provisions	16	(2)	(2)
Total current liabilities		(1,089)	(859)
Non-current liabilities			
Other non-current liabilities	15	(39)	(27)
Deferred tax liabilities	5	(11)	(18)
Total non-current liabilities		(50)	(45)
Total liabilities		(1,139)	(904)
Net assets		278	331
Equity			
Share capital	17	3	3
Share premium account		327	327
Retained earnings		90	143
Merger Reserve	18	(142)	(142)
Total equity		278	331

The financial statements set out on pages 74-101 were approved by the Board of Directors and authorised for issue on 20 July 2022. They were signed on its behalf by:

Fintan Slye, Chair

Gregg Smith, Finance Director




Statement of cash flow

for the years ended 31 March

	Notes	2022 £m	2021 £m
Cash flows from operating activities			
Operating profit		20	41
Adjustments for:			
Depreciation, amortisation & impairment		83	47
Share-based payment charge		1	1
Changes in working capital		122	(149)
Changes in provisions		(1)	(9)
Cash generated from operations		225	(69)
Tax (paid)/received		(17)	10
Net cash inflow from operating activities		208	(59)
Cash flows from investing activities			
Purchases of intangible assets		(88)	(53)
Purchases of property, plant and equipment		(20)	(35)
Interest received		1	1
Net disposals of short-term financial investments		14	—
Net cash flow used in investing activities		(93)	(87)
Cash flows from financing activities			
Payments/receipts of loans (to)/from ultimate parent		(72)	160
Interest paid		(2)	(3)
Dividends paid to shareholders		(67)	—
Net cash flow from financing activities		(141)	157
Net (decrease)/increase in cash and cash equivalents		(26)	11
Cash and cash equivalents at the start of the year		12	1
Net cash and cash equivalents at the end of the year¹	12	(14)	12

¹Cash and cash equivalents at end of year are shown net of the company's bank overdraft as at 31 March 2022 of £22million (2021 : £nil).

Notes to the financial statements

- analysis of items in the primary statements

1. Basis of preparation and recent accounting developments

Accounting policies describe our approach to recognising and measuring transactions and balances in the year. The accounting policies applicable across the financial statements are shown below, whereas accounting policies that are specific to a component of the financial statements have been incorporated into the relevant note.

This section also shows areas of judgement and key sources of estimation uncertainty in these financial statements. In addition, we have summarised new International Accounting Standards Board (IASB) and UK endorsed accounting standards, amendments and interpretations and whether these are effective for this year end or in later years, explaining how significant changes are expected to affect our reported results.

National Grid Electricity System Operator's principal activities involve the operation of the electricity transmission system in Great Britain. The Company is a limited liability company incorporated and domiciled in England and Wales, with its registered office at 1-3 Strand, London WC2N 5EH.

These financial statements were approved for issue by the Board of Directors on 20 July 2022. The company meets the definition of a qualifying entity under FRS 100 Application of Financial Reporting Requirements. Accordingly, the company has elected to apply FRS 101 Reduced Disclosure Framework. The recognition and measurements requirements of UK-adopted IFRS have therefore been applied within these financial statements, with amendments where necessary in order to comply with the Companies Act 2006.

The financial statements have been prepared on a historical cost basis. These financial statements are presented in pounds sterling, which is also the functional currency of the Company. The notes to the financial statements have been prepared on a continuing basis unless otherwise stated.

a) FRS 101 exemptions

As permitted by FRS 101, the company has taken advantage of exemptions from the requirements of IFRS in relation to the following elements:

- Disclosures in respect of share based payment;
- Disclosures in respect of capital management;
- Disclosures required by IFRS 13 '*Fair Value Measurement*';
- Disclosures required by IFRS 7 '*Financial Instruments: Disclosures*';
- Presentation of comparative information in respect of certain assets;
- The effect of standards not yet effective.

Where required, equivalent disclosures are given in the Group financial statements of National Grid Plc, which are available to the public as set out in Note 22.

b) Going concern

As part of the Board's consideration of the appropriateness of adopting the going concern basis of accounting in preparing these financial statements, the Board has considered the impact of principal risks on the ESO's operations. The ESO Board has assessed the principal risks including by modelling cash flow forecast scenarios. These cash flow scenarios, included a reasonable worst case scenario.

The main cash flow transactions assessed in the forecast scenarios are:

- TNUoS and BSUoS under- and over-recoveries collected from or returned to customers in accordance with established regulatory structures, including those arising from Covid-19 and other industry support schemes;

1. Basis of preparation and recent accounting developments (continued)

- Significant termination payments;
- Bad debts, including higher bad debt costs than forecast; and
- Payment of proposed dividends to the shareholder.

Having considered the forecast scenarios, the ESO continues to have headroom against its committed external facilities identified in Note 13 to the financial statements.

Based on the above, the Directors have concluded the Company is well placed to manage its financing and other business risks satisfactorily, and have reasonable expectation that the Company will have adequate resources to continue in operation for at least 12 months from the signing date of these financial statements. They therefore consider it appropriate to adopt the going concern basis of accounting in preparing the financial statements.

c) Foreign currencies

Transactions in currencies other than the functional currency of the Company are recorded at the rates of exchange prevailing on the dates of the transactions. At each reporting date, monetary assets and liabilities that are denominated in foreign currencies are retranslated at closing exchange rates. Non-monetary assets are not retranslated unless they are carried at fair value.

Gains and losses arising on the retranslation of monetary assets and liabilities are included in the income statement.

d) Areas of judgement and key sources of estimation uncertainty

The preparation of financial statements requires management to make estimates and assumptions that effect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from these estimates. Information about such judgements and estimations is contained in the notes to the financial statements, and the key areas are summarised below.

Areas of judgement that have the most signification effect on the amounts recognised in the financial statements are as follows:

- review of residual lives, carrying values and impairment charges for other intangible assets and property, plant and equipment - notes 7 and 8
- Agency relationship in respect of certain Transmission Network Use of Service revenues, principally those collected on behalf of the Onshore and Offshore transmission operators under IFRS 15 - note 2

Key sources of estimation uncertainty that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are as follows:

- Outcome of Forward Plan incentive scheme - note 2
- Increased levels of bad debts with the continued high gas prices and consumer energy price caps increasing the level of energy supplier failures - note 11.

e) Accounting policy choices

The IFRS framework provides certain options available within accounting standards. Choices we have made, and continue to make, include the following:

- Presentational formats: we use the nature of expense method for our income statement and aggregate our statement of financial position to net assets and total equity. In the income statement, we present subtotals of total operating profit, profit before tax and profit from continuing operations, together with additional subtotals excluding exceptional items and remeasurements. Exceptional items and remeasurements are presented separately on the face of the income statement where applicable.

1. Basis of preparation and recent accounting developments (continued)

f) New IFRS accounting standards and interpretations effective for the year ended 31 March 2022

With effect from the period commencing 1 April 2021, the financial statements are prepared in accordance with IAS and IFRS and related interpretations as adopted by the UK, instead of those adopted by the EU. As both sets of accounting standards are currently aligned, there will be no transitional adjustments required and comparative amounts were not required to be restated.

The Company early adopted the following amendments to standards which have had no material impact on the Company's results or financial statement disclosures:

- Amendments to IFRS 16 'Leases – COVID-19 Related Rent Concessions';
- Amendments to IFRS 3 'Definition of a Business'; and
- Amendments to IAS 1 and IAS 8 'Definition of Material'.

In April 2021, the IFRS IC (Interpretation Committee) also issued an agenda decision in relation to the accounting treatment for configuration and customisation costs in a cloud computing arrangement. This guidance clarified that in order for an intangible asset to be capitalised in relation to customisation and configuration costs in a cloud computing arrangement, it is necessary for there to be control of the underlying software asset or for there to be a separate intangible asset which meets the definition in IAS 38 Intangible Assets. As at 31 March 2022, the Company has recognised a cumulative adjustment against software intangible assets of £7m for previously capitalised customisation and configuration relating to its continuing operations. The Company has also considered the application of the new accounting guidance for its comparative periods and concluded that it does not have a material impact. Accordingly, no comparative periods have been restated.

g) New IFRS accounting standards and interpretations not yet adopted

The following new accounting standards and amendments to existing standards have been issued but are not yet effective or have not yet been endorsed by the UK:

- IFRS 17 'Insurance Contracts';
- amendments to IFRS 3 'Business Combinations';
- amendments to IAS 12 'Deferred Tax Related to Assets and Liabilities Arising from a Single Transaction';
- amendments to IAS 16 'Property, Plant and Equipment';
- amendments to IAS 37 'Provisions, Contingent Liabilities and Contingent Assets';
- amendments to IAS 1 'Presentation of Financial Statements';
- Amendments to IAS 8 'Accounting Policies, Changes in Accounting Estimates and Errors';
- annual improvements to IFRS standards 2018-2020; and
- amendments to IFRS Practice Statement 2 – making materiality judgements.

Effective dates will be subject to the UK endorsement process. The Company is currently assessing the impact of the above standards, but they are not expected to have a material impact.

The Company has not adopted any other standard, amendment or interpretation that has been issued but is not yet effective.

2. Revenue

Revenue arises in the course of the ordinary activities of the company and principally comprises balancing transmission services.

Balancing transmission services fall within the scope of IFRS 15, 'Revenue from Contracts with Customers'.

The company's role in transmission services is as the system operator for Great Britain, which involves the procurement of services to balance the electricity transmission network and ensuring security and quality of electricity supply across the transmission network. For this activity the company applies a Balancing Service Use of System ('BSUoS') charge, which is payable by generators and suppliers of electricity.

The ESO also earns revenue through rewards for progress against an ambitious plan to meet its commitments and targets in relation to the future energy transformation. The scheme is evaluative with the outcome determined by Ofgem following the recommendations of a performance panel including industry stakeholders. Under RIIO-2 this is a 2 year scheme and so the final outcome is expected in August 2023. As such the results presented in these accounts have been adjusted to reflect management's best estimate based on performance in prior years and the outcome of the mid-year performance panel. The outcome of the Forward Plan incentive scheme is estimated to be income of £6m for the financial year (2020/21: £1m income).

In its role as system operator, the company is also responsible for the administration of charges to customers on behalf of the owners of the transmission network: National Grid Electricity Transmission Plc, Scottish Power Transmission Plc, Scottish Hydro Electric Transmission Plc and various Offshore Transmission Owners. Under IFRS 15, this arrangement is considered to result in the company acting as an agent on behalf of the transmission network owners. Accordingly, revenues are presented on a net basis (amounts collected from customers and consideration paid to transmission network owners). This comprises the entire billing cycle (invoicing and cash collection) and our performance obligation is deemed satisfied when funds have been remunerated to transmission network owners.

These charges are termed Transmission Network Use of System ('TNUoS') charges and relate to use of the transmission network. Use of the transmission network involves the supply of high-voltage electricity. Revenue is billed based on capacity and volumes and where the customer pays upfront, revenues are deferred and released when the relevant transmission network owner has provided their services to the customer.

The company also administers other charges on behalf of transmission network owners principally for construction work they have completed for customer connections.

Electricity transmission in the UK is regulated by Ofgem, which establishes price control mechanisms that set the amount of annual allowed returns for companies operating in the sector. With respect to TNUoS charges, where revenue received differs to the amount of allowable revenue permitted by regulatory agreement, adjustments will be made to future prices to factor in these amounts. Where such differences arise, we recognise either an asset or liability, depending on whether the difference between revenue received is less than or greater than allowable revenue respectively. As part of our regulatory agreements we are entitled to recover certain costs directly from customers (pass-through costs). These amounts are included in the overall calculation of allowed revenue as stipulated by regulatory agreements.

2. Revenue (continued)

As system operator, we also act as intermediary for various electricity interconnectors in satisfying their regulatory obligations. Interconnectors may have a cap on the amount of revenue they are allowed to earn during any financial year (1 April to 31 March). Where actual revenues exceed this cap, the excess must be passed onto consumers. We invoice and recover this amount from the interconnectors and in turn reduce the TNUoS charges due from customers. We recognise an asset for the amounts payable from them, and a corresponding liability for the requirement to reduce customer bills, which occurs two financial years after the measurement period.

The following table details the disaggregation of revenue between TNUoS and BSUoS.

UK Electricity System Operation		
Revenue for the year ended 31 March	2022 £m	2021 £m
Revenue under IFRS 15:		
BSUoS	3,418	2,076
TNUoS ¹	68	51
Total revenue from continuing operations	3,486	2,127

¹ TNUoS revenues of £68m are reported net of £3,516m (2021: £3,123m) consideration paid to transmission network owners. These revenues reflect the recovery of costs borne by the system operator in relation to TNUoS operations.

Total revenue from continuing operations are generated from operations based in the UK.

Analysis of BSUoS revenue by major customer, greater than 10% revenue contribution:

	2022 £m	2021 £m
Customer A	412	—
Customer B	384	—
Customer C		210

No other single customer contributed 10% or more to the ESO's revenue in either 2022 or 2021.

3. Operating costs

Below we have presented separately certain items included in our operating costs. These include a breakdown of payroll costs and fees paid to our auditors.

After exceptional items and remeasurements	2022 £m	2021 £m
Depreciation, amortisation and impairment	83	47
Payroll costs	61	55
Pensions deficit payments	12	12
Rates and property taxes	1	1
System balancing costs	3,153	1,875
Other	155	96
Continuing operations	3,465	2,086

3. Operating costs (continued)

(a) Payroll costs

	2022 £m	2021 £m
Wages and salaries	46	41
Recharge of payroll costs from other National Grid companies	12	—
Social security costs	7	6
Pension scheme costs	10	8
Share-based payments	1	1
Severance costs (excluding pension costs)	—	(1)
Total payroll costs	76	55
Payroll costs capitalised	(15)	—
Net payroll costs	61	55

(b) Directors' Emoluments

Key management comprises the Board of Directors of the Company who have managerial responsibility for National Grid Electricity System Operator Limited.

	2022 £k	2021 £k
Aggregate Emoluments	928	1,004

Aggregate emoluments excludes social security, pensions and share-based payments.

Post-employment benefits are accruing to one Director under a Group defined benefit scheme (2021: one). During the year, one Director exercised share options as part of long term incentive plans of the ultimate parent company, National Grid plc (2021: three).

The aggregate emoluments for the highest paid Director were £347,000 for 2022 (2021: £320,000); and total accrued annual defined benefit pension at 31 March 2022 for the highest paid Director was £nil (2021: nil).

(c) Number of employees, including Directors

	31 March 2022 Number	31 March 2021 Number	Monthly average 2022 Number	Monthly average 2021 Number
Electricity System Operator	884	711	835	695

(d) Auditors' remuneration

	2022 £m	2021 £m
Audit services		
Audit of the Company's financial statements	0.2	0.2
Other services supplied		
Other non-audit fees ¹	0.6	0.3

¹ Other services supplied represent £0.5m fees payable for audit services which are required to be carried out by auditors in relation to the Group's reporting requirements to NG plc, and £0.1m for the Contracts for difference independent audit. In particular, this includes fees for reports under section 404 of the US Public Company Accounting Reform and Investor Protection Act of 2002 (Sarbanes-Oxley), and assurance fees in relation to regulatory returns.

4. Finance income and costs

This note details the interest income generated by our financial assets and interest expense incurred on our financial liabilities.

	2022 £m	2021 £m
Finance income		
Interest income and financial instruments:	1	1
Bank deposits and other financial assets		
Finance costs		
Other borrowings	(2)	(2)
Net finance costs from operations	(1)	(1)

5. Tax

This note gives further details of the total tax charge and tax liabilities, including current and deferred tax. The current tax charge is the tax payable on this year's taxable profits. Deferred tax is an accounting adjustment to provide for tax that is expected to arise in the future due to differences in accounting and tax bases of profit.

The tax charge for the period is recognised in the income statement, the statement of comprehensive income or directly in equity, according to the accounting treatment of the related transaction. The tax charge comprises both current and deferred tax.

Current tax assets and liabilities are measured at the amounts expected to be recovered from, or paid to, the taxation authorities. The tax rates and tax laws used to compute the amounts are those that are enacted or substantively enacted by the reporting date.

The calculation of the ESO's total tax charge involves a degree of estimation and judgement. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. Judgement is made for each position having regard to particular circumstances and advice obtained.

Deferred tax is provided for using the balance sheet liability method and is recognised on temporary differences between the carrying amount of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable profit.

Deferred tax liabilities are generally recognised on all taxable temporary differences and deferred tax assets are recognised to the extent that it is probable that taxable profits will be available against which deductible temporary differences can be utilised. However, deferred tax assets and liabilities are not recognised if the temporary differences arise from the initial recognition of goodwill or from the initial recognition of other assets and liabilities in a transaction (other than a business combination) that affects neither the accounting nor taxable profit or loss.

Deferred tax is calculated at the tax rates that are expected to apply in the period when the liability is settled or the asset is realised, based on the tax rates and tax laws that have been enacted or substantively enacted by the reporting date.

The carrying amount of deferred tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the deferred tax asset to be recovered. Unrecognised deferred tax assets are reassessed at each reporting date and are recognised to the extent that it has become probable that future taxable profits will allow the deferred tax asset to be recovered.

5. Tax (continued)

Deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when they relate to income taxes levied by the same taxation authority and the ESO intends to settle its current tax assets and liabilities on a net basis.

Tax charged to the income statement:

	2022 £m	2021 £m
Total tax charge¹	7	7

¹ 2022 includes £3m relating to tax rate changes, this is detailed in the table below.

The tax charge for the year can be analysed as follows:

	2022 £m	2021 £m
Current tax		
Current tax charge	11	2
Corporation tax adjustment in respect of prior years	3	—
Total current tax	14	2
Deferred tax		
Deferred tax charge	(4)	5
Deferred tax adjustment in respect of prior years	(3)	—
Total deferred tax	(7)	5
Total tax charge	7	7

Tax charged to equity and other comprehensive income:

The tax charge for the year is higher than (prior year lower than) the standard rate of corporation tax in the UK of 19%:

	Before exceptional items and remeasurements 2022 £m	After exceptional items and remeasurements 2022 £m	Before exceptional items and remeasurements 2021 £m	After exceptional items and remeasurements 2021 £m
Profit before tax from continuing operations	20	20	40	40
Profit before tax multiplied by UK corporation tax rate of 19%	4	4	8	8
Effect of:				
Adjustments in respect of prior years	—	—	(1)	(1)
Deferred tax impact of change in UK tax rate	3	3	—	—
Total tax charge	7	7	7	7
Effective tax rate	35.2%	35.2%	17.5%	17.5%

5. Tax (continued)

Factors that may affect future tax charges

In the Spring Budget 2021, the UK government announced an increase in the main corporation tax rate from 19% to 25% with effect from 1 April 2023. This was substantively enacted on 24 May 2021. Deferred tax balances as at 31 March 2022, that are expected to reverse after 1 April 2023, have been calculated at 25%.

The Directors will continue to monitor the developments driven by Brexit, the OECD's Base Erosion and Profit Shifting (BEPS) project and European Commission initiatives including fiscal aid investigations. At this time the Directors do not expect this to cause any material impact on future tax charges.

Governments across the world including the UK have introduced various stimulus / reliefs for businesses to cope with the impact of Covid-19 pandemic. The Directors will monitor as the details become available for any that may materially impact our future tax charges.

Tax included within the statement of financial position

The following are the major deferred tax assets and liabilities recognised, and the movements thereon, during the current and prior reporting periods:

Deferred tax (liabilities) / assets:

	Accelerated tax depreciation	Other net temporary differences	Total £m
	£m	£m	
At 1 April 2021	(17)	(1)	(18)
Credited to income statement	5	2	7
At 31 March 2022	(12)	1	(11)

Deferred tax assets and liabilities are only offset where there is a legally enforceable right of offset and there is intention to settle the balances net. The deferred tax balances (after offset) for statement of financial position purposes consist solely of deferred tax liabilities of £11m.

6. Dividends

Dividends represent the return of profits to shareholders. Dividends are paid as an amount per ordinary share held. We retain part of the profits generated in the year to meet future growth plans and meet our gearing target and pay out the remainder per our dividend policy.

Interim dividends are recognised when they become payable to the Company's shareholders.

Final dividends are recognised when they are approved by shareholders.

On 20 July 2022, the Board of directors proposed no final dividend for the year ended 31 March 2022 (2021: £67m).

7. Intangible assets

Intangible assets relate to software, which is written down (amortised) over the period we expect to receive a benefit from the asset. Identifiable intangible assets are recorded at cost less accumulated amortisation and any provision for impairment. Intangible assets are tested for impairment only if there is some indication that the carrying value of the assets may have been impaired.

Impairments of assets are calculated as the difference between the carrying value of the asset and the recoverable amount, if lower. Where such an asset does not generate cash flows that are independent from other assets, the recoverable amount of the cash-generating unit to which that asset belongs is estimated. Impairments are recognised in the income statement and are disclosed separately. Any assets which suffered impairment in a previous period are reviewed for possible reversal of the impairment at each reporting date.

Internally generated intangible assets, such as software, are recognised only if: an asset is created that can be identified; it is probable that the asset created will generate future economic benefits; and that the development cost of the asset can be measured reliably. Where no internally generated intangible asset can be recognised, development expenditure is recorded as an expense in the period in which it is incurred.

Intangible assets under development are not amortised. Other non-current intangible assets are amortised on a straight-line basis over their estimated useful economic lives. The amortisation period for software is usually between three to seven years but can be up to ten years.

Cloud computing arrangements are reviewed to determine if the Company has control of the software intangible asset. Control is considered to exist where the Company has the right to take possession of the software and run it on its own or a third party's computer infrastructure or if the Company has exclusive rights to use the software such that the supplier is unable to make the software available to other customers.

Costs relating to configuring or customising the software in a cloud computing arrangement are assessed to determine if there is a separate intangible asset over which the Company has control. If an asset is identified, it is capitalised and amortised over the useful economic life of the asset. To the extent that no separate intangible asset is identified, then the costs are either expensed when incurred or recognised as a prepayment and spread over the term of the arrangement if the costs are concluded to not be distinct. The accounting for costs incurred in cloud computing arrangements represents the application of new accounting guidance for the Company for the year ended 31 March 2022. Certain costs which were previously capitalised in respect of the Company's cloud computing arrangements have been expensed in the period (£7m).

	Software £m	Assets in the course of construction £m	Total £m
Cost at 31 March 2020	185	53	238
Additions	—	54	54
Disposals	(14)	(1)	(15)
Reclassifications	46	(23)	23
Transfers	(9)	9	—
Cost at 31 March 2021	208	92	300
Additions	—	89	89
Reclassifications	86	(86)	—
Transfers ¹	18	—	18
Cost at 31 March 2022	312	95	407
Accumulated amortisation at 1 April 2020	(30)	—	(30)
Amortisation charge for the year	(35)	—	(35)
Disposals	15	—	15
Accumulated amortisation at 31 March 2021	(50)	—	(50)
Amortisation charge for the year	(58)	—	(58)
Impairment	(1)	(10)	(11)
Accumulated amortisation at 31 March 2022	(109)	(10)	(119)
Net book value at 31 March 2022	203	85	288
Net book value at 31 March 2021	158	92	250

¹ Transfers represents amounts transferred (to)/from property, plant and equipment (see Note 8).

8. Property, plant and equipment

The following note shows the physical assets controlled by us. The cost of these assets primarily represents the amount initially paid for them.

This includes both their purchase price and the construction and other costs associated with getting them ready for operation. A depreciation expense is charged to the income statement to reflect annual wear and tear and the reduced value of the asset over time. Depreciation is calculated by estimating the number of years we expect the asset to be used (useful economic life) and charging the cost of the asset to the income statement equally over this period.

Property, plant and equipment is recorded at cost, less accumulated depreciation and any impairment losses.

Cost includes the purchase price of the asset, any payroll and finance costs incurred which are directly attributable to the construction of property, plant and equipment as well as the cost of any associated asset retirement obligations.

Property, plant and equipment includes assets in which the ESO's interest comprises legally protected statutory or contractual rights of use. Additions represent the purchase or construction of new assets, including capital expenditure for safety and environmental assets, and extensions to, enhancements to, or replacement of existing assets. All costs associated with projects or activities which have not been fully commissioned at the period end are classified within assets in the course of construction.

No depreciation is provided on freehold land or assets in the course of construction.

Other items of property, plant and equipment are depreciated, on a straight-line basis, at rates estimated to write off their book values over their estimated useful economic lives. In assessing

estimated useful economic lives, consideration is given to any contractual arrangements and operational requirements relating to particular assets. The assessments of estimated useful economic lives and residual values of assets are performed annually.

With effect from 1 April 2019, new lease arrangements entered into are recognised as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the company. The right-of-use asset and associated lease liability arising from a lease are initially measured at the present value of the lease payments expected over the lease term. The discount rate applied is the rate implicit in the lease or if that is not available, then the incremental rate of borrowing for a similar term. The lease term takes account of exercising any extension options that are at our option if we are reasonably certain to exercise the option and any lease termination options unless we are reasonably certain not to exercise the option. The lease term does not include any lease extension options at the option of the lessor but does include lease termination options unless we are reasonably certain that the lessor will not exercise them. Each lease payment is allocated between the liability and finance cost. The finance cost is charged to the income statement over the lease period using the effective interest rate method. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis. For short-term leases (lease term of 12 months or less) and leases of low value assets (such as computers), the Group continues to recognise a lease expense on a straight-line basis.

Unless otherwise determined by operational requirements, the depreciation periods for the principal categories of property, plant and equipment are, in general, as shown in the table below:

	Years
Freehold and Leasehold buildings	10 to 50
Motor vehicles	5 to 7
Office equipment	3 to 10

8. Property, plant and equipment (continued)

Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognised within operating profit in the income statement.

Items within property, plant and equipment are tested for impairment only if there is some indication that the carrying value of the assets may have been impaired.

Impairments of assets are calculated as the difference between the carrying value of the asset and the recoverable amount, if lower. Where such

an asset does not generate cash flows that are independent from other assets, the recoverable amount of the cash-generating unit to which that asset belongs is estimated.

Impairments are recognised in the income statement and if immaterial are included within depreciation charge for the year.

Any assets which suffered impairment in a previous period are reviewed for possible reversal of the impairment at each reporting date.

	Land and buildings	Plant and machinery	Assets in the course of construction	Motor vehicles and office equipment	Total
	£m	£m	£m	£m	£m
Cost at 31 March 2020	31	17	72	16	136
Additions	2	6	27	—	35
Disposals	—	—	1	—	1
Reclassifications	—	6	(55)	26	(23)
Cost at 31 March 2021	33	29	45	42	149
Additions	—	1	19	—	20
Reclassifications	—	2	(27)	25	—
Transfers ¹	—	(6)	(12)	—	(18)
Cost at 31 March 2022	33	26	25	67	151
Accumulated depreciation at 1 April 2020	(5)	—	—	(3)	(8)
Depreciation charge for the year	(4)	—	—	(6)	(10)
Impairment	—	—	(3)	—	(3)
Accumulated depreciation at 31 March 2021	(9)	—	(3)	(9)	(21)
Depreciation charge for the year	(3)	—	—	(11)	(14)
Accumulated depreciation at 31 March 2022	(12)	—	(3)	(20)	(35)
Net book value at 31 March 2022	21	26	22	47	116
Net book value at 31 March 2021	24	29	42	33	128

¹ Included within transfers are assets transferred to intangibles (see Note 7) to the value of £18m.

Right-of-use assets are included within the net book value of property, plant and equipment at 31 March 2022. The total net book value of these assets as at 31 March 2022 was £305,000 (2021: £32,000) in respect of the motor vehicles and office equipment category.

9. Other non-current assets

Non-current assets are initially recognised at fair value and subsequently measured at amortised cost. There is no material difference between the fair value and the carrying value of other non-current assets.

	2022 £m	2021 £m
Other assets ¹	—	109
	—	109

¹ 2021 includes £109m relating to TNUoS charges caused by timing difference between amounts charged to customers and that passed through to the GB Transmission Owners, this includes regulatory term 'K'. 2022 timing differences are presented within Trade and other receivables as they are collectable during 2023.

10. Financial assets and other investments

The financial assets and other Investments balance of £263m comprises current loans to the ultimate parent company and restricted cash balances in relation to Network Innovation Competition (NIC) projects.

Debt instruments that have contractual cash flows that are solely payments of principal and interest, and which are held within a business model whose objective is to collect contractual cash flows, are held at amortised cost.

They are initially recognised on trade date at fair value less transaction costs and expected losses. In the current year, the transaction value equals fair value.

Interest income is recognised using the effective interest method. Interest income, together with gains and losses when the loans and receivables are derecognised or impaired, is recognised in the income statement.

	2022 £m	2021 £m
Current		
Restricted cash	4	18
Loans and receivables	259	186
	263	204
Financial assets and other investments comprise the following:		
NIC restricted cash deposits	4	18
Loans and receivables - amount due from the ultimate parent company	259	186
	263	204

The carrying value of current financial assets at amortised cost approximates their fair values, primarily due to short-dated maturities. The exposure to credit risk at the reporting date is the fair value of the financial investments.

11. Trade and other receivables

Trade and other receivables are amounts which are due from our customers for services we have provided.

Trade and other receivables are initially recognised at fair value and subsequently measured at amortised cost, less any appropriate allowances for estimated irrecoverable amounts.

Trade receivables are non-interest-bearing and generally have a 30 day term. Due to their short maturities, the fair value of trade and other receivables approximate to their book value. All other receivables are recorded at amortised cost. The provision for impairment of receivables as at 31 March 2022 was £36m (2021: £17m).

	2022 £m	2021 £m
Current		
Trade receivables	113	106
Amounts owed by ultimate parent	—	1
Accrued income	468	361
Prepayments	—	1
Other receivables ¹	162	62
	743	531

¹2022 includes £79m relating to TNUoS charges caused by timing difference between amounts charged to customers and that passed through to the GB Transmission Owners, this includes regulatory term 'K'.

Provision for impairment of receivables

A provision matrix is not used to assess expected loss rates as an assessment is performed on individual debtors.

	2022 £m	2021 £m
At 1 April	17	31
Charge/(write-off) for the year ¹	19	(15)
Amounts recovered in the year	—	1
At 31 March	36	17

¹There are no write-offs in 2022.
2021 Includes write-offs in year for Margree Wind Farm £11m and Iresa £2m (provision acquired with business utilised).

12. Cash and cash equivalents

Cash and cash equivalents include cash balances, together with short-term investments with an original maturity of less than three months that are readily convertible to cash.

Net cash and cash equivalents reflected in the cash flow statement are net of bank overdrafts, which are reported in borrowings. The carrying amounts of cash and cash equivalents and bank overdrafts approximate their fair values.

Cash at bank earns interest at floating rates based on daily bank deposit rates. Short-term deposits are made for periods varying between one day and three months, depending on the immediate cash requirements, and earn interest at the respective short-term deposit rates.

Net cash and cash equivalents held in currencies other than sterling have been converted into sterling at year-end exchange rates.

	2022 £m	2021 £m
Cash at bank and short-term deposits	6	12

13. Borrowings

We borrow money primarily in the form of borrowings from our ultimate parent company. These are for a fixed term and have floating interest rates.

Our price controls lead to an optimal ratio of debt to equity and, as a result, we issue debt to maintain this balance.

Borrowings are initially recorded at fair value. This normally reflects the proceeds received (net of direct issue costs for liabilities measured at amortised cost). Subsequently these are stated at amortised cost. Any difference between the proceeds after direct issue costs and the redemption value is recognised over the term of the borrowing in the income statement using the effective interest method.

Information on our net debt is presented in Note 19.

	2022 £m	2021 £m
Current		
Bank loan and overdrafts	20	—
Borrowings from the ultimate parent company	121	120
	141	120
Total borrowings	141	120

The bank loan and overdraft is repayable on demand and the loan from the ultimate parent company matures on 1 April 2027, though may be repayable with 30 days notice if the Company ceases to be at least 99.99% owned directly or indirectly by National Grid plc.

At 31 March 2022, we had committed external credit facilities of £550m of which £550m was undrawn (2021: £550m of which £550m undrawn). We also have £550m of intercompany credit facilities with our ultimate parent, National Grid plc of which £550m was undrawn (2021: £550m of which £550m undrawn). All of the unused facilities at 31 March 2022 are available for liquidity purposes.

None of the ESO's borrowings are secured by charges over assets of the Company.

Lease liabilities

Lease liabilities are initially measured at the present value of the lease payments expected over the lease term. The discount rate applied is the rate implicit in the lease or if that is not available, then the incremental rate of borrowing for a similar term. The lease term takes account of exercising any extension options that are at our option if we are reasonably certain to exercise the option and any lease termination options unless we are reasonably certain not to exercise the option. Each lease payment is allocated between the liability and finance cost. The finance cost is charged to the income statement over the lease period using the effective interest rate method.

Right-of-use assets were included within property, plant and equipment (see Note 8) at 31 March 2022 with outstanding leases to the value of £387,000 (2021: £130,000) relating to motor vehicles.

14. Trade and other payables

Trade and other payables include amounts owed to suppliers, tax authorities and other parties which are due to be settled within 12 months. The total also includes deferred amounts, some of which represents monies received from customers but for which we have not yet delivered the associated service. These amounts are recognised as revenue when the service is provided.

Trade payables are initially recognised at fair value and subsequently measured at amortised cost.

	2022 £m	2021 £m
Trade payables	323	288
Social security and other taxes ¹	244	133
Deferred income ²	235	180
Amounts owed to fellow subsidiaries of National Grid plc	30	38
Other payables	114	98
	946	737

¹ Includes Value Added Tax of £243m (2021: £132m).

² 2021 includes £61m relating to TNUoS charges caused by timing differences between amounts charged to customers and that passed through to the GB Transmission Owners, this includes regulatory term 'K'. 2022 timing differences are presented within Trade and other receivables as they are collectible during 2023.

Due to their short maturities, the fair value of trade payables approximates their book value.

15. Other non-current liabilities

Non-current liabilities are initially recognised at fair value and subsequently measured at amortised cost.

There is no material difference between the fair value and the carrying value of other payables.

	2022 £m	2021 £m
Deferred income	—	2
Other payables ¹	39	25
Other non-current liabilities	39	27

¹Balances held in relation to application fees collected on behalf of GB Transmission Owners.

16. Provisions

We make provisions when an obligation exists, resulting from a past event and it is probable that cash will be paid to settle it, but the exact amount of cash required can only be estimated.

The main estimates relate to provisions for restructuring plans. The evaluation of the likelihood of the contingent events has required best judgement by management regarding the probability of exposure to potential loss. Should circumstances change following unforeseeable developments, the likelihood could alter.

Provisions are recognised where a legal or constructive obligation exists at the reporting date, as a result of a past event, where the amount of the obligation can be reliably estimated and where the outflow of economic benefit is probable.

Changes in the provision arising from revised estimates or discount rates or changes in the expected timing of expenditures are recognised in the income statement.

	Restructuring £m	Other £m	Total £m
At 1 April 2020	12	—	—
Utilised	(10)	—	—
At 31 March 2021	2	—	2
Additions	2	1	3
Unused amounts reversed	(1)	—	(1)
Utilised	(2)	—	(2)
At 31 March 2022	1	1	2

	2022 £m	2021 £m
Current	2	2
Non-current	—	—
	2	2

Restructuring provision

The provision reflects on-going cost efficiency and restructuring programmes being undertaken in the wider National Grid group for which the company receives an allocation as it takes services from centralised support functions.

Other provision

Other provisions include a provision for IT Licences.

17. Share capital and share premium

Ordinary share capital represents the total number of shares issued.

Share capital is accounted for as an equity instrument. An equity instrument is any contract that includes a residual interest in the consolidated assets of the Company after deducting all its liabilities and is recorded at the proceeds received, net of direct issue costs, with an amount equal to the nominal amount of the shares issued included in the share capital account and the balance recorded in the share premium account.

	Number of shares 2022 millions	Number of shares 2021 millions	2022 £m	2021 £m
At 31 March 2021 and 2022 - ordinary shares of 1p each Allotted, called-up and fully paid	330	330	330	330
	Number of shares millions	Par value £m	Share premium £m	Total £m
At 31 March 2022	330	3	327	330

18. Other equity - Merger reserve

Other equity reserves are different categories of equity as required by accounting standards and represent the impact of a number of our historical transactions.

At 31 March 2022, the ESO held one form of other equity, being a merger reserve. The merger reserve arose on the acquisition of the ESO business on 1 April 2019. This acquisition did not fall within the scope of IFRS 3 Business Combinations, thus, assets and liabilities were transferred at their net book value. The difference between the net book value and consideration paid for the assets and liabilities acquired resides within this reserve.

As the amounts included in other equity reserves are not attributable to any of the other classes of equity presented, they have been disclosed as a separate classification of equity.

	Merger reserve £m
At 31 March 2021 & 31 March 2022	142

The merger reserve is principally attributable to the ESO business's exclusive licence and profitability.

Merger reserve balance remains at £142m at 31 March 2022, £56m is considered realised for the purposes of assessing the company's distributable profits and £86m is considered unrealised. Accordingly, at 31 March 2022 the profits available for distribution by the company were £32m, comprising the whole of the company's retained earnings less the realised element of the merger reserve.

19. Net debt

Net debt represents the amount of borrowings and overdrafts less cash, current financial investments and related financing derivatives.

Funding and liquidity risk management is carried out by the National Grid plc treasury function under policies and guidelines approved by the Finance Committee of the National Grid plc Board, these policies have been deemed applicable at the ESO by their respective board of directors. The Finance Committee is responsible for the regular review and monitoring of treasury activity and for the approval of specific transactions, the authority for which fall outside the delegation of authority to management.

The ESO apply the National Grid plc group policy and we utilise the group treasury function. The

primary objective of the treasury function is to manage our funding and liquidity requirements.

A further important objective is to manage the associated financial risks, in the form of interest rate risk and foreign exchange risk, to within pre-authorised parameters. Further details can be found in the National Grid plc accounts available publicly, details on how to access can be found in [Note 22](#).

Investment of surplus funds, usually in short-term fixed deposits or placements with money market funds that invest in highly liquid instruments of high credit quality, is subject to our counterparty risk management policy.

(a) Reconciliation of net cash flow to movement in net debt

	2022 £m	2021 £m
(Decrease)/Increase in cash and cash equivalents	(6)	11
(Decrease)/Increase in financial investments	59	(160)
Increase in borrowings and related derivatives	(21)	—
Net interest receivable/(payable) on the components of net debt	—	1
Change in net debt resulting from cash flows	32	(148)
Movement in net debt in the year	32	(148)
Net debt at the start of the year	96	244
Net debt at the end of the year	128	96

19. Net debt (continued)

Composition of net debt

Net debt is summarised as follows:

	2022 £m	2021 £m
Cash, cash equivalents and financial investments	269	216
Borrowings and bank overdrafts	(141)	(120)
	128	96

(b) Analysis of changes in net debt

	Cash and cash equivalents £m	Financial investments £m	Borrowings £m	Total debt £m
At 1 April 2021	12	204	(120)	96
Cash flow	(6)	59	(20)	33
Interest income/(charges)			(1)	(1)
At 31 March 2022	6	263	(141)	128
Balances at 31 March 2022 comprise:				
Current assets	6	263	—	269
Current liabilities	—	—	(141)	(141)
	6	263	(141)	128

20. Commitments and contingencies

Commitments are those amounts that we are contractually required to pay in the future as long as the other party meets its obligations. These commitments primarily relate to contract for the purchase of assets which, in many cases, extend over a long period of time. We also disclose any contingencies, which include guarantees that companies have given, where we pledge assets against current obligations that will remain for a specific period.

Future capital expenditure	2022 £m	2021 £m
Contracted for but not provided	26	25
Balances as at 31 March 2022 comprise:		
Amounts due: Less than 1 year	26	24
More than 1 year	—	1
	26	25

Litigation and claims

Through the ordinary course of our operations, we are party to various litigation, claims and investigations. We do not expect the ultimate resolution of any of these proceedings to have a material adverse effect on our results of operations, cash flows or financial position.

Pension Scheme Contributions

The ESO is a participating employer in the National Grid ESPS defined benefit pension scheme. Following completion of the March 2019 valuation, we are responsible for making contributions into the scheme equivalent to 44% (average) of remaining active employees pensionable salaries.

In 2021/22, we also contributed an additional amount into the scheme relating to the funding deficit to the value of £12m (2021: £12m). This additional payment is made in line with the regulatory treatment determined by Ofgem. The most recently agreed recovery plan for the scheme runs until FY24. As the ESO is not the sponsoring employer of the scheme, there is no contractual obligation or requirement to make a provision for scheme costs.

21. Related party transactions

A related party is a company or individual who also has an interest in us, for example a company that provides a service to us with a director who holds a controlling stake in that company and who is also a Director of National Grid Electricity System Operator Limited. The related parties identified include fellow subsidiaries, joint ventures, associated undertakings, investments and key management personnel.

The following significant transactions with related parties were in the normal course of business. Amounts receivable from and payable to related parties are due on normal commercial terms:

	2022 £m	2021 £m
Income:		
Goods and services supplied ¹	13	1
	13	1
Expenditure:		
Services received ²	(1,958)	(1,879)
Corporate services received	(3)	—
Interest paid on borrowings from ultimate parent	(1)	—
Interest received on borrowings to ultimate parent	1	—
	(1,961)	(1,879)
Balance Sheet as at 31 March		
Lending to ultimate parent (amounts due within one year)	259	186
Borrowings from ultimate parent (amounts due within one year)	(121)	(120)
Amounts included in Trade and other payables	(32)	(38)
At 31 March	106	27

¹ Includes TNUoS related pre and post vesting charges to Western Power Distribution of £19m and payments made to Britned Development Limited £4.1m, IFA £1.7m and Nemo Link Limited £0.3m under the Interconnector cap and floor regime operated by Ofgem.

² Expenditure includes TNUoS revenue collection for National Grid Electricity Transmission plc of £1,945m and £8.2m for balancing services from the above Interconnectors.

In the UK, National Grid operates a centralised Support Function model. Costs for these functions including IT, procurement, and payroll services are initially borne by National Grid Gas plc and National Grid Electricity Transmission plc. NGESO receives an allocation of these costs based on its relative usage. The allocated costs are included within operating costs and totalled £63m (2021: £51m).

On 6 October 2021 Elexon requested and was granted a short term loan of £10m to cover a cash shortfall it had on settlements. The loan, and associated interest, was repaid in full by 31 October 2021.

Amounts receivable from or payable to related parties in respect of income and expenditure are ordinarily settled one month in arrears. Advances to and borrowings from fellow subsidiary undertakings are repayable on demand and bear interest at commercial rates.

Expenditure balances relate to the collection of TNUoS revenues on behalf of National Grid Electricity Transmission plc. Under IFRS 15 we act as an agent and these balances are shown net within our revenue figure. Further details of this relationship have been provided in [Note 2](#).

Information relating to pension fund arrangements is disclosed in [Note 20](#).

22. Ultimate parent company

This note shows the immediate and ultimate parent companies for these financial statements.

National Grid Electricity System Operator Limited's immediate parent company is National Grid Holdings One plc. The ultimate parent company, and controlling party, is National Grid plc. Both companies are incorporated in Great Britain and are registered in England and Wales. National Grid plc consolidates the financial statements of National Grid Electricity System Operator Limited.

Copies of the consolidated financial statements of National Grid plc may be obtained from the Company Secretary, 1-3 Strand, London WC2N 5EH, or on our company website [here](#).

23. Subsidiaries and associates

The ESO holds investments in subsidiaries and associates, the company includes contributions from associates which are detailed in the below table.

Subsidiary undertakings

The list below contains all subsidiaries held by National Grid Electricity System Operator Limited.

	Principal activity	Holding
Elexon Limited ¹ 4th Floor 350 Euston Road, London NW1 3AW	Electricity market Balancing and Settlement Code company for Great Britain	100%

¹ National Grid Electricity System Operator does not consolidate its wholly owned subsidiary Elexon Limited, as it does not control the entity.

The subsidiary is incorporated in England and Wales.

The Elexon Limited shares were inherited on the 1st April 2019 as part of the purchase of the ESO business from NGET plc.

Associates

The list below contains all associates included within the National Grid Electricity System Operator Limited.

	Principal activity	Holding
Coreso SA (incorporated in Belgium) 71 Avenue de Cortnbergh, 1000 Bruxelles, Belgium	Associate in relation to a European regional transmission operations coordination centre	16%

The Coreso SA shares were inherited on the 3rd May 2019 as part of the purchase of the ESO business from NGET plc.

Glossary and definitions



References to the 'Company', 'we', 'our' and 'us' refer to National Grid Electricity System Operator Limited itself.

Carbon intensity

The measure of CO₂ emissions produced per kilowatt hour of electricity consumed.

EMR Delivery Body

Provides independent evidence and analysis to the UK Government to inform its decisions on the key rules and parameters to achieve the Government's policy objectives under EMR, administers key elements of the capacity mechanism and contracts for difference regime and reports to the Government annually on performance against the Government's delivery plan.

Electricity Market Reform (EMR)

A government policy to incentivise delivery of low carbon energy supplies whilst maintaining security of supply and minimising the cost to the consumer.

EU

European Union.

FRS

Financial Reporting Standard.

GAAP

Generally Accepted Accounting Principles.

GHG

Greenhouse gas.

GW

Gigawatt 1,000,000 kilowatts.

GWh

Gigawatt hours.

HSE

Health and Safety Executive.

IAS

International Accounting Standard.

IASB

International Accounting Standards Board.

IFRIC

The International Financial Reporting Interpretations Committee, which provides guidance on how to apply accounting standards.

IFRS

International Financial Reporting Standard.

KPI

Key Performance Indicator.

Lost time injury

A work-related injury which causes a person to be away from work for at least one normal shift after the shift on which the injury occurs, because the person is unfit to perform his or her duties.

National Grid

National Grid plc, the ultimate parent company of National Grid Electricity System Operator Limited and its controlling party.

Ofgem

The Office of Gas and Electricity Markets.

Regulatory asset value (RAV)

The value ascribed by Ofgem to the capital employed in the licensed business. It is an estimate of the initial market value of the regulated asset base at privatisation, plus subsequent allowed additions at historic costs, less the deduction of annual regulatory depreciation. Deductions are also made to reflect the value realised from the disposal of certain assets that formed part of the regulatory asset base. It is also indexed to the RPI to allow for effects to inflation.

Regulated controllable operating costs

Total operating costs under IFRS less depreciation and certain regulatory costs where, under our regulatory agreements, mechanisms are in place to recover such costs in current or future periods.

RIIO

The revised regulatory framework issued by Ofgem which was implemented in the eight-year price controls which started on 1 April 2013.

RoE

A performance metric measuring returns from the investment of shareholders' funds. UK regulated return on equity is a measure of how a business is performing operationally against the assumptions used by Ofgem. These returns are calculated using the assumption that the businesses are financed in line with the regulatory adjudicated capital structure, at the assumed cost of debt and that UK taxation paid is at the level assumed by Ofgem.

RPI

UK Retail Price Index.

Tonnes CO₂ equivalent

Measure of greenhouse gas emissions in relation to the impact of carbon dioxide.

TW

Terawatt, 1,000 Gigawatts.

TWh

Terawatt hours.



nationalgrid**ESO**

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