nationalgrid

Climate Transition Plan

2023/24

Our vision is to be at the heart of a Clean Fair Affordable energy future

Every day we do the right thing, find a better way and make it happen.

Foreword

Rhian Kelly
Chief Sustainability Officer

I am delighted to present our second Climate Transition Plan (CTP), which sets out our greenhouse gas (GHG) emissions reduction targets, how we plan to achieve net zero by 2050, the actions we're taking to get there, and where we need support from others. We have aimed to align this CTP as closely as possible to the recently published Transition Plan Taskforce guidance and are pleased to be an early adopter of this guidance.

We were one of the first companies to publish a CTP – in June 2022 – which was supported by over 98% of shareholders at our 2022 Annual General Meeting (AGM). Since then, we have engaged extensively with investors and wider stakeholders on our CTP and have matured our approach in several areas, including:

- setting near-term climate targets to align with the Science Based Targets initiative's (SBTi) 1.5°C pathway;
- broadening our scenario analysis to cover upstream Scope 3 emissions and evolving our procurement strategy with the aim of driving emissions reductions through our supply chains; and
- intergrating our GHG emissions reduction targets throughout our business, embedding into financial planning processes, performance management and governance structures, and continuing to be transparent on our progress.

Our biggest contribution to reducing GHG emissions, both across society and in terms of our own emissions, is what we do to enable the transportation and distribution of clean energy into homes and businesses in the regions where we operate. This requires a fundamental upgrade of our electricity and gas networks at a pace and scale not seen for decades. We are delivering these upgrades today in England and Wales in the UK, and in New York and New England in the US. Beyond this, we are committed to reducing our Scope 1, 2 and 3 GHG emissions. We believe this refreshed CTP sets out a credible pathway to achieving our science-based climate targets, but we can't achieve all of this on our own. The majority of our businesses are regulated utilities, meaning that appropriate regulatory funding for the specific actions we take, such as leak-prone pipe replacement, fleet electrification, SF_6 leak repairs or customer energy-efficiency programmes, is key. Alongside this, we recognise the importance of working with our supply chain and other stakeholders to create partnerships to accelerate innovation and uptake of technologies.

In this CTP, we also set out the policy and regulatory dependencies we need in the future in order for us to make investments to support the decarbonisation of the energy sector as well as help reduce our own emissions. For example, we will need planning and permitting changes in the UK and US, as well as policies to further promote energy-efficiency and the use of low-carbon fuels in the US. Without support from our policymakers and regulators, delivering our emissions reductions will be challenging.

Finally, our scenarios are based on what we know and can reasonably assume today. They are not all linear, reflecting our analysis that getting to net zero by 2050 will be uneven. For example, we expect natural gas to act as a transition fuel for our US customers until they choose to switch to using electricity. Consequently, it's possible we won't see measurable reductions until the end of this decade and into the early 2030s, with support required from policymakers and regulators to achieve this.

We also know that our scenarios will most likely need to evolve to take into account the reality of the energy transition. We are closely watching trends in electricity demand in the US and whether this may increase in the near term due to advanced computing and Artificial intelligence (AI). Equally, we are watching industrial and commercial gas demand in sectors such as biopharmaceuticals and chip manufacturing in the US. Both of these trends, and others that are yet to emerge, could have an impact on our Scope 3 scenarios, and we will remain alert for any impact on our CTP.

Thank you for taking the time to read this plan. Please let us know your thoughts as we continue to evolve and adapt our approach to achieving our emissions reduction commitments.

Rhian Kelly
Chief Sustainability Officer

Our updated strategic priorities support our Climate Transition Plan

Our vision is to be at the heart of a clean, fair and affordable energy future.

Our strategic priorities set out what we need to do to deliver this vision. They reflect the changes in the external environment and better prepare us for the future.

Enable the **energy transition** for all

We have a pivotal role in enabling the energy transition through our networks across all sectors of the economy. We work with policy makers, regulators and the wider industry to shape policy and regulatory frameworks needed to reach net zero by 2050.

Build the **networks of the future** now

We will scale a once-in-a-generation increase in capacity in our networks. This priority is also about modernising our electricity networks to improve capacity, visibility, security and reliability as well as delivering a sustainable transition for our gas networks.

Deliver for our **customers**

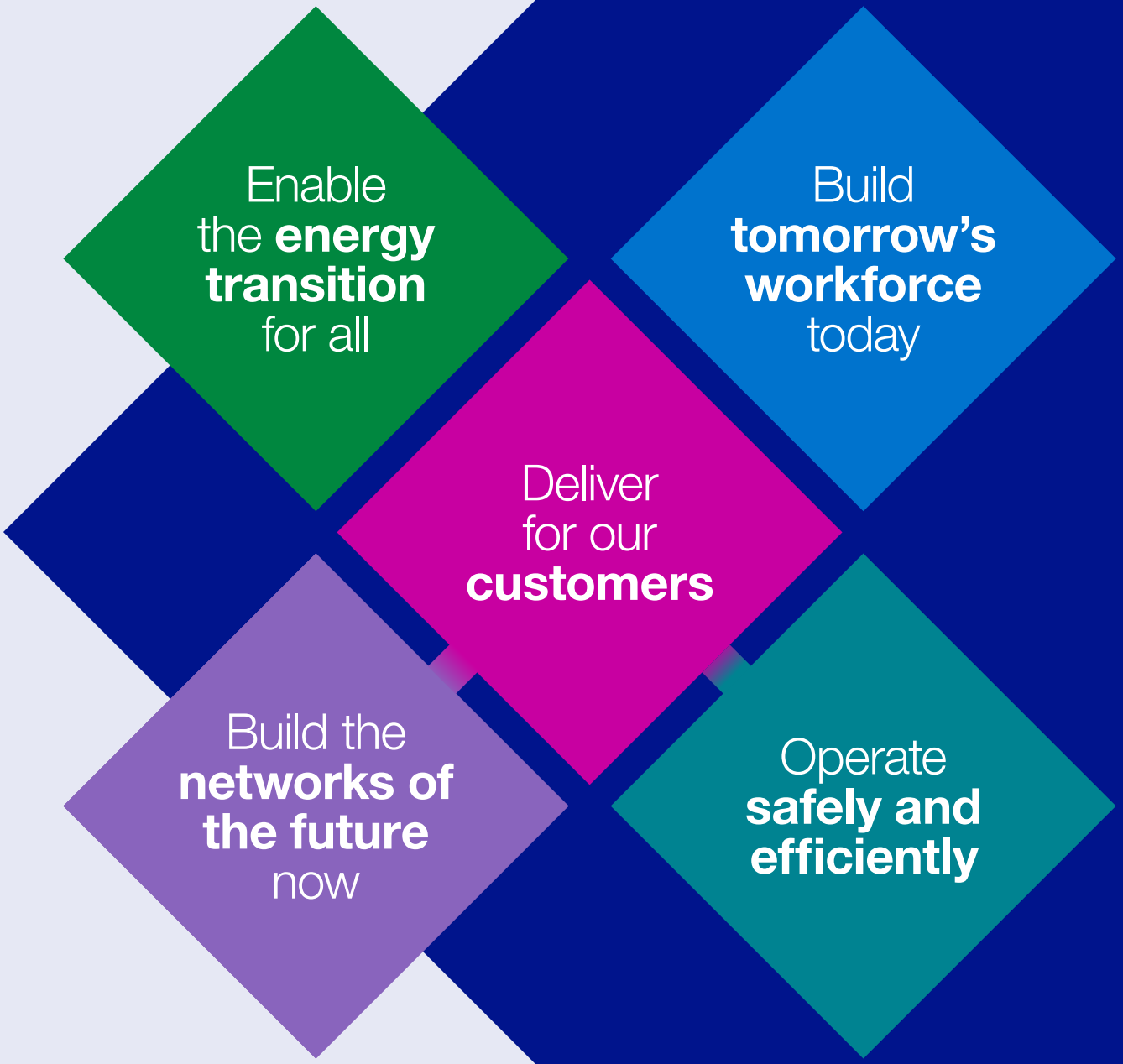
We will provide excellent service to all our customers, ensuring they can connect to the network in a timely fashion, that their energy provision is reliable and that we are easy to do business with.

Operate **safely and efficiently**

Our priority is to keep our colleagues safe. Being efficient means we play our part in making the energy transition affordable by investing in the right projects and solutions, and delivering them on (or ahead of) time and budget.

Build **tomorrow's workforce** today

All of this is enabled by our people. The energy transition is happening right now, so we need to build tomorrow's workforce today, with the diverse talent and skills needed to deliver our vision. Our ambition is to be the employer of choice for people who want to have a career in a company where they can have a clear and positive impact on the energy transition.



Our updated strategic priorities support our climate transition plan
continued

Recent strategic decisions align to the delivery of our GHG emissions reduction targets

In March 2021 we announced our intention to strategically pivot our UK portfolio towards electricity, through the acquisition of UK Electricity Distribution, the sale of our Rhode Island electricity business in the US and the sale of a majority equity interest in the UK Gas Transmission and Metering business. This has shifted our portfolio of Group assets from c.60% electricity in 2021 to c.75% electricity as of 31 March 2024.

In addition, the Group has continued to grow its investment in our non-regulated National Grid Ventures business, which includes our sub-sea electricity interconnectors in the UK, where we connect the electricity systems of neighbouring countries to move surplus renewable electricity from where it's produced to where it's needed. In December 2023 our sixth interconnector, Viking Link, became operational bringing the total interconnector portfolio to 7.8 GW of capacity.

Should there be any further changes to our portfolio we will assess the impact on our emissions reduction targets, revising our projections where required.

Our strategic priorities serve as the framework through which we operate the business, and against which we make strategic changes and create value for our shareholders. They also show the alignment between our ambition, vision and strategy and our emissions reduction scenarios as set out in this CTP. They show how we add value for our shareholders and demonstrate our commitment to being a responsible business – building reliable resilient and safe energy networks whilst adding value to broader society, tackling climate change by enabling the energy transition for all and targeting net zero for our own emissions by 2050.

To specifically capture how our strategic priorities demonstrate what we are doing to be a responsible business and reduce our emissions, we also have a Responsible Business Charter (RBC), which focuses on three areas: our environment, our communities and customers and our people. We conducted a materiality assessment as part of updating the RBC in September 2023 and included financial materiality as part of this assessment.

The results made a clear link to emissions reductions: supporting decarbonisation economy-wide and the clean energy transition is one of the most significant sustainability issue for our shareholders and stakeholders, with our own emissions reduction ranking as a high priority as well. The rest of this document sets out how our vision supports this.

Our 2023/24 GHG emissions footprint

Scope 1: Direct emissions	Scope 2: Indirect emissions	Scope 3: Indirect emissions
Direct emissions that are owned or controlled by a company	**Indirect emissions that are a consequence of a company's activities but occur from sources not owned or controlled by it**	
Emissions from sources that a company owns or controls directly	**Emissions a company causes indirectly and come from the energy it purchases from others**	**All emissions not covered in scope 1 or 2, created by a company's value chain**

Our 2023/24 GHG emissions footprint across direct (Scope 1), indirect (Scope 2 and indirect (Scope 3) emissions was 34,236 $ktCO_2e$.

Upstream Scope 3

Supply Chain and other upstream emissions

6,709kt

20% of total footprint

- Construction and maintenance of energy infrastructure
- Equipment and components
- Well to tank emissions for generation and transportation of electricity

US UK

Scope 1 and 2

Power Generation

2,711kt

8% of total footprint

- Electricity generation from fossil fuels

US

Operations

3,779kt

11% of total footprint

- Line losses from our electricity transmission and distribution networks
- SF_6 leaks from electrical equipment
- LNG venting and fuel
- Leaks and venting from our gas networks

US UK

Administration

361kt

1% of total footprint

- Building Energy Consumption
- Company cars

US UK

Downstream Scope 3

131kt

<1% of total footprint[1]

- Business travel
- Employee commuting
- Waste

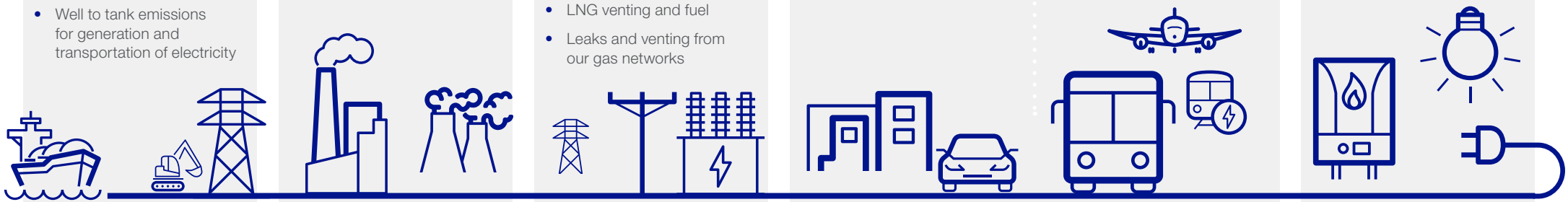
Retail Energy

20,545kt

60% of total footprint

- Emissions from the electricity and gas that we sell to our customers[2, 3]

US



1. We consider the emissions associated with business travel, employee commuting, and waste as part of our downstream sources.
2. Although a downstream business activity, the emissions from electricity we sell to customers occur upstream, from the combustion of fossil fuels used to generate that electricity.
3. Our retail energy emissions reported here only include NG customers, not energy transported on behalf of third parties. However, we do report this figure in our Responsible Business Report.

Our near-term targets are based on the latest climate science and aligned to our regions' emissions goals

Our CTP is guided by a set of GHG reduction targets covering our entire direct (Scope 1), indirect (Scope 2) and value chain (Scope 3) emissions and aligns to the emissions goals of the regions we operate in.

Our long term target is to reach net zero by 2050, limiting our use of offsetting to get there. We realise the need for action this decade and have worked with the Science Based Targets initiative (SBTi) to align our near-term targets to their 1.5°C pathway and the ambition of the Paris Agreement (see section on external accreditation from the SBTi below).

Our target is to reduce absolute Scope 1 and Scope 2 GHG emissions from a 2018/19 baseline by 60% by 2030/31 and absolute Scope 3 GHG emissions (excluding sold electricity) from the same baseline by 37.5% by 2033/34. As part of this SBTi validation, we also have a range of sub-targets.

Our targets align to the Paris Agreement, and to the goals in the regions where we operate:

- UK: The Climate Change Act 2008 (as amended in 2019) commits the UK to a net reduction of GHG emissions by at least 100% of 1990 levels (net zero) by 2050.
- US: Both the New York State Climate Action Council Scoping Plan (2022) and the Massachusetts Clean Energy and Climate Plan for 2050 call for reductions in GHG emissions by at least 85% by 2050 from 1990 levels.

A complete table of our emissions metrics and targets can be found in our Accountability section, and details of our GHG emissions and our progress against these targets will be published in our annual RBR. A copy of the most recent update can be found here.

Our near-term targets (SBTi aligned)	**Reduce absolute Scope 1 and 2 GHG emissions from a 2018/19 baseline** **60% by 2030/31[1]**	**Reduce absolute Scope 3 GHG emissions from a 2018/19 baseline (excluding Sold Electricity)** **37.5% by 2033/34[2]**
	Sub targets • Reduce absolute Scope 1 and 2 GHG emissions excluding generation by 50% by 2030/31[1] • Reduce the carbon intensity of our power generation (Scope 1 GHG emissions) by 90% by 2030/31, and by 92% by 2033/34[1] • Reduce the carbon intensity of power generation and sold electricity (Scope 1 and Scope 3 GHG emissions) by 86% by 2033/34[1] • Reduce absolute GHG emissions from gas sold by third parties by 37.5% by 2033/34[2]	
Our long-term target	**Achieve net zero by 2050 for Scope 1, 2 and 3 emissions**	

External accreditation from the Science Based Targets initiative (SBTi)

We have been working with the SBTi for over five years to ensure that our GHG emissions reduction targets are in line with the latest climate science.

Over the last year, we have updated our near-term Group direct (Scope 1), indirect (Scope 2) and value chain (Scope 3) emissions targets to ensure they follow the pathways necessary to limit global average temperature rise to 1.5°C above pre-industrial levels. These targets were published by the SBTi in August 2023.

We believe our long-term net zero target aligns with the key principles of SBTi's corporate net zero standard. However, we are unable to formally validate this owing to several factors, including SBTi having not yet developed a sector pathway for heat, and its power sector guidance not yet accounting for the growth in infrastructure needed to enable decarbonisation of the electricity system. We have engaged with the SBTi directly to discuss these points in detail and look forward to continuing to support the future development of this standard.

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

1.,2.The baselines for our Science Based Targets is financial year 2018/19.
1. Near-term target approved by Science Based Target initiative (SBTi) and aligned to the Paris Agreement and a 1.5°C pathway.
2. Near-term target approved by SBTi and aligned to a Well Below 2°C pathway.

There are a number of dependencies to achieving our targets

Meeting our targets will require a combination of the actions we take ourselves, along with the necessary policy and regulatory support. Our headline Scope 1 and 2 reduction targets are at the upper limit of what we consider feasible, but there are credible pathways to achieving them, as set out in the next section.

Meeing our targets depends on the continued decarbonisation, at pace, of electricity generation, both for our own generation and across the regions in which we operate. Our role in enabling the energy transition through the upgrade of electricity networks will support this. Reductions in methane and SF_6 emissions from the operation of our gas and electricity networks will also contribute significantly to achieving our targets. These reductions are dependent on a variety of technological factors and continued regulatory funding, which we will discuss in detail later in this plan.

Our targets also recognise the importance of addressing our Scope 3 emissions, which mainly come from the gas and electricity we directly sell to customers in the US as a retail energy distributor, and lifecycle emissions from the goods and services we buy. As energy networks transition to cleaner energy sources, the impact of our customers' energy consumption will decrease, similar to Scope 1 and 2 emissions. However, we also anticipate natural gas will be a transition fuel for our US customers until they choose to switch to using electricity. Therefore, some of our projections for reducing emissions in the heat sector indicate a slower rate of reduction than other areas, and require support from policymakers and regulators, which we set out on page 20. At the same time, we are also acutely aware of the technological and feasibility considerations, ensuring we don't burden our customers with undue costs. We aim to balance the need for clean energy and affordability.

Additionally, the scale and scope of our construction activities pose challenges for reducing our Scope 3 emissions from purchased goods and services. Large infrastructure projects require substantial quantities of materials, such as concrete, steel and copper, which have significant carbon footprints. Finding more sustainable alternatives or implementing low-carbon construction methods can be challenging due to limited availability, higher costs and potential regulatory barriers to trying to purchase lower-carbon materials that are higher priced. These issues have the potential to limit our ability to meet our Scope 3 targets.

We are seeing these challenges manifest themselves today with Scope 3 emissions from purchased goods and services increasing from our baseline year, largely due to higher procurement spend driven by increased capital investment. The fact that 78% of our capital investment is categorised as 'green' under the EU Taxonomy highlights the challenge we have of delivering the investments in infrastructure critical to supporting the energy transition while trying to also reduce the Scope 3 emissions associated with building this infrastructure.

Policy and regulations

Progress against our climate ambition will likely be variable and non-linear, and will depend heavily on external factors, in particular policy and regulation.

However, the policy and regulatory frameworks that exist today were created for a different era and weren't designed for the scale of investment and speed of delivery needed now, and need to be updated. The challenge is that non-delivery or delay in the necessary policy and regulatory frameworks changes will impact our ability to achieve our targets. For this reason, our aim is to collaborate in shaping new policies and regulatory frameworks that support the energy transition, reduce GHG emissions and enable economy-wide decarbonisation.

The key areas where we believe policy and regulatory development is needed are shown in the table to the right.

Our UK and US policy publications

In May 2023, we published Delivering for 2035: 'Upgrading the grid for a secure, clean and affordable energy future', which sets out our view on the electricity networks needed to deliver the UK government's 2035 power system decarbonisation target, alongside the key actions required by industry, government and the regulator to get there.

In April 2022, we published our Clean Energy Vision (CEV), which details the policies and regulations needed to achieve net zero by 2050 in our US businesses. Within our vision for fossil-free heat is a hybrid approach that offers a diverse range of cleaner heating solutions, enabling customers to choose what best addresses their needs for performance and cost while achieving net zero emissions. We are working towards an integrated fossil-free gas and electric system that will benefit our US customers and reduce our sold gas emissions.

UK Electric

Acceleration of connections with community at the forefront

- Reform the planning system, centred around a strategic clean energy vision.
- Ensure the regulatory and governance framework is set up for delivery.
- Transform how clean energy connects to the grid, accelerating net zero projects.
- Put communities and consumers at the forefront of the transition.
- Develop supply chain capacity and a skills pipeline across the country.

US Electric

Net zero network planning, coordination and optimisation

- Anticipatory planning and investment frameworks for electric infrastructure upgrades, including energy storage and grid-enhancing technologies.
- Innovative rate mechanisms for critical infrastructure investments and grid modernisation.
- Greater regional coordination to advance transmission solutions, offshore networks and wholesale market reforms.
- New rates, distributed energy resources policy and flexibility products that optimise network cost and resilience.

US Gas

Fossil-free supply, networks and policies for an evolving business

- Customer and building policies that promote efficiency while enabling hybrid gas-electric heating for existing customers.
- Policy frameworks that recognise the capacity value of the gas network and ensure long-term recovery of invested capital.
- Regulatory support for continued infrastructure investment where necessary, along with new frameworks for integrated energy planning, targeted electrification and other strategies to optimise for decarbonisation, reliability and affordability.
- Policy to enable low-carbon, non-fossil fuels like Renewable Natural Gas (RNG) and green hydrogen (H_2) to decarbonise hard-to-electrify applications.

US Equity and Affordability

- New policies to ensure affordability, especially for low to moderate income customers, while also supporting necessary investments.
- Streamlined processes for infrastructure siting and permitting while mitigating impacts to environmental justice communities.
- New policy funding mechanisms that can scale necessary levels of customer investment in efficiency and demand-side management, building decarbonisation and electric transportation, with a particular focus on equity for low and moderate income customers.

Our pathway to net zero by 2050

This section sets out our pathway to net zero with detail on the actions we're taking across each of our material emissions areas.

We set out the targets and sub targets for each area of emissions, the pathways and ranges of pathways and what we are doing.

Scenarios for immaterial areas of emissions such as Scope 3 employee commuting, business travel and waste are not included. Emissions performance in these areas is included in our annual Responsible Business Report.

91%

The seven material emissions areas opposite account for 91% of our combined Scopes 1, 2 & 3 2023/24 GHG emissions footprint

Power Generation
See page 13

Electricity Line Losses
See pages 14 – 15

Natural Gas Operation
See page 16

Sulphur Hexafluoride (SF_6)
See page 17

Company Facilities and Transportation
See page 18

Retail Energy (Sold Electricity and Sold Gas)
See pages 19 – 20

Purchased Goods and Services
See page 21

Transition scenarios guide our emissions projections

We use scenario analysis to guide our strategic decision-making process and support the delivery of our climate targets. Our scenarios are defined by assumptions pertaining to policy change, consumer behaviour, energy outlooks, technology innovation, competition and global temperature change.

These bespoke scenarios are developed internally by subject matter experts in our market analytics teams in both regions. Inputs are continually updated throughout the year as part of our normal risk management process, and we conduct an annual refresh to reflect the macroeconomic environment as part of our strategic horizon scan. There are key technical assumptions underpinning each scenario – please refer to each of our material emissions areas for more information on this.

For our Scope 1 and 2 emissions, we have presented the upper and lower ranges of our scenarios. We have taken this approach as we have broadly identified the actions and activities needed to meet our targets. Achieving our headline Scope 1 and 2 reductions is ambitious, with emissions reductions towards the lower end of our projected range – the pace of change regarding our dependencies outlined earlier is key. We have also presented the upper and lower ranges of our scenarios for purchased goods and services and sold electricity emissions.

However, for our sold gas emissions, we have presented all three of our scenarios. There are different potential approaches to decarbonisation, such as the full electrification of heat or a hybrid approach aligned with our CEV. There is also the scenario in which, if several of our gas-specific dependencies are not met and existing trends continue, we risk increasing emissions over time due to increasing natural gas demand and so we have included a delayed scenario. This is tied to our obligation to serve our customers. However, whilst these challenges exist, we are still doing our part in facilitating the economy-wide decarbonisation trends that need to occur through our direct efforts and encouraging our stakeholders to also drive change. We have presented all three scenarios in order to be fully transparent about potential future outcomes.

We model three scenarios which are tailored to the specific business environments within the UK and the US: Delayed (upper range), Hybrid and Electric (lower range).

	Delayed 2-4°C (Upper Range)	**Hybrid 1.5°C**	**Electric 1.5°C** (Lower Range)
UK Assumptions	• Decarbonisation progresses but is insufficient to meet net zero in 2050 • Renewable capacity targets missed • Resource nationalism disrupts established trade flows • Supply chain disruptions and higher material prices • Policy delays	• Achieves net zero power system before 2040 and economy-wide net zero by 2050 • Strong electrification with a more gradual decarbonisation path in the medium term, mixed with limited hydrogen use in some sectors • Storage, interconnection and higher nuclear are supplemented by hydrogen and abated gas generation capacity • Meets most decarbonisation targets, some with minor delay • Total final energy consumption reduces in medium term but increases by 2050 as more efficient electric technology is complemented by hydrogen consumption in some sectors	• Achieves net zero power system by 2035 and economy-wide net zero by 2050 • Near-complete electrification of demand sectors such as heat and transport supported by strong renewable expansion with distributed flexibility, storage, interconnection and some abated gas capacity providing dispatchable supply • Meets most decarbonisation targets • Total final energy consumption reduces by 2050 as more efficient electric technology replaces combustion technology
US Assumptions	• Clean energy infrastructure takes longer to build due to persistent inflation and permitting challenges • Modest electrification • No large-scale hydrogen production by 2050 within the states we operate in	• Net zero emissions achieved on schedule • Balance of electrification and decarbonised gas to get to net zero • Hydrogen power generation and non-power sector hydrogen demand (some in-region electrolysis)	• Net zero achieved on schedule • Near-complete electrification of most end uses • Hydrogen for power generation (hydrogen imported)

Our projected range of emissions to reach net zero

These charts detail the projected range of GHG emissions reductions to 2050 across Scopes 1, 2 and 3, with the key actions we're taking over the short, medium and long term to achieve our targets set out on page 6.

Each scenario is different, and in some, we will not be able to meet our targets. We believe it is important to acknowledge that non-delivery of, or a delay in, policy, and regulation and other dependencies on which achieving our targets are contingent, will impact our capability to achieve our targets.

We are decarbonising our operations across all the material areas of our emissions.

We will prioritise emissions reductions and offset responsibly only when unavoidable

Through the actions outlined within this CTP, we shall continue to focus on decarbonising our business in line with a 1.5°C reduction pathway, prioritising actual emissions reduction efforts. We do not plan to use carbon offsetting to meet our near-term Science Based Targets and will only aim to support a limited amount of carbon offsetting outside of our value chain if it can play a small tactical role in accelerating our emissions reduction efforts. An example of this is offsetting residual construction emissions within our UK Electricity Transmission business, something we committed to doing over our current regulatory period.

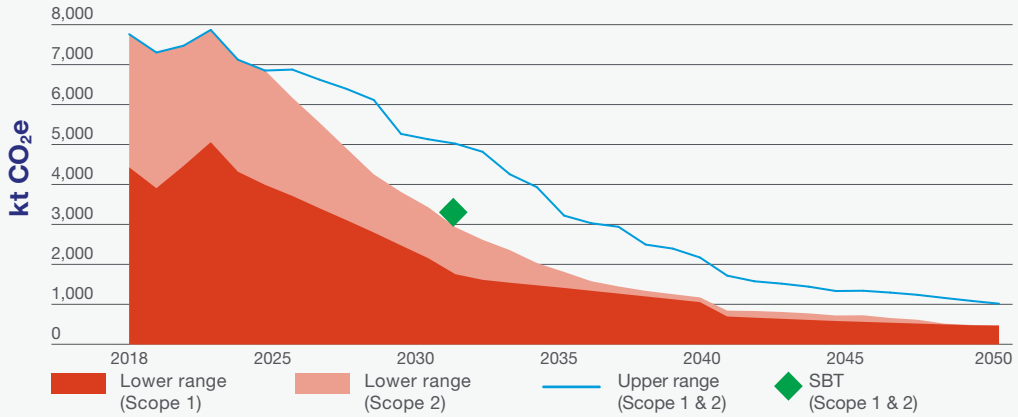
We believe this approach to our long-term net zero target aligns with a key principle of the SBTi Corporate net zero Standard in that we aim to reduce emissions across all material Scope 1, 2 and 3 emissions by at least 90%, offsetting only residual, hard-to-abate emissions, which are technically infeasible to reduce further or would pass on disproportionate costs to consumers.

Recognising that carbon offsetting projects or partnerships can play a positive role in addressing ongoing ecological crises or supporting innovative removal technologies, we will seek to only associate with initiatives that are carried out in a responsible way towards the environment and communities. We intend to employ due diligence drawn from global benchmarks for high-integrity carbon offsetting to select projects or partnerships that we expect to deliver multiple benefits as local to our operations or supply chain as possible.

Decarbonising our operations

We are decarbonising our operations across all the material areas of our emissions

Scope 1 & 2 pathways

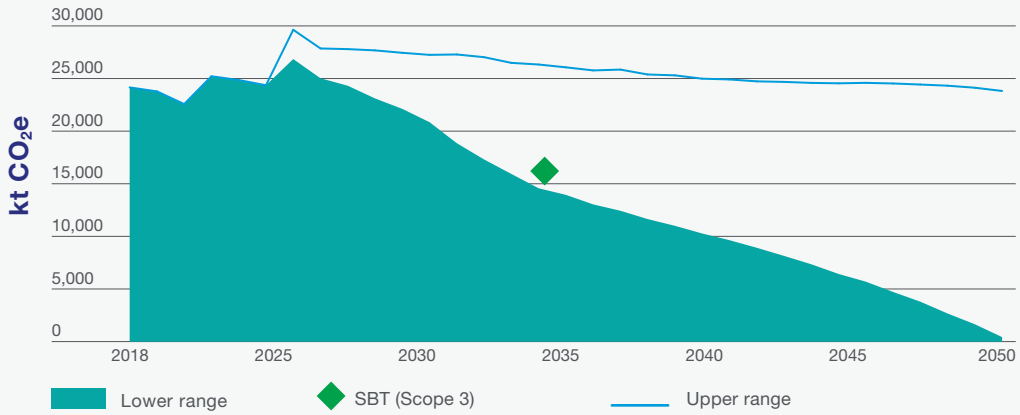


See pages 13 – 18

Decarbonising our value chain

We are working with our customers and suppliers to decarbonise our value chain

Scope 3 pathways*



* Excludes emissions from Scope 3 Sold Electricity which has a separate Science Based Target

See pages 19 – 22

The actions we are taking to reach net zero

	Short term — Present to 2025	Medium term — 2026 to 2035	Long term — 2036 to 2050
Science Based Targets		Reduce absolute Scope 1 and 2 GHG emissions 60% **by 2030/31**[1] Reduce absolute Scope 3 GHG emissions (excluding Sold Electricity) 37.5% **by 2033/34**[2]	
Decarbonising our operations			
Power Generation	Work with LIPA to responsibly retire fossil fuel generation capacity, retaining reliable services during peak demand or renewable intermittency	Reduce the carbon intensity of our power generation 90% per MWh **by 2030/31**, and 92% **by 2033/34**[1] Support the growth of renewables within the region's energy grid, including the successful delivery of the Propel NY transmission line	Eliminate our emissions from unabated fossil fuel power generation **by 2040/41**
Electric Line Losses	Deliver the UK's Great Grid Upgrade, which includes 17 major transmission projects that support the UK's target to connect 50GW of new wind **by 2030**. Construct and rebuild over 1,000 miles of transmission lines, substations, and connect clean energy to NY communities **by 2030**. New investments and programmes over the next five and ten years to accelerate delivery of Massachusetts' net zero commitments, many of which are outlined in our Future Grid Plan. Continue to develop crucial energy links between the UK and Europe, by facilitating the sharing of renewable energy resources and support the decarbonisation of UK electricity generation **by 2035**		Continue to support the decarbonisation of NY and MA electricity generation **by 2040/41**
Natural Gas Operations	Continue to invest in leak-prone pipe (LPP) programmes to reduce fugitive emissions and increase safety and reliability Fund research and development to deploy new leak detection and prevention technologies through our Gas Innovation programme		Complete our LPP programmes across our regions **by 2045/46**
Sulphur Hexafluoride (SF_6)	Continue to invest in leak detection, repair and prevention, whilst also implementing digital solutions to better track SF_6 usage and emissions	Reduce SF_6 absolute emissions across our operations 50% **by 2030/31** Collaboration with partners from across the sector to identify, develop and implement innovative SF_6-free solutions across all voltages	We have an ambition to reduce emissions associated with leaks from our assets to reach near zero through these actions **by 2050/51**
Company Facilities & Transport	Move to a 100% electric fleet for our light-duty vehicles **by 2030/31**	Reduce absolute energy consumption in our flagship offices by 20% **by 2030/31** Pursue the replacement of our medium- and heavy-duty vehicles with zero carbon alternatives	
Decarbonising our value chain			
Retail Energy	Support legislative and regulatory policies to grow fossil-free gas Accelerate energy efficiency programmes and the conversion of customers who heat with oil to electric heat pumps Invest in the infrastructure and procurement processes to deliver fossil-free gas and electric solutions	Continue to enable deployment of fossil-free gas, clean electricity solutions and energy efficiency, supporting state net zero-economy wide emissions	100% fossil-free heat **by 2050/51**
Purchased Goods & Services	Evolve procurement models to include GHG emissions as an integral element of the assessment process	Support 50% of US suppliers by emissions to set a SBT decarbonisation roadmap by 2025/26. For our equivalent top 80% of UK suppliers, we are asking them to formally commit to set target(s) with SBTi **by 2025/26** Alongside driving efficiencies in the design phase of our projects, for carbon-intensive materials, we'll work collaboratively with our strategic suppliers to identify and trial innovative solutions to reduce our construction impacts to net zero **by 2050/51**	

1.,2.The baselines for our Science Based Targets is financial year 2018/19. Our office energy consumption target has a baseline of 2019/20.

1. Near-term target approved by Science Based Target initiative (SBTi) and aligned to the Paris Agreement and a 1.5°C pathway.
2. Near-term target approved by SBTi and aligned to a Well Below 2°C pathway.

Our pathway to net zero by 2050 continued

Decarbonising our operations

Power Generation (US)

40%

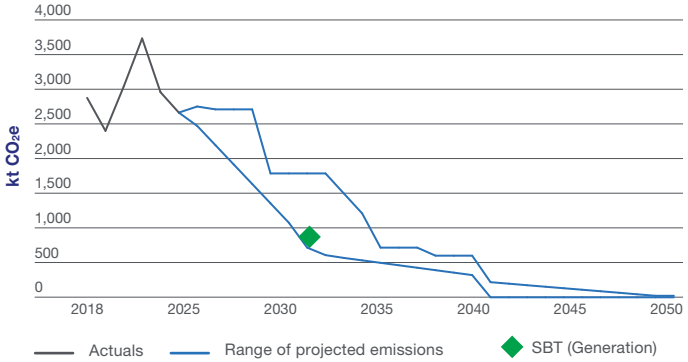
of Scope 1 and 2 emissions in 2023/24

On Long Island, New York, we own and operate 3,800 MW of oil- and gas-fired generation facilities, capable of providing approximately 65% of the region's electricity needs. We sell capacity to the Long Island Power Authority (LIPA) through fixed-term power supply agreements under contracts which currently extend through to 2028.

We have been responsibly managing our generation units for over 50 years, in which time we have overseen the retirement of 300 MW of plant capacity in line with LIPA's capacity needs, contributing to approximately 75% reduction in emissions from LIPA facilities to date from 1990 levels.

To continue the momentum, we've set an ambitious sub-target for emissions from power generation within our overarching near-term commitments. This trajectory is aligned with the SBTi's 1.5°C power sector pathway. It also reflects our ongoing support for NY's Climate Leadership and Community Protection Act (CLCPA), which legislates for an ambitious long-term target of 100% zero emissions electricity by 2040.

Projected range of absolute generation emissions to 2050 (kt CO_2e)



Sub targets

- Reflecting our current portfolio, we commit to reduce Scope 1 GHG emissions from power generation by 90% per MWh by 2030 from a 2018 base year. [SBTi commitment]
- We commit to eliminate Scope 1 emissions from unabated fossil-fuel power generation by 2040.

What we're doing to get there

We are investing to reduce our generation emissions as set out below. While many of the reductions required to meet our targets will come from the growth in renewables, there are actions we can take that will contribute towards decarbonising our generation portfolio.

Growth of renewables

The growth of renewable energy generation on Long Island and the wider region is a significant factor in the gradual displacement of fossil fuel-based energy production from our plants. Under our electric scenario, where we assume that New York State's climate goals are met, we anticipate the need for an additional 2.8 GW of generation capacity, a similar level to LIPA's recently published 2023 Integrated Resource Plan. This will be largely met through a combination of behind-the-meter solar installations and 2.4 GW of new offshore wind generation.

Transmission upgrades

To support the successful integration of renewables into the region's energy grid, upgrades to Long Island's high-voltage electricity grid will be necessary. This includes Propel NY Energy, a joint venture 90-mile transmission line between National Grid, Avangrid, Central Hudson and Con Edison, which will directly facilitate the flow of 3 GW of offshore wind by 2030, with some exported to the rest of New York. This makes it the largest transmission project in New York in four decades and will allow for clean energy to be transported over long distances from where it is produced to where it is most needed.

We also see a need for local transmission upgrades, particularly around our Barrett site, to alleviate electricity bottlenecks constraining the flow of power across the network. Upgrading capacity in these congested areas will also support the replacement of conventional generation with renewable generation.

Responsible management and retirement

As the region continues to integrate more clean energy, our plants will shift from providing energy to delivering reliability back-up services during peak demand and when renewables experience intermittent operation. As a result, we expect the number of hours our units are in operation each year to reduce, which could result in the retirement of 350-400 MW capacity by 2030. This presents a more conservative view than LIPA's 2023 Integrated Resource Plan, primarily due to our view of the timing of offshore wind development.

Looking out to 2030, the development and integration of renewables on Long Island in support of New York State's climate goals presents a significant step in reducing the emissions from our generation units in line with a 1.5°C pathway.

We are committed to playing a leading role in seeking to shape the policy to support this transition. Our current contracts with LIPA end in 2028 and we are actively discussing how we can work together after this date to responsibly manage the transformation of our generation fleet. Together, we believe that these actions will support the region's transition towards an affordable and secure supply of electricity for decades to come.

Our pathway to net zero by 2050 continued

Decarbonising our operations

Electricity Line Losses (UK/US)

40%

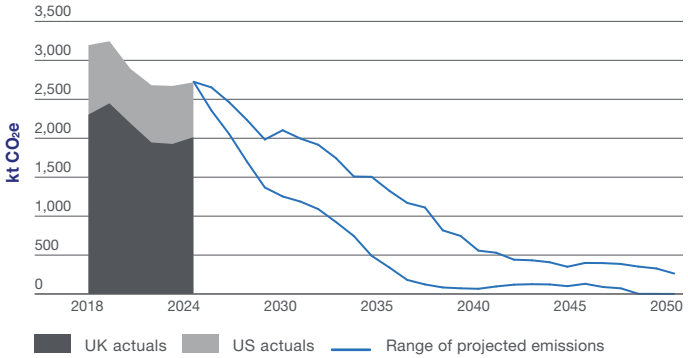
of Scope 1 and 2 emissions in 2023/24

Our electricity networks are pivotal to the energy systems of both the UK and Northeastern US. In the UK, we own and operate over 7,200 kilometres of high-voltage transmission network, as well as nearly 230,000 kilometres of distribution overhead lines and cables, making us the biggest electricity transmission and distribution operator in the UK. Our US network, split primarily between the states of Massachusetts and New York, has about 122,000 kilometres of distribution, sub-transmission and transmission lines.

Electricity line losses, also referred to as network losses, occur when transferring energy across our transmission and distribution systems. They are a measure of the difference between the amount of electrical energy entering and leaving a network, and they occur for several reasons. Some of these losses are fixed – for example, when electrical energy is dissipated by network equipment such as transformers or conductors independent of electricity demand or current. Other losses are variable and fluctuate depending on the heating effect of electricity passing through the equipment. As a result, the variable losses change depending on the distance of the line and as power flows increase and decrease.

Emissions from electricity line losses are calculated as the total energy losses on the network multiplied by the average emissions intensity of the electricity generated and transported across the network. As a result, these emissions are a function of physics, primarily determined by the generation mix and location, which are outside our control. In simple terms, the greater the distance between the generation supply and the electricity consumer, the greater the energy losses. These losses have a tangible impact on our customers and the environment, so we have a responsibility and a regulatory obligation to ensure that line losses are kept as low as practicable.

Projected range of absolute line loss emissions to 2050 (kt CO_2e)



What we're doing to get there

In the near term, there will be considerable growth in our transmission and distribution networks. As a result, we expect our electricity network losses to grow. However, as new low-carbon generation displaces existing fossil fuel plants, and by making proactive investments in more efficient networks now, we will see significant reductions in emissions over time. With the reduction in the carbon intensity of electricity outweighing the growth in network losses, our emissions will fall, as shown in the chart.

In the US, we calculate our network losses emissions using the Environmental Protection Agency's (EPA) regional Emissions & Generation Resource Integrated Database (eGRID), so our forecasts reflect regional electricity decarbonisation goals. While NY has a 2040 target of 100% zero-emissions electricity and MA has a sector-specific emissions sub-limit of 93% by 2040 from 1990 levels for electric power, our methodology reflects the greater Northeast region. Thus, we do not forecast that our line losses and sold electricity emissions will reduce to zero by 2040, as not all states in the greater Northeast region have such goals. We assume that NY state and MA will achieve their electricity emissions targets in both the Hybrid and Electric scenarios, though we expect the rest of the broader Northeast region not to decarbonise as quickly, impacting our ability to reduce network losses emissions to zero by 2040.

With new and improved transmission infrastructure, we can transmit more power more efficiently to customers to meet increased energy demand from new businesses and technologies like electric vehicles and heat pumps, as well as connect and deliver cleaner energy. A smarter, more efficient grid not only reduces line loss emissions, but also offers consumers more choice and options to help them save energy and manage their energy bills.

Our pathway to net zero by 2050 continued

Investing in our infrastructure to enable renewables

To help reduce the emissions from electricity line losses, we are working to enable a zero-emissions electricity sector by investing in capital projects to facilitate the interconnection of renewable energy projects (see case study). We are also accelerating the build-out of electric transmission infrastructure to provide more system capacity for renewables, while making long-term commitments to new energy projects through power purchase agreements or other mechanisms that help project developers secure necessary financing.

In the UK, the government has set a target to connect 50 GW of offshore wind capacity to the network by 2030. We are fully supportive of this goal and are already working on the Great Grid Upgrade that will carry this new clean energy to communities in every part of England and Wales, helping us all reach net zero faster. The Great Grid Upgrade includes 17 new offshore and onshore transmission projects over the next 10 years and will also modernise existing infrastructure. The scale of both the opportunity and the delivery challenge is unparalleled in recent history. For example, we project that there will be five times the length of new line to construct in seven years than was built in the last 30 years. To deliver this work in parallel with meeting our commitments, we'll need to create partnerships to accelerate innovation and the uptake of technologies, as well as using the scale of construction to stimulate decarbonisation across our supply chain.

For the US, in Massachusetts, we submitted our Electric Sector Modernization Plan (ESMP) to regulators in January 2024. This 'Future Grid' plan outlines the critical investments needed in the local electric distribution network and, where applicable, transmission systems to meet the Commonwealth's climate goals, by enabling and connecting our customers to the increased renewable generation on the grid. Our 10-year Future Grid plan will deliver 32 new/upgraded substations, increase distribution network capacity by 3 GW, and enable the connection of up to 870,000 additional electric vehicles and 235,000 additional electric heat pumps. In NY state, we are implementing the CLCPA Phase 1 and 2 capital investments, including hundreds of miles of transmission specifically designed to improve renewable deliverability. We plan to invest more than $4 billion in our Upstate Upgrade to rebuild or modernise more than 1,000 miles of our transmission system to improve reliability and resilience. Our work also includes reinforcing/rebuilding the high-voltage backbone of upstate NY's electric grid, 45+ new/upgraded substations, and installing state-of-the-art technologies to improve reliability and resiliency.

Communications and technology platforms/research and development

To enable a greater volume of demand, generation and storage to be connected, our networks are becoming smarter and more active. Creating a more efficient and flexible system will benefit and help empower customers to be at the centre of the energy revolution. Grid modernisation is an ongoing set of initiatives across our electric transmission and distribution businesses to enable the future of the electric system to better integrate distributed energy resources such as energy storage, solar photovoltaics and electric vehicles. Specific programmes include the following:

- Advanced Metering Infrastructure (AMI) – smart meters that enable two-way communication between us and our customers. This will help give customers the tools to better control their energy usage.
- Dynamic Line Rating (DLR) – technology that expands the capacity of existing overhead power lines, allowing for the integration of more renewable power.
- Conservation Voltage Reduction (CVR) and Volt-VAR Optimisation (VVO) – a system that optimises distribution system voltage, resulting in reduced energy demand and customer costs.

Contributing to European decarbonisation through subsea electricity interconnectors

Through National Grid Ventures, we are at the forefront of creating an interconnected energy landscape between the UK and Europe. We own and operate a portfolio of six subsea electricity interconnectors amounting to 7.8 GW of crucial energy links with countries like France (two links), the Netherlands, Belgium, Denmark and Norway.

Our network of cross-border energy transmission plays a pivotal role in enhancing energy security and lowering the carbon intensity of the electricity we transport. By facilitating the sharing of renewable energy resources, we can move surplus energy from where it's produced to where it's needed most, helping to significantly reduce power sector emissions. We estimate that, by the end of the decade, 90% of the electricity flowing across our interconnectors will be from zero-carbon sources such as wind, solar, hydro and nuclear.

But we are not stopping there. We are championing innovation with the development of offshore hybrid assets, an evolution that could bring about an even smarter, more versatile energy network.

Our proposed offshore hybrid assets offer flexibility, allowing clusters of offshore wind farms in the North Sea to connect seamlessly to multiple countries, further promoting the efficient use of energy infrastructure.

With ambitious UK and EU offshore wind targets, bringing these two assets together makes sense. We see the potential for 6.4 GW of interconnector capacity in the North Sea to connect 12.8 GW of offshore wind with Belgium, the Netherlands and Norway, delivering around 21 metric tonnes reduction in Europe's CO_2e emissions between 2030 and 2050, and socio-economic welfare benefits of up to €3.5 billion for EU and UK consumers.

We firmly believe that these innovations hold the key to meeting ambitious offshore wind plans and currently have connection agreements in place with our European partners. To support the necessary investment, we are engaging with regulators to develop the right regulatory, planning and policy framework that we anticipate will pave the way for this new era of energy by the end of the decade.

Our pathway to net zero by 2050 continued

Decarbonising our operations

Natural Gas Operations (US)

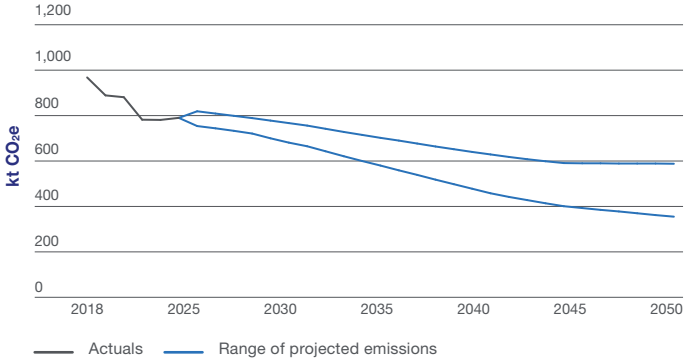
12%

of Scope 1 and 2 emissions in 2023/24

Currently, natural gas provides safe, reliable and affordable energy to millions of homes and businesses, and we believe it will continue to play a transitional role – especially on the coldest days, when customer gas demand will be at its peak. And whilst our CEV sets out the actions we're taking to decarbonise our gas supplies with RNG and H2 in the long term, we anticipate that, based on current GHG accounting methodologies, we will still experience leakages (fugitive emissions) from our gas system. Even in our scenario with greater electrification (the lower range), we foresee that some customers will still rely on gas heating, whether due to affordability issues or a lack of demand capacity to meet their needs.

For our existing gas distribution network in the US, with over 53,000 kilometres of pipelines, we are actively replacing leak-prone infrastructure – we have some of the oldest pipelines in the US – where the majority of emissions are due to leaks. These fugitive emissions, which are predominantly methane (CH4), have a higher impact on emissions than gas combustion of similar volume.

Projected range of absolute gas operations emissions to 2050 (kt CO_2e)



What we're doing to get there

In the near term, we are executing ambitious leak-prone pipe programmes in NY and MA. Leak-prone pipe (LPP) includes unprotected steel, cast iron, wrought iron and vintage plastic pipes. Eliminating or replacing LPP with pipes with lower leak rates will reduce the number of open leaks within the system and reduce our fugitive methane emissions. To date, we have replaced or eliminated thousands of kilometres of LPP across NY and MA, and we are working with regulators to secure funding to continue this work in pursuance of our Scope 1 and 2 targets.

As for our long-term scenarios, we anticipate varying levels of emissions from our gas infrastructure. However, even in our electric scenario (the lower range), we expect there will still be some residual emissions due to gas demand from harder-to-decarbonise areas, to which we would still have an obligation to provide a service.

We are exploring further opportunities to reduce these emissions – in addition to our LPP programmes, we invest in research and development to deploy new leak detection and prevention technologies through our Gas Innovation programme. One of the core areas of this programme is GHG emissions reductions and several of our key focus areas are set out here.

Advanced leak detection

We are utilising sensors and tools to detect and quantify methane leaks and developing a standardised process for evaluation, verification and testing of new leak quantification technologies, as well as methane reporting. We are also evaluating using drones, aircraft, watercraft, submersibles and satellites for various gas operations and survey applications, including leak detection and quantification, damage prevention, and class location studies.

New processes and technologies

We are supporting new processes and technologies to reduce vented methane emissions, such as compressing and reinjecting gas back into the pipeline or emerging cross-compression solutions and depressurisation using vacuum concepts. We are also considering ventless gas regulators, valve actuators and other ventless equipment typically found in the gas distribution system.

In addition, we're developing solutions to rehabilitate gas pipes from within the host pipe. Technologies include cured-in-place pipe (CIPP), robotic internal epoxy coating systems, and an expanded range of current cast iron joint sealing technologies. In addition, we're studying the impact of internal coating on odour fade in new pipelines and customer piping geared towards reducing the need for excessive venting in supplemental odourisation processes.

Our pathway to net zero by 2050 continued

Decarbonising our operations

Sulphur Hexafluoride (SF_6) (UK/US)

4%

of Scope 1 and 2 emissions in 2023/24

Sulphur Hexafluoride is a powerful GHG with a global warming potential 23,500 times greater than CO_2 (according to the latest IPCC data), so even small emissions of SF_6 can have a significant impact on our GHG emissions footprint. SF_6 has been the standard gas used within high-voltage electricity equipment for decades, due to its excellent electrical insulating and current-interrupting properties, vital to the safe and efficient operation of electricity grids, as well as allowing for more compact equipment designs at smaller sites. While equipment containing SF_6 is designed to be effectively sealed, minimal levels of SF_6 leaks to the atmosphere occur as assets age.

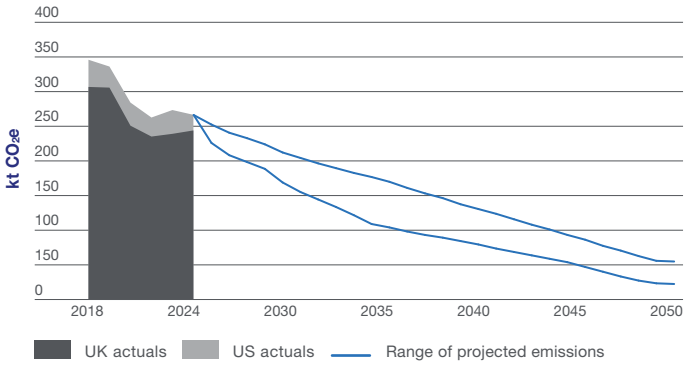
We are committed to reducing emissions of SF_6 and will achieve this via a set of actions such as leak repair, asset refurbishment, targeted asset replacement, retro-fill (deploying alternative gases to SF_6 within existing equipment) and replacement. We will also proactively implement leak prevention and monitoring programmes for our equipment and explore the use of new technologies.

Note that SF_6 emissions in our UK Electricity Transmission business contributes over 80% of our Company-wide SF_6 emissions. We are targeting reductions across all businesses, but the focus on developing alternative gases is mainly in this part of our business.

Sub targets

- We will reduce SF_6 emissions from our global operations 50% by 2030/31 from a 2018/19 baseline.

Projected range of absolute SF_6 emissions to 2050 (kt CO_2e)



What we're doing to get there

We're working with regulators in the UK and US to secure the necessary funding to achieve our 2030 SF_6 reduction targets and establish a sustainable long-term emissions reduction trajectory to 2050. SF_6-free technologies and repair/refurbishment techniques suitable for the highest voltage systems are still in development and we are working with partners from across the sector to identify, develop and implement these solutions at the earliest opportunity. We have taken, and are taking, the following actions to reduce SF_6 emissions:

Leak detection, repair and prevention

In the UK, we have already invested £1.2 million in SF_6 leak detection and repair, and have secured regulatory funding for a programme of pre-emptive work to 2026 to minimise the risk of future excessive leaks from our assets. We will be reviewing our maintenance requirements for the most critical assets to ensure that we are doing everything possible to prevent future excessive leakage. In the US, we have hired three electrical engineers dedicated to the detection, mitigation and repair of SF_6 leaks on electrical equipment.

Retro-fill

In the UK, we are working with manufacturers and researchers to identify opportunities to retain existing assets designed for use with SF_6 by retro-filling them with an alternative gas with a much lower environmental impact.

This is technically very challenging, but has the potential to make a valuable contribution to our commitments and targets for inventory reduction. We have recently deployed a successful pilot project at our UK Richborough substation.

Data & modelling

Strategic interventions will need to transition away from reactive works on leaking assets to pre-emptive works based on asset health. In the US, our teams are working on digital solutions to test and implement an SF_6 inventory management tool to track SF_6 usage and emissions, allowing for more accurate real-time emissions numbers and gas inventory.

Collaborating to pioneer the use of SF_6-free equipment

For the last decade, we have collaborated with partners from across the sector to identify, develop and implement innovative SF_6-free solutions at the earliest opportunity.

In the UK, we achieved an industry milestone with the energisation of the first high-voltage SF_6-free gas-insulated line on our South East England network. The introduction of GE Vernova's 'g3 solution' provided an early opportunity for National Grid to be at the forefront of new technology development and obtain an understanding of the performance of the equipment. Since then, we have continued to take opportunities to adopt SF_6-free technologies and in the UK now only deploy SF_6-free technology for lower voltage applications, where these technologies are now commercially available. At higher voltages, we are already committed to hybrid SF_6/SF_6-free projects which dramatically reduce the amount of SF_6 installed and will be adopting fully SF_6-free solutions as they become available.

In the US, our NY region is piloting six 115kV Vacuum Circuit Breakers (VCBs) to begin operating in 2024 and 2025, with an additional 100+ VCBs on order to be delivered within the coming years. For the higher voltages, we're trialling a Hitachi 'EconIQ' 420kV SF_6-free circuit breaker, with an anticipated in-service date in 2025. This pilot will be the first non-SF_6 gas circuit breaker at the 345kV operating voltage on our US system.

Our pathway to net zero by 2050 continued

Decarbonising our operations

Company Facilities and Transportation (UK/US)

4%

of Scope 1 and 2 emissions in 2023/24

While our operational facilities and fleet emissions make up a small percentage of our Scope 1 and 2 emissions, we still recognise the importance of reducing our workforce's environmental impact while providing them with offices and vehicles that meet operational needs.

Sub targets

- Move to a 100% electric fleet by 2030/31 for our light-duty vehicles, and pursue the replacement of our medium- and heavy-duty vehicles with zero-carbon alternatives.
- Reduce energy consumption in our flagship offices by 20% by 2030/31, from a 2019/20 baseline.

What we're doing to get there

We are working to deploy capital projects to reduce energy consumption with improvements such as lighting and heating, ventilation and air conditioning (HVAC) upgrades across the UK and US. Additionally, we are supporting the transition of our light-duty vehicles to electric vehicles (EVs), pursuing the replacement of our medium- and heavy-duty vehicles with zero-carbon alternatives, and setting up the infrastructure to support them.

For our facilities, we have several planned capital projects in support of our energy efficiency and emissions reduction goals that include installing LED lighting, electrification of heat and HVAC efficiency upgrades, reducing office footprints, maximising the use of onsite renewable generation, and purchasing renewable-backed energy in the UK through a Power Purchase Agreement (PPA). These efforts are reliant on regulatory funding.

For our fleet operations, we are purchasing EVs and replacing our medium- and heavy-duty vehicles with zero-carbon alternatives. However, we are vulnerable to supply chain disruption, from electric distribution equipment to EV charging stations as well as the actual availability of these types of vehicles. We are continuously working with manufacturers to ensure that we are still on track to meet our target.

In addition, with our fleet, we are undertaking other initiatives. For example, in the US, we are implementing a telematics system for our vehicles later this year. Telematics monitors fleet vehicles and equipment using GPS and onboard diagnostics to better manage and maintain our fleet. The data produced will be used to drive electrification strategy and planning. The system will also enable improvements for fuel combustion vehicles, such as reducing idling and subsequent emissions, optimising travel, and automating data collection for fleet emissions calculations.

Our pathway to net zero by 2050 continued

Decarbonising our value chain

Retail Energy (US)

The energy that we directly sell to customers in the US business accounts for 75% of our overall value chain emissions. Whilst our ability to control retail energy Scope 3 emissions is more limited than with those directly within our influence, we recognise we have a role in reducing GHG emissions across our entire value chain. Decarbonising power and heat networks will support the achievement of our near-term and long-term targets, and we aim to work with our stakeholders to achieve them.

Sold Electricity

11%

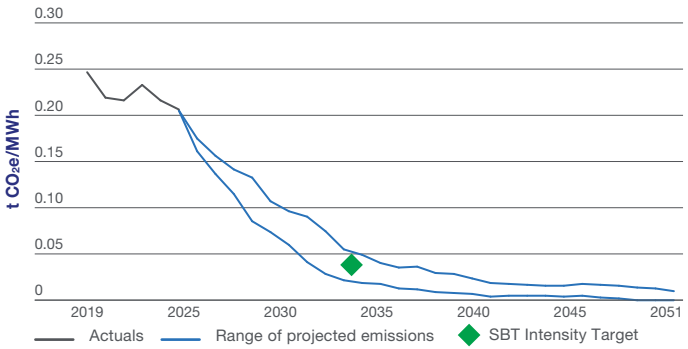
of Scope 3 emissions in 2023/24

We anticipate decarbonisation across all three scenarios for our sold electricity emissions, leading to a decrease in overall emissions by 2050. Over the next decade, although we expect considerable growth in customer electricity demand due to the electrification of transportation and heating, the reduction in the carbon intensity of electricity will help reduce our emissions in this sector. When paired with our generation emissions, where we will see a decline in our fossil fuel emissions, overall carbon intensity in the two areas contributing to the sub target below will decrease.

Sub targets

- Reduce the carbon intensity of our power generation and sold electricity (Scope 1 and Scope 3 GHG emissions) by 86% by 2033/34 from a 2018/19 baseline. [SBTi commitments]

Projected range of Group generation and sold elec. intensity to 2050 (t CO_2e/MWh)



What we're doing to get there

In the US, the actions we are taking to address line losses and enable renewable connections both aid in reducing our sold electricity emissions, but we know that the energy transition will only happen with the active engagement of end-use customers. To facilitate this, we have developed a range of customer investments and programmes. These initiatives are designed to not only make it easier for customers to participate in the energy transition but also to provide them with tangible benefits, such as the following:

Energy efficiency, clean energy, and flexibility

We aim to help customers improve energy efficiency and adopt clean energy and flexibility products and programmes. This includes scaling existing rebate and incentive programmes for energy efficiency, demand response, heat pumps and electric vehicles (EVs).

Flexible connection offerings

We intend to scale flexible connection offerings for distributed energy resources (DERs), such as solar and energy storage, as well as test and enable flexible connection offerings for EVs. These connection options offer an agile approach where we can actively manage the operations of DERs by increasing or decreasing power flow onto the system to optimise grid stability and capacity, allowing for quicker and likely more cost-effective interconnections.

Local grid services and locational incentives

We plan to offer new opportunities for customers and third parties to earn incentives by providing local grid services. This includes providing incentives at targeted locations for energy efficiency, demand response and EV-managed charging during peak times at customers' homes and businesses.

Procuring flexibility products

To obtain additional operational flexibility in our system, we will leverage the local flexibility market auctions where we will procure load flexibility from various potential providers within a specific geographic area through a competitive bidding process. This will enhance our ability to manage and balance the grid efficiently by tapping into a diverse range of resources, such as distributed generation, energy storage and demand response aggregators, beyond traditional, centralised power generation.

Resiliency for environmental justice communities

We aim to address resilience issues in environmental justice communities by deploying Company-owned solar and energy storage projects that provide local network resilience.

This wide variety of customer programme offerings (some offered in 2024 and some being proposed soon) align with the goal of reducing Scope 3 emissions by increasing the share of renewables on the grid, while simultaneously reducing overall electricity consumption.

The focus on flexible connection offerings for solar, energy storage and EVs allows for better integration of these resources. These initiatives support the deployment of clean energy technologies and optimise the use of the grid infrastructure. By incentivising customers to reduce their electricity consumption during peak times and providing incentives for load reduction in specific locations, we encourage more efficient electricity usage. This helps to reduce peak demand, resulting in decreased electricity emissions.

Our pathway to net zero by 2050 continued

Sold Gas

64%

of Scope 3 emissions in 2023/24

The role we play in the decarbonisation of the natural gas network will be fundamental in reducing our absolute emissions, not only from pipeline leakage but also from the gas we sell to domestic customers and businesses – our most significant Scope 3 emission. Considering the impact of sold gas emissions specifically, we expect to see these emissions rise in the short term as consumers switch to gas (which we supply) from more GHG-intensive fuels such as heating oil (which we don't supply). As outlined below, our vision remains for a fossil-free gas system, enabling the customers and communities we serve to meet their heating needs without using fossil fuels by 2050, if not sooner.

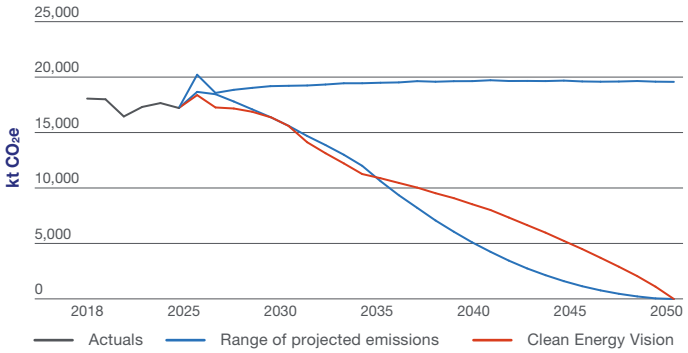
Today, in Massachusetts and New York, a diverse set of fuels and systems are heating homes and businesses. Of the roughly 10 million households within those states, about 6.0 million (59%) use a natural gas furnace or boiler system, roughly 2.3 million (22%) use a furnace or boiler fuelled by oil or propane, and about 1.7 million (16%) use electricity. Of those using electricity about 270,000 (3%) use a central heat pump. The Scoping Plan from New York's Climate Action Council envisions 85% of homes and commercial building space will be electrified with heat pumps by 2050. Similarly, Massachusetts' Clean Energy and Climate Plan for 2050 calls for 80% of homes to be heated with heat pumps and 87% of commercial space to be heated with heat pumps or alternative fuels by 2050.

Our Clean Energy Vision (CEV) targets a hybrid emissions reduction approach. Just as we aim to decarbonise electricity with wind and solar through our renewable connections, we aim to decarbonise the gas system with Renewable Natural Gas (RNG) and hydrogen. This will enable customers to have choices in how to become fossil free. By using our existing gas and electric networks, our vision will more quickly deliver a reliable and cost-effective transition to a net zero future for the entire energy system.

Sub targets

- Sold gas emissions are included within our headline Scope 3 target – reduce absolute GHG emissions for all Scope 3, excluding sold electricity, by 37.5% by 2033/34 from a 2018/19 baseline. [SBTi commitment]

Projected range of absolute sold gas emissions to 2050 (kt CO_2e)



Note: This graph does not include third party sold gas emissions. We have an additional SBTi commitment to reduce absolute emissions from gas distributed by third parties. Although we are not directly responsible for these emissions, and they are not categorised as Scope 3 emissions, we believe our broader efforts, combined with support from policymakers and regulators, will enable a similar downward trend as with our sold gas emissions.

What we're doing to get there

Our CEV rests on four pillars of action that will enable all homes and businesses we serve to meet their heating needs without the use of fossil fuels by 2050, if not sooner. The four pillars laid out below will result in an integrated fossil-free gas and electric system that will benefit our US customers. However, many things need to happen to make this a reality, with our CEV setting out a roadmap to net zero emissions by 2050.

Our Pillars are:

1. Energy efficiency in buildings

We plan to continue to deliver our nation-leading, ratepayer-funded energy-efficiency programmes, including deep retrofits and measures that reduce peak gas and electric demand, as well as support more rigorous building codes for new buildings.

2. 100% fossil-free gas network

Our aim is for a fossil-free gas network no later than 2050, by delivering RNG and hydrogen to our customers. We plan to continue building on our partnership with New York City on the Newtown Creek RNG facility by interconnecting additional RNG-producing facilities to our gas networks and sourcing out-of-region supply. We will also participate in government, university and industry-led hydrogen studies while exploring opportunities for hydrogen blending on our own networks.

3. Hybrid electric-gas heating systems

We will support our customers by providing strategies and tools to capture and maximise the benefits of pairing electric heat pumps with their gas appliances. We are also exploring opportunities to increase efficiency and heat pump adoption without using additional ratepayer funds.

4. Targeted electrification and networked geothermal

We support cost-effective targeted electrification on our gas network, including piloting new solutions like networked geothermal. We will support customers who heat with oil and propane with strategies and tools to convert to heat pumps. We are piloting thermal energy networks/networked geothermal as an alternative means to provide heating (and cooling) to our current and future customers. We are also pursuing targeted electrification pilots and other non-pipe alternatives, which, if successful, enable us to avoid new investment in our gas networks and open opportunities to strategically retire small portions of our gas networks.

While our Hybrid and Electric scenarios both show significant reductions in emissions over time, we believe that our Hybrid scenario of supplying decarbonised electricity and gas is a more pragmatic pathway to net zero. It prioritises affordability and takes advantage of our current infrastructure without the need for new construction. As we progress in our advocacy for the CEV, we will continuously need to review our approach, balancing customer affordability and the evolving policy and regulatory landscape.

Our pathway to net zero by 2050 continued

Decarbonising our value chain

Purchased Goods and Services (UK/US)

16%

of Scope 3 GHG emissions in 2023/24

The biggest impact we can have is supporting the energy transition by building networks to connect renewable generation, and helping our customers and consumers to decarbonise by supporting the decarbonisation of the electricity sector. This is our priority and is required at a pace and scale not seen for decades. The infrastructure projects to connect to our network result in Scope 3 purchased goods and services (PG&S), which includes capital goods, emissions due to the carbon associated with the manufacture, transport and construction of materials such as concrete, steel and aluminium, which are required to build our infrastructure.

A smaller proportion of our PG&S emissions come from other purchasing activities associated with running a large organisation such as National Grid – for example, IT equipment.

We don't carry out our construction activities independently, instead, we work in collaboration with trusted partners in our supply chain. We work within global supply chains, therefore achieving reductions in emissions from our construction projects is reliant on working closely with our suppliers, and broader sectoral decarbonisation.

The landscape has changed since we set our SBTi Scope 3 targets, with the volume of planned infrastructure work to support the decarbonisation of the electricity sector increasing significantly. In fact, we are already seeing Scope 3 emissions from Purchased Goods and Services (PG&S) increasing as the level of investment in our networks increases.

The projections for PG&S emissions set out in this CTP are based on our 5 year financial framework 2020/21-2025/26 published in November 2023. As this framework is updated we will update these projections.

There are also some limitations to the methodology currently used to estimate emissions from construction projects. We use a 'spend-based' approach, with global average emissions factors applied to the amount of money we have spent in different categories, such as infrastructure maintenance and construction. This year we have refined our approach in this plan to improve how we map these spend categories to emissions factors, but there are still some limitations to this approach. For example it doesn't reflect supplier specific initiatives to reduce carbon emissions, or site specific activities to reduce carbon.

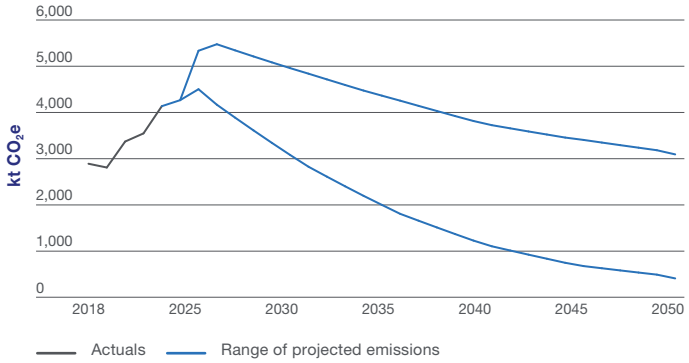
Our approach to addressing these challenges set out is therefore:

- Taking action to reduce emissions and decouple spend growth from emissions growth.
- Getting better data and working with our suppliers to continually improve our emissions reporting so that it better reflects those activities we undertake and the actions we are taking to reduce those emissions.

Sub targets

- PG&S emissions are included within our headline Scope 3 target to reduce absolute GHG emissions for all Scope 3, excluding sold electricity, by 37.5% by 2033 from a 2018/19 baseline. [SBTi commitment]
- 50% of US suppliers by emissions will commit to establishing a roadmap for setting science based targets by 2025/26
- 80% of UK suppliers by emissions will commit to setting a formal science based target with the SBTi by 2025/26

Projected range of absolute PG&S emissions to 2050 (kt CO_2e)



Our pathway to net zero by 2050 continued

What we're doing to get there

We are working with our supply chain partners on a range of measures to help us reduce our emissions. We recognise that we need to drive change at a strategic organisational level, as well as through the delivery of specific programmes and projects.

We have developed a Supply Chain Sustainability Strategy that has Scope 3 emissions reduction at its centre, and we are working to influence supplier uptake of science-based targets (SBTs) in the UK and the US, supporting the development of emissions reduction roadmaps where this is necessary. We have embedded these goals into our RBC commitments.

Supporting suppliers to set their own SBTs (and monitoring through our CDP climate change disclosure)

We've been included in the CDP Supplier Engagement Leaderboard since 2017, demonstrating our continual efforts to drive change throughout our value chain. We invite 250+ of our suppliers to participate in CDP annually, typically representing 65 – 85% of our spend, with a focus on carbon-intensive spend categories to qualify suppliers.

Reducing our Purchased Goods & Services emissions requires effective partnerships with our suppliers. This is why we are committed to influencing our supply chain by supporting our suppliers to SBTs where possible. This support includes regular discussions to share progress and potential roadblocks that may prevent our suppliers from setting SBTs, and identifying joint solutions that may propel their target setting. This proactive thinking is one meaningful way we can try to reduce emissions beyond our own supply chains and support wider climate agendas. In the UK, we are also a partner member of the Supply Chain Sustainability School (SCSS), which provides a free learning environment, upskilling those working within the built environment sector. We want to leverage the accredited resources and training materials of the SCSS to enhance our global suppliers' workforce sustainability skills.

Challenging GHG emissions at tender during pre-qualification and project bidding stages

We continue to drive positive impacts in the supply chain through proactive engagement with suppliers and clear market signalling to better inform the procurement process for more sustainable alternatives.

Our procurement models include GHG emissions as an integral element of the assessment process. Our Request for Proposal (RFP) process requires our suppliers to set out how they intend to develop and implement their SBTs and manage and reduce carbon emissions – for example, through increasing the recycled content of materials.

Working with suppliers to reduce capital GHG emissions through innovation

Our construction programmes account for a large portion of our PG&S emissions. Our projects in the UK and US, such as the Great Grid Upgrade (UK) and our ambitious LPP programmes (US), mean we have high demand for carbon-intensive products like concrete, steel, copper and aluminium. We are working with our strategic suppliers to identify and trial innovative solutions to reduce our construction impacts; for example, we have reduced carbon on our London Power Tunnels (LPT) Project through collaboration with a key concrete supplier to use lower-carbon concrete at the base of the tunnel.

We are also working with our suppliers at project level to find innovative ways of reducing carbon at the design stage of projects, recognising that these 'bottom-up' approaches can be an important factor in driving market demand (and therefore supply) of low-carbon alternatives.

Our consideration for the natural environment

Alongside climate change, safeguarding nature and preventing biodiversity loss are significant societal challenges. Climate change and nature shouldn't be considered in isolation. In our business, this primarily manifests itself with our need to deliver infrastructure critical to enabling the energy transition and seeking to minimise the impact on the natural environment while doing so.

Our role of connecting our customers, sometimes across thousands of miles, with the power they need leaves us not only with a responsibility to reduce emissions, but also to protect and restore the natural environment across the land that we manage. Please refer to our RBC for specific details of our natural environment commitment and our RBR for our latest progress.

Our business has multiple interfaces with nature, presenting us with risks and opportunities. We have the scope to positively impact nature through the way we build and manage our infrastructure. For example, we are actively targeting positive impacts through our net biodiversity gain targets in the UK and through vegetation management activities in the US.

We understand the material climate-related risks and opportunities for our business

Guided by our scenario modelling, strategic planning and risk management approaches, the climate-related risks and opportunities that pose a financially material risk to the Group are detailed here. The following section provides a concise summary of the key physical and transition risks and opportunities derived from the TCFD statement in our ARA for the year ended 31 March 2024. It is important to note that this summary does not replicate our comprehensive annual disclosure against the recommendations of the TCFD. This summary offers a snapshot of the significant climate-related risks and opportunities we have identified, providing a high-level understanding of their potential impacts on our business as we navigate the transition to a low-carbon economy. For a more comprehensive disclosure, we encourage readers to refer to our latest ARA.

1. Transition Risk

Policy and Legal

Demand for natural gas is expected to reduce

Sold Gas page 20;
Gas Operations page 16

Global momentum towards meeting net zero emissions continues to build, and the outlook for fossil fuels in the longer term is uncertain. Our US jurisdictions' pathways toward their decarbonisation targets indicate an increase in electric load growth and a reduction in gas heating demand, which has a bearing on our US gas business and the useful economic lives (UELs) of elements of our network assets. While we have sold a majority interest in UK Gas Transmission and Metering, and our remaining 20% interest is not treated as part of our continuing operations, reduced gas demand could impact the pace of electrification for our UK transmission and distribution businesses, flexibility requirements and Grain LNG terminal returns.

2. Transition Risk

Market and Policy

Uncertainty in the extent of electricity demand growth

Generation page 13;
Line losses pages 14 – 15;
Sold Electricity page 19

There is uncertainty about what replaces the reduction in fossil fuel gas in order to meet net zero and the extent to which electricity plays a part. Electricity use and share of final demand will need to expand significantly, with ever-increasing volumes of intermittent renewable energy. For example, a sudden political shift away from decarbonisation goals or clean energy infrastructure investment could reduce demand growth. Hydrogen could compete with electricity in certain use cases. Consumer behaviour or preferences could change. This could lead to a risk of either over- or under-expansion of our networks. Sudden changes in demand growth may also harm business cases made under different assumptions. If our UK and US electricity networks do not adapt appropriately to demand levels, there is a risk National Grid will not be able to ensure fair, affordable and reliable supply.

3. Transition Opportunity

Markets

Increased demand for electricity, even in our slowest decarbonising scenarios

Generation page 13;
Line losses pages 14 – 15;
Sold Electricity page 19

The changing energy system opens up new opportunities and market segments. National Grid is well positioned to capitalise on the huge growth opportunities associated with the increased demand for electricity and to decarbonise gas networks in the US. Through smart investment, advocacy and proactive market engagement, we can succeed in new and existing growth markets, develop new products and services, and scale existing technologies.

4. Transition Opportunity

Reputation and Deliverability

There are several factors which affect our ability to deliver our commitments, including supply chain, talent and finance

Purchased Goods & Services pages 21 – 22;
Finance pages 24 – 25;
Engagement page 26

The size of the task to deliver clean, fair and affordable energy is immense and unprecedented. There are significant risks to delivery. Failing to play our crucial role in delivering the emissions reduction targets of the jurisdictions that we operate in risks the wider decarbonisation goals in the societies we serve. There is also a risk that we fall short of our own stretching GHG emissions targets and commitments. Missing our own targets and commitments risks the credibility we have with our investors, regulators and other stakeholders.

5. Physical Risk

Increased frequency of extreme weather incidents and changing long-term climate trends

Acute: Our assets are at risk of physical impacts from increased frequency of extreme weather events such as storms and flooding, leading to asset damage and operational risks.

Chronic: Our assets are at risk of physical impacts from changing climate trends in the longer term, including increased frequency and severity of coastal flooding, high temperature, extreme wind, wildfires and low temperature, exposing us to asset damage and operational risks.

We are one of the largest green investors in the Financial Times Stock Exchange (FTSE) index

Over the period of our Five-Year Financial Framework, we anticipate investing up to £60 billion between April 2024 and March 2029, of which approximately £51 billion is directly into the decarbonisation of our energy networks (aligned with the EU Taxonomy).

We have increased our EU Taxonomy-aligned green capital expenditure

The EU Taxonomy Regulation is a classification system, establishing a standardised list of 'sustainable' or 'green' economic activities.

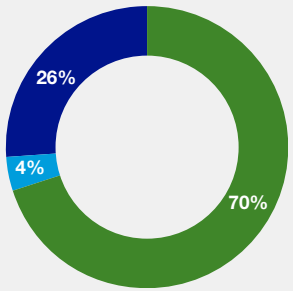
In our aim to be a trusted, value-driven leader in the energy transition, we have voluntarily elected to publish disclosures based on our eligibility and alignment to the EU Taxonomy Delegated Acts on Climate Change Mitigation and Climate Change Adaptation, which have been developed to align with the Paris Agreement and are highly material to our business. Technical screenings for other environmental objectives in the EU Taxonomy have not been established for our sector, so these have not been considered within our EU Taxonomy assessment.

Following a process of identifying a complete set of eligible activities and assessing these activities against the alignment criteria, which includes technical screening criteria, do no significant harm criteria and minimum safeguards criteria, our EU Taxonomy-aligned KPIs are displayed below:

Results summary – 2023/24

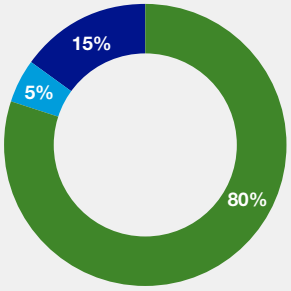
Group aligned (green) turnover

70% £13.8bn (2022/23: 67% £14.4bn)



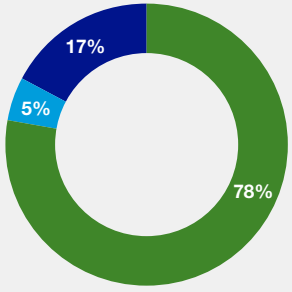
Group aligned (green) opex

80% £5.1bn (2022/23: 84% £6.5bn)



Group aligned (green) capex

78% £6.0bn (2022/23: 75% £5.6bn)



- Taxonomy non-eligible activities
- Taxonomy eligible but not aligned activities
- Taxonomy aligned activities

We are well funded and remain committed to a strong, overall investment-grade credit rating

To achieve our net zero target and support our decarbonisation goals, we will use our strong financial position and investment-grade credit ratings to finance important investments that will enable the transportation and distribution of net zero energy into homes and businesses in the regions where we operate. Our balance sheet is backed by valuable assets and strong credit ratings. We obtain funding through a combination of borrowing and shareholder investments, following rules set by regulators. We closely monitor the financial health of our UK and US operating companies to ensure the mix of debt and equity is in accordance with the gearing ratios specified by our regulators.

We have issued £2.9 billion in green bonds

We published our Green Financing Framework in November 2019, under which National Grid plc and its subsidiaries can issue Green Financing Instruments to fund our efforts towards a cleaner energy system. The first green bond of £428.3 million was issued in January 2020 by National Grid Electricity Transmission plc, and the latest, as per the CTP publication date, was a National Grid plc issuance of £665 million in January 2023.

For more details, refer to our latest Green Financing section.

For more information, please refer to our latest EU Taxonomy Report.

We are one of the largest green investors in the Financial Times Stock Exchange (FTSE) index
continued

Looking ahead

Updated five-year financial framework for the period 2024/25 – 2028/29 is set out below. It highlights the strong growth opportunities we have ahead of us and acts as an important basis for us to communicate our plans and investment case to investors.

Five-Year Financial Framework

2024/25 – 2028/29[1]

Capital investment

One of the FTSE's biggest investors in delivering the energy transition

Around

£60bn

c.£51bn

green[2], directly into the decarbonisation of energy networks, aligned to EU Taxonomy

c.£23bn
UK ET

c.£8bn
UK ED

c.£11bn
New England Regulated

c.£17bn
New York Regulated

c.£1bn
NGV

Group asset growth

c.10%
CAGR[3]

Underlying EPS

6–8%
CAGR[4]

Balance sheet and ratings

Credit metrics maintained above current rating thresholds[5]

Regulatory gearing to fall to low-60% range by March 2025, then trend back towards the high-60% range by the end of RIIO-T3

Use of hybrid debt

Dividend and Equity

Aim to grow dividend per share in line with UK CPIH[6]

Net Rights Issue proceeds of £6.8bn in 2024/25

Continued use of scrip dividend

1. 1 April 2024 – 31 March 2029.
2. Aligned to EU Taxonomy, directly invested into the decarbonisation of energy networks.
3. Group asset compound annual growth rate from a 2023/24 baseline. Forward years based on assumed USD FX rate of 1.25; and long run UK CPIH and US CPI. Assumes sale of ESO, Grain LNG, and National Grid Renewables before 2029. Assumes remaining 20% stake in UK Gas Transmission treated as a discontinued operation and therefore does not contribute to Group asset growth.
4. EPS compound annual growth rate from a 2024/25 baseline. Forward years based on assumed USD FX rate of 1.25; long run UK CPIH, US CPI and interest rate assumptions and scrip uptake of 25%. Assumes sale of ESO, Grain LNG, and National Grid Renewables before 2029. Assumes remaining 20% stake in UK Gas Transmission treated as a discontinued operation and therefore does not contribute to underlying EPS.
5. Through to at least the end of the RIIO-T3 price control period.
6. Aim to increase the 2024/25 DPS by UK CPIH following the rebase of the 2024/25 DPS of 58.52 pence, after taking account of the new shares issued following the Rights Issue.

We are engaging with our stakeholders to support the delivery of this plan

We engage with our broad and diverse stakeholder population at all levels of the company on a number of topics, including our CTP, to get their input and support the delivery of this plan. Below, we set out who we have already engaged with and who we will need to engage with to deliver this plan.

Our investors

Since we launched our CTP in June 2022, we actively engaged with investors on how our emissions reductions plans align with our business strategy and create shareholder value. They recognise our strategy not only delivers financial benefits for National Grid and our shareholders, but also creates value for society more broadly, through making our energy networks as clean, fair, affordable and safe as possible. They have welcomed our new near-term targets and continued transparency on our progress. We look forward to discussing this new CTP with them.

Our customers and communities

As we support the transition to clean energy, we want to ease the pressure on our customers and communities by providing support in areas such as energy efficiency measures. We will also need to be very mindful of the critical role that local communities play in hosting net zero infrastructure. We know we need to engage and consult local communities on our infrastructure and ensure they are appropriately recognised for their role in delivering the energy transition for the benefit of all.

To guide our priorities towards achieving net zero and our vision to deliver that fairly, we have set out our Principles for a fair transition. We will keep these principles in mind as we consider our role in developing, operating and maintaining critical energy infrastructure to reduce emissions, the complexities of fairness to different communities and the risks associated with leaving at-risk groups behind.

Our colleagues

Everyday, our people do the right thing, find a better way, and make it happen. Our vision for a clean, fair and affordable energy future sets out what we want to achieve; our values guide our actions. We believe that the journey to net zero presents a tremendous opportunity to unlock a multitude of skilled and purpose-led jobs requiring a wide range of technical skills in the years to come. As we deliver on this plan, we need to build a workforce today with the appropriate skills, competencies and knowledge required. This means developing and upskilling our colleagues at an unprecedented rate and through additional hiring efforts. Through strategic workforce planning, we analyse the future skills and capabilities needed in the longer term and implement plans to ensure we have the right people and leadership for the clean energy future.

To assess our colleagues for selection and development purposes to ensure they have the appropriate skills, competencies and knowledge needed, we have implemented a new method that uses a digitally-enabled suite of tools and techniques. This approach provides an engaging and interactive user experience, delivering thorough and scientifically-informed results. It not only ensures consistency in how we measure talent and track career progression at National Grid but also fosters self-awareness, helps individuals and line managers identify development needs, and provides valuable insights across business units and functions, enabling us to take the necessary steps to close any gaps. Our training programmes create a career path built on safety and competence. We also listen to our colleagues and engage extensively with them whether they are out on the front line delivering for our customers or supporting those who do.

Our suppliers and contractors

Engagement with this group of stakeholders – listening to their ideas and working in partnership – is important to help us collectively find better and more innovative ways of delivering our emissions targets. As set out earlier in this plan, we engage both strategically and tactically across a range of topics and projects, especially around reducing our Scope 3 emissions across our value chain.

Government and regulators

In the UK, our engagement with government, policymakers and the regulator is aligned to the enabling role the Company has at the heart of the UK's energy transition and the delivery of the UK's legally binding net zero target, as set out in the amended Climate Change Act 2008. We have published Delivering for 2035, which sets out our view on the actions required to ensure the electricity networks can play their full role in the delivery of a decarbonised power system. We have also been working with the UK government's Transition Plan Taskforce (TPT), co-chairing the Electric Utilities and Power Generators working group to help private sector companies to develop, disclose and deliver 'gold standard' climate transition plans.

In the US, we engage with officials in the federal government and in the states and local communities we serve. We seek to share our values, our expertise in energy delivery systems and our knowledge of how to deliver a fair, clean and affordable energy transition that meets the goals of the jurisdictions in which we operate with policymakers to help achieve our shared goals for a clean energy future. Our CEV underpins much of our external engagement, setting out our vision for fossil-free gas and electricity systems, and we regularly engage our elected leaders on legislative and regulatory proposals that could affect our business and our customers.

Industry trade groups

We are a member of various trade associations across the UK, US and EU, through which we strive to share our knowledge, expertise and insight to inform the work of respective bodies. Trade associations play an important role in informing political and regulatory debate, and they provide a platform for industry-wide, or even cross-sectoral, exchange of information, experience and expertise to inform the policymaking process.

In March 2024, as part of our commitment to transparency, we published our first comprehensive Trade Association Review and assessed the alignment of our trade association memberships with our policy positions and climate commitments. The full review identifies our trade association memberships and their alignment status and details our assessment methodology and our process for managing partially aligned or misaligned organisations. Moving forward, we will update our review periodically and publish the results.

We have leadership with clear accountability for our climate-related goals

Our leadership plays an important role in ensuring the success of our Climate Transition Plan. By championing sustainability and embedding it into our company's core values and strategic priorities, our Board and management groups drive the necessary operational changes and inspire our workforce to embrace a culture of sustainability. Their leadership drives our transition towards a more sustainable future by defining clear roles and responsibilities, aligning incentives, reporting progress transparently, and maintaining a flexible and responsive approach.

Board oversight and management roles, responsibility and accountability

The Board of Directors sets and leads the Company's sustainability goals and has oversight of climate-related risks and opportunities impacting the Group.

Responding to climate change and the transition to net zero is therefore at the heart of our strategy. The Board delegates elements of its responsibility to its various Committees.

The Board receives regular updates from the Chair of the Safety & Sustainability Committee on matters discussed at the Committee meetings, including progress against climate-related targets. The Safety & Sustainability Committee meets at least three times a year to discuss climate-related issues and holds enrichment sessions to brief the Committee and wider members of the Board on climate-related matters, including our ESG disclosures, such as our RBC, CTP and RBR. The CEO also provides a report at each meeting on climate change metrics, where the Board is updated on our progress as well as the opportunities and risks we face, while providing recommendations on our strategy.

Board level

Safety & Sustainability Committee
Responsible for assessing and monitoring our environmental sustainability strategy and performance, overseeing progress against our net zero aims and considering potential climate change risks and opportunities

Audit & Risk Committee
Oversight of our RBR, TCFD disclosures and reporting in line with leading ESG frameworks and the progress of our ESG control and assurance framework

Remuneration Committee
Considers and approves whether and how ESG targets, including Scope 1 and 2 emission reduction targets, are incorporated into our incentive arrangements

People & Governance Committee
Considers the skills and capabilities needed in the business to ensure the right people to deliver our net zero ambitions are being attracted and retained

Finance Committee
Considers the financial impact of climate factors on our credit metrics and relevant considerations with regards to debt investors, pension and insurance strategy

Executive level

Safety, Health & Sustainability Committee
Reviews and manages Group-wide environment tracking/monitoring and the related decisions

Reputation & Stakeholder Management Executive Committee
Provides oversight of Responsible Business policy development and engagement

Ethics, Risk and Compliance Committee (ERCC)
Oversees the implementation of the Group's risk management and compliance framework and assessment of climate-related principal risks

Policy and Regulation Committee
Agrees and provides strategic oversight of the Group's Climate-related Public policy priorities and positions

Investment Committee
Has delegated authority to improve investment decisions, including those related to National Grid Renewables

Management level

Sustainability team/ Finance ESG Centre of Excellence
Sets the Group sustainability reporting strategy and ensures credible and reliable reporting of sustainability data

TCFD working group
Oversees progress and publication of our annual TCFD disclosures

Sustainability Implementation Group
Ensures that our RBC commitments and principles are executed and implemented consistently across the Group

Sustainability Steering Group
Provides oversight of the integration of responsible business into National Grid

ESG Steering Group
Provides strategic oversight and alignment on ESG activities including climate

We have leadership with clear accountability for our climate-related goals continued

The Board and its Committees undergo an annual evaluation to ensure a balance of skills and competencies to oversee our sustainability efforts. Our Board comprises members with diverse skills and experience, including expertise in sustainability and climate change matters. In January 2023, we refreshed our Board skills matrix as part of ensuring it continues to reflect the skills required from the Board as a whole to support the business in line with its strategy and to meet future challenges. We sought to simplify and focus these to the top 10 key skills, including sustainability.

Please see the latest version of our ARA for information on the individual experience of Board members and for the specific skills attributed to the Board, including sustainability and climate change. The ARA also provides information on the Board's remit, the number of meetings and climate-related issues discussed through the year. The Terms of Reference for the Board and its Committees are available here nationalgrid.com/about-us/corporate-information/corporate-governance.

The Board delegates to management responsibility for asset investment and maintenance planning, implementation of the net zero strategy and overseeing the development and achievement of RBC commitments and targets. Management is also responsible on a day-to-day basis for the management of climate-related risks and opportunities faced by the Group, and for delivering the roadmaps to achieve the net zero strategy set by the Board.

Our Chief Sustainability Officer heads a team of subject matter experts, who lead the implementation of the RBC across the Group by working closely with business units to ensure their strategy and operations align with our decarbonisation and climate resilience targets. The Sustainability team sets the Group sustainability strategy, modelling potential climate scenarios and developing glidepaths that align to GHG emissions reduction targets. Sustainability-focused roles have also been embedded across the Group to ensure that, in addition to the top-down focus, there is also a bottom-up approach to addressing climate-related issues.

Our Chief Engineer's Office leads the development of climate adaptation frameworks across the Group to ensure there is a consistent approach to assess the vulnerability of our energy assets and guide strategic investment planning to ensure network resilience. Further delegation is given to our core operational businesses, including business unit Presidents, who are accountable for delivering the net zero roadmaps for their businesses. Additionally, our Corporate Affairs, Group Finance, Sustainability, Safety & Health and People group function teams support the individual business units in achieving their net zero pathways.

We are integrating our GHG emissions reduction targets throughout our business. We review each of our internal business units' progress against their annual emission reduction targets as part of our monthly and quarterly management reporting process and their progress against longer-term targets as part of our annual strategic business planning process. Quarterly performance reports are shared with our Group Executive Safety and Sustainability Committee and the Safety and Sustainability subcommittee of the plc Board. We report progress against our targets annually in our Responsible Business Report.

Incorporating appropriate incentives and remuneration

The Remuneration Committee sets performance measures designed to challenge and support the Executive Directors to drive shareholder value while delivering our sustainability commitments, including climate-focused targets. Therefore, we have incorporated emissions reduction performance and actions to enable the energy transition into our remuneration policies. This will strengthen the alignment between our performance and our responsible business activities.

The Long-Term Performance Plan (LTPP) targets and performance are measured over an entire three-year performance period and comprise financial measures totalling 80% and net zero transition measures with a combined weighting of 20%. The net zero transition measures continue to set out targets and outcomes to achieve: (1) reductions in the Company's direct Scope 1 emissions and (2) enable the broader net zero energy transition. These measures were first included as part of the LTPP for the 2022/23 plan and have been included in subsequent plans with the same weighting.

The reduction of Scope 1 emissions measure supports meeting our 2030 Group emissions reduction targets. The second measure asseses delivery against key net zero strategic priorities and quantified outcomes that underpin the Group's strategic priority to enable the energy transition through our networks. More detail on the LTPP can be found in our latest ARA.

Our metrics and targets

We continually review our targets to seek to ensure that the data we are measuring is meaningful, aligns with our strategy, and is providing the information the business and our stakeholders need to effectively monitor our performance and demonstrate our progress.

Our metrics, along with our underlying targets and goals, are reported annually in our ARA and RBR, which is supplemented by various ESG disclosures. These reports encompass relevant governance, operational and financial metrics.

External assurance

Our Scope 1, 2 and 3 emissions are calculated and reported in accordance with the latest Greenhouse Gas Protocol standards and guidance from the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).

To ensure the accuracy of our data, we engage with external auditors to conduct an independent limited assurance of our material metrics 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'. We have engaged with technical consultants to review this publication to ensure that this publication is accurate, consistent, and free of material discrepancies.

Our Board has reviewed and approved this Climate Transition Plan. We aim to update this document every three years, or sooner if there is a material change in our business.

Links to our suite of documents where environmental metrics and targets are reported

Responsible Business Charter (RBC)
Refreshed in September 2023, our RBC sets out our commitments as a responsible business. Find our RBC on our website here

Climate Transition Plan (CTP)
Refreshed in May 2024, our CTP sets out our action plan to achieve our GHG commitments and science-based targets and ensure we remain on track to meet our longer-term ambition to reach net zero emissions by 2050. Find our CTP on our website here

We produce the following documents annually:

Responsible Business Report (RBR)
Our RBR, this document, reports progress against our commitments laid out in our Responsible Business Charter.

EU Taxonomy
Our EU Taxonomy disclosure presents the Group's 'green' turnover, operating expenditure and capital expenditure in relation to the framework's climate change mitigation and adaptation environmental objectives.

We have published our third EU Taxonomy disclosure in accordance with the EU-developed classification system which establishes the percentage of Group turnover, operating expenditure and capital expenditure that can be defined as 'green'. For our sector these acts are climate change mitigation and adaptation. See our EU Taxonomy report for more information

Green Financing
Our detailed view of National Grid green finances.

Our Reporting Methodology
This document accompanies the RBR and details the preparation and calculation methodology for each data point disclosed.

Global Reporting Initiative (GRI)
The GRI Standards help organisations understand and communicate their environmental, social and economic impacts to all stakeholder groups on material sustainability issues. Our GRI Index helps stakeholders navigate the information we have reported and confirms our adherence with the Standards.

Sustainability Accounting Standards Board (SASB)
We have prepared separate disclosures in accordance with SASB utilities sub-sector standards for Electric Utilities and Power Generators (December 2023), and Gas Utilities and Distributors (December 2023). Further details on the requirements and our disclosures can be found in our SASB report.

This year will be our fourth year of reporting financially material sustainability information in accordance with SASB's sector-specific standards for Electric Utilities and Power Generators and Gas Utilities and Distributors.

Responsible Business Report: Data Tables
An Excel workbook listing the metrics reported in our data tables on pages 33 – 36 as well as our voluntary reporting aligned with the EU Taxonomy and SASB disclosure frameworks.

Task Force on Climate-related Financial Disclosures
We have prepared our sixth consecutive TCFD report in full compliance with the Financial Conduct Authority (FCA) listing rule (LR) 9.8.6R(8), which describes our climate change related governance, strategy, risk management and metrics and targets, including details of our short-, medium- and long-term risks and opportunities. This disclosure can be found in our ARA.

Modern Slavery Statement
This statement sets out what we are doing to assess and mitigate the risk of slavery and human trafficking in our business and supply chain, and the progress we have made since our last statement.

Our metrics and targets continued

Cautionary statement regarding ESG-related data, metrics and forward-looking statements

This document contains certain statements that are neither reported financial results nor other historical information. These statements relate to National Grid's targets, commitments, ambitions, and the methodologies we use to assess our progress in relation to these ('ESG-related forward-looking statements') and are forward-looking statements within the meaning of section 27A of the Securities Act of 1933, as amended, and section 21E of the Securities Exchange Act of 1934, as amended. Words such as 'aims', 'anticipates', 'expects', 'should', 'intends', 'plans', 'believes', 'outlook', 'seeks', 'estimates', 'targets', 'may', 'will', 'continue', 'project' and similar expressions, as well as statements in the future tense, identify forward-looking statements. Forward-looking statements can be made in writing but may also be made verbally by directors, officers, and employees of National Grid (including during presentations) in connection with this document. Forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future.

In preparing the ESG-related information contained in this document, National Grid has made a number of key judgements, estimations and assumptions, and the processes and issues involved are complex. The ESG data, models and methodologies used are often relatively new, are rapidly evolving and are not of the same standard as those available in the context of other financial information, nor are they subject to the same or equivalent disclosure standards, historical reference points, benchmarks or globally accepted accounting principles.

In particular, it is not possible to rely on historical data as a strong indicator of future trajectories, in the case of climate change and its evolution (see below re. data availability, accuracy, verifiability and data gaps), and climate-related targets and climate-related risks differ from conventional financial risks in that they are complex, novel and tend to involve projection over long-term scenarios which are subject to significant uncertainty and change (see below re. climate change projection risk). Outputs of models, processed data and methodologies are also likely to be affected by underlying data quality, which can be hard to assess and we expect industry guidance, market practice, and regulations in this field to continue to change. There are also challenges faced in relation to the ability to access data on a timely basis and the lack of consistency and comparability between data that is available. This means the ESG-related forward-looking statements and ESG metrics discussed in this document carry an additional degree of inherent risk and uncertainty.

In light of uncertainty as to the nature of future policy and market response to climate change, including between regions, and the effectiveness of any such response, National Grid may have to re-evaluate its progress towards its ESG ambitions, commitments and targets in the future, update the methodologies it uses or alter its approach to ESG and climate analysis and may be required to amend, update and recalculate its ESG disclosures and assessments in the future, as market practice and data quality and availability develops rapidly.

The ESG forward-looking statements in this document are not guarantees of our future performance and are subject to assumptions, risks and uncertainties that could cause actual future results to differ materially from those expressed in or implied by such forward looking statements. Many of these assumptions, risks and uncertainties relate to factors that are beyond our ability to control or estimate precisely, such as:

- Climate change projection risk: climate metrics are complex and still subject to development. In addition, the climate scenarios employed in relation to them, and the models that analyse such scenarios, have limitations that are sensitive to key assumptions and parameters, which are themselves subject to some uncertainty, and cannot fully capture all of the potential effects of climate, policy and technology driven outcomes;
- Changes in the ESG regulatory landscape: this involves changes in government approach and regulatory treatment in relation to ESG disclosures and reporting requirements, and the current lack of a single standardised regulatory approach to ESG data across all sectors and markets;
- Variation in reporting standards: ESG reporting standards are still developing and are not standardised or comparable across all sectors and markets, new reporting standards in relation to different ESG metrics are still emerging;
- Data availability, accuracy, verifiability and data gaps: our disclosures are limited by the consistent availability of high-quality data. Whilst we expect data quality to improve over time, there may be unexpected fluctuations year-on-year, and/or differences between the quality of the data obtained. This could result in revisions to reported data going forward, meaning that such data may not be reconcilable or comparable year-on-year;
- Developing methodologies: the methodologies National Grid uses to assess and set its ESG-related targets may develop over time in line with market practice, regulation and/or developments in science, where applicable. Such developments could result in revisions to reported data and lack of reconcilability or comparability; and
- Risk management capabilities: global actions may not be effective in transitioning to net zero and in managing relevant ESG risks, including in particular climate, nature related and human rights risks. In particular, we may fail to respond to, or meet our own commitments as a leader in relation to, climate change development activities relating to energy transition, including the integration of distributed energy resources, which may result in our failure to achieve any of the expected benefits of our strategic priorities.

For further details of assumptions, risks and uncertainties that may affect National Grid, please see our Annual Report and Accounts and our Responsible Business Report. In addition, new factors emerge from time to time and we cannot assess the potential impact of any such factor on our activities or the extent to which any factor, or combination of factors, may cause actual future results to differ materially from those contained in any ESG forward-looking statement. Except as may be required by law or regulation, National Grid undertakes no obligation to update any of its ESG forward-looking statements, which speak only as of the date of this document.

This document contains a number of images, graphics, infographics, text boxes and illustrative case studies and credentials which aim to give a high-level overview of certain elements of this transition plan and to improve accessibility for readers. These images, graphics, infographics, text boxes and illustrative case studies and credentials are designed to be read within the context of the transition plan as a whole.

The contents of any website references in this document do not form part of this document.

Mapping to the Transition Plan Taskforce's guidance

Ambition

Subsections	TPT Mapping
Our updated strategic priorities support our Climate Transition Plan	**1.1 Strategic Ambition**
Our 2023/24 GHG emissions footprint Our near-term targets are based on the latest climate science and aligned to our regions' emissions goals We will prioritise genuine emission reduction and offset responsibly only when unavoidable	**1.2 Business model and value chain**
There are a number of dependencies to achieving our targets	**1.3 Key assumptions and external factors**
We will prioritise emissions reductions and offset responsibly only when unavoidable	**2.3 Policies and conditions**

Action

Subsections	TPT Mapping
Decarbonising our operations • Power Generation • Electricity Line Losses • Natural Gas Operations • Sulphur Hexafluoride (SF_6) • Company Facilities and Transportation	**2.1 Business operations**
Decarbonising our value chain • Retail Energy (Sold Electricity and Sold Gas) • Purchased Goods and Services	**2.2 Products and services**
We understand the material climate-related risks and opportunities for our business	**2.4 Financial planning**
We are one of the largest green investors in the Financial Times Stock Exchange (FTSE) index	**2.4 Financial planning**
We are engaging with our stakeholders to support the delivery of this plan	**3.1 Engagement with value chain** **3.2 Engagement with industry** **3.3 Engagement with government, public sector, communities, and civil society** **5.3 Culture** **5.5 Skills, competencies and training**

Accountability

Subsections	TPT Mapping
We have leadership with clear accountability for our climate-related goals	**5.1 Board oversight and reporting** **5.2 Management roles, responsibility and accountability** **5.4 Incentives and remuneration**
Our metrics and targets	**4.1 Governance, engagement, business and operational metrics and targets** **4.2 Financial metrics and targets** **4.3 GHG metrics and targets** **4.4 Carbon credits**

National Grid plc
1–3 Strand
London WC2N 5EH
United Kingdom

nationalgrid.com