National Grid PLC - Water Security 2023

W0. Introduction

W0.1

(W0.1) Give a general description of and introduction to your organization.

At National Grid responsible business is enshrined in our purpose – to Bring Energy to Life. It is a clear focus of our vision, to be at the heart of a clean, fair and affordable energy future, and it underpins our Group strategy. We are one of the world's largest investor-owned energy utilities, committed to delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. Across the UK and north-eastern US, we play a vital role in connecting millions of people safely, reliably and efficiently to the energy they use. We are at the centre of one of the greatest challenges facing our society – delivering clean energy to support our world long into the future. We have a crucial responsibility to help make the transition to a low-carbon economy happen and we're fully committed to connecting as many new sources of low-carbon generation as possible. We are passionate about delivering a low-carbon network. That's why we aim to maintain high standards in environmental management as we increase our use of low-carbon technology. It's also why we're working hard to deliver a sustainable energy sector that provides value for money to consumers. We work with all our stakeholders to promote the development and implementation of sustainable, innovative and affordable energy solutions.

We take our responsibilities for environmental sustainability seriously. We will, as a minimum, meet our legal and customer obligations and aspire to go over and above. To demonstrate our commitment to this, we maintain a Group-level internal BMS Standard for environmental sustainability, as well as our Responsible Business Charter, which includes our strategic targets and ambitions. The BMS Standard describes what our businesses and people must do to build the foundation to deliver those targets and ambitions. Our Environmental Sustainability BMS Standard applies to everyone employed by or carrying out work on behalf of any National Grid business. All our colleagues shall work in accordance with this BMS Standard, and our leaders ensure this is embedded across all levels of the organisation, with our operational businesses having environmental management teams responsible for certified environmental management systems specific for their business. The BMS Standard is predominantly actioned throughout the business through the implementation and management of International Organization for Standardization (ISO) 14001 certified environmental management systems. These certifications define the requirements and expectations for water management, which includes water use, protection from and to water courses, and contamination prevention, and therefore meet the requirements of this objective.

In 2021, we acquired Western Power Distribution (now National Grid Electricity Distribution) and announced the sales of our Rhode Island business and a majority stake in our UK Gas Transmission & Metering business, with these sales completed in 2022 and 2023 respectively.

W-EU0.1a

(W-EU0.1a) Which activities in the electric utilities sector does your organization engage in?

Electricity generation
Transmission
Distribution

W-EU0.1b

(W-EU0.1b) For your electricity generation activities, provide details of your nameplate capacity and the generation for each technology.

	Nameplate capacity (MW)	% of total nameplate capacity	Gross electricity generation (GWh)
Coal – hard	0	0	0
Lignite	0	0	0
Oil	1022	22	567
Gas	2736	58	4701
Biomass	0	0	0
Waste (non-biomass)	0	0	0
Nuclear	0	0	0
Fossil-fuel plants fitted with carbon capture and storage	0	0	0
Geothermal	0	0	0
Hydropower	0	0	0
Wind	314	7	1002
Solar	608	13	633
Marine	0	0	0
Other renewable	0	0	0
Other non-renewable	0	0	0
Total	4680	100	6903

W0.2

(W0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date
Reporting year	April 1 2022	March 31 2023

W0.3

(W0.3) Select the countries/areas in which you operate.

United Kingdom of Great Britain and Northern Ireland
United States of America

W0.4

(W0.4) Select the currency used for all financial information disclosed throughout your response.

GBP

W0.5

(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.

Companies, entities or groups over which operational control is exercised

W0.6

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?

Yes

W0.6a

(W0.6a) Please report the exclusions.

Exclusion	Please explain
Temporary office accommodation at construction offices (UK)	We currently do not record the water consumed at our temporary offices located on construction projects in the UK. These offices are typically small (fewer than 25 employees) and the water is consumed by contractors working on our behalf. We believe that the volume of water used is a small proportion of our overall consumption.
Remote horizontal boring (US)	This water is used in the horizontal boring process when installing natural gas piping. This exclusion results from a difficulty to obtain accurate measurement of the quantities of water used during this process.
Hydrostatic testing (US)	This water is used to test the integrity of new high pressure gas pipelines. The volume of water used is dictated by operational requirements. As the water is returned to source, our net consumption for this activity is zero. This exclusion results from a difficulty to obtain accurate measurement of the quantities of water used during this process.
Discharge from gas holders in the (UK)	We currently do not include discharge from gas holders in the UK, but we believe the volume of water used is a small proportion of our overall consumption.
Water usage on construction projects	Water consumption during construction projects that is not captured by our utility management company has not been included, but it will be a small proportion of the overall consumption.
Western Power Distribution (known as Electricity Distribution)	Western Power Distribution (WPD) became part of National Grid in June 2021. WPD (now known as ED) is not included in the data for this reporting period as we are in the process of integrating this business unit into the group reporting process.
Rainwater harvesting (Green wall) and substation bore-hole extraction	Data is not currently available for borehole extraction and rainwater harvesting in the UK and subsequently excluded from the report.

W0.7

(W0.7) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization.	Provide your unique identifier
Yes, an ISIN code	GB00BDR05C01

W1. Current state

W1.1

(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Important	Important	Within National Grids direct operations, the primary use of water withdrawal relates almost entirely to the use of seawater for cooling the generation assets in the US (around 99% of our total water withdrawal), which is not altered other than being slightly warmed in the process. However, it is still important for National Grid to have access to high quality freshwater for the following operations which account for <1% of National Grids total water abstraction: Firstly, for our office operations (non-operational consumption), our primary use is to provide an adequate supply of drinking water for employees so having good quality fresh water, now and in the future, is important to meet Health, Safety and Welfare Regulations (1992). Secondly, at one of our UK facilities, St John's Wood Substation, one of our other primary operational uses is the abstraction of freshwater from Regents Canal to provide cooling for high voltage underground power cables. In terms of future dependency, should this water become unavailable, alternative methods of cooling are available but at a higher cost, hence the importance rating being chosen. With regards to indirect water use we have selected the 'important' rating as there are several operations of our supply chain that require good quality freshwater. As a business, ensuring the drinking and sanitation rights of workers in the supply chain are vital and we aim to verify that our suppliers are respecting the human rights to water and sanitation of their workers. Therefore, National Grids' Supplier Code of Conduct (SCoC) requires our suppliers to implement a water management process to manage water-related risks especially current and future water stress.
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Not very important	In terms of direct use, our primary use of water is the abstraction of saline water for our US generation facilities, which accounts for about 99% of our total water abstraction. Although we are not reliant on freshwater at this facility it is important that National Grid has sufficient quantities of seawater for cooling purposes at our US generation facility. At our generation facility this water is used for cooling on a one-pass basis and is then returned to source. In terms of future dependency, should this water become unavailable alternative methods of cooling are available but at a higher cost hence why the chosen importance rating was selected. As per our Supplier Code of Conduct, all our suppliers are required to implement an environmental strategy and establish relevant targets that include a water management process to manage related risks including current and future water stress. This requirement is reinforced during the PQQ process where suppliers are required to declare any breaches or investigations. Accordingly, none of our suppliers have reported using recycled, brackish or produced water in their production. Hence the reason why a 'not very important' rating was chosen for our indirect water use. We do not anticipate our future dependency to change, however we will continue to evaluate and reinforce this as part of our procurement process and materiality evaluation.

W1.2

(W1.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?

	% of sites/facilities/operations	Frequency of measurement	Method of measurement	Please explain
Water withdrawals – total volumes	76-99	Other, please specify (UK: Cable Cooling (hourly) UK & US: Third-party (monthly) US: seawater abstraction (every 10 minutes) US: Well Water (continuous))	Water withdrawal volume is measured in line with regulatory requirements. At the cable cooling sites pump running hours are measured using runtime meters (pump capacity x run time). At the generation facility water volume is relative to pump speed and the volumetric flow rate is converted to an hourly rate. Well water withdrawal volumes are recorded using flow meters. Third party water withdrawal volumes are based on utility bills, which are managed by third party providers.	We disclose our water withdrawal volumes (in line with GRI disclosure) on an annual basis through our Responsible Business Report, which helps us to evaluate annual total water withdrawal volumes. In terms of total water withdrawal, this is characterized by operational activity, where there are common measurement methods across the geographic region, as our operations extend across a vast number of facilities/ sites. Total withdrawal volumes relate almost entirely to use for generation cooling purposes, covering the material proportion of our total water withdrawal (99%), with <1% from cable cooling and third party water provision at our facilities. As detailed in section 0.6a there are a few exclusions from our group summary, as we are in the process of integrating the newly acquired Western Power Distribution, but this is estimated to account for a very small proportion of our total water withdrawal volumes, and on this basis we have selected 76-99 %.
Water withdrawals – volumes by source	76-99	Other, please specify (UK: Cable Cooling (hourly) UK & US: Third-party (monthly) US: seawater abstraction (every 10 minutes) US: Well Water (continuous))	Water withdrawal volume is measured in line with regulatory requirements. At the cable cooling sites pump running hours are measured using runtime meters (pump capacity x run time). At the generation facility water volume is relative to pump speed and the volumetric flow rate is converted to an hourly rate. Well water withdrawal volumes are recorded using flow meters. Third party water withdrawal volumes are based on utility bills, which are managed by third party providers.	In terms of total water withdrawal by source, this is characterized by operational activity, where there are common measurement methods across the geographic region, as our operations extend across a vast number of facilities/ sites. Total withdrawal by source relate almost entirely to use for generation cooling purposes, covering the material proportion of our total water withdrawal (99%), with <1% from cable cooling and third party water provision at our facilities. As detailed in section 0,6a there are a few exclusions from our group summary, as we are in the process of integrating the newly acquired Western Power Distribution, but this is estimated to account for a very small proportion of our total water withdrawal volumes by source, and on this basis we have selected 76-99 %.
Entrained water associated with your metals & mining and/or coal sector activities - total volumes [only metals and mining and coal sectors]	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes [only oil and gas sector]	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>

	% of sites/facilities/operations	Frequency of measurement	Method of measurement	Please explain
Water withdrawals quality	76-99	Other, please specify (Water quality is measured in line with the frequency required under the regulatory/ permit requirements.)	Water quality is measured in line with regulatory and permit requirements across all of our sites. Where required, manual measurements of water quality (e.g. Silica, Chlorides, Conductivity, PH) or automated temperature signals are taken.	Water quality is measured in line with regulatory and permit requirements across all of our sites. 99% of our water withdrawal occurs at our generation facility, where 4 temperature signals are taken at the intakes in line with permit requirements to minimise thermal impact on the long island sound. As detailed in section 0,6a there are a few exclusions from our group summary, as we are in the process of integrating the newly acquired Western Power Distribution, but this is estimated to account for a very small proportion of our total water withdrawal and on this basis we have selected 76-99%.
Water discharges – total volumes	76-99	Other, please specify (Water discharge is measured in line with the frequency required under the regulatory/ permit requirements.)	Total water discharge volume (m3) for each source is combined to calculate the total water discharge volume (water at our generation facility + cable cooling +third party). Where there is no metering of discharge volumes at our offices, it is assumed that all water discharge is equal to water withdrawal minus estimated water consumption. Where we have closed loop systems (cable cooling and generation facility) water discharge equals metered withdrawal, so there is a net consumption of 0.	We disclose our water discharge volumes (in line with GRI disclosure) on an annual basis through our Responsible Business Report, which helps us to evaluate annual total water discharge volumes. Across all of our sites, water discharge is monitored at the point of discharge in line with permit or regulatory requirements. In the UK, water used for high voltage underground power cable cooling is returned to source unaltered. In the US, National Grid uses saline water in its generation facilities, which accounts for 99% of our total water discharge. The water is used for cooling on a one-pass basis and is then returned to source unaltered. As detailed in section 0,6a there are a few exclusions from our group summary, as we are in the process of integrating the newly acquired Western Power Distribution, but this is estimated to account for a very small proportion of our total water discharge and on this basis we have selected 76-99%.
Water discharges – volumes by destination	76-99	Other, please specify (Water discharge is measured in line with the frequency required under the regulatory/ permit requirements.)	Total water discharge volume (m3) for each source is combined to calculate the total water discharge volume (water at our generation facility + cable cooling +third party). Where there is no metering of discharge volumes at our offices, it is assumed that all water discharge is equal to water withdrawal minus estimated water consumption. Where we have closed loop systems (cable cooling and generation facility) water discharge equals metered withdrawal, so there is a net consumption of 0.	We disclose our water discharge volumes (in line with GRI disclosure) on an annual basis through our Responsible Business Report, which helps us to evaluate annual total water discharge volumes. Across all of our sites, water discharge is monitored at the point of discharge in line with permit or regulatory requirements. In the UK, water used for high voltage underground power cable cooling is returned to source unaltered. In the US, National Grid uses saline water in its generation facilities, which accounts for 99% of our total water discharge. The water is used for cooling on a one-pass basis and is then returned to source unaltered. As detailed in section 0,6a there are a few exclusions from our group summary, as we are in the process of integrating the newly acquired Western Power Distribution, but this is estimated to account for a very small proportion of our total water discharge and on this basis we have selected 76-99%.
Water discharges – volumes by treatment method	76-99	Other, please specify (Water discharge treatment volume is measured in line with the frequency required under the regulatory/ permit requirements.)	We keep records of treatment discharge levels across all sites	In the UK, water used for high voltage underground power cable cooling is returned to source unaltered. Treatment has not been necessary as sampling has showed the water as unaltered. Treatment would only be applied if sampling indicates requirement. In the US, saline water used at generation facilities is similarly returned to source unaltered. Water used in the steam cycle is discharged as allowed by operational permits. For these, treatment would be applied if sampling indicates it is necessary to comply with regulatory limits. As detailed in section 0.6a there are a few exclusions from our group summary, as we are in the process of integrating the newly acquired Western Power Distribution, but this is estimated to account for a very small proportion of our total water discharge by treatment, and on this basis we have selected 76-99%.
Water discharge quality – by standard effluent parameters	76-99	Other, please specify (Water discharge quality is measured in line with the frequency required under the regulatory/ permit requirements)	Water discharge quality is measured in line with the method required under the regulatory/ permit requirements across all operations. Where required, manual measurements of water quality are taken (e.g. PH)	All water discharge quality is monitored in line with the regulatory/ permit requirements. Almost all the water discharged is from our generation facility (99%) where the water is unaltered other than being slightly warmed by the process. As detailed in section 0,6a there are a few exclusions from our group summary, as we are in the process of integrating the newly acquired Western Power Distribution, but this is estimated to account for a very small proportion of our total water discharge by standard effluent parameters, and on this basis we have selected 76-99%.
Water discharge quality – emissions to water (nitrates, phosphates, pesticides, and/or other priority substances)	76-99	Other, please specify (Water discharge quality is measured in line with the frequency required under the regulatory/ permit requirements.)	Water quality is measured in line with regulatory and permit requirements across all of our sites. Where required, manual measurements of water quality (e.g. Phosphates)	All water discharge quality is monitored in line with the regulatory/ permit requirements. Almost all the water discharged is from our generation facility (99%) where the water is unaltered other than being slightly warmed by the process. At our generation facility we add sodium di-phosphate to some of the water used in our steam boilers as a PH control and oxygen scavenger. However all sodium di-phosphate is removed and neutralised before it is discharged, in line with permitting requirements, so there are no emissions to the water for this operational activity. As detailed in section 0.6a there are a few exclusions from our group summary, as we are in the process of integrating the newly acquired Western Power Distribution, but this is estimated to account for a very small proportion of total water quality, and on this basis we have selected 76-99%.
Water discharge quality – temperature	76-99	Other, please specify (Every 10 minutes)	Temperature signals at outlet	All water discharge quality is monitored in line with the regulatory/ permit requirements. Almost all the water discharged is from our generation facility (99%) where the water is unaltered other than being slightly warmed by the process, and we monitor the inlet and outlet temperature to ensure it is in keeping with our permit to minimize the thermal impact on the long island sound. As detailed in section 0,6a there are a few exclusions from our group summary, as we are in the process of integrating the newly acquired Western Power Distribution, but this is estimated to account for a very small proportion of our total water discharge by standard effluent parameters, and on this basis we have selected 76-99%.

	% of sites/facilities/operations	Frequency of measurement	Method of measurement	Please explain
Water consumption – total volume	76-99	Other, please specify (Water consumption is estimated on an annual basis)	National grid has estimated water consumption using facility water usage data and information from the Environmental Protection agency. In cases where National Grid operates in a closed loop system, water consumption is estimated to equal zero, where withdrawal volume is equal to discharge.	We disclose our water consumption volumes (in line with GRI disclosure) on an annual basis through our Responsible Business Report, which helps us to evaluate annual total water consumption volumes. The majority of the water withdrawn at National Grid is returned to the source unaltered; therefore our total water consumption is low. As detailed in section 0,6a there are a few exclusions from our group summary, as we are in the process of integrating the newly acquired Western Power Distribution, but this is estimated to account for a very small proportion of our total water discharge by standard effluent parameters, and on this basis we have selected 76-99%.
Water recycled/reused	1-25	Continuously	Metered	US generating facilities (7 steam generation units) are closed loop systems with steam being condensed and returned to the boiler in closed loop system. Extracted water is used for necessary makeup water from small leakage or as a result of maintenance activities. We have selected 1-25% as we only monitor water re-use at our generation facility in the steam boilers.
The provision of fully-functioning, safely managed WASH services to all workers	76-99	Monthly	Monitored by third party	Fully-functioning WASH facilities are provided at all temporary and permanent National Grid locations in both the UK and US. Water used within WASH facilities at all permanent locations are captured within our utility water consumption data. In the US during street works, such as when responding to an emergency gas escape by the roadside, WASH facilities may not be available directly at the point of work. In these circumstances, suitable alternative arrangements would be made for employees, as well as full facilities provided at their depot. As per W0.6a we currently do not record water consumption of WASH facilities within temporary sites, but due to a small proportion of employees, we believe that the volume of water used is a small proportion of our overall consumption, therefore we have selected 76-99%.

W1.2b

(W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, how do they compare to the previous reporting year, and how are they forecasted to change?

	Volume (megaliters/year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Five-year forecast	Primary reason for forecast	Please explain
Total withdrawals	1340784	Lower	Increase/decrease in business activity	Lower	Increase/decrease in business activity	Water withdrawal, as aligned to the GRI standard, is the sum of all water drawn from the following sources: surface water, groundwater, seawater or third party, for any use, over the course of the reporting period, in the UK and US. The scope includes: 1) UK contracted utility water (data from utility bill) 2) UK water abstraction for Electricity Transmission Cable Cooling (calculated using pump meter run hours) 3) US municipal utility water 4) US well extraction water 5) US once-through seawater cooling water (where generation facility water volume is relative to pump speed and the volumetric flow rate is converted to an hourly rate) The thresholds used for 'comparison with previous year' and 'five year forecast': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower. This year water withdrawn has decreased by 47,384 mega-litres from the previous reporting period (1,388,168 megalitres in 2021/22 – 1,340,784 megalitres in 2022/23), which equates to a 3% decrease (Lower threshold = 2 % to 30% reduction). At National Grid 99% of all water abstracted by the company is seawater for use in cooling generation assets on Long Island, US. Therefore, total water withdrawal volumes are highly dependent upon generation plant patterns. This year there has been a decrease in generation requirements over the previous reporting year, which has driven a reduction in total water withdrawal volume at our generation facility. Future withdrawal volumes are likely to reduce as the running hours of our US generation reduce, as aligned to our climate transition plan. However, there may be some year-on-year variance in total water withdrawal volumes, driven by supply/ demand patterns which can be impacted by weather.
Total discharges	1340344	Lower	Increase/decrease in business activity	Lower	Increase/decrease in business activity	The scope includes: 1) UK contracted utility water (estimated using utility bill withdrawal volume - consumption) 2) UK water abstraction for Electricity Transmission Cable Cooling (as UK cable cooling is a closed system there is no water consumption as water withdrawal is equal to water discharge) 3) US utility water (due to ongoing metering data issues, a historic approach has been taken using an average of historic bills within a reliable range) 4) US plant makeup water 5) US once-through seawater cooling water (as this is a closed loop system water withdrawal equals discharge as consumption is 0) The thresholds used for 'comparison with previous year' and 'five year forecast': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower. As there has been an overall decrease in water withdrawals, total discharge volumes have also reduced by 47,824 megalitres (1,388,168 ML in FY21/22 – 1,340,784 ML in FY22/23), which equates to a 3% decrease (Lower threshold = 2 % to 30% reduction). Our biggest water use by volume is seawater withdrawn for cooling at generation facilities, which is then discharged. Both the water withdrawal and discharge are highly dependant on generation patterns, therefore a reduction in generation this year reduce the total discharge volume. Future discharge volumes are likely to reduce as the running hours of our US generation reduce, as aligned to our climate transition plan. However, there may be some year-on-year variance in total water withdrawal volumes, driven by supply/ demand patterns which can be impacted by weather.
Total consumption	440	Lower	Change in accounting methodology	About the same	Change in accounting methodology	At National Grid the majority of our water abstraction operates in a closed loop system, where water consumption is estimated to be zero, as withdrawal volume is equal to discharge. However, there is a small element of water that is consumed at our facilities. This year National Grid has improved the water consumption methodology and estimated water consumption using information from the EPA which has estimated people consume 1 – 2 litres of water a day and 22% of office water is consumed through landscaping. In line with the thresholds used for 'comparison with previous year' and 'five year forecast': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower, the consumption at National Grid is 'Much lower', reducing by 1,982 megalitres (82%) from the previous year (2422 megalitres in FY 21/22, 440.35 megalitres in FY 22/23). However, when we re-calculate last years water consumption using the new methodology, we estimate that there has been an 18% reduction (Lower threshold) (540 megalitres in FY 21/22, 440 megalitres in FY 22/23), which is mainly attributable to a reduction in facilities following the divestment of Long Island and Gas Transmission. In the future we estimate that the water consumption will be about the same, as we already have widespread water conservation measures in place across the majority of our sites (for example tap/ faucet flow restrictors, semi-waterless urinals and low/ dual flush toilets) and we are proactively expanding coverage of water meter loggers to proactively identify and manage leaks or "unusual" consumption .

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress, provide the proportion, how it compares with the previous reporting year, and how it is forecasted to change.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Five-year forecast	Primary reason for forecast	Identification tool	Please explain
Row 1	Yes	Less than 1%	Higher	Increase/decrease in business activity	About the same	Increase/decrease in business activity	WRI Aqueduct	<0.3% water withdrawn or consumed in the UK and US is within regions of high or extremely high water stress. Most of this water withdrawal is for our cable cooling facility where the water withdrawn is returned to the source unaltered, and the increase in water withdrawal at our cable cooling site has driven the overall increase in water withdrawal from stressed areas. In the future we anticipate water withdrawal to be about the same, but our impact is low given that most of the water withdrawn at National Grid is returned to the source unaltered.

W1.2h

(W1.2h) Provide total water withdrawal data by source.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	2342	Much higher	Other, please specify (Maintenance outage)	The thresholds used for 'comparison with previous year': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower. This year water withdrawn from surface water has increased by 41 % from 1,666 megalitres (FY 21-22) to 2,342 megalitres in FY 22/23 (much higher threshold = >30% reduction)." Surface water withdrawal volumes are primarily driven by our ET cable cooling facility, which is measured using runtime meters. In the previous year there was a maintenance outage which accounted for the lower water withdrawal levels in FY 21/22 compared with FY 22/23.
Brackish surface water/Seawater	Relevant	1336321	Lower	Increase/decrease in business activity	The thresholds used for 'comparison with previous year': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower. This year water withdrawn from brackish surface water/ seawater has reduced by 47649 megalitres (from 1,383,970 megalitres in FY 21-22 to 1,336,321 megalitres in FY 22/23), which is equivalent to a 3% reduction (lower threshold = 2% to 30% reduction). At National Grid, 99% of our water withdrawal volume is used for cooling purposes at our generation facility, which is measured through pump running hours. The volumes of water used at this facility are dependent on plant operational characteristics and patterns of demand. As there has been a reduction in generation demand over the past reporting year, total water withdrawal volumes from seawater have reduced.
Groundwater – renewable	Relevant	145	Much higher	Increase/decrease in business activity	The thresholds used for 'comparison with previous year': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower. Groundwater is used at our generation facility and is recorded using flow meters. This year groundwater withdrawal has increased by 32% (from 110 Megalitres FY21/22 to 145 megalitres FY 22/23) and falls within the 'much higher' threshold.
Groundwater – non-renewable	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	At National Grid we do not withdraw non-renewable groundwater
Produced/Entrained water	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	At National Grid we do not withdraw produced/ entrained water
Third party sources	Relevant	1976	Lower	Increase/decrease in business activity	The thresholds used for 'comparison with previous year': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower. At National Grid Third party sources of water are used at our facilities and generation facility. These withdrawal volumes are based on utility bills, which are managed by third party providers. This year there has been a decrease in third party water withdrawal of 446 megalitres (from 2,422 megalitres in FY 21/22 to 1,976 megalitres in FY 21/22), which equates to a 18% decrease (lower threshold). This is linked to a reduction in office utilisation following the divestment of Gas Transmission and Rhode Island. We have also partnered with ADSM to make water savings, which has helped to reduce total water withdrawal from third parties.

W1.2i

(W1.2i) Provide total water discharge data by destination.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Please explain
Fresh surface water	Relevant	2342	Much higher	Other, please specify (Maintenance outage)	The thresholds used for 'comparison with previous year': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower. This year water discharged to surface water has increased by 41% from 1,666 megalitres (FY 21-22) to 2,342 megalitres in FY 22/23 (much higher threshold = >30% reduction). Surface water discharge volumes are primarily driven by our ET cable cooling facility, where all of the water withdrawn is discharged back to the canal. In the previous year there was a maintenance outage which accounted for the lower water withdrawal levels in FY 21/22 compared with FY 22/23.
Brackish surface water/seawater	Relevant	1337390	Lower	Increase/decrease in business activity	The thresholds used for 'comparison with previous year': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower. This year water discharged to Brackish surface water/ seawater has reduced by 46,690 megalitres (from 1,384,080 megalitres in FY 21-22 to 1,337,390 megalitres in FY 22/23), which is equivalent to a 3% reduction (lower threshold = 2% to 30% reduction). At National Grid, 99% of our water discharge volume has been used for cooling purposes at our generation facility, which is estimated to equal withdrawal in this closed loop system. The volumes of water used at this facility are dependent on plant operational characteristics and patterns of demand. As there has been a reduction in generation demand over the past reporting year, total water discharge volumes have reduced.
Groundwater	Relevant	0	About the same	Other, please specify (No change in business activity)	The thresholds used for 'comparison with previous year': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower. Groundwater is used at our generation facility and withdrawal is estimated to equal discharge in this closed loop system. This year groundwater discharge has remained the same as FY 21/22 at 0 megalitres (about the same threshold = +/- 2%)
Third-party destinations	Relevant	612	Much higher	Facility closure	The thresholds used for 'comparison with previous year': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/- 30% = much higher/lower. At National Grid Third party sources of water are used at our facilities and generation facility. Withdrawal volumes are based on utility bills, which are managed by third party providers. Water discharge is estimated to equal water withdrawal minus consumption at these facilities. There has been a decrease in third party water discharge over the past year of 1810 megalitres (from 2,422 megalitres in FY 21/22 to 621 megalitres in FY 21/22), which equates to a 75% decrease (much lower). This is linked to a reduction in office utilisation following the divestment of Gas Transmission and Rhode Island. We have also partnered with ADSM to make water savings, which has helped to reduce total water withdrawal from third parties.

W1.2j

(W1.2j) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	Primary reason for comparison with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Relevant	1069	Much lower	Increase/decrease in business activity	Less than 1%	In the US, all water discharge as a result of operation of steam boilers at 3 sites is provided and processed by tertiary treatment to assure discharge is in strict compliance with limits imposed by regulatory permit. All waters are sampled, tested and reported in accordance with the requirements of those permits.
Secondary treatment	Relevant	0.02	Much lower	Increase/decrease in business activity	Less than 1%	In the UK there are a number of substations that conduct secondary treatment, through either commercial package sewage treatment or septic tanks.
Primary treatment only	Relevant	2342	Much lower	Increase/decrease in business activity	Less than 1%	At St John Wood's Substation in the UK, we use water abstracted from Regent's Canal to cool high voltage underground power cables. Volumes are calculated based on pump running hours and provided to the Canal River Trust monthly in compliance with withdrawal agreement and discharge licence. There is a very low level of treatment to the water abstracted from St Johns wood, where floating materials are filtered out to prevent materials clogging the pumps. As part of the discharge license/ permit the water discharged needs to be in the same condition as the water abstracted, so there are no other forms of treatment.
Discharge to the natural environment without treatment	Relevant	1336321	Lower	Increase/decrease in business activity	91-99	Our US generating facilities operate under extremely tight discharge limits for any water discharges. Each facility is governed by a State Pollutant Discharge Elimination permit which states specific significant potential pollutants including temperatures which must be monitored for all discharges. All limits on discharges are governed by the US EPA Clean Water Act. Success is measured and evaluated by regular discharge monitoring and testing.
Discharge to a third party without treatment	Relevant	611.95	Lower	Increase/decrease in business activity	Less than 1%	At National Grid UK offices, sewage water will be discharged into the sewers and treated by a third party.
Other	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>	All discharge treatment methods are captured within the categories defined above.

W1.2k

(W1.2k) Provide details of your organization's emissions of nitrates, phosphates, pesticides, and other priority substances to water in the reporting year.

	Emissions to water in the reporting year (metric tonnes)	Category(ies) of substances included	List the specific substances included	Please explain
Row 1	0	Phosphates	<Not Applicable>	At National Grid our most material water use is for cooling purposes at our generation facility, which accounts for 99% of our total water use. At our generation facility we add sodium di-phosphate to the water used in our steam boilers as a PH control and oxygen scavenger. However, all sodium di-phosphate is removed and neutralised before it is discharged, in line with permitting requirements, so there are no emissions to the water for this operational activity.

W1.3

(W1.3) Provide a figure for your organization's total water withdrawal efficiency.

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row 1	21476000000	1340784		Future water withdrawal efficiency will be highly dependent upon generation plant patterns, which account for 99% of National Grids water withdrawal. National Grid improved water efficiency in FY 21/22 through investments in variable-speed drive motors on the seawater circulating water pumps, which have reduced the total volume required during generation. Revenue excludes Gas Transmission, which is out of scope of our GHG emissions reporting following the divestment of this business unit.

W-EU1.3

(W-EU1.3) Do you calculate water intensity for your electricity generation activities?

Yes

W-EU1.3a

(W-EU1.3a) Provide the following intensity information associated with your electricity generation activities.

Water intensity value (m3/denominator)	Numerator: water aspect	Denominator	Comparison with previous reporting year	Please explain
194	Total water withdrawals	MWh	Higher	The thresholds used for 'comparison with previous year' and 'five year forecast': deviation +/- 2% = about the same, Deviation between 2 – 30% = higher/lower, Deviation > +/1 30% = much higher/lower. Water intensity from our generation activities has increased by 9% from the previous year and is therefore categorised as 'higher'. At National Grid 99% of all water abstracted by the company is seawater for use in cooling generation assets on Long Island (US). Although we have seen a reduction in both generation requirements and water consumption at our generation facility this year, the water intensity has increased, which is due to the relationship between these two variables. In the future water intensity for energy generation is likely to be governed by Long Islands generation plant patterns. However, this intensity metric will be used internally to monitor the improvements in water withdrawal following the investment in new variable-speed drive motors on the seawater circulating water pumps.

W1.4

(W1.4) Do any of your products contain substances classified as hazardous by a regulatory authority?

	Products contain hazardous substances	Comment
Row 1	No	As an electric and gas utility, National Grid supplies natural gas and electricity, and neither contains hazardous substances classified by a regulatory authority per CDP's explanation.

W1.5

(W1.5) Do you engage with your value chain on water-related issues?

	Engagement	Primary reason for no engagement	Please explain
Suppliers	Yes	<Not Applicable>	<Not Applicable>
Other value chain partners (e.g., customers)	Yes	<Not Applicable>	<Not Applicable>

W1.5a

(W1.5a) Do you assess your suppliers according to their impact on water security?

Row 1

Assessment of supplier impact
Yes, we assess the impact of our suppliers

Considered in assessment
Basin status (e.g., water stress or access to WASH services)
Supplier dependence on water
Supplier impacts on water availability
Supplier impacts on water quality

Number of suppliers identified as having a substantive impact
0

% of total suppliers identified as having a substantive impact
None

Please explain
Within National Grids' Supplier Code of Conduct (SCoC) there is a requirement for our suppliers to implement a water management process to manage water-related risks including current and future water stress and work in line with regulatory requirements.
Also during the pre-qualification stage and using a provided sustainability assessment tool, suppliers are required to declare if their product or services will have a high associated use of water or come from a source in a water stress area.
National Grids Risk and Compliance team regularly review the risks related to our suppliers, and if they identify that there is an emerging risk the potential impact will be assessed through our Risk Assessment RACM. If the alert is deemed to be impactful to National Grid then we will suspend and engage.

W1.5b

(W1.5b) Do your suppliers have to meet water-related requirements as part of your organization's purchasing process?

	Suppliers have to meet specific water-related requirements	Comment
Row 1	Yes, water-related requirements are included in our supplier contracts	<Not Applicable>

W1.5c

(W1.5c) Provide details of the water-related requirements that suppliers have to meet as part of your organization's purchasing process, and the compliance measures in place.

Water-related requirement
Complying with going beyond water-related regulatory requirements

% of suppliers with a substantive impact required to comply with this water-related requirement
100%

% of suppliers with a substantive impact in compliance with this water-related requirement
100%

Mechanisms for monitoring compliance with this water-related requirement
Supplier scorecard or rating

Response to supplier non-compliance with this water-related requirement
Suspend and engage

Comment
In line with our Supplier Code of Conduct all suppliers are required to work in line with regulatory requirements. Also during the pre-qualification stage and using a provided sustainability assessment tool, suppliers are required to declare if their product or services will have a high associated use of water or come from a source in a water stress area.
Any non-compliance is monitored within our Dow Jones risk and compliance platform and Sphera, which is monitored by a second line assurance team.

Water-related requirement
Providing fully-functioning, safely managed WASH services to all workers

% of suppliers with a substantive impact required to comply with this water-related requirement
100%

% of suppliers with a substantive impact in compliance with this water-related requirement
100%

Mechanisms for monitoring compliance with this water-related requirement
Supplier scorecard or rating

Response to supplier non-compliance with this water-related requirement
Suspend and engage

Comment
In line with our Supplier Code of Conduct all suppliers are required to work provide fully functioning WASH facilities to all workers. Also during the pre-qualification stage and using a provided sustainability assessment tool, suppliers are required to declare if their product or services will have a high associated use of water or come from a source in a water stress area.
Any non-compliance is monitored within our Dow Jones risk and compliance platform and Sphera , which is monitored by a second line assurance team.

W1.5d

(W1.5d) Provide details of any other water-related supplier engagement activity.

Type of engagement
Innovation & collaboration

Details of engagement
Other, please specify (Collaborate with ADSM to make water savings)

% of suppliers by number
Less than 1%

% of suppliers with a substantive impact
None

Rationale for your engagement
National Grid has partnered with ADSM to help us as an organisation become more sustainable by reducing the amount of water we consume.
Although this collaborative project covers less than 1% of our suppliers, by partnering with ADSM we are able to measure the water revenue savings and ultimately reduce the amount of water consumption.

Impact of the engagement and measures of success
Through our partnership with ADSM we have reduced the amount of water we consume and 1 % of the water savings revenue has been donated to water.org, helping transform the lives of more than 2300 people in need by providing access to safe water or sanitation.
The success of this collaboration with ADSM can be monitored each year through the number of people in need we are able to provide access to safe water or sanitation and the reduction in water consumption at our facilities.

Comment

W1.5e

(W1.5e) Provide details of any water-related engagement activity with customers or other value chain partners.

Type of stakeholder
Other, please specify (Local, state and federal stakeholders)

Type of engagement
Innovation & collaboration

Details of engagement
Other, please specify (Collaborating with stakeholders to clean up Gowanus Canal)

Rationale for your engagement
Constructed in the mid-1800s, the Gowanus Canal is a 1.8-mile (2.9 km), 100-foot (30-metre) wide manmade waterway, used to provide water access and boost existing industries in the inland areas of Brooklyn, New York. Although the industrial use of the Gowanus Canal has significantly decreased over time, the years of heavy industrial activity have resulted in a legacy of pollution in the canal, and the canal continues to receive ongoing contamination from combined sewer overflow outfalls. The Gowanus Canal had earned a reputation as one of the most
polluted waterways in the US. National Grid is one of several members involved in the EPA Gowanus Canal Superfund site, supporting the clean-up efforts, which promise to deliver significant social benefits to the local community by revitalising the neighbourhood and providing access to the waterway for recreational activities.

Impact of the engagement and measures of success
After an accelerated remedial investigation and remedial design, clean-up of the upper third of the canal started in 2020 and has included removing approximately 70,000 cubic yards of contaminated sediment, which has been treated and beneficially used as daily landfill cover. Deeper contaminated sediment has been stabilised in situ to stop further migration of deep contamination into biologically active zones. Over 4,500,000 gallons of canal water were treated and discharged back into the Gowanus Canal. The clean-up of the upper third is now in its final stage, which involves the installation of a multi-layer cap over the dredged material. The treatment layer prevents the migration of impacts through the cap prior to reaching the surface water. The top layers promote benthic recolonisation and limit interference with the treatment layer. Over the next decade, the clean-up team will continue to carry out the planned remediation activities downstream. In conjunction with the clean-up efforts, the neighbourhood surrounding the Gowanus Canal is undergoing redevelopment, with new residential buildings being constructed along the canal which will have public access to the waterfront along the entire length of the waterway

W2. Business impacts

W2.1

(W2.1) Has your organization experienced any detrimental water-related impacts?
No

W2.2

(W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

	Water-related regulatory violations	Fines, enforcement orders, and/or other penalties	Comment
Row 1	No	<Not Applicable>	We have not received any fines/penalties/enforcement orders for water related regulatory violations during the reporting year. This can be attributed to prudent asset management practices, particularly around natural environment such as water bodies. Risks/impacts from minor incidents on the health of water resources and vice versa were mainly due to regular wear-and-tear of our assets and extreme operating conditions such as heavy rain/snow. These risks/impacts were identified, bespoke mitigation measures were agreed with relevant regulatory bodies, and implemented in a timely and efficient manner. Learnings from these activities have also been fed back to strengthen our asset management activities in the vicinity of water resources.

W3. Procedures

W3.1

(W3.1) Does your organization identify and classify potential water pollutants associated with its activities that could have a detrimental impact on water ecosystems or human health?

	Identification and classification of potential water pollutants	How potential water pollutants are identified and classified	Please explain
Row 1	Yes, we identify and classify our potential water pollutants	National Grid has ISO 14001 certified environmental management systems across the businesses and a suite of policies/standards for pollution prevention and control including water system management, air emission, waste management, EMFs, noise and vibrations. Potential water pollutants are identified via environmental risks and opportunities register process, where each business identifies aspects related to their activities (under normal, abnormal, and emergency conditions), assess and score significant aspects and determine means of management control, such as environmental procedures and controls within operations. Examples of water-related impacts on ecosystems and human health considered include contamination of ground or surface waters as a result of the failure of primary and secondary containment of an oil transformer leak, the contamination of groundwater as a result of an oil-filled cable leak, and the impact of polluted cooling water being returned to source. Our highest water use activity occurs at our US generation facility for once-through cooling water, where the process is strictly controlled and operated using Pollutant Discharge Elimination permits. These permits require NG to establish, implement and maintain best management practices, including risk assessments relating to intake and discharge of waters. Permit renewals require full sampling and testing for all priority pollutants at a 5 year interval and review all practices, impacts and assessments.	<Not Applicable>

W3.1a

(W3.1a) Describe how your organization minimizes the adverse impacts of potential water pollutants on water ecosystems or human health associated with your activities.

Water pollutant category
Oil

Description of water pollutant and potential impacts
Older style electricity cables contain oil to improve their insulation properties and enhance cooling. There is a risk that these older cables could leak when equipment is damaged, seals deteriorate or as a result of changing ground conditions.
When this happens, we take steps to ensure that any damage to the environment is minimised through the removal of contaminated ground and that the leak is fixed as quickly as possible. We are also putting in place measures to help reduce the overall number of leaks that we have across our network.
The risks associated with operating fluid filled cables (FFC) and related assets can be reputational, regulatory and financial. The primary risk is associated with the leakage of insulation oil into the environment causing pollution.

Value chain stage
Direct operations

Actions and procedures to minimize adverse impacts
Reduction or phase out of hazardous substances

Please explain
National Grid is committed to maintaining high standards of compliance. Our Group Compliance Procedure requires each business area to fully report any non-compliance incidents so that common themes and trends can be identified and monitored. Regular reports on compliance are provided to our ERCC. We also set internal standards within our Environmental Management System, reporting environmental incidents internally to drive the right behaviour and identify learning opportunities. The incident categories we use are for internal use and are more stringent than external regulatory categorisations. Using common definitions of severity, our internal Category 1 incidents identify the highest potential for harm.
We manage fluid filled cables (FFC) in line with the Energy Network Association (ENA) Code of Conduct – drawn up between the Environment Agency (EA) and the ENA Member Companies to provide cooperation between the EA and network companies in dealing with incidents with potential for polluting the water environment. As part of our current business plan we have committed to reduce the volume of oil leaked from FFCs by 50% by 2028 and replace 90 km of the worst-leaking circuits with non-oil alternatives.

Water pollutant category
Microplastics and plastic particles

Description of water pollutant and potential impacts
Many plastic products are designed to be used once and without sustainable management could end up in our oceans and impact marine life and ecosystems.

At National Grid our stakeholders are keen for us to reduce the amount of single use plastics entering our business and move towards environmentally sustainable products and services. Therefore, we have worked hard to remove single-use plastics from our UK offices.

Value chain stage
Supply chain

Actions and procedures to minimize adverse impacts
Provision of best practice instructions on product use

Please explain
At National Grid we have worked hard to remove single-use plastics from our UK offices. Our aim is to eliminate single-use plastics from sale at our offices by engaging with staff to set them aside for more sustainable alternatives. We have avoided millions of pieces of single-use plastic since we started this programme, and there are only a few plastic waste streams left in our offices to replace.

Water pollutant category
Other physical pollutants

Description of water pollutant and potential impacts
For US generation, seawater used for cooling is discharged to the Long Island Sound. The volumes of water used are dependent on plant operational characteristics and patterns of demand but are ultimately returned to source. Due to the operational process, there is the potential for this cooling water to pollute Long Island Sound if it is not adequately managed, causing disruption to the water ecosystem.
The seawater extracted for use within US generation accounts for >90% of our global water withdrawal volumes, so the magnitude of risk is relatively high.

Value chain stage
Direct operations

Actions and procedures to minimize adverse impacts
Discharge treatment using sector-specific processes to ensure compliance with regulatory requirements

Please explain
Our US generating facilities operate under extremely tight discharge limits for any water discharges. Each facility is governed by a State Pollutant Discharge Elimination permit which states specific significant potential pollutants including temperatures which must be monitored for all discharges. All limits on discharges are governed by the US EPA Clean Water Act.
Success is measured and evaluated by regular discharge monitoring and testing.
To further reduce our impact on the local ecosystem, at our US generation facility we have invested in fish screens and variable speed circulating water pumps to reduce entrainment and biological impacts.

W3.3

(W3.3) Does your organization undertake a water-related risk assessment?
Yes, water-related risks are assessed

W3.3a

(W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

Value chain stage
Direct operations

Coverage
Full

Risk assessment procedure
Water risks are assessed as part of an established enterprise risk management framework

Frequency of assessment
More than once a year

How far into the future are risks considered?
More than 6 years

Type of tools and methods used
Enterprise risk management

Tools and methods used
Enterprise Risk Management

Contextual issues considered
Other, please specify (The context with which we asses water impacts is on how likely our operations could have a negative impact (i.e. through a pollution incident) on a watercourse.)

Stakeholders considered
Employees
Local communities
Suppliers

Comment
Risk management process, overall risk strategy, policy and process are set at the Group-level with implementation owned by the business. Our enterprise risk management process provides a framework through which we can consistently identify, assess and prioritise, manage, mitigate, monitor, control and report risks and capitalise on opportunities. These risks and any associated management actions are cascaded through the organisation.

Value chain stage
Supply chain

Coverage
Partial

Risk assessment procedure
Other, please specify (Sourcing strategy risk would be assessed as part of sourcing strategy if sourcing materials from water stress origins or for high water consumption related products)

Frequency of assessment
Not defined

How far into the future are risks considered?
1 to 3 years

Type of tools and methods used
Other

Tools and methods used
Other, please specify (Sourcing relevancy framework)

Contextual issues considered
Water regulatory frameworks
Status of ecosystems and habitats
Access to fully-functioning, safely managed WASH services for all employees
Other, please specify (Sourcing from water stress regions or high water consumption related products)

Stakeholders considered
Local communities
Regulators
Suppliers

Comment
Water impacts are assessed as part of a relevancy framework during sourcing events. Relevant questions would then be included as part of the tender process i.e. high water consumption products or materials sourced from water stress origins. National Grid's Supplier Code of Conduct encourages suppliers to set meaningful targets to improve environmental performance and openly report on performance against these targets, this includes water stewardship.

W3.3b

(W3.3b) Describe your organization's process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain.

	Rationale for approach to risk assessment	Explanation of contextual issues considered	Explanation of stakeholders considered	Decision-making process for risk response
Row 1	Risk management activities take place through all levels of our organisation. Through our Enterprise Risk Management 'top-down, bottom-up' approach, full coverage of our direct operations is considered, with all business areas responsible for identifying the main risks to our business model and our business objectives. Our Enterprise Risk Management (ERM) process provides a framework to identify, assess, prioritise, manage, monitor and report risks. The size and scope of each identified risk is assessed by considering the financial and reputational impacts, alongside how likely the risk is to materialise. Whilst risk assessment is guided by this quantitative assessment, whether it is substantive or not is defined on a risk by risk basis through expert-led dialogue around likelihood, impact and control factors at the relevant business level. This helps National Grid escalate a smaller number of more substantive risks through our ERM process and ensure that appropriate mitigation strategies are put in place swiftly to address them. In terms of our supply chain, water impacts are assessed as part of a relevancy framework during sourcing events. Relevant questions would then be included as part of the tender process i.e. high water consumption products or materials sourced from water stress origins.	Through our Enterprise Risk Management process and supply chain sourcing strategy we assess the contextual issues that are likely to impact our business operations or have a negative impact. For example pollution incidents on a water courses or impact to potential flooding of our assets affecting our operational performance. These contextual issues have been selected as the nature of our operations require use of materials that may have negative impacts on the environment. However effective management and controls are in place to mitigate these risks.	Risk identification takes place through all levels of our organisation. Using a 'top down, bottom' up approach, all business areas identify the main environmental risks to our business model and to achieving their business objectives. At a board level, consideration is given to the main uncertainties currently facing the group as we endeavour to meet our strategic objectives. Substantive risks can also be identified through discussions of the groups broader risk profile by the groups executive committee and the board. We also work with our colleagues on-site and third parties / local communities to identify local environmental risks and collectively identify trends. We also work across the industry with our contractors to identify potential risk and share best practice.	Group Principal Risks (GPRs) are tested annually on a reasonable worst-case basis, alone and in clusters, for potential impact upon the Company's viability over a 5-year assessment period. Additionally, risks are documented and monitored at lower levels within teams or business units. Risk escalation is based on discussion and assessment via associated committees, taking into account full assessment of the control framework and key risk indicators. An example of a substantive physical risk would be the increased impact of flood events on our substation sites; a risk raised due to previous impact. The adequacy of our current controls in place to mitigate the risk and consequences were assessed through both our risk assessment mechanism and expert-led discussion; an example being a new TCFD physical risk working group that convenes experts from across the group. Subsequently, it was determined additional resource and capital was necessary to control this risk, driving a flood mitigation strategy based on the highest risk assets. Mitigation work for sites is prioritised, based on the highest likelihood of a flood event, 1:100, 1:200 & 1:1000 year risk sites. In the UK, we have commenced a set of innovation projects to understand the impacts of climate change hazards on our asset performance. We continue to invest in climate adaptation across the Group in the form of storm hardening and flood defences, with a further £31 million (2021/22: £36 million) invested in the year.

W4. Risks and opportunities

W4.1

(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes, only within our direct operations

W4.1a

(W4.1a) How does your organization define substantive financial or strategic impact on your business?

Risk identification takes place through all levels of our organisation. Using a 'top down, bottom up' approach, all business areas identify the main environmental related risks to our business model and to achieving their business objectives. Risks are considered in regards to both physical risks to our assets and transitional risks to our business model. Physical risks are identified by drawing on the subject matter expertise of our employees; especially asset specialists and resilience leads (specialising in flood risk for example). We work with our colleagues on-site to identify local environmental risks and collectively identify trends. We also work across the industry with our contractors to identify potential risk and share best practice. To better assess the physical risks, models have been developed for various RCP's to project possible future weather conditions.

The size and scope of each identified risk is assessed by considering the financial and reputational impacts, alongside how likely the risk is to materialise. Whilst risk assessment is guided by this quantitative assessment, whether it is substantive or not is defined on a risk by risk basis through expert-led dialogue around likelihood, impact and control factors at the relevant business level. This helps National Grid escalate a smaller number of more substantive risks through our ERM process and ensure that appropriate mitigation strategies are put in place swiftly to address them. At a board level, consideration is given to the main uncertainties currently facing the group as we endeavour to meet our strategic objectives. Substantive risks can also be identified through discussions of the groups broader risk profile by the groups executive committee and the board. Group-level substantive risks are tested annually on a reasonable worst-case basis, alone and in clusters, for potential impact upon the Company's viability over a 5-year assessment period. Additionally, risks are documented and monitored at lower levels within teams or business units. Risks with higher scores are escalated to our ERM process for analysis.

Our risks are rated on a scale of 1 to 5, with four levels of financial impact. Financial impact can be at the Group level, Regional Level, Management level, or Directorate level of National Grid. Each of these levels and risk ratings have an anticipated financial impact associated with them at each of the 5 risk ratings. Directorate level has a range of impact from risk rating 1, < £50k to 5, > £500k; Management level risk rating 1, < £500k to 5, > £5m; Regional level risk rating 1, < £5M to 5, > £50M; Group level risk rating 1, < £50M to 5, >£500M

The Group Executive Committee and the Board may also identify and assess principal risks, through risk review and challenge sessions at least every 6 months, although this is done every 3 months within individual business units, drawing on subject matter expertise to aid assessment. These risks and any associated management actions are cascaded through the organisation.

W4.1b

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	21	Less than 1%	Our key water risk is the risk of flooding at our operational sites. In the UK, flood defence has been a keen focus for the business. Our target is resilience to 1 in 1000-year flooding events in the UK or a 0.1% chance in any given year. As part of this approach we identified 14 substation and cable sites across our portfolio that are within a 1:100-year fluvial flood zone. 11 of which required protection put in place. If these sites flooded it would affect National Grid's ability to safely deliver electricity across the UK. We have shown that our resilience and approach to flooding risks is robust and appropriate as demonstrated during the Dec- 2019 Yorkshire flooding in the Sheffield and Doncaster areas. Of the higher risk sites we have identified, flood defences are either complete, under construction or identified in upcoming plans. Our updated business plans aim to protect up to a further 100 sites from surface-level flooding 14 of which are 1:100 risks. Further investments to manage the risks posed from the secondary impacts of flooding, such as erosion and subsidence to our tower and cable routes are being investigated.

W4.1c

(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive financial or strategic impact on your business, and what is the potential business impact associated with those facilities?

Country/Area & River basin

United Kingdom of Great Britain and Northern Ireland	Thames

Number of facilities exposed to water risk
3

% company-wide facilities this represents
Less than 1%

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
Not applicable

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Less than 1%

Comment
At National Grid ET we do not generate electricity, but instead connects power generating facilities to its transmission network to ensure the uninterrupted flow of power to consumers.
National Grid has identified three substation and cable sites within the Thames river basin that are within a 1:100 year flood zone. Two of these sites have flooded in the past (most recently in January 2014) with minimal impact and no loss of supply. The third site is being redeveloped with flood resilience works carried out in conjunction with ongoing major site rebuild.

There are over three hundred substations within the UK electricity transmission business. 3 substations are at risk of 1:100 year floods therefore represent a very small proportion of National Grid's global business and hence global revenue.

Country/Area & River basin

United Kingdom of Great Britain and Northern Ireland	Other, please specify (South East England)

Number of facilities exposed to water risk
2

% company-wide facilities this represents
Less than 1%

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
Not applicable

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Less than 1%

Comment
At National Grid ET we do not generate electricity, but instead connects power generating facilities to its transmission network to ensure the uninterrupted flow of power to consumers.

National Grid has identified two substations within the South East England river basin that are within a 1:100 year flood zone. If these sites flooded it would affect National Grid's ability to safely deliver electricity across the UK. Flood defence works are now in place at both of these sites.

There are over three hundred substations within the UK electricity transmission business. 2 substations are at risk of 1:100 year floods therefore represent a very small proportion of National Grid's global business and hence global revenue.

Country/Area & River basin

United Kingdom of Great Britain and Northern Ireland	Other, please specify (River Humber)

Number of facilities exposed to water risk
3

% company-wide facilities this represents
Less than 1%

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
Not applicable

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Less than 1%

Comment
At National Grid ET we do not generate electricity, but instead connects power generating facilities to its transmission network to ensure the uninterrupted flow of power to consumers.

National Grid has identified three substations within the Humber river basin that are within a 1:100 year flood zone. If these sites flooded it would affect National Grid's ability to safely deliver electricity across the UK. Flood defences have now been built at all three sites.

There are over three hundred substations within the UK electricity transmission business. 3 substations are at risk of 1:100 year floods therefore represent a very small proportion of National Grid's global business and hence global revenue.

Country/Area & River basin

United Kingdom of Great Britain and Northern Ireland	Other, please specify (River Severn)

Number of facilities exposed to water risk
2

% company-wide facilities this represents
Less than 1%

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
Not applicable

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Less than 1%

Comment
At National Grid ET we do not generate electricity, but instead connects power generating facilities to its transmission network to ensure the uninterrupted flow of power to consumers.

National Grid has identified two substations and cable sites within the Severn river basin that are within a 1:100 year flood zone. Flood defence works are complete at both locations.

There are over three hundred substations within the UK electricity transmission business. 2 substations are at risk of 1:100 year floods therefore represent a very small proportion of National Grid's global business and hence global revenue.

Country/Area & River basin

United Kingdom of Great Britain and Northern Ireland	Other, please specify (Anglian River Basin)

Number of facilities exposed to water risk
1

% company-wide facilities this represents
Less than 1%

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
Not applicable

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Less than 1%

Comment
At National Grid ET we do not generate electricity, but instead connects power generating facilities to its transmission network to ensure the uninterrupted flow of power to consumers.

National Grid has identified one substation in the Anglian river basin that is within a 1:100 year flood zone. If this site flooded it would affect National Grid's ability to safely deliver electricity across the UK. As a result, flood defences have now been completed at this location.

There are over three hundred substations within the UK electricity transmission business. This substation is at risk of 1:100 year floods therefore represent a very small proportion of National Grid's global business and hence global revenue.

Country/Area & River basin

United Kingdom of Great Britain and Northern Ireland	Other, please specify (Regional)

Number of facilities exposed to water risk
2

% company-wide facilities this represents
Less than 1%

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
Not applicable

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Less than 1%

Comment
At National Grid ET we do not generate electricity, but instead connects power generating facilities to its transmission network to ensure the uninterrupted flow of power to consumers.

The additional two sites are surface water flood risks to cable sites. There will be more of these identified as detailed site assessments are undertaken for none substation

sites.

There are over three hundred substations within the UK electricity transmission business. 2 substations are at risk of 1:100 year floods therefore represent a very small proportion of National Grid's global business and hence global revenue.

Country/Area & River basin

United Kingdom of Great Britain and Northern Ireland	Other, please specify (North West England)

Number of facilities exposed to water risk
1

% company-wide facilities this represents
Less than 1%

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
Not applicable

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Less than 1%

Comment
At National Grid ET we do not generate electricity, but instead connects power generating facilities to its transmission network to ensure the uninterrupted flow of power to consumers.

National Grid has identified one substation within the North West England river basin that is within a 1:100 year flood zone. If this site flooded it would affect National Grid's ability to safely deliver electricity across the UK. Flood resilience is being incorporated into the redesign of this site.

There are over three hundred substations within the UK electricity transmission business. This substation is at risk of 1:100 year floods therefore represent a very small proportion of National Grid's global business and hence global revenue.

Country/Area & River basin

United Kingdom of Great Britain and Northern Ireland	Other, please specify (National)

Number of facilities exposed to water risk
7

% company-wide facilities this represents
Less than 1%

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
Not applicable

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Less than 1%

Comment
At National Grid ET we do not generate electricity, but instead connects power generating facilities to its transmission network to ensure the uninterrupted flow of power to consumers.

There are over three hundred substations within the UK electricity transmission business. 7 substations are at risk of 1:100 year floods therefore represent a very small proportion of National Grid's global business and hence global revenue. While the substations identified are in a flood risk area, in some instances only a small percentage of the site is at risk.

W4.2

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Area & River basin

United Kingdom of Great Britain and Northern Ireland	Other, please specify (All of the above in 4.1c)

Type of risk & Primary risk driver

Acute physical	Flood (coastal, fluvial, pluvial, groundwater)

Primary potential impact
Closure of operations

Company-specific description
National Grid has identified fourteen substations and cable sites that are within a 1:100-year flood zone via our Risk Management Process (see answer to question 4.1a). If these sites flooded it would affect National Grid's ability to safely deliver electricity across the UK.
We have undertaken a programme of investment in flood management. By the end of our last price control period (2013-2021) we invested £113 million in flood defences with deferred works of a further £45 million for work to be completed early in our current price control period (2021 to 2026), with a total investment in resilience on 52 sites, addressing different levels of risk.
National Grid has also begun investment in surface water risk sites as part of its RIIO-T2 works, with 7 sites at 1:100 risk, currently funded with a potential further 15 sites still under investigation. The 7 funded sites with 1:100 risk of surface water flooding have been funded up to £7.77 million within RIIO T2 price control period (2021 to 2026).

Timeframe
1-3 years

Magnitude of potential impact
Low

Likelihood
Unlikely

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
1000000

Potential financial impact figure - maximum (currency)
5000000

Explanation of financial impact
This has been calculated using a £1-5million range of capital expenditure required for substation protection from flood risk (per site). This is a one-off cost per site. The timescales associated with this cost are dependent upon the scope of the flood defence works required for the specific site in question. Flood defence projects typically take 1-2 years to complete.

By the end of our last price control period (2013-2021) we invested £113 million in flood defences, with further investments still being undertaken.

Efficiencies have been achieved through more detailed analysis of the sites, innovative flood management solutions and alternative approaches particularly on the lower risk sites.

Primary response to risk
Increase capital expenditure

Description of response
A flood mitigation strategy has been developed based on the highest risk assets (substations), resulting in increased capital expenditure.
Our response is in line with industry standards detailed in the Energy Networks associations ETR 138 requirements. This document is held as best practice across the energy industry.

Cost of response
113000000

Explanation of cost of response
We developed a business case to address flood risk as part of our regulatory business plans, using a probabilistic risk assessment. By developing site specific solutions as and when investment was required, we made sure that:

· only sites which had a risk of flooding were targeted for investment, and

· mitigation solutions could be adapted to site specific needs.

Site solutions were developed using guidance provided by the Energy Networks Association through their Engineering Technical Report (ETR) 138 ‘Resilience to Flooding of Grid and Primary Substations’, in conjunction with the local Environment Agency and provide a coordinated energy sector response to the threat of flooding. Our investments protect from low probability, high impact events.

By the end of our price control period (2013-2021) we invested £113 million in flood defences with deferred works of a further £45 million for work to be completed early in our current price control period (2021 to 2026), with a total investment in resilience on 52 sites.

Further investments in surface water flood risk sites are being undertaken in parallel with the 2021-2026 RIIO T2 control period to ensure surface water flood risk resilience on up to 100 sites.

W4.2c

(W4.2c) Why does your organization not consider itself exposed to water risks in its value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact?

	Primary reason	Please explain
Row 1	Risks exist, but no substantive impact anticipated	Whilst there are a number of elements of our supply chain that have water-related risks, such as electricity transformers from South Korea, due to the long lead times of projects and the availability of alternative sources of supply, this is not considered to have the potential for substantive impact on our operations, revenue or expenditure. This assessment will be repeated should project lead times substantially change, creating a greater risk if sources of supply are reduced.

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes, we have identified opportunities, and some/all are being realized

W4.3a

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.

Type of opportunity
Resilience

Primary water-related opportunity
Increased resilience to impacts of climate change

Company-specific description & strategy to realize opportunity
Flood risk has been identified as a key physical risk to our business. Anthropogenic climate change is expected to increase flood risk through more frequent heavy precipitation, increased catchment wetness and sea level rise.

It is therefore important for National Grid to have a flood mitigation strategy to ensure that sites remain safe and operational during flood events with no loss of supply or risk to system stability

Our flood mitigation works are aligned to the recommendations of the Energy Networks Association Engineering Technical Report.

There is a requirement from the UK Government (BEIS) for all network companies to implement the revised standards set out in Flood Resilience Engineering Technical Report 138 by the end of 2026.

Our strategy is to protect our sites from surface level flooding and better understand how we protect from weather-related threats in the long term.

In our new business plans we aim to enhance flood protection on a proposed 100 sites as well as addressing increasing erosion incidents and developing a long-term climate change adaptation strategy. The benefits to consumers of these plans is that all sites at risk of surface level flooding will be protected by the end of 2026, protecting end consumers from loss of electricity supply because of substation flooding.

National Grid will continue to assess flood risk as part of its Climate Change Adaptation measures and included this into the Climate Adaptation plan.

Estimated timeframe for realization
More than 6 years

Magnitude of potential financial impact
Low-medium

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
1000000

Potential financial impact figure – maximum (currency)
5000000

Explanation of financial impact
The cost estimate is derived from a £1-5 million range anticipated for flood protection per site.
It is very much site specific and subject to the configuration of the network at that time, and excludes reputation impact.

Type of opportunity
Efficiency

Primary water-related opportunity
Cost savings

Company-specific description & strategy to realize opportunity
Coordination of works with internal and external stakeholders and partners. For example, works coordinated with Environment Agency. Dungeness, our contribution of £0.15m to EA scheme against an estimated £2.5m scheme, saving ~>£2m.

The 2016 NFRR report recommends further considerations impacting upon the scope of flood protection works. Principally the inclusion of surface water risks in the

defence requirements which have resulted in a number of potential extra sites not previously identified as being at risk. There has also been significant change to the Environment Agency's flooding data which has consequently increased the number of sites requiring investigation and potential investment.

This action was put into place with a revised ETR138 version which included surface water flood risks and drives our RIIO T2 flooding resilience investment plan.

National Grid Electricity Transmission is also investing in sever weather forecasting tool to increase its resilience to sever weather, principally focusing on flooding with an aspiration to focus on all forms of severe weather.

Estimated timeframe for realization
More than 6 years

Magnitude of potential financial impact
Low-medium

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
20000000

Potential financial impact figure – maximum (currency)
30000000

Explanation of financial impact
£20-30 million range for future flood defence works dependent upon site requirements and the configuration of the larger energy system at that time. The geographical spread of risk is such that only a small percentage of at risk sites would be impacted during an event.

This includes the surface water flood risk site investments during RIIO-T2, also included is the potential requirement for deferred investment sites.

Efficiencies have been achieved through more detailed analysis of the sites, innovative flood management solutions and alternative approaches particularly on the lower risk sites.

Works on several sites have been aligned to be carried out with other major site works and Environment Agency flood schemes ensuring efficient and coordinated investment. While this is an efficient and cost effective investment route there are a number of sites works which will now cross into our new price control period.

Delivery of these extra sites will utilise efficiencies identified from previous work, coordinating works with routine maintenance, incremental resilience, aligning with other internal and external projects; utilisation of temporary flood barriers for very low risk sites; innovation in design of fixed flood barriers and alternative flood defence options with the Environment Agency using natural solutions.

W5. Facility-level water accounting

W5.1

(W5.1) For each facility referenced in W4.1c, provide coordinates, water accounting data, and a comparison with the previous reporting year.

Facility reference number
Facility 1

Facility name (optional)

Country/Area & River basin

United Kingdom of Great Britain and Northern Ireland	Other, please specify (All facilities listed in W4.1c)

Latitude
0

Longitude
0

Located in area with water stress
Unknown

Primary power generation source for your electricity generation at this facility
Not applicable

Oil & gas sector business division
<Not Applicable>

Total water withdrawals at this facility (megaliters/year)
0

Comparison of total withdrawals with previous reporting year
About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes
0

Withdrawals from brackish surface water/seawater
0

Withdrawals from groundwater - renewable
0

Withdrawals from groundwater - non-renewable
0

Withdrawals from produced/entrained water
0

Withdrawals from third party sources
0

Total water discharges at this facility (megaliters/year)
0

Comparison of total discharges with previous reporting year
About the same

Discharges to fresh surface water
0

Discharges to brackish surface water/seawater
0

Discharges to groundwater
0

Discharges to third party destinations
0

Total water consumption at this facility (megaliters/year)
0

Comparison of total consumption with previous reporting year
About the same

Please explain
The water risk we have identified that these sites are exposed to is flood risk, rather than any consumption / withdrawal risk. Only one facility from those included in W4.1c, withdraws water for cable cooling purposes. This is a minimal amount. All of the 14 sites listed in W4.1c consume only very small amounts of utility water. We have therefore reported consumption / withdrawal and discharge figures as zero in this question.

W5.1a

(W5.1a) For the facilities referenced in W5.1, what proportion of water accounting data has been third party verified?

Water withdrawals – total volumes

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
Although the total water withdrawal volume included in our Responsible Business Report is not subject to third-party verification, we do conduct second line assurance on all of the water data disclosed.

Water withdrawals – volume by source

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
Although the total water withdrawal volume included in our Responsible Business Report is not subject to third-party verification, we do conduct second line assurance on all of the water data disclosed. As part of this second line assurance the water withdrawal volume/ source is reviewed.

Water withdrawals – quality by standard water quality parameters

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
All water withdrawal quality will be monitored in line with permitting requirements, although the data included in this report is not subject to any additional third party assurance.

Water discharges – total volumes

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
Although the total water discharge volume included in our Responsible Business Report is not subject to third-party verification, we do conduct second line assurance on all of the water data disclosed.

Water discharges – volume by destination

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
Although the total water discharge volume included in our Responsible Business Report is not subject to third-party verification, we do conduct second line assurance on all of the water data disclosed. As part of this second line assurance the water discharge volume/ source is reviewed.

Water discharges – volume by final treatment level

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
Not applicable

Water discharges – quality by standard water quality parameters

% verified
76-100

Verification standard used
In the UK, National Grid use water abstracted from a canal to cool high voltage underground power cables. Volumes are calculated based on pump running hours and provided to the Canal River Trust on a monthly basis in compliance with withdrawal agreement. Every six months, there is a quality test to the water to ensure there's been no breach of compliance to water quality going to back to the canal.
We also monitor water at out generation facility in line with the permitting requirements.

Please explain
<Not Applicable>

Water consumption – total volume

% verified
76-100

Verification standard used
We measure our water consumption at these sites using our water bills, which are validated on our behalf by Utility (SMS).

Please explain
<Not Applicable>

W6. Governance

W6.1

(W6.1) Does your organization have a water policy?
Yes, we have a documented water policy, but it is not publicly available

W6.1a

(W6.1a) Select the options that best describe the scope and content of your water policy.

	Scope	Content	Please explain
Row 1	Company-wide	Description of the scope (including value chain stages) covered by the policy Description of business dependency on water Description of business impact on water Commitment to prevent, minimize, and control pollution Commitment to safely managed Water, Sanitation and Hygiene (WASH) in the workplace Commitments beyond regulatory compliance Acknowledgement of the human right to water and sanitation Recognition of environmental linkages, for example, due to climate change	Due to the nature of our business the water we use relates almost entirely to seawater abstraction for cooling purposes at our US generation facilities, which is not altered other than being slightly warmed by the process. There is also a small proportion of water required at our facilities and during operational activities, such as cable cooling, where the water is abstracted from local canals and returned to the original source. At National Grid our company wide water policy sets out our commitments to sustainably manage water use, both at our facilities and during operational activities to minimise our impact to the environment. Whilst also ensuring all employees or colleagues working on behalf of National Grid have access to safe drinking water, sanitation and hygiene (WASH) facilities. Our water policy describes National Grids dependency on water and informs our employees of the importance of adhering to the certified company environmental management systems, which set out the requirements and expectations for water management, including water use, prevention from and to water courses and contamination prevention. In line with our water policy, we will, as a minimum, meet our legal and customer obligations and aspire to go over and above regulatory compliance. As part of this aspiration, responsible water management is integrated into our Supplier Code of Conduct and we are encouraging our suppliers to consider all areas of sustainability in their decision making process and harness innovation and best practice throughout the company. We also ensure that there is an Enterprise Risk Management (ERM) process in place to provide a framework to identify, assess, prioritise, manage, monitor and report risks that may emerge in the future. Whilst also working to identify and assess material climate risks and requirements for adaptation as part of our Climate Change Risk assessment.

W6.2

(W6.2) Is there board level oversight of water-related issues within your organization?
No

W6.2c

(W6.2c) Why is there no board-level oversight of water-related issues and what are your plans to change this in the future?

	Primary reason	Board level oversight of water-related issues will be introduced in the next two years	Please explain
Row 1	Due to the nature of our business our overall water consumption is low, as most our withdrawn water used for electricity generation is returned to source so net consumption is low. Thus, risk is low.	No	Although there isn't board level oversight, we have an Enterprise Risk Management process to provide a framework to identify, assess, prioritise, manage, monitor and report risks that may materialise. At an asset level, electricity substation assets are assessed specifically for risk from flooding as this has been highlighted as a substantive risk to our organisation. As a result, electricity substation sites identified as at risk of a 1:100 year fluvial and tidal flood event undertake flood mitigation actions which is managed at a business unit level. Coastal erosion risks are also assessed in line with the Environmental Agency's shoreline management plans. In the UK, National Grid has an Energy Users Group which meets monthly to discuss energy and water use, data verification and reduction strategies. The Energy Users Group reports to the Energy Management Group, which consists of senior managers representing National Grid's business units in the UK. This has helped install automatic meter reading (AMR) devices at our largest properties to enable us to track the water consumption and identify areas of wastage and reduce consumption. In the US, the environmental management team is responsible for water issues, including monitoring usage and ensuring compliance with regulatory requirements. Should significant issues arise with the potential to affect operations or growth, a working group involving senior managers is put together to determine mitigation measures.

W6.2d

(W6.2d) Does your organization have at least one board member with competence on water-related issues?

	Board member(s) have competence on water-related issues	Criteria used to assess competence of board member(s) on water-related issues	Primary reason for no board-level competence on water-related issues	Explain why your organization does not have at least one board member with competence on water-related issues and any plans to address board-level competence in the future
Row 1	Not assessed	<Not Applicable>	<Not Applicable>	<Not Applicable>

W6.3

(W6.3) Provide the highest management-level position(s) or committee(s) with responsibility for water-related issues (do not include the names of individuals).

Name of the position(s) and/or committee(s)
Other committee, please specify (Energy Users Group)

Water-related responsibilities of this position
Assessing water-related risks and opportunities
Managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues
More frequently than quarterly

Please explain
In the UK, National Grid has an Energy Users Group which meets monthly to discuss all aspects of energy and water use, data verification and reduction strategies. The Energy Users Group reports to the Energy Management Group, which consists of senior managers representing all of National Grid's business units in the UK. Any major risks would then be escalated from the board from the Energy Management Group. This has helped install automatic meter reading (AMR) devices at our largest properties to enable us to track the water consumption and identify areas of wastage and reduce consumption.

Electricity substation sites identified as at risk of a 1:100 year fluvial and tidal flood event undertake flood mitigation action which is managed at a business unit level. Coastal erosion risks are also assessed in line with the Environmental Agency's shoreline management plans.

Name of the position(s) and/or committee(s)
Environment/Sustainability manager

Water-related responsibilities of this position
Assessing water-related risks and opportunities
Managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues
More frequently than quarterly

Please explain
In the US, the environmental management team is responsible for water issues, including monitoring usage and ensuring compliance with regulatory requirements. Should significant issues arise with the potential to affect operations or growth, a working group involving senior managers is put together to determine mitigation measures and escalated to board level is deemed significant.

W6.4

(W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row 1	No, and we do not plan to introduce them in the next two years	

W6.5

(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?
Yes, other

W6.5a

(W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?

US Generation engages directly with policy makers not so much for water volume but impacts on water, biota and ecosystems. We have invested in fish screens and variable speed circulating water pumps at our generating facilities to reduce entrainment and biological impacts. To ensure consistency, other policy makers become part of our permit renewal process whereby we engage with and respond to concerns of local environmental groups such as Riverkeeper.

W6.6

(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?

Yes (you may attach the report - this is optional)

EU Taxonomy Report 2022-23_0.pdf

Annual Report and Accounts 2022-23_6.pdf

W7. Business strategy

W7.1

(W7.1) Are water-related issues integrated into any aspects of your long-term strategic business plan, and if so how?

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	No, water-related issues were reviewed but not considered as strategically relevant/significant	21-30	Due to the nature of our business our relative overall water consumption is low, as the majority of our withdrawn water used for electricity generation is returned to source so net consumption is zero and this is low risk. However, water is also integrated in the annual assurance visits carried out by the Environmental Operations team. These visits ensure that site drainage plans are in place and all requirements are met. As a result, several training packages and guidance notes have been created to continue the investment and training to operational staff at sites, as well as continuous improvement. We continue to monitor ongoing climate change scenarios to assess whether flood risks are increasing and warrant further adaptation action, or reducing, enabling existing processes to manage an extreme flood event to be maintained. Water is integrated into our Supplier Code of Conduct, which plays a vital role in managing the risks and opportunities within our supply chain. We are committed to reduce water use in water stressed areas. We encourage our suppliers to consider all areas of sustainability in their decision-making processes and to harness innovation and best practice throughout their company.
Strategy for achieving long-term objectives	No, water-related issues were reviewed but not considered as strategically relevant/significant	21-30	Due to the nature of our business our relative overall water consumption is low, as the majority of our withdrawn water used for electricity generation is returned to source so net consumption is zero and this is low risk. We continue to monitor ongoing climate change scenarios to assess whether flood risks are increasing and warrant further adaptation action, or reducing, enabling existing processes to manage an extreme flood event to be maintained.
Financial planning	Yes, water-related issues are integrated	> 30	Following increased impact of flood events on our substations sites, this physical risk was escalated through our Enterprise Risk Management System. The adequacy of our current controls in place to mitigate the risk and consequences were assessed, and as a result it was determined that additional resource and capital was necessary to control this risk. The result of this process was that our flood mitigation strategy was developed based on the highest risk assets (substations), then other sites and system risks. Mitigation work for sites was then prioritised on the likelihood of a flood event, 1:100, 1:200 & 1:1000-year risk sites. We continue to invest in climate adaptation across the Group in the form of storm hardening and flood defences, with a further £31 million (2021/22: £36 million) invested in the year.

W7.2

(W7.2) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

Row 1

Water-related CAPEX (+/- % change)

-13

Anticipated forward trend for CAPEX (+/- % change)

0

Water-related OPEX (+/- % change)

0

Anticipated forward trend for OPEX (+/- % change)

0

Please explain

National Grid has invested £31 million of CAPEX on climate adaptation, specifically flood defences and storm hardening in FY22-23 and £36 million in FY 21/22.
Our CAPEX is funded through our regulatory business plan which is set over a specific time period, for example RIIO T2 2021-2026 for Electricity Transmission. Therefore we have assumed a consistent level of expenditure for the coming year.
National Grids OPEX expenditure is linked to utility bills and permits, which remain consistent in line with the company operations.

W7.3

(W7.3) Does your organization use scenario analysis to inform its business strategy?

	Use of scenario analysis	Comment
Row 1	Yes	National Grids analysis on physical climate risks is aligned with recognised climate scenarios, specifically the Intergovernmental Panel on Climate Change's (IPCC) Representative Concentration Pathway (RCP) scenarios which provide a uniform framework for exploring potential climate changes and related impacts. RCPs are used globally for climate modelling and give access to a wide range of peer-reviewed and accepted climate datasets, as well as allowing consistency across our UK and US territories. We prioritised climate data sources according to confidence and readiness for use to support a consistent risk assessment across our UK and US territories. We relied on the most up-to-date and robust data from recognised national or local sources such as UKCP18 and NCA4.

W7.3a

(W7.3a) Provide details of the scenario analysis, what water-related outcomes were identified, and how they have influenced your organization's business strategy.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
Row 1	Other, please specify (RCP 4.5)	The climate hazards that we tested in our 2 degree and 4 degree scenario analysis includes; coastal flooding, river flooding, storms, high winds, lightening, high temperatures, low temperatures, freeze-thaw cycles and heatwaves. The climate hazard data is sourced from the national climate assessments (NCA4 in the US, and UKCP18 in the UK). These assessments include data from the Federal Emergency Management Agency, NOAA Physical Sciences Laboratory, Environmental Protection Agency, Met Office, Environment Agency and academic literature. The scenario data is modelled using IPCC's Representative Concentration Pathway (RCP) scenarios of RCP8.5 (4°C) and RCP4.5 (2°C). In assessing the physical impacts of our scenarios, we grouped our portfolio of assets into 12 asset types to assess vulnerability to these hazards. For our 2 degree scenario, the climate data was not yet available in the UK national climate assessment chosen for this analysis, but based on the US findings under this scenario, we can assume similar impacts in the UK.	Some of the outcomes from National Grid's scenario analysis are as follows: - Risks from high temperature and heatwaves will increase significantly over time for many asset types, particularly overhead lines for transmissions and distribution. - Some gas pipeline infrastructure in the US has a high risk of low temperature and freeze-thaw hazards today. - Risks from river and coastal flooding are significant for all asset types now and in future climates. By the 2070s, almost all assets by the coast may be at high risk from coastal flooding. In coastal areas, assets can be exposed to increases in occurrence of coastal flooding and high temperatures in the future. For some asset types, most of the	At National Grid we experience significant costs as a result of asset damage and operational interruptions due to major storms (2021/22: £163 million 2020/21: £150 million). We therefore continue to invest in storm hardening across the Group, with a further £258 million invested this year. An example of our work in this area is the $741 million of investment our New York business has committed to in their five year capital investment forecast to FY26. This investment covers a range of storm hardening measures, upgrades and repairs to our infrastructure to make it less susceptible to storm damage. These include inspection and maintenance, minor storm hardening, vegetation management, flood mitigation, side tap fusing, and multi-value transmission reliability. UK ET has also committed to £3.92 million of investment from 2022 – 2024 to protect 33 sites from surface water flooding risks and increase the resilience of the system. In the UK, our ESO business has undertaken Mapping Impacts and Visualisation of Risks (MIVOR) of extreme weather on system operation to evaluate the impacts of extreme weather events on system operation up to 2050 under RCP 4.5. The results will enhance the accuracy of energy system impact modelling and will also focus on the impacts of the whole supply chain, renewable generation, network assets, and demand, ensuring that the learnings produced are relevant to the whole energy system.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
			and converter stations in the UK, and LNG/CNG facilities and generation assets in the US. Generation assets on Long Island are highlighted for the particular risk of coastal flooding. -Storms (compound hazards) are difficult to assess with confidence but they are likely to be more intense, though changes in frequency are unclear. We do know that climate change will lead to increased rainfall, wind speeds, and coastal flooding/storm surges due to sea level rises, so this may make future coastal storms more damaging	

W7.4

(W7.4) Does your company use an internal price on water?

Row 1

Does your company use an internal price on water?

No, and we do not anticipate doing so within the next two years

Please explain

Due to the nature of our business our relative overall water consumption is low, as the majority of our withdrawn water used for electricity generation is returned to source so net consumption is zero. Thus, there is no real driver to use an internal price on water.

W7.5

(W7.5) Do you classify any of your current products and/or services as low water impact?

	Products and/or services classified as low water impact	Definition used to classify low water impact	Primary reason for not classifying any of your current products and/or services as low water impact	Please explain
Row 1	No, and we do not plan to address this within the next two years	<Not Applicable>	Other, please specify (Not an immediate business priority)	Due to the nature of our business our relative overall water consumption is low, as the majority of our withdrawn water used for electricity generation is returned to source so net consumption is zero. However, a further assessment would be required in order to accurately classify whether these operations have a 'low water impact' compared to the market norm.

W8. Targets

W8.1

(W8.1) Do you have any water-related targets?

No, and we do not plan to within the next two years

W8.1c

(W8.1c) Why do you not have water-related target(s) and what are your plans to develop these in the future?

	Primary reason	Please explain
Row 1	Important but not an immediate business priority	A Responsible Business steering group, chaired by our Chief Sustainability Officer, provides oversight of the integration of responsible business into National Grid, including the development of ESG targets and future ESG strategy. The steering group also provides oversight over ESG-related external reporting, including TCFD disclosures. All environmental targets for our group are subject to this governance. We don't have any specific water related targets. We are not a large consumer of water and it is a relatively immaterial risk / opportunity for our business. We have identified flood risk as our most material water related risk in this disclosure. Water consumption relates almost entirely to use for cooling purposes and abstracted water is not altered other than being slightly warmed by the process. All of this abstracted water is returned to the sea. In addition to group (corporate) goals, business units consider the following when planning objectives and targets: - Principles & commitments in National Grid Environmental Policy; - Significant environmental aspects; - Applicable legal and other requirements; - Financial, operational and organisational considerations; - Technological options and feasibility; - Views of interested parties; - Possible effects on stakeholder image of National Grid; - Findings from environmental reviews; - Other organisational goals.

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

No, we do not currently verify any other water information reported in our CDP disclosure

W10. Plastics

W10.1

(W10.1) Have you mapped where in your value chain plastics are used and/or produced?

	Plastics mapping	Value chain stage	Please explain
Row 1	Not mapped – and we do not plan to within the next two years	<Not Applicable>	At National Grid plastic production is not deemed as a material environmental issue, as we specialise in delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. As with all environmental issues we will continue to assess materiality on an ongoing basis.

W10.2

(W10.2) Across your value chain, have you assessed the potential environmental and human health impacts of your use and/or production of plastics?

	Impact assessment	Value chain stage	Please explain
Row 1	Not assessed – and we do not plan to within the next two years	<Not Applicable>	At National Grid plastic production is not deemed as a material environmental issue, as we specialise in delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. As with all environmental issues we will continue to assess materiality on an ongoing basis.

W10.3

(W10.3) Across your value chain, are you exposed to plastics-related risks with the potential to have a substantive financial or strategic impact on your business? If so, provide details.

	Risk exposure	Value chain stage	Type of risk	Please explain
Row 1	Not assessed – and we do not plan to within the next two years	<Not Applicable>	<Not Applicable>	At National Grid plastic production is not deemed as a material environmental issue, as we specialise in delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. As with all environmental issues we will continue to assess materiality on an ongoing basis.

W10.4

(W10.4) Do you have plastics-related targets, and if so what type?

	Targets in place	Target type	Target metric	Please explain
Row 1	No – and we do not plan to within the next two years	<Not Applicable>	<Not Applicable>	At National Grid plastic production is not deemed as a material environmental issue, as we specialise in delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. As with all environmental issues we will continue to assess materiality on an ongoing basis.

W10.5

(W10.5) Indicate whether your organization engages in the following activities.

	Activity applies	Comment
Production of plastic polymers	No	At National Grid plastic production is not deemed as a material environmental issue, as we specialise in delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. As with all environmental issues we will continue to assess materiality on an ongoing basis.
Production of durable plastic components	No	At National Grid plastic production is not deemed as a material environmental issue, as we specialise in delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. As with all environmental issues we will continue to assess materiality on an ongoing basis.
Production / commercialization of durable plastic goods (including mixed materials)	No	At National Grid plastic production is not deemed as a material environmental issue, as we specialise in delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. As with all environmental issues we will continue to assess materiality on an ongoing basis.
Production / commercialization of plastic packaging	No	At National Grid plastic production is not deemed as a material environmental issue, as we specialise in delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. As with all environmental issues we will continue to assess materiality on an ongoing basis.
Production of goods packaged in plastics	No	At National Grid plastic production is not deemed as a material environmental issue, as we specialise in delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. As with all environmental issues we will continue to assess materiality on an ongoing basis.
Provision / commercialization of services or goods that use plastic packaging (e.g., retail and food services)	No	At National Grid plastic production is not deemed as a material environmental issue, as we specialise in delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve. As with all environmental issues we will continue to assess materiality on an ongoing basis.

W11. Sign off

W-FI

(W-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

W11.1

(W11.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	Sustainability Manager	Environment/Sustainability manager

SW. Supply chain module

SW0.1

(SW0.1) What is your organization's annual revenue for the reporting period?

	Annual revenue
Row 1	

SW1.1

(SW1.1) Could any of your facilities reported in W5.1 have an impact on a requesting CDP supply chain member?

SW1.2

(SW1.2) Are you able to provide geolocation data for your facilities?

	Are you able to provide geolocation data for your facilities?	Comment
Row 1	Please select	

SW2.1

(SW2.1) Please propose any mutually beneficial water-related projects you could collaborate on with specific CDP supply chain members.

SW2.2

(SW2.2) Have any water projects been implemented due to CDP supply chain member engagement?

SW3.1

(SW3.1) Provide any available water intensity values for your organization's products or services.

Submit your response

In which language are you submitting your response?
English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please indicate your consent for CDP to share contact details with the Pacific Institute to support content for its Water Action Hub website.
No

Please confirm below
I have read and accept the applicable Terms