Introduction

W0. Introduction

W0.1 Please give a general description and introduction to your organization

About

The supply of energy and related services is fundamental to people's lives and society's progress - from keeping homes warm and well-lit to fuelling industrial processes. As an international energy and services company focused on satisfying the changing needs of our customers, we have a vital role in society.

Our 36,500 employees work hard to deliver for our customers and for society. Our investment is increasingly shifting towards our customer-facing businesses, with our areas of focus being Energy Supply & Services, Connected Home, Distributed Energy & Power (DE&P), Energy Marketing & Trading (EM&T) and the optimisation of our Central Power Generation business. We serve our 28 million customer accounts through strong brands with distinctive capabilities which include British Gas in the UK, Bord Gáis Energy in the Republic of Ireland and Direct Energy in North America."

Impact on water

We recognise that water availability is an increasingly significant issue for global stakeholders and we are committed to increasing the visibility of our water footprint as well as reducing our water impact through robust environmental management.

Water however remains a non-material risk for our business; for a company our size and within our sector, we consume a relatively small amount of water and do not operate water-intensive activities in water-stressed areas. Moreover, using the World Resources Institute definitions (refer below for details), the vast majority of water we withdraw is used, rather than consumed, as it is returned to the same water catchment area within the same cycle period while ensuring minimal changes to the water's characteristics.

Most of our water-related risks and opportunities lie within our centralised power generation and Exploration and Production businesses, where cooling and process water represent more than 99% of the total water we withdraw. Due to the nature of these withdrawals the risk and opportunities relating to water are not considered to have a substantial impact on our business, operations or revenue.

Our water withdrawals fall into five main categories:

- Cooling water - water that is used rather than consumed as it is routed through pipework to cool power generation or gas processing facilities, before returning to the same water source over a short period of time. Our cooling water is sourced from seas, rivers and estuaries
- Process water - consumed water which is subsequently evaporated or subject to on or offsite treatment before being used again or returned to a water source.
- Produced water – water that is extracted along with oil and gas.
- Operational water - water consumed within E&P activities, such as hydraulic well-stimulation or enhanced gas recovery.
- Office water - water consumed at our buildings.

Within this disclosure, the following definitions are employed:

- Use - where we withdraw and return water to the same catchment area and within the same water cycle period (e.g. cooling water).
- Consumption - where we withdraw and use water but do not return it, or where we return it within a different cycle period (e.g. steam generation).

- Discharge - where water is returned to a water source or sent for offsite treatment (e.g. a sewer or treatment plant).

As worldwide sources of clean water become increasingly under threat, we remain committed to ensuring water is used both efficiently and responsibly not only in our business, but across our supply chain too.

W0.2 Please state the start and end date of the year for which you are reporting data

Reporting year	
From: 01/01/2016	To: 31/12/2016

W0.3 Please indicate the category that describes the reporting boundary for companies, entities or groups for which water impacts are reported.

Reporting boundary
Other, Companies, entities or groups in which we have both equity share and operational control

W0.4 Are there any geographies, facilities or types of water inputs/outputs within this boundary of which are not included in your disclosure?

Yes

W0.4a Please report the exclusions in the following table

Exclusion	Please explain why you have made the exclusion
Yes- 6 offices acquired in Q3 2016. European offices.	Typically, new offices are only included into the reporting cycle after 6 months of acquisition. Although the water data for these offices are now captured, they were not in the latter months of 2016.

Current State

W1. Context

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

Water quality and quantity	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Important	Important	Access to freshwater of suitable quality is important to our business. The primary use of freshwater in direct operations is in our offices as well as our gas-fired power stations in steam generation processes. Demand for freshwater is in decline, following the closure of Killingholme power station during 2016, as well as other power generation sites using less process water in steam cycles. With this decline, coupled with our offices not being water intensive and being diversified in location, the potential risk of not having sufficient amounts of good quality freshwater is unlikely to have a significant financial impact on our business. Reliable freshwater sources are also important in our indirect water use, as most of the power generators we purchase energy from require it for their processes. Consumption across generators does however and is dependent on technology employed alongside regional location. We mitigate the risk of insufficient access to freshwater through diverse supply.
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Important	Direct access to saline or brackish water is important to the success of our business because it is used for cooling water at several of our power stations and upstream oil/gas operations. The vast majority of saline/brackish water used is abstracted from estuaries or the open sea. These sources are associated with very low risks regarding quantity and quality and consequently, we do not consider our activities to be at risk due to the water-intensity of their operations in relation to the water availability in local areas. For indirect use, recycled, produced and brackish water is important for some of our gas and electricity suppliers, whose energy we purchase for resale to our customers. Sufficient availability of these water types therefore remains important to our business but their importance will vary depending on the technology employed at each third party asset. We mitigate the risk of our suppliers not having access to sufficient amounts of water through diversification of our supply chain.

W1. Company-wide water accounting

W1.2 For your total operations, please detail which of the following water aspects are regularly measured and monitored and provide an explanation as to why or why not

Water aspect	% of sites/ facilities/ operations	Please explain
Water withdrawals – total volumes	76-100	We measure and monitor water input volumes across all of our sites which use or consume water and have operational control. In some cases, it is not possible to undertake measurements because we only occupy part of the building (offices only) and are not responsible for building management, meaning we do not have access to water-use data, or water consumption is deemed immaterial and we cannot justify the cost of completing measurement.
Water withdrawals – volume by sources	76-100	Centrica measures and monitors water input volumes by source category at all of our sites which use or consume water and have operational control. There are cases where we do not have access to water source information because we only occupy part of the building (offices) and are not responsible for building management or water consumption is deemed immaterial and we cannot justify the cost of completing measurement.
Water discharges – total volumes	76-100	We routinely measure water discharge volumes from our high water consumption sites. We estimate the discharge volume from our low water consumption sites. We believe the majority of our water discharge volumes are captured as we focus on sites with the greatest volume and estimate that the sites we are unable to monitor have immaterial discharge.
Water discharges – volume by destination	76-100	Where we measure discharge volumes, we do so by destination so the coverage is the same. As such, discharge volumes are measured at all of our sites which discharge water and have operational control. A small number of sites are not monitored because we only occupy part of the building (offices only) and are not responsible for building management, meaning we do not have access to water-use data, or the water consumption values are deemed immaterial and therefore we cannot justify the financial expenditure required for measurement.
Water discharges – volume by treatment method	76-100	By recording our discharge volumes by destination, we are able to monitor how our discharges are being treated. We measure discharges at all of our sites where we have operational control. There are sites are not monitored because we do not have access to water-use data due to only occupying part of the building so we are not responsible for how the building is managed or the water consumption values are deemed immaterial and we therefore cannot justify the cost of measurement.
Water discharge quality data – quality by standard effluent parameters	1-25	Centrica routinely measures the quality of our water discharge at power assets, oil and gas platforms and gas terminals, where we have a legal or contractual requirement to monitor and/or report pursuant to consented quality limits. It is important to note that this requirement covers the majority of our discharges by volume; however it is not a requirement at more than 75% of our sites.
Water consumption – total volume	76-100	We are able to calculate the total volume of water consumption across our business because we measure or accurately estimate our water consumption input from all our sites where we have operational control. Input volumes minus output volumes equal our total water consumption. Our consumption values are calculated as the volume we withdraw and use, but do not return to its original source, or return within a different cycle period after treatment or further use.
Facilities providing fully-functioning WASH services to all workers	76-100	As part of our duty of care to our people and through our Health, Safety and Environment assurance activities, we ensure and verify that all employees have access to WASH services at their normal place of work.

W1.2a Water withdrawals: for the reporting year, please provide total water withdrawal data by source, across your operations

Source	Quantity (megaliters/year) 2016 data	How does total water withdrawals for this source compare to the last reporting year? 2016 vs 2015	Comment
Fresh surface water	331.51	About the same	A reduction in hydrocarbon production in our E&P assets alongside a reduction in output at our Glanford Brigg Power Station in the UK has resulted in a slight reduction in freshwater use for cooling processes compared to 2015.
Brackish surface water/seawater	612154.80	Higher	Brackish surface water/seawater is used for cooling at our coastal power stations and offshore oil and gas assets. The volume of withdrawn brackish water has increased due to an increase in cooling water pumping hours at our South Humber power station. This is not directly correlated to generation figures.
Rainwater	3.29	Much lower	We used harvested rainwater at our gas-fired power station at Langage UK, for the first half of the year in 2016 however did not continue with the harvesting process for the remainder of the year due to constraints on financing the project.
Groundwater - renewable	545.30	About the same	Groundwater use remained largely constant, with only slight variance caused by minor changes in production compared to 2015 in our Canadian exploration and production activities.
Groundwater – non-renewable	0.00	Not applicable	Centrica does not withdraw non-renewable groundwater across its operations.
Produced/process water	824.96	Higher	Produced water or formation water is a by-product brought to the surface with natural gas and oil, as part of the hydrocarbon production process. This water is separated from the hydrocarbon products and then discharged to the sea or re-injected into the ground. The second half of 2016 saw a rise in the volume of produced water due to increased gas production by offshore North sea assets
Municipal supply	824.38	About the same	A minor reduction in municipal water usage was primarily driven by a reduction in office water usage due to efficiency improvements and a reduction in overall headcount.
Wastewater from another organization	0.00	Not applicable	Centrica does not use waste water from other organisations, across its operations.
Total	614684.20	Higher	Our total water withdrawals have increased by 41% in comparison to 2015. This is dues to an increase in the demand for Brackish surface water/ seawater from our power

			generation assets. This is not linked to generation output

W1.2b Water discharges: for the reporting year, please provide total water discharge data by destination, across your operations

Destination	Quantity (megaliters/year)	How does total water discharged to this destination compare to the last reporting year?	Comment
Fresh surface water	113.76	Lower	Despite some increases in North Sea Gas production, overall there has been a reduction in gas production in our exploration assets alongside a reduction in output at our Glanford Brigg Power Station in the UK. This has resulted in a slight reduction in freshwater use and consequent discharge.
Brackish surface water/seawater	611013.82	Higher	The volume of brackish water discharge has increased due to an increase in cooling water pumping hours at our South Humber power station. This is not directly correlated to generation figures
Groundwater	904.88	About the same	Groundwater includes wastewater disposed via injection wells and water used for enhanced recovery in our Canadian gas production operations.
Municipal/industrial wastewater treatment plant	399.92	About the same	Waste water from certain operational assets and all our office locations is sent to municipal water treatment facilities.
Wastewater for another organization	0.00	Not applicable	Centrica does not use waste water across its operations.
Total	612432.38	Higher	Our total water discharges have increased by 40% in comparison to 2015.This is dues to an increase in the demand for Brackish surface water/ seawater from our power generation assets. This is not linked to generation output

W1.2c Water consumption: for the reporting year, please provide total water consumption data, across your operations

Consumption (megaliters/year)	How does this consumption figure compare to the last reporting year?	Comment

2251.86	Much higher	Our definition of water consumption builds upon the Ceres Aqua Gauge's definition as the 'amount of water that is used but not returned to its original source'. However, volumes of water that are treated or not returned to its original catchment within the same period are also classed as consumed. This aligns with the Water Footprint Networks definition. Our water consumption increases is largely due to increases in the consumption of brackish/ sea water from evaporation or seep. There has been an increase of 6% in the consumption of fresh surface water which is due to the changes in operations at power generation activities; this is not linked to gas production. With the activities of the power generation assets being very different to last year due to shut down, maintenance, and changing demand it has catalysed a different water consumption rate.

W1.Supplier reporting

W1.3 Do you request your suppliers to report on their water use, risks and/or management?

Yes

W1.3a Please provide the proportion of suppliers you request to report on their water use, risks and/or management and the proportion of your procurement spend this represents

Proportion of suppliers %	Total procurement spend %	Rationale for this coverage
1-25	1-25	As a responsible company with a responsible procurement programme, we aim to embed sustainable business practice, including social, ethical and environmental standards across our supply chain. As part of this we also focus our assessment on water risks in our supply chain for new and existing suppliers whose contracts are either due for renewal or review after two years. Suppliers are initially assessed on the country they operate in and the product category they provide to Centrica through a tool developed by Verisk Maplecroft. This is a more effective approach as it enables us to detect potential risks where they are likely to be more material. Suppliers are principally engaged through our supply chain risk management, this includes an online supplier self-assessment tool provided by independent supply chain sustainability expert, Ecovadis. The tool evaluates the adequacy of current supplier sustainability actions in place; including for water management which includes employee awareness, monitoring of consumption and measures to reduce pollutants rejected into water. Where a supplier is deemed to have inadequate performance (medium/ high risk rating), we work collaboratively with them to develop corrective action plans that improve and embed sustainable behaviours. Progress against action plans is monitored through the online platform. Where suppliers fail to meet required standards, we reserve the right to terminate their contracts.

W1.Business impacts

W1.4 Has your organization experienced any detrimental impacts related to water in the reporting year?

No

Risk Assessment

W2. Procedures and requirements

W2.1 Does your organization undertake a water-related risk assessment?

Water risks are assessed

W2.2 Please select the options that best describe your procedures with regard to assessing water risks

Risk assessment procedure	Coverage	Scale	Please explain
Comprehensive company-wide risk assessment	Direct operations and supply chain	All facilities and suppliers	Identifying and understanding our most significant risks and developing strategies to mitigate them, is essential to managing our business responsibly. Our power stations, oil and gas operations and office water-related risks are controlled through inclusion within business risk management procedures to ensure they are subject to the highest levels of rigour and governance. At our Barrow and Easington gas terminals, we are additionally required to undertake a flood risk assessment as part of the Control of Major Accident Hazards (COMAH) compliance regulations, which makes sure we have effective processes in place to manage water risks. Each identified risk from asset to company level together with related controls, are consistently assessed and reported according to the Group Risk Management Policy, Standards and Guidelines. Water risk in our supply chain is managed through our supply chain risk management programme. A core element of this is our self-assessment tool for suppliers, which includes assessment of water risks. The platform is provided and managed by independent supply chain sustainability experts, EcoVadis. Suppliers identified as medium or high risk are required to put in place corrective action plans and demonstrate they have corrected risk areas that have been highlighted through the assessment.

W2.3 Please state how frequently you undertake water risk assessments, what geographical scale and how far into the future you consider risks for each assessment

Frequency	Geographic scale	How far into the future are risks considered?	Comment
Six-monthly or more frequently	River basin	3 to 6 years	Our routine risk assessments generally consider risks up to three years in the future. When considering our growth strategy, we take a longer perspective which is typically between 5-10 years into the future.

W2.4 Have you evaluated how water risks could affect the success (viability, constraints) of your organization's growth strategy?

Yes, evaluated over the next 5 years

W2.4a Please explain how your organization evaluated the effects of water risks on the success (viability, constraints) of your organization's growth strategy?

Due to the variability of water accessibility and the impacts of its use over time and geography alongside the diversity of our business activities, we continue to evaluate the effects of water risks on our growth plans at an individual site and river basin level. For new projects, a high-level strategic assessment of the activity and intended location will be undertaken, including any material water-related risks and impacts. If viable, developments such as power stations or oil and gas assets undergo detailed planning and/or licensing applications, which involves the completion of environmental impact assessments to receive approval from the appropriate regulators, authorities and other interested parties. This process evaluates our potential water requirements, the various options for meeting those requirements and the possible impacts and mitigations of resource use, consumption and discharge.

An example of this is Centrica's 25% non-operating share in the proposed Bowland shale gas sites in the UK. Centrica has worked closely with its partners in developing controls to ensure the effective management of potential environmental impacts, including the requirement for suitable water for hydraulic fracturing in addition to the availability of waste water treatment capacity.

Similarly, detailed due diligence processes are undertaken when new assets are acquired to evaluate both current and future water-related risks relevant to the activity or organisation.

This approach forms part of our capital allocation process and is an input into our strategic planning process. In 2016, water-related risks, although fully considered, did not materially affect Centrica's growth strategy. This is principally due to our current growth plans being low risk for water in terms of both activity and location.

W2.5 Please select the methods used to assess water risks

Method	Please explain how these methods are used in your risk assessment
Internal company knowledge	Internal company knowledge - Our environmental specialists are integrated into the assessment and management of risks at a site, business and corporate level. Specialist input is captured via methods like quarterly risk reviews and peer review quality checks.
World Business Council for Sustainable Development (WBCSD) Global Water Tool	WBCSD Global Water Tool - Centrica uses the Google Earth tool to overlay 2 data sets to evaluate the water risk to Centrica assets. The tool firstly overlays a global drought map which categorises the World Business Council for Sustainable Development website, this categorises the globe into 4 drought areas (no risk, low risk, medium risk, high risk). An updated file is downloaded from the live Centrica asset list and then uploaded onto Google Earth which sits on top of the drought

	map as an overlay to allow for the review a sites water risk.
Other: Environmental Impact Assessment (EIA)	Other - Environmental Impact Assessment (EIA) - EIAs are a method which can be used to evaluate in detail the potential water requirements of a proposed activity or asset, options for meeting those requirements and possible impacts and mitigations of resource use, consumption and discharge or treatment. This informs understanding of our planned or likely impacts while material water-related risks are integrated into risk assessments to ensure sufficient controls are in place. We generally employ use of EIAs for high hazard, high impact facilities such as gas terminals, rather than low hazard, low impact facilities like offices.
EcoVadis Sustainable Supply Chain Management tool	EcoVadis Sustainable Supply Chain Management Tool - We use a self-assessment tool for suppliers provided by sustainability specialist, EcoVadis, to assess water-related risks against sector appropriate criteria. Where a supplier has inadequate performance (a medium or high risk rating), we work collaboratively to develop corrective action plans. Identified risks are integrated into our risk assessment process.

W2.6 Which of the following contextual issues are always factored into your organization's water risk assessments?

Issues	Choose option	Please explain
Current water availability and quality parameters at a local level	Relevant, included	Local water quality and availability will always be relevant across our facilities where water is required. Where surface or ground water is abstracted from the natural environment, this is factored into local EIAs and permits or license applications. We are not currently exposed to material risks associated with reduced local water quality and availability but we will continue to assess this as a potential risk to the business to allow for a suitable response should this change in the future.
Current water regulatory frameworks and tariffs at a local level	Relevant, included	Water regulatory frameworks and tariffs at a local level are relevant at all of our facilities which require water. Our assessments using internal company knowledge, indicate that our operational facilities which require relatively large volumes of municipal water or which abstract from and discharge to freshwater, have the highest potential risk from current and future regulations and financial costs associated with water. We continually review the status at quarterly risk meetings. As we do not have many operational facilities that require large volumes of municipal or freshwater, we have yet to change our operations materially as a consequence.
Current stakeholder conflicts concerning water resources at a local level	Relevant, included	Where appropriate, we will always consider stakeholder conflicts when assessing water resources and our requirements, at a local level. An example is the Bowland shale gas sites in the UK of which we have a 25% non-operating stake. All stakeholder concerns were assessed and dealt with through EIAs alongside the planning and permitting process.
Current implications of water on your key commodities/raw materials	Relevant, included	Our key commodities and raw materials are gas and power, both for our own consumption as well as for supply to our customers. As such, we limit our water risk assessment to high risk suppliers alongside other critical suppliers through our supply chain risk management process, including the EcoVadis online supplier self-assessment which spans social, ethical and environmental issues including water management and consumption. Water is recognised as one of a number of key

		considerations that may affect their ability to supply us, which we aim to mitigate by developing a diverse supply chain to ensure continuity of supply.
Current status of ecosystems and habitats at a local level	Relevant, included	It is vital that our hydrocarbon production and power facilities that abstract from and discharge to freshwater, consider the local ecosystems and habitats they interact with. The same applies to where we discharge into the marine environment. In our upstream operations, these considerations are included in EIA's where appropriate and within permitting requirements as well as being subject to ongoing assessments, reporting and monitoring as required. There are also examples in our downstream operations such as the surveys and management studies conducted by Hadlow College on a lake adjacent to our British Gas headquarters in Staines, UK. They addressed the flora and fauna of the surrounding site to improve the management and biodiversity of the water.
Current river basin management plans	Not relevant, included	Current river basin management plans will be factored into our risk assessments for operational assets that require significant volumes of freshwater. We do this using internal company knowledge and EIA's if necessary in order to understand any potential impacts on the quantity or quality of water available to us. Our E&P and power assets do not presently face any material risks relating to river basins and it is not relevant for our low risk sites such as offices.
Current access to fully-functioning WASH services for all employees	Relevant, included	As part of our duty of care to our employees and through our internal company knowledge across our Health, Safety and Environment assurance activities, Centrica ensures and verifies that all its employees have access to water, sanitation and hygiene (WASH) services at their normal place of work. At the strategic level, any new proposal or change in our external environment which may prevent us from fulfilling this commitment will be included in risk assessments. At the site level, risk assessments include welfare considerations for our people.
Estimates of future changes in water availability at a local level	Relevant, included	Risk associated with changes in water availability will be reviewed at quarterly risk review meetings using internal company knowledge and external input from engagement with water suppliers. If required any issues will be escalated from a site, to a business or corporate level. Any concern of potential changes would be dealt with at the local level to reflect the facilities future requirements. Our other facilities, such as offices, generally do not have material considerations regarding future changes in water availability.
Estimates of future potential regulatory changes at a local level	Relevant, included	We primarily focus on our operational facilities that abstract from and discharge to rivers and estuaries. In these cases, we must consider current and future regulatory constraints and financial costs associated with water within our routine risk assessment process using internal company knowledge. Other facilities, such as offices, do not have material considerations regarding future potential regulatory changes.
Estimates of future potential stakeholder conflicts at a local level	Relevant, included	Using internal company knowledge and third party experts, we make estimations of future potential stakeholder conflicts but only when assessing potentially contentious activities which include sensitivities regarding water use and consumption. For example, we analysed potential conflicts that could arise regarding our 25% non-operating stake in the proposed Bowland shale gas sites in the UK so that we can better mitigate negative impacts should they arise.
Estimates of future implications of water on your key commodities/raw materials	Relevant, included	Our key commodities/raw materials are gas and power for our own consumption and for supply to our customers. We therefore limit our water risk assessment to these suppliers. Water is one of a number of key considerations that may affect their ability to supply us in the future, which we aim to mitigate by developing a diverse supply chain. Future risks are estimated using internal company knowledge as part of contract negotiations or renewals.
Estimates of future potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Our operational facilities that abstract from and discharge to rivers and estuaries, must consider not just the current local ecosystems and habitats of the abstraction and discharge environments, but also predictable changes and impacts over the life of the asset or operation. For example, at our largest water discharge site, South Humber Bank power station, we work with the Humber Nature Partnership to ensure any adverse impact on the local ecosystem is kept to a minimum while seeking ways we can enrich local biodiversity. These considerations are subject to assessment and monitoring as required. Other facilities such as offices, do not have material

		considerations regarding future potential changes in the status of ecosystems and habitats.
Scenario analysis of availability of sufficient quantity and quality of water relevant for your operations at a local level	Relevant, included	At assets or operations where water availability is important, we will consider future changes in water availability in our risk assessments using internal company knowledge. This may take the form of supply continuity risk which will involve liaison with utility companies and the careful structuring of supply agreements, or liaison with regulators on permitted withdrawal volumes. We have additionally undertaken climate change adaptation risk assessments which model potential water-related risks and scenarios for our power stations.
Scenario analysis of regulatory and or tariff changes at a local level	Relevant, included	Scenario analysis of regulatory changes is undertaken in relation to potential, new or revised water-related legislation which may impact our assets or EIAs. For example, we modelled the implications and costs of various potential outcomes following regulation implemented in the UK aimed at protecting the native eel population at South Humber & Glanford Brigg power stations. Legislation is generally applicable to our operational assets rather than low-risk sites like offices.
Scenario analysis of stakeholder conflicts concerning water resources at a local level	Relevant, included	Centrica uses internal company knowledge and third party expert support to undertake scenario analysis of stakeholder conflicts when analysing the viability of potentially controversial development options. For instance, we used stakeholder interest scenario analysis in relation to the proposed Bowland shale gas exploration sites in the UK.
Scenario analysis of implications of water on your key commodities/raw materials	Not relevant, explanation provided	Our key commodities and raw materials are gas and power for our own consumption and for re-sale to our customers. Centrica operates in relatively stable supply markets which include Europe and North America, and seeks to reduce risks further by developing a stable and diverse supply base with manageable and predictable water-risk exposure. Consequently, we do not currently consider scenario analysis with regard to our key commodities and raw materials as necessary.
Scenario analysis of potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Centrica undertakes scenario analysis in relation to the status of ecosystems for assets that pose a potential risk to water resources and habitats. These operations are generally regulated and require ongoing monitoring of local ecosystems to ensure impacts are within our planned scenario's modelled at the time of permit/planning application (often through EIA). We may also model changes in the status of ecosystems and commit to undertaking action, should agreed limits be exceeded.

W2.7 Which of the following stakeholders are always factored into your organization's water risk assessments?

Stakeholder	Choose option	Please explain
Customers	Relevant, included	Customers are factored into our organisation's water risk assessment to ensure continuity of both gas and power supply. Any material risks to water availability which could impact operational output have the potential to negatively impact our security of supply for customers. We engage with our customers primarily by phone, email or letter.
Employees	Relevant, included	Employees are included in the organisation's water risk assessment in order to assess the risk of not meeting our duty of care by providing suitable WASH facilities. The availability of water is a key component of upholding this commitment. If this was to change, for example if a water supply was disrupted at an office, employees would be informed through automated text messages and by phone. Employees would be moved to one of our work area recovery sites or told to work from home until the issue was resolved.
Investors	Relevant, included	Investors are factored into Centrica's water risk assessment because any disruption to planned operations or change in future risk exposure, has the potential to impact negatively on revenue and profitability alongside shareholder perception towards the company. Any relevant updates would be shared with investors through public announcements, investor meetings and reports or capital market days.

Local communities	Relevant, included	Where a facility uses or consumes significant volumes of fresh water, other stakeholders such as local communities and special interest groups will, if applicable, be engaged to discuss issues through local town hall meetings, via letters or by phone. For example we held a number of Community Town Hall meetings for local residents regarding our proposed shale gas exploration site in Lancashire.
NGOs	Relevant, included	NGO positions on our activities, especially where a facility extracts or discharges significant volumes of freshwater, are materially important to us and where applicable, we will engage directly with the NGO community and factor their views and insights into our risk assessments. Examples include the shale gas roundtable we organised and held in 2015 with a group of environmental NGO's to discuss the environmental issues relating to shale gas development, including water use. This topic was also discussed during our 2016 engagement with select NGO. NGO engagement on water does not currently apply to our low risk sites like offices.
Other water users at a local level	Relevant, included	Where a facility extracts or discharges significant volumes of freshwater, other water users will be factored into our risk assessment where appropriate. This does not currently apply to low risk sites such as our offices.
Regulators	Relevant, included	We operate numerous highly regulated assets, many of which are subject to water-related permits, licenses or consents. The relevant regulator is always factored into our risk assessments as their evaluation of our operational performance is important to the continuity of our business. Regular inspections are carried out by Environmental Regulators such as the UK Environment Agency for onshore facilities including Easington and Barrow Gas Terminal and the UK Department of Business, Energy and industrial Strategy (BEIS) for our offshore gas platforms. Further evidence of this is demonstrated by the Environmental Protection Agency (EPA), Ireland, who carry out annual inspections on our Whitegate power station in Cork. Routine reports are submitted to regulators. In the UK the Environment Agency/ local authority require six monthly data on discharges to sewer as well as annual volumes on gross and net water usage. BEIS require monthly data on oil concentrations in produced water. In Ireland the EPA requires a detailed Annual Environmental Reports from licenced assets including water related data. As part of the Annual Environmental Report, we submit data on water usage and water quality. Additionally, a regular dialogue exists for routine operations and planned projects with regulatory bodies, which are consulted and informed on an ad-hoc basis through meetings and other correspondence as required to ensure compliance.
River basin management authorities	Relevant, included	Where a facility extracts or discharges significant volumes of freshwater, river basin management authorities and their plans will be factored into our risk assessments where applicable. For example the river basin management authority make regular site visits to South Humber Bank power station, to ensure there is minimal impact to local habitats mainly relating to fish.
Statutory special interest groups at a local level	Relevant, included	Where a facility extracts or discharges significant volumes of freshwater, other stakeholders such as local communities and special interest groups will also be engaged where applicable. This does not currently apply to our office locations.
Suppliers	Relevant, included	Suppliers are initially assessed on the country they operate in and the product category they provide to Centrica through a tool developed by Verisk Maplecroft. Those identified as potentially high risk are requested to complete our enhanced risk assessment on their social and environmental performance which includes a component on water impacts managed by supply chain sustainability experts, EcoVadis. (Where water is identified as a potentially weak area, training and advice modules from the Supply Chain Sustainability School are offered to encourage improvement). An overall supply chain risk profile is subsequently developed and maintained through this process, which is factored into our risk management process. Assessments are repeated every two years.
Water utilities/suppliers at a local level	Relevant, included	Where a facility extracts or discharges significant volumes of freshwater, the water utilities or suppliers are factored into the water risk assessment as any disruption to their operations could negatively impact their ability to meet our water demand. For example, when works need to be carried out by the water utilities company, Centrica Storage Limited will be informed through phone calls or in person, to ensure any discharges to sewer from

		the terminal are timed accordingly. This occurs on an ad-hoc basis, as required by the service provider Yorkshire Water. Power stations are also in contact with utilities companies as required to discuss industrial water requirements.

Implications

W3. Water risks

W3.1 Is your organization exposed to water risks, either current and/or future, that could generate a substantive change in your business, operations, revenue or expenditure?

No

W3.2 Please provide details as to how your organization defines substantive change in your business, operations, revenue or expenditure from water risk

Individual risks across our direct operations and our supply chain are ranked by assessing potential financial and non-financial impacts alongside the likelihood of materialisation. A 6 (impact) and 8 (likelihood) scale is used, with the overall rating calculated through multiplying impact by likelihood to produce a maximum risk score of 48. Financial impacts are relative to operating profit targets while non-financial impacts include a range of issues such as safety and environment, brand and reputation, legal and regulatory. The relative score from the 6x8 evaluation will determine if a risk is substantive, and based on this; tolerance thresholds and bands are created which determines response, controls and review frequency. These tolerance thresholds and distribution of these risks determine whether a risk is deemed as substantive in relation to others.

At least quarterly, Business Units and Group Functions review the internal and external environment for new and emerging risks or changes to existing risks which incorporate water-related risks and could impact the delivery of our strategy. At this point a substantive change to our business from a water related risk is evaluated through a comparison of previous and new risk registers. Risks are reported to a Risk, Assurance and Control Committee (RACC) or equivalent management meeting to evaluate, challenge and advise on material risks; as well as consider the adequacy of mitigating controls.

The most material risks including High Impact/Low Likelihood risks are reported to the Group Risk, Assurance and Control Committee (GRACC), to ensure it has a clear understanding of our risk profile and the effectiveness of controls which are informed by assurance activity. The GRACC is chaired by the Chief Executive, with membership comprising of the Centrica Executive Committee (CEC). The Audit Committee then receives a risk update which includes a CEC approved assessment of our principal risks and the adequacy of associated controls.

Ultimately, the Board, the Safety, Health, Environment, Security and Ethics Committee (SHESEC) and the Health, Safety, Environment and Security (HSES) sub-committee of the CEC are responsible for identifying and prioritising risks and opportunities.

W3.2e Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your direct operations that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain
Risks exist, but no substantive impact anticipated	Centrica is not currently exposed to substantive water-related risks. This is primarily because we do not operate water-intensive activities in medium to high water-stressed areas, assessed using the WBCSD Global Water Tool via Google Earth. The most significant risk we are exposed to is the availability of water for cooling requirements at our upstream assets. The supply of large volumes of water is important to these activities. The vast majority of this water is abstracted from estuaries or the open seas, which are sources associated with low risks regarding quantity and quality. Moreover, the vast majority of water we withdraw is used rather than consumed, as it is returned to the same water catchment area within the same cycle period, further reducing the risks of supply interruption. This can be demonstrated by our climate change adaptation assessments undertaken for our UK power assets, which rate flooding and water availability risks as low, although this and other risks are reviewed at quarterly risk meetings with input from environmental managers. Another inherent risk relates to the cost of water to our business. This is however currently immaterial when compared with other commodity costs such as gas, but we nevertheless review the risk annually. We do not foresee material tightening of relevant regulations and have strong operational systems and process controls to manage and mitigate pollution risks.

W3.2f Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your supply chain that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain
Risks exist, but no substantive impact anticipated	Gas and power sales are the most important components in our supply chain, both of which are reliant to varying degrees on the availability of water for their operations. As such, an inherent risk of water-related supply interruption exists. This risk is however not substantive as we purposely procure power from multiple generators in the open market, while gas is purchased from various sources including international supply contracts. This flexibility reduces our exposure to water-related risks. Water-related risks also exist in the supply chains of other services and products we procure. Identification of high risk suppliers occur through our comprehensive supply chain risk management programme including the use of EcoVadis and to date, no suppliers have been found to have substantive water-related risks. High risk and tier 0 suppliers are asked to complete an EcoVadis assessment every two years or when a contract is renewed.

W4. Water opportunities

W4.1 Does water present strategic, operational or market opportunities that substantively benefit/have the potential to benefit your organization?

No

W4.1b Please choose the option that best explains why water does not present your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain
Opportunities exist,but nothing substantive	Water is not material to the growth or cost saving opportunities for the business. The cost of water is not currently significant enough to present substantive saving opportunities. We have yet to identify major commercial, competitive or other opportunities related to water. While our approach to water-related biodiversity and habitat protection provides local engagement opportunities, these are not substantive. We hold an annual Board Planning Conference during which opportunities are examined including any related to water in new markets, potential investments and technologies. Due diligence to assess commercial viability, market landscapes and future regulation is then conducted before strategies are presented to the Centrica Executive Committee for review.

Response

W6.Governance & Strategy

W6.1 Who has the highest level of direct responsibility for water within your organization and how frequently are they briefed?

Highest level of direct responsibility for water issues	Frequency of briefings on water issues	Comment
Board of individual/Sub-set of the Board or other committee appointed by the Board	Scheduled - monthly	The Chief Executive has responsibility for the Group Environment Policy. The Centrica Executive Committee, of which the Chief Executive is Chair, are briefed monthly by the Group Director of Health, Safety, Environment and Security (HSES) on performance whereby any material water-related issues are raised and discussed. The Chief Executive, will also attend the Safety, Health, Environment, Security and Ethics Committee of the Board (SHESEC) which may discuss water-related issues and is Chair of the Centrica Executive HSES Sub-Committee, which tables environmental issues in more detail on a bi-monthly basis. Major water-related incidents are reported within 24 hours to the Chief Executive.

W6.2 Is water management integrated into your business strategy?

Yes

W6.2a Please choose the option(s) below that best explain how water has positively influenced your business strategy

Influence of water on business strategy	Please explain
Greater due diligence	Factoring water risks and management into our due diligence, investment and procurement decisions, ensures we have full visibility of water risks and obligations. This in turn enables these risks and opportunities to be effectively managed and mitigated, thus enhancing our business resilience and protecting our licence to operate.
Introduction of water management KPIs	This leads to our strong water stewardship, delivered by embedding high operational standards and driving continued improvements through setting and measuring targets and KPIs. Our transparent disclosure of our performance, sends a clear message to our stakeholders that we take our water-related risks and opportunities seriously and that we are effective in managing our impact on water.

W6.2b Please choose the option(s) below that best explains how water has negatively influenced your business strategy

Influence of water on business strategy	Please explain
No measurable influence	In general, we experience only localised operational constraints relating to access to water supplies or waste water discharge in our Exploration and Production (E&P) and power assets. These are managed through design, technology and innovation and in agreement with the relevant regulators or authorities. We have not experienced negative impacts on our business strategy relating to water. It is unlikely that this situation will change in the future based on our existing activities and assets, as the majority of our water intensive activities are located in areas where water scarcity is not an issue such offshore., Negative impacts on our strategy could however occur if we enter new geographies, activities or technologies, however suitable controls will be put in place should such risks arise.

W6.3 Does your organization have a water policy that sets out clear goals and guidelines for action?

Yes

W6.3a Please select the content that best describes your water policy (tick all that apply)

Content	Please explain why this content is included
Publicly available Company-wide Performance standards for supplier, procurement and contracting best practice Incorporated within group environmental, sustainability or EHS policy Acknowledges the human right to water, sanitation and hygiene	Our Group Environment Policy includes a key commitment to protect the environment and the efficient use and effective management of resources such as water. Our Procurement and Corporate Responsibility Policy for Suppliers requires active management of their own environmental impacts including measuring and periodic performance reviews. This is because the transparent and efficient use of resources is a key part of our commitment to being a good corporate citizen, which helps us meet our environmental goals and stakeholder expectations. Access to clean water is also a requirement for all suppliers to provide for employees. We do not include performance standards for direct operations as this level of detail is contained within Business Unit standards and procedures. We include a commitment to customer education on energy use as this is our core product. We do not extend this commitment to water as we are not involved in the provision of water-related products to customers.

W6.4 How does your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) during the most recent reporting year compare to the previous reporting year?

Water CAPEX (+/- % change)	Water OPEX (+/- % change)	Motivation for these changes
-8%	-21%	Both Centrica's OPEX & CAPEX figures reflect a reduction in global water expenditure. CAPEX In line with Centrica's efficiency strategy there has been a reduction in capital projects. OPEX

		OPEX reductions have been achieved, in line with Centrica's changing power generation portfolio, and asset shutdown in 2016 resulting in reduced asset water usage and consequent OPEX spend. Additionally, Centrica's efforts to drive efficiency across its global business led to reduced headcount and property rationalisation which have in turn reduced water demand and associated OPEX. More specific efforts have been made to reduce UK office water use through locally lead incentives and increased water telemetry monitoring at major sites. This has reduced water related OPEX .

W7. Compliance

W7.1 Was your organization subject to any penalties, fines and/or enforcement orders for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations in the reporting year?

No

W8. Targets and initiatives

W8.1 Do you have any company-wide targets (quantitative) or goals (qualitative) related to water?

Yes, target and goals

W8.1a Please complete the following table with information on company-wide quantitative targets (ongoing or reached completion during the reporting year) and an indication of progress made

Category of target	Motivation	Description of target	Quantitative unit of measurement	Base-line year	Target year	Proportion of target achieved, % value
Reduction in consumptive volumes	Water stewardship	Our target was to reduce our UK office water use by 3% in 2016, compared to 2015 We surpassed this target to achieve a 13% reduction in our water usage.	% reduction volume	2015	2016	100

W8.1b Please describe any company-wide qualitative goals (ongoing or reached completion during the reporting year) and your progress in achieving these

Goal	Motivation	Description of goal	Progress
Other: Full compliance with our prescribed limits on water management	Other: Companywide strategic priority on compliance	Where we have site-specific limits on the quality of discharge and quantity of abstraction, our goal is to ensure ongoing compliance with those limits. We set this goal pursuant to our policy commitment to prevent pollution, and a strategic priority to be compliant. We track performance against this goal at a frequency agreed with the regulator and report	In 2016, no significant incidents arose that resulted in legal action. However, there were a number of reportable incidents that were water-related, involving minor leaks or spills of hydrocarbons to the sea.

		progress to senior management monthly. Performance is reported externally as an annual calendar year total.	
Other: Absolute reduction of water withdrawals	Cost savings	Centrica continues to identify reductions in resource usage including water. An example of this is at Brigg power station, which seeks to achieve Maximum Daily Demand (MDD) Reductions for water withdrawal.	Centrica continues to strive to reduce its resource usage. The Brigg Power station goal is ongoing and currently under review as part of the optimisation of site processes. If successful this has the potential to drastically reduce the withdrawals by replacing the current cooling water system.
Other: Data on water consumption added to tracked and targeted	Water stewardship	Additional water meters connected to our monitoring & tracking system to allow live consumption of water in our offices to be reported and instant leak alarming for example Tredegar engineer training academy added in 2016.	Complete

Further Information

Regarding w8.1a
Under- Reduction in consumptive volumes.
Centrica achieved 428% of its target far exceeding the expectations set out- The progress box caps responses at 100% so we have put 100% in the box, but our actual score was 428%.

Linkages and trade-offs

W9. Managing trade-offs between water and other environmental issues

W9.1 Has your organization identified any linkages or trade-offs between water and other environmental issues in its value chain?

Yes

W9.1a Please describe the linkages or trade-offs and the related management policy or action

Environmental issues	Linkage or trade-off	Policy or action
Management of site effluent from gas processing terminal	Trade-off	Due to improvement conditions required by the regulator, Centrica Storage Limited is currently unable to discharge effluent via the gas terminal site sea outfall facility. Although this means there is no local environmental impact through effluent release, all effluent needs to instead be tankered offsite on a routine basis for treatment. This results in regular bulk transport of the liquids, as well as the required treatment and disposal of waste at an alternative facility. The number of tankers is reduced by an onsite methanol recovery plant. The improvement conditions regarding the sea outfall are currently being pursued, which necessitate that the environmental impacts of this activity are understood, assessed and quantified. The completion of this work will make it possible to compare the impact of this activity against the tankering of effluent offsite, which will help us determine the best solution for limiting impact on the environment going forward.

Sign off

W10. Sign off

W10.1 Please provide the following information for the person that has signed off (approved) your CDP water response

Name	Job title	Corresponding job category
Grant Dawson	Group General Counsel and Company Secretary	Board/Executive board

W10.2 Please select if your organization would like CDP to transfer your publicly disclosed response strategy data from questions W1.4a, W3.2c and W3.2d to the CEO Water Mandate Water Action Hub.

No