

SSE - Water 2018

W0. Introduction

W0.1

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

About SSE

SSE plc is one of the UK and Ireland's leading energy companies, involved in the generation, transportation and supply of electricity and in the extraction, storage, transportation and supply of gas. Its purpose is to responsibly provide the energy and related services needed now and in the future. Its vision is to be a leading provider of energy and related services in a low-carbon world. Its strategy is to create value for shareholders and society from developing, owning and operating energy and related infrastructure and services in a sustainable way. SSE supports the drive towards decarbonisation of the economy, electrification of transport and modernisation of critical infrastructure, it does so with a commitment to maintaining and growing a range of complementary businesses that have energy and related services at their core.

Planned SSE Energy Services Transaction

On 8 November 2017, the Board of Directors of SSE plc announced it had entered into an agreement with Innogy SE in respect of a proposed demerger of SSE's household energy and services business in Great Britain (now named SSE Energy Services) and immediate combination of that business with Innogy SE's subsidiary npower to form a new independent UK-based group. The planned SSE Energy Services transaction will create an efficient new independent energy supply and services business and help create a new market model by combining the resources and experience of two established players with the focus and agility of an independent supplier. This transaction is subject to necessary regulatory approvals. It is also intended to renew the remaining SSE businesses in a way that will bring benefits to SSE and to energy customers.

A Focused Strategy

SSE's renewed strategy will focus on creating value for shareholders and society from developing, owning and operating energy and related infrastructure and services in a sustainable way. This means being focused on earning returns for shareholders and making a positive economic, social and environmental contribution to the countries in which SSE operates; being efficient in developing, owning and operating infrastructure and related services and being agile in creating and securing value from them; maintaining a range of complementary business activities with a depth of insight into a core sector and doing things responsibly. As SSE changes over the years to come, it will remain focused on improving energy

infrastructure for the future; committed to being a transparent, responsible company that makes good decisions for the long-term; and guided by the SSE SET of values (Safety, Service, Efficiency, Sustainability, Excellence and Teamwork).

A New Business Model

Networks and renewable generation will be core to the 'NEW' SSE business, with flexible thermal generation also having a key role. SSE will also continue to maintain and grow a range of complementary businesses that have energy and related services at their core. The needs of energy customers will continue to be SSE's key focus.

SSE's four key businesses:

1. Retail (demerger proposed): SSE supplies energy and other services to the GB household market through SSE Energy Services, a wholly owned subsidiary formed in early 2018 in preparation for the proposed demerger with npower. Retailing domestic electricity and gas to GB households and providing energy-related products and services to GB households.
2. Retail (to remain in SSE): Energy supply business, supplying electricity and gas to business, commercial and public sector organisations across GB; Energy supply (SSE Airtricity) supplying energy and related services to customers across the island of Ireland; and Enterprise providing innovative energy solutions to business and the public sector.
3. Networks: Electricity distribution using low voltage overhead lines and underground cables to deliver electricity to around 3.8m GB customers; and electricity transmission using high voltage overhead lines and underground and subsea cables to carry electricity from generating plant to the distribution network.
4. Wholesale: Electricity generation using turbines to convert energy from water, wind, gas, coal, oil and multi-fuel to generate electricity; Energy portfolio management managing energy procurement and contracts; Gas production extracting natural gas from fields in the North Sea and west of Shetland, on the outer margins of the Atlantic; and Gas storage playing a role in security of supply by storing natural gas underground in large caverns for future use.

This report on SSE's water consumption refers to the financial reporting period 1 April 2017 – 31 March 2018. The water data provided excludes some data (see W0.6a for details) including for joint ventures. However, the electricity generation data provided in W-EU0.1b does include joint venture activities, including in thermal generation plant data.

W-EU0.1a

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

Electricity generation
Transmission
Distribution

Other, please specify (Energy retail - household and business)

W-EU0.1b

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

	Nameplate capacity (MW)	% of total nameplate capacity	Gross generation (MWh)
Coal – hard	1995	17.9	1462
Lignite	0	0	0
Oil	978	8.7	149
Gas	4327	38.8	21743
Biomass	37	0.3	90
Waste (non-biomass)	34	0.3	316
Nuclear	0	0	0
Geothermal	0	0	0
Hydroelectric	1450	13	3430
Wind	2339	21	5908
Solar	0	0	0
Other renewable	0	0	0
Other non-renewable	0	0	0
Total	11160	100	33098

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	March 31 2017	April 1 2018

W0.3

(W0.3) Select the countries/regions for which you will be supplying data.

United Kingdom of Great Britain and Northern Ireland

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
Joint Ventures	This report excludes any joint ventures in which SSE does not have operational control. Scotia Gas Networks (described below) is one of the largest business units excluded from the inventory. For a full list of SSE's subsidiary undertakings, partnerships, joint ventures and associates, please refer to pages 210 to 216 of SSE's Annual Report 2018. • Scotia Gas Networks (SGN): SGN is a Joint Venture and SSE does not have operational control over these operations. Covering Scotland and the south of England, SGN is the gas network company distributing natural and green gas to 5.9 million homes and businesses through a network of 74,000km of mains and services. SSE has 33% shareholding.
Operations outside the UK	SSE has operations in Ireland. Water data for Ireland is not included in the data provided in this submission. SSE has thermal generation (gas- and oil-fired generation) in Ireland. The output from this plant accounted for around 8% of SSE's total output in 2017/18. While water data for operations in Ireland is not included in this year's submission, SSE will be including it in future years' submissions.
Supply chain	This report excludes the water use of SSE's suppliers.
Gas production activities	SSE E&P UK Ltd: SSE E&P UK Ltd is the way through which SSE has equity shareholding in gas producing assets but SSE does not operate these assets so this is excluded from the disclosure. Although this company is wholly owned by SSE, its stake in any gas producing assets is significantly below 50%.

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	Vital	Important	SSE operates 1,450MW of hydro electricity generation capacity (including pumped storage). This includes 91 hydro dams in the north of Scotland covering a water catchment area of 5,382 sq. miles. That means sufficient volumes of water from freshwater sources are very important for SSE's business, most obviously as a fuel source for these hydro generation operations. At hydro generation sites water is taken from rivers and lochs and returned to the water environment with its quality unaffected after being run through the turbines to generate electricity. Furthermore, a sufficient volume of good quality water is also important for SSE's thermal operations. SSE's thermal operations involve coal, gas, oil and multifuel. Good quality freshwater is required for operational purposes such as to cool generation plants and as process water for a variety of operations.
Sufficient amounts of recycled, brackish and/or produced water available for use	Vital	Not very important	SSE's thermal generation plant relies on cooling water for its operations from estuaries or the open sea (i.e. brackish water). However, the risk of insufficient amounts of brackish water is low.

W1.2

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

	% of sites/facilities/operations	Please explain
Water withdrawals – total volumes	76-99	Hydro and thermal generation activities contribute over 99% of SSE's total water withdrawals in terms of total volumes. These withdrawals are therefore business critical and monitored closely for both operational and regulatory purposes. Thermal power stations monitor, measure and report water aspects to the appropriate regulators against specific environmental permits and their requirements.
Water withdrawals – volumes from water stressed areas	76-99	Hydro and thermal generation activities contribute over 99% of SSE's total water withdrawals. SSE does not withdraw any water for these activities from water stressed

	% of sites/facilities/operations	Please explain
		areas. SSE's thermal power stations monitor, measure and report water aspects to the appropriate regulators in accordance with environmental permits and their requirements. None of SSE's thermal power stations in England are located in areas of water stress as defined by the Environment Agency's 'Restoring Sustainable Abstraction Programme'. There is no classification by Scottish Environmental Protection Agency (SEPA) for water stress as there is in England and Wales. For water bodies affected by SSE hydro operations these are classified by SEPA under the European Union Water Framework Directive regulations for quality, ecology and hydrology, as is the case for all waters in Scotland.
Water withdrawals – volumes by source	76-99	Hydro and thermal generation activities contribute over 99% of SSE's total water withdrawals in terms of volumes by source. This data is gathered and monitored for both regulatory and operational purposes.
Produced water associated with your metals & mining sector activities - total volumes	<Field Hidden>	<Field Hidden>
Produced water associated with your oil & gas sector activities - total volumes	<Field Hidden>	<Field Hidden>
Water withdrawals quality	76-99	Hydro and thermal generation activities contribute over 99% of SSE's total water withdrawals in terms of quality. This data is similarly gathered for regulatory and operational purposes.
Water discharges – total volumes	76-99	Hydro and thermal generation activities contribute over 99% of SSE's total water discharges in terms of total volumes. These activities are business critical and therefore the data is gathered and monitored for regulatory and operational purposes.
Water discharges – volumes by destination	76-99	Hydro and thermal generation activities contribute over 99% of SSE's total water discharges in terms of volumes by destination. This data is gathered for regulatory and operational purposes.
Water discharges – volumes by treatment method	76-99	Hydro and thermal generation activities contribute over 99% of SSE's total water discharges in terms of volumes by treatment method. This data is gathered for both regulatory and operational purposes.
Water discharge quality – by standard effluent parameters	76-99	Hydro and thermal generation activities contribute over 99% of SSE's total water discharges. This data is gathered for both regulatory and operational purposes.

	% of sites/facilities/operations	Please explain
Water discharge quality – temperature	1-25	Thermal power stations monitor, measure and report water aspects to the Regulators against specific environmental permits and this may include water discharge quality in terms of temperature.
Water consumption – total volume	76-99	Hydro and thermal generation activities contribute over 99% of SSE's total water consumption in terms of total volume. This is business critical activity and therefore data is gathered for both regulatory and operational purposes.
Water recycled/reused	76-99	Hydro and thermal generation activities contribute over 99% of SSE's total water recycled/reused. This data is gathered for regulatory and operational purposes (for example for optimising efficiencies in thermal generation) as it is business critical.
The provision of fully-functioning, safely managed WASH services to all workers	76-99	Hydro and thermal generation activities contribute over 99% of our total water withdrawals in terms of quantity. This data is gathered for internal monitoring and measurement purposes to support efficiency activities and programmes.

W-EU1.2a

(W-EU1.2a) For your hydroelectric operations, what proportion of the following water aspects are regularly measured and monitored?

	% of sites/facilities/operations measured and monitored	Please explain
Fulfilment of downstream environmental flows	100%	SSE's heritage has its foundations in the large-scale development of hydro-electricity in the north of Scotland in the 1940s and 1950s. SSE works closely with regulators, environmental organisations and the local community to ensure that its hydro-electricity operations have minimal adverse impacts on these stakeholders, biodiversity and the environment. SSE monitors all abstractions (based on the volume of water passing through its turbines), compensation and freshet flows and report these to the Regulator, the Scottish Environment Protection Agency (SEPA), on an annual basis or as requested.
Sediment loading	100%	There is no impact to sediment loading from SSE's hydro operations in normal operating conditions; during maintenance, non-routine overhauls and other non-routine activities sediment loading is monitored. For these activities, SSE has emergency response and containment processes in place to manage any impacts from these activities.
Other, please specify	100%	SSE's hydro power stations operate in the north of Scotland in fresh water catchments. Salmon and sea trout return to breed in the rivers ever year. To safeguard the fish stocks SSE has fish

	% of sites/facilities/operations measured and monitored	Please explain
		ladders and fish screens to help the fish return upstream to breeding grounds. SSE closely monitors the operation of these fish passes and fish screens.

W1.2b

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

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	24044342	Higher	In 2017/18 SSE abstracted 24.0 billion m3 of water compared to 22.7 billion m3 in 2016/17. The rise in abstraction volumes was due to an increase in generation output from SSE's thermal and hydro generation assets. Over 97% of the total water abstracted by SSE in 2017/18 was used in its hydro generation operations to run through turbines to create electricity, and therefore was returned to the environment almost immediately. SSE's hydro generation assets output increased by 2.9% from 3,334GWh to 3,430GWh between 2016/17 and 2017/18. Water withdrawals by SSE's hydro generation plant increased by 6% in the same period. For thermal generation plant water is used for cooling and as process water in a variety of operations. Cooling water is abstracted and returned to the environment. The better the cooling the higher the efficiency of water use and process water use. Between 2016/17 and 2017/18, there was a 32% increase in SSE's total thermal generation output in GB. In this same period, the water abstracted by SSE's thermal generation plant increased by 13%.
Total discharges	24037329	Higher	In 2017/18 SSE discharged 24.0 billion m3 of water compared to 22.7 billion m3 in 2016/17. Over 97% of the total water abstracted by SSE in 2017/18 was used in its hydro generation operations, and therefore was returned to the environment almost immediately, meaning the discharge figures provided here are very similar to the withdrawal figures. The rise in discharge volumes was due to an increase in generation output from SSE's thermal and hydro generation assets. SSE's hydro generation assets output increased by 2.9% from 3,334GWh to 3,430GWh between 2016/17 and 2017/18. Water withdrawals and associated discharges increased by 6% in the same period. For thermal generation plant water is used for cooling and as process water in a variety of operations. Cooling water is abstracted and returned to the environment. The better the cooling the higher the efficiency of water use and process water use. Between 2016/17 and 2017/18, there was a 32% increase in SSE's total thermal generation output in GB. In this same period, the water discharged by SSE's thermal generation plant increased by 13%.

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total consumption	7593	Higher	The water that is consumed by SSE is used as process water in SSE's thermal power stations and in SSE's non-operational buildings for amenities. In 2017/18, SSE consumed 0.008 billion m3, accounting for 0.03% of the total water withdrawals in this period. This compares to consumption of 0.005 billion m3 in 2016/17, accounting for 0.02% of the total water withdrawals in that period. The water that is consumed by SSE is used as process water in SSE's thermal power stations and in SSE's non operational buildings for amenities. SSE has water efficiency and saving programmes in its generation operations and non-operational offices, data centres and depots. While SSE experienced a reduction in water consumption in 2017/18 in its non-operational buildings, this was outweighed by the increase in water consumption by its thermal generation assets, and as a result SSE's total water consumption increased in 2017/18 compared to the previous year.

W1.2d

(W1.2d) Provide the proportion of your total withdrawals sourced from water stressed areas.

	% withdrawn from stressed areas	Comparison with previous reporting year	Identification tool	Please explain
Row 1	0	About the same	Other, please specify (Regulators - EA and SEPA)	Hydro and thermal generation activities contribute over 99% of SSE's total water withdrawals in terms of quantity. This data is gathered for regulatory and operational purposes as it is business critical. In SSE's thermal power stations water is primarily used for cooling and as process water. Individual installations monitor, measure and report water aspects to the Regulators in accordance with specific environmental permits. None of SSE's thermal power stations have been identified as being located in areas of water stress under the Environment Agency's 'Restoring Sustainable Abstraction Programme'. In December 2017 the UK Government published its Water Abstraction Plan which set out how the UK government will reform water abstraction management in England over the coming years and how this will protect the environment and improve access to water. This plan aims to promote a stronger catchment focus and will produce updated abstraction licensing strategies that detail the solutions and set out approaches to environmental issues. For SSE's hydro generation, there is no direct classification by SEPA in Scotland for water stressed areas. For water bodies affected by SSE hydro operations these are classified by SEPA under the European Water Framework Directive for quality, ecology and hydrology. SSE recently reduced the water

	% withdrawn from stressed areas	Comparison with previous reporting year	Identification tool	Please explain
				abstraction on the River Garry and its tributaries to meet the Water Framework Directive requirements. There are a very small number of minor water bodies under potential consideration under the Water Framework Directive which may mean SSE has to change its operations to meet new regulatory requirements in the future.

W1.2h

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	23739674	Higher	Withdrawals from fresh water sources is done by SSE's hydro generation assets, and the majority of its thermal assets (excluding Slough Heat and Power biomass, Peterhead gas-fired and Fiddlers Ferry coal-fired power stations). In 2017/18 SSE's withdrawals from fresh water sources increased by 6% compared to the previous year. Over 97% of the water abstracted was used in SSE's hydro generation operations and therefore was returned to the environment almost immediately. The rise in abstraction volumes was due to an increase in generation output from SSE's thermal and hydro generation assets. Between 2016/17 and 2017/18, there was a 32% increase in SSE's total thermal generation output in GB and a 2.9% increase in SSE's hydro generation output.
Brackish surface water/seawater	Relevant	302726	Higher	The water withdrawn from brackish surface water/ seawater is for SSE's Peterhead gas-fired and Fiddlers Ferry coal-fired power stations only. The rise in abstraction volumes was due to an increase in generation output from SSE's thermal and hydro generation assets. Between 2016/17 and 2017/18, there was a 32% increase in SSE's total thermal generation output in GB. Water withdrawn from brackish sources increased by 44% between 2016/17 and 2017/18.
Groundwater – renewable	Relevant	1853	Higher	SSE's Slough Heat and Power biomass power station abstracts water from renewable groundwater for use in its power station. The rise in abstraction

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
				volumes was due to an increase in generation output from SSE's thermal and hydro generation assets. Between 2016/17 and 2017/18, there was a 32% increase in SSE's total thermal generation output in GB. Water withdrawn from groundwater (renewable) sources increased by 21% between 2016/17 and 2017/18.
Groundwater – non-renewable	Not relevant	<Field Hidden>	<Field Hidden>	SSE does not use non-renewable groundwater for its operations.
Produced water	Not relevant	<Field Hidden>	<Field Hidden>	SSE does not use produced water for its operations.
Third party sources	Relevant	90	Lower	Municipal supplies are used for amenities in SSE's buildings and operations. Water used in amenities reduced by 3% between 2016/17 and 2017/18 reflecting the promotion of water saving behaviour and investment programmes.

W1.2i

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	23737540	Higher	Water discharges to fresh water sources is done by SSE's hydro generation assets, and the majority of its thermal assets (excluding Peterhead and Fiddlers Ferry power stations). Over 97% of SSE's total water returned to the environment is by its hydro generation assets. Water discharged to fresh surface water increased by 6% between 2016/17 and 2017/18. The rise in discharge volumes to fresh surface water was due to an increase in generation output from SSE's thermal and hydro generation assets. Between 2016/17 and 2017/18, there was a 32% increase in SSE's total thermal generation output in GB and a 2.9% increase in SSE's hydro generation output.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Brackish surface water/seawater	Relevant	298280	Higher	The water discharged to brackish surface water/ seawater is done by SSE's Peterhead gas-fired and Fiddlers Ferry coal-fired power stations only. Water discharged to brackish sources increased by 43% between 2016/17 and 2017/18. The rise in discharge volumes to brackish sources was due to an increase in generation output from SSE's thermal generation assets. For SSE's thermal generation activities water is used for cooling and returned directly back to the environment. Where required water is treated onsite before returning it to source in accordance with specific environmental permits.
Groundwater	Not relevant	<Field Hidden>	<Field Hidden>	SSE does not discharge to groundwater for its operations.
Third-party destinations	Relevant	1599	Higher	Water discharged to third-party destinations is from SSE's non-operational buildings and Slough Heat and Power biomass power station. For SSE's thermal generation activities some process water and cooling waters are discharged to an onsite wastewater treatment plant before discharged back to source. As a result, SSE includes these water discharges in its fresh surface water volume reported. Water discharged to third-party destination increased by 22% between 2016/17 and 2017/18. The rise in discharge volumes to third party destinations was due to an increase in generation output from SSE's thermal generation assets. In addition, municipal supplies are used for amenities in SSE's buildings and operations. Water used in amenities reduced by 3% between 2016/17 and 2017/18 reflecting the promotion of water saving behaviour and investment programmes. However this reduction was outweighed by the increase in discharge from Slough Heat and Power biomass plant.

W1.2j

(W1.2j) What proportion of your total water use do you recycle or reuse?

	% recycled and reused	Comparison with previous reporting year	Please explain
Row 1	76-99%	About the same	The majority of water abstracted and then discharged is associated with SSE's hydro generation business. SSE reuses large amounts of water as part of the 'cascade' schemes (which are in place for the majority of SSE's larger hydro schemes such as Conon, Ness, Tummel and Beaully) where the water is used multiple times at different power stations as it flows downstream. In thermal generation SSE looks to optimise water use on its plants to improve efficiency.

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	Numerator: water aspect	Denominator: unit of production	Comparison with previous reporting year	Please explain
0.02	Total water withdrawn	MWh	Lower	SSE uses water intensity to inform water optimisation strategies in its thermal generation plant as well as for regulatory resource efficiency metrics reporting purposes. For thermal plants water is used for cooling and as process water. Between 2016/17 and 2017/18 output from thermal power stations increased, however the intensity ratio fell from 0.026 to 0.023 megalitres/MWh between in this same period as a result of these strategies (intensity is calculated using total water abstracted - thermal (megalitres) against total thermal generation output (MWh)).
0.02	Other, please specify (Total water returned)	MWh	Lower	SSE uses water intensity to inform water optimisation strategies in its thermal generation plant as well as for regulatory resource efficiency metrics reporting purposes. For thermal plants water is used for cooling and as process water. Between 2016/17 and 2017/18 output from thermal power stations in GB increased by 32%. The water returned intensity ratio reduced from 0.026 to 0.022 megalitre/MWh between 2016/17 and 2017/18. Total water returned intensity is calculated using total water returned - thermal (megalitres) against total thermal generation output (MWh).

Water intensity value	Numerator: water aspect	Denominator: unit of production	Comparison with previous reporting year	Please explain
0	Total water consumption	MWh	Higher	SSE uses water intensity to inform water optimisation strategies in its thermal generation plant as well as for regulatory resource efficiency metrics reporting purposes. For thermal plants water is used for cooling and as process water. Water is treated onsite before returning it to source in accordance with specific environmental permits. Between 2016/17 and 2017/18 SSE's total thermal generation output in GB increased by 32%. The total water consumed intensity ratio increased between 2016/17 and 2017/18 reflecting the change in generation output. Total water consumed intensity is calculated using total water consumed - thermal (megalitres) against total thermal generation output (MWh).

W1.4

(W1.4) Do you engage with your value chain on water-related issues?

No, we do not engage on water with our value chain

W1.4d

(W1.4d) Why do you not engage with any stages of your value chain on water-related issues and what are your plans?

	Primary reason	Please explain
Row 1	Important but not an immediate business priority	SSE has identified its material issues relating to its key business operations. SSE is working with its value chain (primarily suppliers) based on reviewing and understanding environment, social and governance issues that are relevant and influence the business and its operations. Modern Slavery, climate change and employment practices have been identified as higher priority with the likelihood of and magnitude of potential financial/ reputational impacts higher than those posed by water issues. Water is highlighted as an issue to the business but the risk review highlighted it as low priority in terms of the likelihood and magnitude of potential financial and reputation impact. Risks are reviewed annually. Overwhelmingly climate change is the most material environmental priority. SSE remains vigilant regarding the emergence of higher priority issues relating to water.

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?

No

W3. Procedures

W-EU3.1

(W-EU3.1) How does your organization identify and classify potential water pollutants associated with your business activities in the electric utilities sector that could have a detrimental impact on water ecosystems or human health?

For SSE's hydro generation operations, sufficient amounts of water from freshwater sources is very important for the business as a fuel source for hydro generation operations. At hydro generation sites water is taken from rivers and lochs and returned to the water environment after being run through the turbines to generate electricity. SSE monitors, measures and reports on all compensation and freshet flows to regulators as well fish passes and fish screens. SSE also has a license condition to avoid any release of lubricating oils when the water is returned to the environment.

In SSE's thermal power stations water is primarily used for cooling with some water used as process water. All SSE's thermal installations have environmental permits with associated environmental impact assessments. Each site monitors, measures and reports water aspects to the Regulators in accordance with specific environmental permits. SSE also monitors water intake to understand and monitor quality of the water entering its power stations.

W-EU3.1a

(W-EU3.1a) Describe how your organization minimizes the adverse impacts of potential water pollutants associated with your activities in the electric utilities sector on water ecosystems or human health.

Potential water pollutant	Description of water pollutant and potential impacts	Management procedures	Please explain
Other, please specify	Thermal cooling-water discharges have been shown to have minimal	Compliance with effluent quality standards	SSE monitors, measures and reports water aspects in accordance with specific requirements of the environmental

Potential water pollutant	Description of water pollutant and potential impacts	Management procedures	Please explain
(Thermal discharges)	detrimental impact to the water system. SSE also monitors water intake to understand and monitor quality of water entering its power stations.	Measures to prevent spillage, leaching, and leakages Community/stakeholder engagement Emergency preparedness	permit. SSE has a ISO14001 system in place to manage these activities. It also has emergency response procedures, secondary containment, and water treatment facilities where required in relation to permit conditions. In addition, SSE monitors water intake in its thermal generation assets to understand and monitor quality of water entering its power stations.

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.

Direct operations

Coverage

Full

Risk assessment procedure

Water risks are assessed in an environmental risk assessment

Frequency of assessment

Six-monthly or more frequently

How far into the future are risks considered?

>10 years

Type of tools and methods used

International methodologies

Tools and methods used

Other, please specify (ISO14001 Environmental Management System)

Comment

The Board is responsible for the overall system of risk management. It either directly, or through its committees, sets policies and reviews risk at SSE. Risks are reviewed six monthly to ensure they are managed, relevant and mitigated. Water risks

have the potential to impact all parts of SSE's business across all geographies (for example, networks and flooding north and south of UK). The Safety, Health and Environment Advisory Committee and SHE Committee oversee water risks.

Supply chain

Coverage

Full

Risk assessment procedure

Water risks are assessed in an environmental risk assessment

Frequency of assessment

Six-monthly or more frequently

How far into the future are risks considered?

>10 years

Type of tools and methods used

International methodologies

Tools and methods used

Other, please specify (ISO14001 Environment Management System)

Comment

SSE has identified its material issues relating to its key business operations. SSE works with its suppliers based on risk, to review and understand the impact of environment, social and governance issues. Water is identified as a risk but highlighted as low risk in terms of likelihood/ magnitude of potential impact. Climate change is the most material environment risk. SSE remains vigilant to the emergence of higher risks relating to water.

Other stages of the value chain

Coverage

Full

Risk assessment procedure

Water risks are assessed in an environmental risk assessment

Frequency of assessment

Six-monthly or more frequently

How far into the future are risks considered?

>10 years

Type of tools and methods used

International methodologies

Tools and methods used

Other, please specify (ISO14001 Environmental Management System)

Comment

SSE has identified its material issues relating to its key business operations. SSE has a programme of work with its value chain based on risk to review and understand the impact of environment, social and governance issues. Water is identified as a risk but highlighted as low risk in terms of likelihood/ magnitude of potential financial/ reputation impact. Climate change is the most material environment risk. SSE remains vigilant to the emergence of higher risks relating to water.

W3.3b

(W3.3b) Which of the following contextual issues are considered in your organization’s water-related risk assessments?

	Relevance & inclusion	Please explain
Water availability at a basin/catchment level	Relevant, always included	Water is used for generation at SSE’s hydro power stations. Water availability is relevant as the amount of water available impacts the hydro generation efficiency and output. Hydro generation is managed according to the level of water availability. SSE takes a 10 year rolling average of runoff for the operation of the hydro assets for every year. It then overlays station outages and maintenance that may affect the running of the hydro assets. This rolling average takes some account of the past trends in climate and weather in order to enable SSE to predict future generation in its hydro assets. Water availability is therefore assessed in the immediate term (daily through 24/7 monitoring systems), short term (for the year ahead), medium term (5 years ahead) and long term (over 5 years into the future) for all our hydro power station operations at a local, regional and national level. These risk assessments then inform how SSE’s hydro generation plant is run and adapted to the resources available. Water is also used to cool generation plants; as process water for a variety of operations; and for amenities in SSE’s offices and buildings. At thermal generation plants most water is used for cooling. Water quality is constantly monitored and water treated to meet operational quality requirements.
Water quality at a basin/catchment level	Relevant, always included	Water is used for generation at SSE’s hydro power stations. Water availability is relevant as the amount of water available impacts the hydro generation efficiency. Hydro generation is managed according to the level of water availability. SSE takes a 10 year rolling average of runoff for the operation of the hydro assets for every year. It then overlays station outages and maintenance that may affect that the running of the hydro assets. This rolling average takes some account of the past trends in climate and weather in order to enable SSE to predict future generation in its hydro assets. Water availability is therefore assessed in the immediate term (daily through 24/7 monitoring systems), short term (for the year ahead), medium term (5 years ahead) and long term (over 5 years into the future) for all our hydro power station operations at a local, regional and national level. These risk assessments then inform how SSE’s hydro generation plant is run and adapted to the resources

	Relevance & inclusion	Please explain
		available. Water is also used to cool generation plants; as process water for a variety of operations; and for amenities in SSE's offices and buildings. At thermal generation plants most water is used for cooling. Water quality is constantly monitored and water treated to meet operational quality requirements.
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, always included	Water is used for energy generation, cooling, process water and for amenities in offices and buildings. The use of water by stakeholders and the use of water for SSE's operations can in some instances create water resource issues at a local level. As part of SSE's risk assessment process, water risks that arise from the use of water resources by other stakeholders are integrated into operational procedures and processes, impacts are measured, monitored and reported to stakeholders. SSE also consults and engages with relevant stakeholders to manage and mitigate the impact of its operations on water resources and other stakeholders use of these resources (such as Fisheries Boards and recreational users in relation to its hydro operations). An example of how SSE is putting this approach into practice – River Garry in Perthshire – where under the river basin management plan SSE has begun to restore flow to a river which has been dry since the 1950s. This will impact the hydro generation output at this site however it will bring about environmental improvements to the river biodiversity which is seen to be a benefit to all stakeholders. The change in the operation of this hydro generation facility was a joint agreement between SSE, SEPA and the District Salmon Fishery Board to improve flows on the River Garry. There are further sites that SSE is investigating introducing similar environmental improvements, however, these will not be on the scale of the change that will take place at the River Garry catchment.
Implications of water on your key commodities/raw materials	Relevant, always included	Production of electricity is one of SSE's core products and the availability of water is essential for SSE's thermal and hydro electricity generation activities. For SSE's hydro-generation activities, the amount of water available impacts the hydro generation efficiency. Hydro generation is managed according to the volume of water available. For SSE, the risk is assessed through understanding trends in climate and weather in the past and predicting this over different time periods in order to run generation in the future. Water availability is therefore assessed in the immediate term (daily through 24/7 monitoring systems), short term (for the year ahead), medium term (5 years ahead) and long term (over 5 years into the future) for all our hydro power station operations at a local, regional and national level. These risk assessments then inform how SSE's hydro generation plant is run and adapted to the resources available. SSE also conducts scenario analysis for its generation plant to ensure that future changes in key resources are factored into investment and future operating decisions.
Water-related regulatory frameworks	Relevant, always included	Water is used for energy generation, cooling, process water and for amenities in offices and buildings. Regulations on water impact all areas of the business, for example compensation flow regulations (regulated volumes of water that must remain in the river) impact the way SSE runs its hydro generation. Water abstraction charges impact our hydro and thermal generation activities as

	Relevance & inclusion	Please explain
		there are water charges in place based on the volumes of water consented for use. In addition, SSE's generation assets will be subject to changes in national regulations that implement the requirements of the EU Water Framework Directive. For SSE's hydro generation operations this will impact future compensation levels and how SSE runs its generation plant. For SSE's thermal generation plant this may impact the environmental quality standards and potentially the water discharges from sites. As part of SSE's risk assessment process, water risks from regulatory frameworks and tariffs are identified and assessed, procedures and processes implemented to manage the impacts and measurement, monitoring and reporting systems in place to report compliance to relevant authorities. SSE has compliance and regulatory teams to manage and mitigate the impact of regulatory frameworks to its business activities. SSE also consults and engages regularly with relevant authorities to manage the impact of water regulation (for example Scottish Environmental Protection Agency (SEPA), Environment Agency for England (EA), and Environment Protection Agency in Ireland (EPA), DEFRA and BEIS (through industry representative groups).
Status of ecosystems and habitats	Relevant, always included	Water is used for energy generation, cooling, process water and for amenities in offices and buildings. The status of ecosystems and habitats is constantly reviewed through SSE's risk assessment approach. To mitigate the risk SSE has processes and procedures in place to monitor water quantity and quality to ensure compliance with any consents, and reports regularly to stakeholders (including regulators) on its water impacts. SSE also engages and consults with stakeholders on water-related issues and the impact that its activities have on the status of ecosystems and habitats. SSE monitors ecology and commissions research with Universities and academics to better understand the ecology and biodiversity of the rivers that it operates in. For example, SSE worked with the University of Highlands and Islands to conduct research using genetic analysis and fish demographic data to produce sustainable conservation limits. Another example, is how salmon smolts exit through large lochs/ lakes both natural and reservoirs with SCENE (a collaboration of Glasgow University, Northern Ireland, University of Highlands and Islands).
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Water is used for amenities in offices and buildings and operational sites. Current risk assessments of availability and quality of water are included in property risk management plans. SSE monitors water consumption and has activities in place to reduce water consumption across its property portfolio.
Other contextual issues, please specify	Relevant, always included	SSE has assessed the impact of different stakeholders and has not identified any other categories that may have a significant impact on its operations in relation to water risk.

W3.3c

(W3.3c) Which of the following stakeholders are considered in your organization's water-related risk assessments?

	Relevance & inclusion	Please explain
Customers	Relevant, sometimes included	SSE has regular contact with its customers (this can be retail customers, households connected to the electricity grid and businesses) in relation to winter readiness and the impact of potential flooding on its networks, generation and retail business activities. SSE contacts these customers using web communications; TV, radio and newspaper campaigns; and direct customer contact through our customer call centres. SSE has emergency response plans, business continuity plans and a series of communication for different customers to ensure they understand how to respond to the impact of flooding on energy supply.
Employees	Relevant, sometimes included	SSE regularly reviews the readiness of its employees to respond to emergencies, get to sites to maintain operations and other business continuity issues. This may be a result of flooding in communities where its employees live or flooding at SSE's sites. This is to ensure business continuity in the event of flooding or other emergency situations.
Investors	Relevant, sometimes included	SSE reports to investors on water risks through CDP (this survey), its annual report and accounts and its sustainability report. This is the third year SSE has reported to CDP on water and this is a result of the increased importance of water to its investment community. In 2014/15 SSE extended its annual report and sustainability report to include water data and in 2015/16, 2016/17 and 2017/18 its water data was assured by PwC in accordance with the ISAE3000 (revised) and ISAE3410 standards.
Local communities	Relevant, sometimes included	SSE consults and engages with local communities and community groups/ organisations on the impact of its operations to their recreational and business activities. For instance the impact of its hydro operations on fisheries and fishing, canoeing and other recreational users. This is to ensure that SSE can operate in the local communities in which it has a presence.
NGOs	Relevant, sometimes included	SSE regularly consults with key stakeholders on water related issues and the main groups of relevant agencies are the other categories outlined in this table.
Other water users at a basin/catchment level	Relevant, sometimes included	SSE's risk assessments have identified the key water users at local levels and the impact of these on its operations, the key stakeholder groups are covered by the other categories in this table.
Regulators	Relevant, sometimes included	SSE has regular contact with regulators, Environment Agency, SEPA and Environment Protection Agency (Ireland) on water issues including consents, compensation flows and river basin/ ecosystem/ habitat management. SSE also maintains a strong presence at meetings that involve regulators and policy makers in relation to water issues for example SSE is engaging in workstreams associated with the recently published water abstraction plan for England and SSE meets regularly with SEPA to discuss the impact of water framework directive on its hydro operations in the period to 2027.

	Relevance & inclusion	Please explain
River basin management authorities	Relevant, sometimes included	SSE has regular discussions and responds to consultations with key river basin management authorities (including regulators and government) through industry working groups on water abstraction reform, water framework changes and the different needs of different water users. This is to ensure that SSE's views and knowledge can be integrated into regulatory plans and the impact to its operations is understood by regulatory authorities.
Statutory special interest groups at a local level	Relevant, sometimes included	SSE has regular contact with statutory special interest groups in relation to impact of current operations and future activities on water resources (quality and quantity) and river basin/ ecosystem/ habitat management planning. SSE does this through formal planning consultation processes as well as through regular meetings/ discussions and forums that exist as part of its ongoing stakeholder consultation and engagement exercises and through direct liaison meetings.
Suppliers	Relevant, sometimes included	SSE assesses the impact of water resources on the ability of its suppliers to provide us with raw materials. For example, at its thermal generation plant, SSE understands the impact of flooding to its suppliers and its potential to impact the delivery of coal to its business.
Water utilities at a local level	Relevant, sometimes included	SSE has regular contact with water utilities in relation to impact of its current operations and future activities on water resources (quality and quantity) and river basin/ ecosystem/ habitat management planning. SSE does this through formal planning consultation processes as well as through regular meetings/ discussions and forums that exist as part of its ongoing stakeholder consultation and engagement exercises.
Other stakeholder, please specify	Not relevant, included	SSE has assessed the impact of different stakeholders in relation to water risk and has not identified any other categories that have a significant impact on its operations.

W3.3d

(W3.3d) 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.

SSE identifies and evaluates risk at both Group and divisional (including assets) level by considering, controlling and monitoring the impact of risks against the achievement of SSE's strategic objectives (set by the Board). The Executive Committee and its sub-committees have responsibility for overseeing SSE's Principal Risks. The Group Risk Management and Strategic Frameworks have been designed to ensure (amongst other things) that SSE is in a position to address the issue of water, whether as a risk or as an opportunity. The risk assessment timeframe is greater than 10 years because in terms of water risk there are regulatory, physical and asset risks that can occur over the short (next 12 months), medium (within 5 years) and long term (6 years and beyond). Risk assessments are completed six monthly or more frequently to ensure risks are still relevant/ mitigated and managed. Water risks are relevant to all geographies and all businesses. E.g.

water quality/ quantity issues could present challenges in operations of hydro and thermal generation assets; equally, flooding could cause disruption to operations across networks, generation and retail.

For SSE, the challenge of water (regulatory, physical and reputational) does not have a significant impact (in terms of likelihood and impact) to change or impact the businesses strategic objectives. Where water risk is relevant, SSE responds by having mitigation plans in place to manage the impact. Water risks can arise from issues like: flooding (short term), to mitigate this over 300 risk assessments are completed to understand the impact of flooding to business operations (i.e substations); future legislation (medium term) could impact hydro assets, SSE has compliance and regulatory teams to mitigate/ manage the impact of regulatory frameworks; and in the long term climate change may impact water resource availability for generation assets, SSE manages this by monitoring trends in climate/ weather.

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, both in direct operations and the rest of our value chain

W4.1a

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

Risk management at SSE involves identifying and protecting the business from outcomes that could threaten the achievement of the business objectives or the core values of the company. The Board is responsible for the overall system of risk management and internal control. It directly sets the Group Risk Management and Internal Control policy and reviews risk management performance at SSE on an ongoing basis. The Safety, Health and Environment Committee supported by the Board's Safety, Health and Environment Advisory Committee oversee environment and safety risks.

SSE defines risk as anything that can threaten the achievement of its business and strategic objectives or compromise SSE's core values. As part of ongoing assessment key risk indicators are reported to the Board and these provide insight into the significant factors which are likely to influence SSE's exposure to those risks. SSE's business divisions have different risk profiles. For example, Networks businesses are economically-regulated and characterised as stable; whereas, the Wholesale businesses are market-based and so exposed to energy market and commodity risk.

SSE's risk management framework ensures that all risks associated with the environment (including water-related risks) are identified, assessed, evaluated, recorded, monitored and reviewed to understand the impact on the business. In relation to water risk, a pollution incident, water availability/ quality issue or climate related impact could have a material adverse impact to the environment, operations, property, employees, contractors or members of the public. These issues could also threaten SSE's core values of Safety, Service, Efficiency, Sustainability, Excellence and Teamwork.

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	30	1-25	SSE's hydro generation facilities make up 13% of SSE's generation capacity and 10% of the Group's electricity generation output in 2017/18. The hydro generation plant is located in regions of high average rainfall – north of Scotland. It is the variability and change of climate (and associated weather) that impact the way SSE generates from its hydro generation sites. This in turn means SSE may have to adapt and change the way it operates in the future to respond to water related issues that arise as a result of climate change. In the past few years, SSE has had to respond to milder and wetter winters. This means that SSE has to operate and adapt its generation activities and has resulted in a different way of managing the assets to the way it did 5 to 10 years ago. This is an opportunity as well as a risk for SSE.

W4.1c

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

Country/Region

United Kingdom of Great Britain and Northern Ireland

River basin

Other, please specify (River catchments in Scotland)

Number of facilities exposed to water risk

30

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

<Field Hidden>

% company's annual electricity generation that could be affected by these facilities

1-25

% company's global oil & gas production volume that could be affected by these facilities

<Field Hidden>

% company's total global revenue that could be affected

Less than 1%

Comment

SSE's hydro generation facilities make up 13% of SSE's generation capacity and 10% of the Group's output in 2017/18. The hydro generation plant is located in regions of high rainfall – Scotland. It is the variability and change of climate (and associated weather) that impact the way SSE generates from its hydro generation sites. This in turn means SSE may have to adapt and change the way it operates in the future to respond to water related issues that arise as a result of climate change. In the past few years, SSE has responded to milder and wetter winters. This means that SSE has to operate and adapt its generation activities and has resulted in a different way of managing the assets to the way it did 5 to 10 years ago.

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/Region

United Kingdom of Great Britain and Northern Ireland

River basin

Other, please specify (River catchments Scotland)

Type of risk

Physical

Primary risk driver

Seasonal supply variability/inter annual variability

Primary potential impact

Other, please specify (Reduction in generation output)

Company-specific description

SSE's generation assets rely on rainwater to operate, in particular SSE's hydro assets use water as a 'fuel' to generate electricity. Climate change has the potential to change future weather patterns. This could result in changes to water availability and the way SSE runs its generation portfolio. For example, recent wetter and milder winters have resulted in changes to the way SSE stores water and runs its hydro plant to weather and climate events of 5 to 10 years ago. For instance between 2015/16 and 2016/17 SSE's renewable generation output (including conventional and pumped hydro) decreased by 100GWh to 3,334GWh and this was due to less favourable weather conditions (i.e. lower rainfall in this year).

Timeframe

More than 6 years

Magnitude of potential impact

Low

Likelihood

Likely

Potential financial impact

9500000

Explanation of financial impact

Levels of rainfall can fluctuate from year to year. Climate change may exacerbate these fluctuations. Fluctuations can be both positive & negative for SSE. To illustrate this, lower rainfall in 2016/17 reduced SSE's hydro generation output by c.100GWh in comparison to the previous year. SSE's hydro generation plant generates revenue from Renewable Obligation Certificates (ROCs) £50/MWh and a power price around £45/MWh. Calculation: revenue converted to GWh multiplied by output lost in that year.

Primary response to risk

Improve monitoring

Description of response

SSE employs a meteorological team to support the planning and response to weather related events. Response to water related risks is immediate, as weather and climate events are constantly being monitored and modelled for the current operating period as well as for the long term (through scenario planning). SSE responds by adapting and changing the way it runs its hydro generation operations. For example, recent wetter and milder winters have resulted in changes to the way SSE stores water and runs its hydro plant to weather and climate events of 5 to 10 years ago. The meteorological and adaptation methods enable SSE to generate electricity effectively and efficiently without operational or financial impacts.

Cost of response

0

Explanation of cost of response

All costs associated with SSE's response to this risk are included within operational and capital investment plans and budgets. All water risks are managed as part of the overall business risk management system and response strategies are integrated into core business activities. Examples of this include an in-house meteorology team that responds to weather related events in order to plan energy demand and energy supply.

Country/Region

United Kingdom of Great Britain and Northern Ireland

River basin

Other, please specify (River catchments Scotland)

Type of risk

Regulatory

Primary risk driver

Regulation of discharge quality/volumes

Primary potential impact

Reduction or disruption in production capacity

Company-specific description

SSE's hydro generation assets are regulated through Scottish Basin Plans in order to meet the requirements of European Union Water Framework Directive. This regulation puts limits on the amount of output through the use of compensation flows. From 2016/17 and up to 2027 output across SSE's hydro assets could potentially be reduced to meet legal requirements by up to 1%. SEPA has capped the impact to hydro activities by a maximum of 3% across all Scottish operators at 100GWh of output. For example at the River Garry in Perthshire new regulation introduced in 2017/18 is expected to reduce generation from hydro power stations along the river by 20 to 30 GWh per annum. As a result, SSE reduced the water abstraction on the River Garry and its tributaries to meet the Water Framework Directive requirements. There are a very small number of minor water bodies under potential consideration under the Water Framework Directive which may mean SSE has to change its operations to meet new regulatory requirements in the future.

Timeframe

More than 6 years

Magnitude of potential impact

Low

Likelihood

Virtually certain

Potential financial impact

2850000

Explanation of financial impact

An illustration of this risk is the reduction of water abstraction on the River Garry and its tributaries will reduce hydro generation output by around 20-30 GWh in future years. The potential future financial impact from this risk is the combined ROC price £50/MWh and power price £45/MWh multiplied by the output lost (eg 30GWh multiplied by the conversion factor 1000 (MWh to GWh)). There are many other factors that affect output and the outturn maybe different to the one described above.

Primary response to risk

Engage with regulators/policymakers

Description of response

The response involves engagement with regulators, public policy makers, and other stakeholders in the river basin along with the adaptation and change of SSE's hydro generation assets in order to reduce the impact of future legislation on its generation output. The management and operation of the assets is kept under constant review to ensure output of renewable energy can be maximised, consistent with SSE's regulatory and other obligations. SSE's response to the risk of the impact of future legislation on generation activities is constantly monitored by regulatory and public affairs experts, along with the management team that oversees operations. SSE's experts respond in the designated timeframes to formal consultations. SSE's experts also engage and consult with government and regulators before legislation is statutory. Projects will be identified (where required) in operational and capital plans to ensure that any mitigating plans are in place to meet regulatory requirements. For example SSE recently reduced the water abstraction on the River Garry and its tributaries to meet the Water Framework Directive requirements after extensive consultation and engagement with government, regulators and impacted local stakeholders (such as the Fisheries Board).

Cost of response

0

Explanation of cost of response

All costs associated with SSE's response to this risk are included within operational and capital investment plans and budgets. SSE engages and consults regularly with key stakeholders through formal consultation processes and through industry and sector working groups. SSE also has community consultation experts, public policy and regulatory experts that engage and consult with communities and other local stakeholders, government and regulators on any future legislation changes.

Country/Region

United Kingdom of Great Britain and Northern Ireland

River basin

Other, please specify (River catchments Scotland/ south England)

Type of risk

Physical

Primary risk driver

Flooding

Primary potential impact

Increased operating costs

Company-specific description

Severe flooding impacts SSE's operations such as its distribution and networks and the supply of electricity to customers. This can also be the case for generation activities where local flooding may impact generation capability. A fundamental responsibility for SSEN is to 'keep the lights on' for its customers. Through the RIIO-ED1 price control, SSEN is incentivised (through the Interruption Incentive Scheme (IIS)) on its performance against the loss of electricity supply through recording Customer Interruptions (CI) and Customer Minutes Lost (CML), which include both planned and unplanned supply interruptions.

Timeframe

Current up to 1 year

Magnitude of potential impact

Low

Likelihood

Very likely

Potential financial impact

0

Explanation of financial impact

Adverse weather can impact on SSE's networks business as a result of high winds and flooding. The impact of flooding on the electricity network was not material in 2017/18.

Primary response to risk

Develop flood emergency plans

Description of response

Response to flooding related risks is immediate, as weather and climate events are constantly being monitored and modelled for the current operating period as well as for the long term (through scenario planning). SSE has refurbishment and

reinforcement plans in place for assets; upgrades to automation which reduces the number of customers affected and the duration of the faults, minimise the impact of tree related damage, as well as investments in new innovative technologies. SSE's Networks business invests in flood defence equipment for its assets. For example, its electricity distribution business invests in flood protection surrounding its substations and ensures employees are well rehearsed in using its state of the art, mobile flood defence equipment in preparation for heavy rainfall. In addition, SSE has emergency response plans, business continuity plans and stakeholder communication plans (with communities, customers, public policy makers, and other stakeholders in river basins) in place for such events.

Cost of response

0

Explanation of cost of response

All costs associated with SSE's response to this risk are included in operational and capital investment plans and budgets including: • Planned preventative maintenance • Contingency and emergency response • Customer and stakeholder communication plans • Investment programmes to mitigate against flooding • Resilient Communities Fund for communities in its network areas in the north of Scotland and central southern England.

Country/Region

United Kingdom of Great Britain and Northern Ireland

River basin

Other, please specify (River catchments south England)

Type of risk

Regulatory

Primary risk driver

Regulation of discharge quality/volumes

Primary potential impact

Increased operating costs

Company-specific description

SSE's thermal generation plant uses water for cooling and process activities. Water quality is important for generation requirements. Implementation of national legislation in the next 5 years as a result of the requirements of the European Union's Water Framework Directive will change the environmental quality standards of water catchments. This will impact SSE's water and wastewater consents and discharges.

Timeframe

4 - 6 years

Magnitude of potential impact

Low

Likelihood

Very likely

Potential financial impact

0

Explanation of financial impact

This will impact SSE's water and wastewater consents and discharges. The potential financial impact is low because it impacts permits and the way SSE runs its operations. However, output is not envisaged to be changed and therefore the potential financial impact is assumed to be zero.

Primary response to risk

Engage with regulators/policymakers

Description of response

SSE engages and consults with key regulators and government on changes to legislation and impacts to its operations. For this risk SSE is involved with ongoing consultation and engagement with Environment Agency and BEIS through the Energy Company Working Groups. This is part of current stakeholder operational costs. SSE has operational plans to ensure mitigation plans are in place to respond to regulatory changes.

Cost of response

0

Explanation of cost of response

All costs associated with SSE's response to this risk are absorbed within operational and capital investment plans and budgets.

W4.2a

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

Country/Region

United Kingdom of Great Britain and Northern Ireland

River basin

Other, please specify (River catchments England/ Scotland)

Stage of value chain

Supply chain

Type of risk

Physical

Primary risk driver

Severe weather events

Primary potential impact

Increased operating costs

Company-specific description

SSE relies on key suppliers to deliver and generate energy, maintain its infrastructure and deliver capital improvements.

Timeframe

>6 years

Magnitude of potential financial impact

Low

Likelihood

Unlikely

Potential financial impact

0

Explanation of financial impact

Where relevant, the impact of water (like any non financial risks) are included in supplier risk assessment processes. For example, risk of flooding to the supply of coal to SSE's thermal generation assets was assessed and seen to be immaterial in comparison to other non financial and financial risks. SSE works with its suppliers to mitigate and reduce risks. The potential financial impacts are immaterial and therefore recorded as zero.

Primary response to risk

Develop supplier flood emergency plans

Description of response

Emergency plans and business continuity plans build in supplier management where required and any costs associated with managing these risks.

Cost of response

0

Explanation of cost of response

Where relevant, the impact of water (like any non financial risks) are included in supplier risk assessment processes. For example, risk of flooding to the supply of coal to SSE's thermal generation assets was assessed and seen to be immaterial in

comparison to other non financial and financial risks. SSE works with its suppliers to mitigate and reduce risks. These costs are built into existing operational and capital investments plans.

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

Products and services

Primary water-related opportunity

Increased sales of existing products/services

Company-specific description & strategy to realize opportunity

SSE's core businesses focus on economically regulated energy networks and renewable sources of energy, complemented by flexible thermal generation. Increasing volumes of wind energy coming onto the UK system will create the need for more flexibility in the form of energy storage, and SSE's hydro assets are well placed to provide this in an optimal way and support the electricity system. SSE's hydro generation assets are important in SSE's portfolio, as they can be characterised as both renewable and flexible. In addition to 400MW of run-of-river hydro, SSE has 750MW of flexible hydro. Alongside SSE's 300MW of pumped storage, flexible hydro operates as 'Britain's biggest battery'. In addition, climate change has the potential to change future weather patterns. This could result in changes to water availability which in turn impacts the way in which SSE runs its generation portfolio. For example, recent wetter and milder winters have resulted in changes to the way SSE stores water and runs its hydro plant in relation to weather and climate events of 5 to 10 years ago. To take advantage of these changes and the characteristics of SSE's flexible and renewable hydro generation, SSE is investing in its hydro assets through capital investment in new compensation and house sets for its hydro generation assets.

Estimated timeframe for realization

1 to 3 years

Magnitude of potential financial impact

Medium

Potential financial impact

0

Explanation of financial impact

The value of this opportunity is difficult to quantify. However, SSE's hydro generation assets are in a good position to take advantage of changing weather events and the impact of a decarbonised UK energy system because of their characteristics of being renewable and flexible.

W5. Facility-level water accounting

W5.1

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

Facility reference number

Facility 1

Facility name (optional)

Hydro generation Scotland SSE's hydroelectric power stations are located across Scotland. Pitlochry is one of the key sites for hydro power at SSE and the longitude and latitude is taken from this point.

Country/Region

United Kingdom of Great Britain and Northern Ireland

River basin

Other, please specify (River catchments Scotland)

Latitude

56.7044

Longitude

3.7297

Primary power generation source for your electricity generation at this facility

Hydroelectric

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

23506455

Comparison of withdrawals with previous reporting year

Higher

Total water discharges at this facility (megaliters/year)

23506455

Comparison of discharges with previous reporting year

Higher

Total water consumption at this facility (megaliters/year)

0

Comparison of consumption with previous reporting year

About the same

Please explain

Over 97% of water abstracted and then discharged is associated with SSE's hydro generation business. In 2017/18, SSE's hydro electricity generation output increased by 2.9% compared to 2016/17. As a result, water withdrawals and associated discharges for hydro generation purposes increased by 6% in this same period.

Facility reference number

Facility 2

Facility name (optional)

Thermal generation SSE's thermal power stations are situated across different locations in the UK. Keadby power station in North Lincolnshire is one of SSE's power station assets and the longitude and latitude is taken from this point.

Country/Region

United Kingdom of Great Britain and Northern Ireland

River basin

Other, please specify (River catchments England)

Latitude

53.5967

Longitude

0.7395

Primary power generation source for your electricity generation at this facility

Gas

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

537887

Comparison of withdrawals with previous reporting year

Higher

Total water discharges at this facility (megaliters/year)

530874

Comparison of discharges with previous reporting year

Higher

Total water consumption at this facility (megaliters/year)

7013

Comparison of consumption with previous reporting year

Higher

Please explain

For thermal plants water is used for cooling and as process water in a variety of operations. Cooling water is abstracted and returned to the environment. The better the cooling the higher the efficiency of water use and process water use. Output from SSE's thermal generation power stations in GB increased by 32% between 2016/17 and 2017/18. Due to this increased output, water withdrawals and discharges by SSE's thermal generation plant also increased over this period – both by 13%.

Facility reference number

Facility 3

Facility name (optional)

Non-operational buildings SSE is headquartered in Perth, Scotland.

Country/Region

United Kingdom of Great Britain and Northern Ireland

River basin

Other, please specify (River catchments England & Scotland)

Latitude

56.395

Longitude

3.4308

Primary power generation source for your electricity generation at this facility

Not applicable

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

90

Comparison of withdrawals with previous reporting year

Lower

Total water discharges at this facility (megaliters/year)

90

Comparison of discharges with previous reporting year

Lower

Total water consumption at this facility (megaliters/year)

90

Comparison of consumption with previous reporting year

Lower

Please explain

Water used in amenities decreased by 3% between 2016/17 and 2017/18 reflecting the success of water saving initiatives.

W5.1a

(W5.1a) For each facility referenced in W5.1, provide withdrawal data by water source.

Facility reference number

Facility 1

Facility name

Hydro generation

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

23506455

Brackish surface water/seawater

0

Groundwater - renewable

0

Groundwater - non-renewable

0

Produced water

0

Third party sources

0

Comment

In 2017/18, SSE's hydro electricity generation output increased by 2.9% compared to 2016/17. As a result, water withdrawals for hydro generation purposes increased by 6% in this same period.

Facility reference number

Facility 2

Facility name

Thermal generation

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

233308

Brackish surface water/seawater

302726

Groundwater - renewable

1853

Groundwater - non-renewable

0

Produced water

0

Third party sources

0

Comment

For thermal plants water is used for cooling and as process water in a variety of operations. Cooling water is abstracted and returned to the environment. The better the cooling the higher the efficiency of water use and process water use. Output from SSE's thermal generation power stations in GB increased by 32% between 2016/17 and 2017/18. Due to this increased output, water withdrawals by SSE's thermal generation plant also increased over this period – by 13%.

Facility reference number

Facility 3

Facility name

Non operational buildings

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

Brackish surface water/seawater

0

Groundwater - renewable

0

Groundwater - non-renewable

0

Produced water

0

Third party sources

90

Comment

Water used in amenities decreased by 3% between 2016/17 and 2017/18 reflecting the success of water saving initiatives.

W5.1b

(W5.1b) For each facility referenced in W5.1, provide discharge data by destination.

Facility reference number

Facility 1

Facility name

Hydro generation

Fresh surface water

23506455

Brackish surface water/Seawater

0

Groundwater

0

Third party destinations

0

Comment

In 2017/18, SSE's hydro electricity generation output increased by 2.9% compared to 2016/17. As a result, water withdrawals and associated discharges for hydro generation purposes increased by 6% in this same period.

Facility reference number

Facility 2

Facility name

Thermal generation

Fresh surface water

231084

Brackish surface water/Seawater

298280

Groundwater

0

Third party destinations

1510

Comment

Output from SSE's thermal generation power stations in GB increased by 32% between 2016/17 and 2017/18. Due to this increased output, water withdrawals by SSE's thermal generation plant also increased over this period – by 13%.

Facility reference number

Facility 3

Facility name

Non operational buildings

Fresh surface water

0

Brackish surface water/Seawater

0

Groundwater

0

Third party destinations

90

Comment

Water used in amenities decreased by 3% between 2016/17 and 2017/18 reflecting the success of water saving initiatives.

W5.1c

(W5.1c) For each facility referenced in W5.1, provide the proportion of your total water use that is recycled or reused, and give the comparison with the previous reporting year.

Facility reference number

Facility 1

Facility name

Hydro generation

% recycled or reused

76-99%

Comparison with previous reporting year

About the same

Please explain

The majority of water abstracted and then discharged is associated with SSE's hydro generation business. SSE reuses large amounts of water as part of the 'cascade' schemes (which are in place for the majority of SSE's larger hydro schemes such as Conon, Ness, Tummel and Beaully) where the water is used multiple times at different power stations as it flows downstream.

Facility reference number

Facility 2

Facility name

Thermal generation

% recycled or reused

76-99%

Comparison with previous reporting year

About the same

Please explain

In thermal generation SSE looks to optimise water use on its plants to improve efficiency.

Facility reference number

Facility 3

Facility name

Non operational buildings

% recycled or reused

Less than 1%

Comparison with previous reporting year

About the same

Please explain

Water used in amenities decreased by 3% between 2016/17 and 2017/18 reflecting the success of water saving initiatives.

W5.1d

(W5.1d) For the facilities referenced in W5.1, what proportion of water accounting data has been externally verified?**Water withdrawals – total volumes****% verified**

76-100

What standard and methodology was used?

Assured by PwC to the ISAE3000 standard and ISAE3410 (assurance engagements on greenhouse gas statements).

Water withdrawals – volume by source**% verified**

76-100

What standard and methodology was used?

Assured by PwC to the ISAE3000 standard and ISAE3410 (assurance engagements on greenhouse gas statements).

Water withdrawals – quality**% verified**

76-100

What standard and methodology was used?

Assured by PwC to the ISAE3000 standard and ISAE3410 (assurance engagements on greenhouse gas statements).

Water discharges – total volumes**% verified**

76-100

What standard and methodology was used?

Assured by PwC to the ISAE3000 standard and ISAE3410 (assurance engagements on greenhouse gas statements).

Water discharges – volume by destination

% verified

76-100

What standard and methodology was used?

Assured by PwC to the ISAE3000 standard and ISAE3410 (assurance engagements on greenhouse gas statements).

Water discharges – volume by treatment method

% verified

Not verified

What standard and methodology was used?

The majority of SSE's water discharges are associated with SSE's hydro generation and there is no standard effluent parameters used. For the hydro generation business there is regulatory requirements for the flow rates (compensation flows) and these are monitored and reported to the relevant regulator. For discharges for thermal generation these are monitored and regulated by regulatory authorities.

Water discharge quality – quality by standard effluent parameters

% verified

Not verified

What standard and methodology was used?

The majority of SSE's water discharges are associated with SSE's hydro generation and there is no standard effluent parameters used. For the hydro generation business there is regulatory requirements for the flow rates (compensation flows) and these are monitored and reported to the relevant regulator. For discharges for thermal generation these are monitored and regulated by regulatory authorities.

Water discharge quality – temperature

% verified

Not verified

What standard and methodology was used?

The majority of SSE's water discharges are associated with SSE's hydro generation and there is no standard effluent parameters used. For the hydro generation business there is regulatory requirements for the flow rates (compensation flows) and these are monitored and reported to the relevant regulator. For discharges for thermal generation these are monitored and regulated by regulatory authorities.

Water consumption – total volume

% verified

76-100

What standard and methodology was used?

Assured by PwC to the ISAE3000 standard and ISAE3410 (assurance engagements on greenhouse gas statements).

Water recycled/reused

% verified

76-100

What standard and methodology was used?

Assured by PwC to the ISAE3000 standard and ISAE3410 (assurance engagements on greenhouse gas statements).

W6. Governance

W6.1

(W6.1) Does your organization have a water policy?

Yes, we have a documented water policy that is 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	Commitments beyond regulatory compliance Commitment to water-related innovation Commitment to stakeholder awareness and education Commitment to water stewardship and/or collective action Recognition of environmental linkages, for example, due to climate change	SSE's Environment and Climate Change policy provides the policy framework on climate change and the environment for all of its business operations. This policy is implemented locally by business units through environmental management systems. Water is included as part of this policy, processes and procedures. Specifically, SSE commits to "reduce carbon, energy and water impacts and look at new technologies to support low carbon and less water intensive energy systems in the future". The policy requires SSE's operations to, amongst other things, identify material impacts, manage environmental risks, engage positively with key stakeholders, work with suppliers, and integrate environmental improvements into everyday decision making. The Environment and Climate Change policy is available at SSE's corporate website, sse.com/beingresponsible . The Environment and Climate Change Policy is a group policy, it is signed by the Chief Executive Officer.

W6.2

(W6.2) Is there board level oversight of water-related issues within your organization?

Yes

W6.2a

(W6.2a) Identify the position(s) of the individual(s) on the board with responsibility for water-related issues.

Position of individual	Please explain
Chief Executive Officer (CEO)	SSE's Chief Executive has overall lead responsibility for sustainability issues, including water. The Chief Executive is assisted by senior management and several specific management committees. The Board is responsible for setting the overall strategic direction and key sustainability policies to support this. The Board reviews SSE's performance against agreed sustainability objectives (including water).

W6.2b

(W6.2b) Provide further details on the board's oversight of water-related issues.

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Reviewing and guiding annual budgets Reviewing and guiding business plans Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding strategy	SSE has a series of long term sustainability (including environment) goals & targets that complement the overall strategic direction of the company. The Board reviews performance against these objectives. The Board is supported by the Executive Committee and its sub-committees on the implementation of sustainability policy & strategy. SSE has a long term environment plan with a series of annual environment targets which are reported on monthly. The Safety, Health and Environment Advisory Committee (Board level) and the Group Safety, Health and Environment Committee review these targets quarterly. The Board and the Executive Committee regularly review the operation of and future plans for all of SSE's key operations, including hydro and thermal generation. In addition, SSE's Managing Director for Corporate Affairs and Sustainability (reporting to the Chief Executive) identifies specific sustainability issues arising from SSE's responsibilities to its customers, communities, employees and shareholders and develops policy in line with the values agreed by the Board. The Sustainability team supports and drives sustainability performance programmes across the organisation and reports progress on sustainability activities to the full range of SSE's stakeholders. For example, water disclosure was identified as an area for improvement and

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
		Reviewing and guiding corporate responsibility strategy Reviewing innovation/R&D priorities Setting performance objectives	processes were established and implemented to improve the quantity and quality of water reporting by SSE businesses to external stakeholders.

W6.3

(W6.3) Below board level, provide the highest-level management position(s) or committee(s) with responsibility for water-related issues.

Name of the position(s) and/or committee(s)

Safety, Health, Environment and Quality committee

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Quarterly

Please explain

The Executive Committee implements the Climate Change and Environment Policy, the Corporate Responsibility and Sustainability Policy and associated strategies and monitors progress against sustainability targets and initiatives. This Committee is supported by two sub-committees in relation to sustainability issues: 1. The Group Governance, Culture and Controls Committee is a sub-Committee of the Executive Committee, it manages governance developments, advises on external issues (i.e sustainability impacts including water) and is responsible for overseeing compliance with regulatory and legal requirements (including environment issues such as water). 2. The Safety, Health and Environment Advisory Committee advises the Board on safety, health and environment matters. It is responsible for SHE policies, targets and strategy, performance, awareness and action including water related issues.

W-FB6.4/W-CH6.4/W-EU6.4/W-OG6.4/W-MM6.4

(W-FB6.4/W-CH6.4/W-EU6.4/W-OG6.4/W-MM6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

Yes

W-FB6.4a/W-CH6.4a/W-EU6.4a/W-OG6.4a/W-MM6.4a

(W-FB6.4a/W-CH6.4a/W-EU6.4a/W-OG6.4a/W-MM6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues?

	Who is entitled to benefit from these incentives?	Indicator for incentivized performance	Please explain
Monetary reward	Corporate executive team Chief Executive Officer (CEO) Chief Financial Officer (CFO) Chief Operating Officer (COO) Chief Sustainability Officer (CSO) Other, please specify (Environment and sustainability managers)	Reduction of product water intensity Efficiency project or target – direct operations	The Annual Bonus scheme for Executive Directors, an element of this is based on individual objectives. The Executive Directors are judged on a broad definition of sustainability. Annual appraisals for all SSE employees are based around its 6 core values, one of which is sustainability. Individual performance is assessed and has implications on whether annual incremental pay rises and/ or bonuses are given. There are several managers in SSE whose jobs are directly related to environmental management, and therefore their salary and any incentive (monetary and non-monetary) is linked to the fulfilment of environment related personal targets.
Recognition (non-monetary)	Corporate executive team Chief Executive Officer (CEO) Chief Financial Officer (CFO) Chief Operating Officer (COO) Chief Sustainability Officer (CSO)	Reduction of product water intensity Efficiency project or target – direct operations Efficiency project or target – downstream in the value chain Efficiency project or target – upstream in the value chain	Annual appraisals for all SSE employees are based around its 6 core values, one of which is sustainability. Individual performance is assessed and recognition given for achieving specific targets that fit into the core values.

	Who is entitled to benefit from these incentives?	Indicator for incentivized performance	Please explain
		Behavior change related indicator	
Other non-monetary reward	Chief Sustainability Officer (CSO) Other, please specify (Environment/sustainability managers)	Reduction of water withdrawals Reduction in consumptive volumes Reduction of product water intensity Efficiency project or target – direct operations Effluent quality improvements Behavior change related indicator Supply chain engagement	There are several managers in SSE whose jobs are directly related to environmental management, and therefore their salary and any incentive (monetary and non-monetary) is linked to the fulfilment of environment related personal targets.

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, direct engagement with policy makers

Yes, trade associations

Yes, funding research organizations

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?

SSE's business strategy and its sustainability value (one of six of its core values) guides its overall approach on environment and climate change issues. SSE has policy and public affairs specialists based in Glasgow, Edinburgh, London, Belfast and Dublin who engage openly and constructively with legislators, officials and other policy makers on all aspects of environment (including water) and climate change policy. All communications across the business are managed by these

experts and processes are in place to ensure consistency, quality and accuracy of communications across SSE. SSE has a commitment to responsible political engagement and this is communicated through its political engagement policy. This policy is in place for all employees and is consistently applied across the SSE Group and governs both SSE's policies in this area – for example its policy on political contributions - and serves as a guide to how employees should conduct themselves when representing SSE to government or other institutions. SSE has also signed up to the voluntary membership of the Chartered Institute of Public Relations' UK Lobbying Register. Alongside the SSE Group policy, employees are governed by its Code of Conduct. SSE also participates in mandatory registration for political engagement where such registers exist (e.g. SSE's European Declaration).

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	Yes, water-related issues are integrated	21-30	SSE's core purpose is to 'responsibly provide the energy and related services needed now and in the future'. Its vision is to be 'a leading provider of energy and related services in a low-carbon world'. SSE's strategy is to 'create value for shareholders and society from developing, owning and operating energy and related infrastructure and services in a sustainable way'. Delivery of this strategy is dependent on the shared talent, skills and values of people throughout SSE. SSE supports the drive towards decarbonisation of critical infrastructure. It does so with a commitment to maintaining and growing a range of complementary businesses that have energy and related services at their core. SSE's core businesses will be focused on economically regulated energy networks and renewable sources of energy, complemented by other flexible power generation. Increasing volumes of wind energy coming onto the UK energy system will create the need for more flexibility in the form of energy storage, and SSE's hydro generation assets are well placed to provide this in an optimal way.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	21-30	At the heart of SSE's strategy is a commitment to contribute substantively to the transition to a low-carbon electricity system. To support this strategy, SSE's core businesses will be focused on economically regulated energy networks and renewable sources of energy, complemented by other flexible power generation. The transition to a low-carbon economy will lead to increasing volumes of wind energy coming onto the UK energy system and this will create the need for more flexibility in the

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
			form of energy storage. SSE's fast-acting flexible generators like hydro and pumped storage are able provide this flexibility in an optimal way. Hydro generation is unique in SSE's portfolio, as it can be characterised as renewable and flexible. SSE has 400MW of run-of-river hydro, 750 MW of flexible hydro and 300 MW of pumped storage. These hydro assets operate flexibly as 'Britain's biggest battery'. SSE is investing to upgrade these 'natural batteries' and ensure that they are even more relevant. This investment in these critical assets will create value for shareholders in terms of returns and create value for society in terms of its contribution to the achievement of the all-important goal of a low carbon economy.
Financial planning	Yes, water-related issues are integrated	11-15	The expansion of SSE's renewable energy portfolio, includes the development and investment of its hydro generation assets. Capital and operating investment decisions integrate water-related issues into the financial planning process. In addition, SSE's environmental improvement plan sets goals and targets on water-related issues. These water-related goals and targets require capital and operational investment and these are included as part of annual financial plans and decision making.

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?

	Water-related CAPEX (+/- % change)	Anticipated forward trend for CAPEX (+/- % change)	Water-related OPEX (+/- % change)	Anticipated forward trend for OPEX (+/- % change)	Please explain
Row 1					In the year to 31 March 2018 SSE's investment and capital expenditure totalled £1.73bn. Economically regulated Networks and government mandated renewables (which includes hydro generation) accounted for 70% of this spend.

W7.3

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

	Use of climate-related scenario analysis	Comment
Row 1	Yes	In July 2017, SSE published its first carbon scenarios report, Post-Paris, assessing the resilience of its business model in GB against three climate change scenarios (2 degrees, 1.5 degrees and 4 degree temperature changes). The report focused on the material parts of SSE's business that are most at risk from the impact of market and policy changes associated with carbon reduction ambitions: SSE's Wholesale, Transmission and Distribution businesses. The results of the assessment showed that SSE's existing, resilient, portfolio of assets can respond to the various scenarios assessed, and its diverse range of future development options provide many potential opportunities for the future. SSE will continue to develop its scenario analysis by extending it to cover gas and bring more financial information into its disclosure. In November 2017, SSE committed to meeting the Task Force on Climate-related Financial Disclosures (TCFD) recommendations in full by 2021.

W7.3a

(W7.3a) Has your organization identified any water-related outcomes from your climate-related scenario analysis?

No

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, but we are currently exploring water valuation practices

Please explain

SSE has considered Natural Capital concepts (including the valuation of water aspects) since 2013 when it initiated the Beaulieu Denny project to quantify the impacts and benefits of its latest Transmission projects. SSE presented these findings at the World Forum on Natural Capital and have presented other projects at the 2015, including contributing to the development of the Natural Capital Protocol and the 2017 World Forum on Natural Capital. Most recently in 2017 SSE's Finance Director outlined SSE's latest initiative to quantify the natural capital of the sea bed. This was launched as another phase of SSE's long term engagement programme to identify and quantify the impacts that its submarine electricity cables have on the marine environment and what mitigations we can adopt to ensure the most effective use and co-existence.

W8. Targets

W8.1

(W8.1) Describe your approach to setting and monitoring water-related targets and/or goals.

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	The Safety, Health and Environment Advisory Committee (SHEAC) (a sub-Committee of the Board) advises the Board on safety, health and environment matters. It is responsible for SHE policies, targets and strategy, performance, awareness and action. SSE has an environment improvement plan that has been agreed by the SHEAC. This plan involves water-related goals and targets. SSE has a group wide Environment and Climate Change policy. This policy is implemented locally by business units through environmental management systems. Water is included as part of this policy, processes and procedures. Specifically, SSE commits to “reduce carbon, energy and water impacts and look at new technologies to support low carbon and less water intensive energy systems in the future”. The policy requires SSE’s operations to, amongst other things, identify material impacts, manage environmental risks, engage positively with key stakeholders, work with suppliers, and integrate environmental improvements into everyday decision making. The Environment and Climate Change Policy is a group policy and is signed by the Chief Executive Officer.

W8.1a

(W8.1a) Provide details of your water targets that are monitored at the corporate level, and the progress made.

Target reference number

Target 1

Category of target

Water pollution reduction

Level

Company-wide

Primary motivation

Reduced environmental impact

Description of target

This target is focused on pollution prevention to reduce impacts to the environment, protect the reputation of the company, reduce risk and ensure compliance with regulations. The target is - no pollution incidents.

Quantitative metric

Other, please specify (No pollution incidents - number)

Baseline year

2017

Start year

2017

Target year

2018

% achieved

100

Please explain

In 2017/18 SSE had no pollution incidents. SSE monitors, measures and reports water aspects in accordance with specific requirements of its environmental permits. SSE has a ISO14001 system in place to manage its activities. It also has emergency response procedures, secondary containment, and water treatment facilities where required in relation to permit conditions. For the hydro generation business there is regulatory requirements for the flow rates (compensation flows) and these are monitored and reported to the relevant regulator. The increased transparency around water reporting has led to the improvement in the reliability and accuracy of water data. In addition, SSE conducts internal water audits of water monitoring, data collection and reporting activities. External audit is also part of the improved due diligence process, with assurance of water data by PwC for the first time in 2015/16 and the repeated assurance of water data by PwC in 2016/17 and 2017/18.

Target reference number

Target 2

Category of target

Water consumption

Level

Company-wide

Primary motivation

Cost savings

Description of target

SSE targets a 15% reduction in water consumption in its non-operational buildings up to 2023 (5 year plan).

Quantitative metric

% reduction in total water consumption

Baseline year

2017

Start year

2017

Target year

2023

% achieved

20

Please explain

SSE targets a 15% reduction in water consumption in its non-operational buildings up to 2023 (5 year plan). In year 1 (2017/18), SSE achieved its 2.5% target reduction in water consumption in its non-operational buildings. This was a result of working differently and the introduction of water saving initiatives.

W8.1b

(W8.1b) Provide details of your water goal(s) that are monitored at the corporate level and the progress made.**Goal**

Watershed remediation and habitat restoration, ecosystem preservation

Level

Company-wide

Motivation

Water stewardship

Description of goal

Partnerships and collaborative working with regulatory bodies (such as SEPA) and other stakeholders to find the appropriate balance between maintaining renewable energy generation, security of supply and delivering local environmental improvements.

Baseline year

2016

Start year

2016

End year

2020

Progress

SSE has regular contact with regulators, Environment Agency, SEPA and Environment Protection Agency (Ireland) on water issues including consents, compensation flows and river basin/ ecosystem/ habitat management. SSE also maintains a strong presence at meetings that involve regulators and policy makers in relation to water issues for example SSE are engaging in workstreams associated with the recently published water abstraction plan for England and SSE meets regularly with SEPA to discuss the impact of water framework directive on its hydro operations up to 2027.

W9. Linkages and trade-offs

W9.1

(W9.1) Has your organization identified any linkages or tradeoffs between water and other environmental issues in its direct operations and/or other parts of its value chain?

Yes

W9.1a

(W9.1a) Describe the linkages or tradeoffs and the related management policy or action.

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Other, please specify (Climate change and impact on weather)

Description of linkage/tradeoff

Climate change and its potential impact on weather. Weather then impacts the environment and creates flooding events that have the potential to impact SSE's operations.

Policy or action

The following actions are in place: safety, health and environment policy, risk assessments, mitigation plans, targets and performance review.

W10. Verification

W10.1

(W10.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1d)?

No, but we are actively considering verifying within the next two years

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	Chief Financial Officer	Chief Financial Officer (CFO)

W11.2

(W11.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

Yes

SW. Supply chain module

SW0.1

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

	Annual revenue
Row 1	31226400000

SW0.2

(SW0.2) Do you have an ISIN for your organization that you are willing to share with CDP?

Please select

SW1.1

(SW1.1) Have you identified if any of your facilities reported in W5.1 could have an impact on a requesting CDP supply chain member?

No, we do not have this data but we intend to collect it within two years

SW1.2

(SW1.2) Are you able to provide geolocation data for your site facilities not already reported in W5.1?

Yes, for all facilities

SW1.2a

(SW1.2a) Please provide geolocation data for your site facilities not already reported in W5.1.

Identifier	Latitude	Longitude	Comment
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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?

No

SW3.1

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