

GHG EMISSIONS & WATER REPORTING

SSE's Criteria



CONTENTS

About this guidance	02
Aim of this document	02
Organisational boundaries included for this reporting period	03
Organisational business units excluded from inventory	04
GHG Reporting Criteria	05
GHG emissions source inclusions	05
Carbon intensity for electricity generation	06
GHG conversion factors	15
GHG emissions source exclusions	16
GHG emissions calculations and results	16
Water reporting criteria	17
Water source inclusions	17

ABOUT THIS GUIDANCE

SSE plc is one of the UK and Ireland's leading energy companies, involved principally in the generation, transmission and distribution of electricity; and also in the supply of energy and related services to customers.

Its purpose is to provide energy needed today while building a better world of energy for tomorrow. Its vision is to be a leading energy company in a net zero world. Its strategy is to create value for shareholders and society in a sustainable way by developing, building, operating and investing in the electricity infrastructure and businesses needed in the transition to net zero.

AIM OF THIS DOCUMENT

This document details the reporting approach used by SSE plc (SSE) to report on GHG emissions and water usage during the financial year (1 April 2020 to 31 March 2021) as a result of operational activities undertaken by the SSE Group.



ORGANISATIONAL BOUNDARIES

INCLUDED IN REPORTING PERIOD

There are two methods that are described in the UK Government Environmental Reporting guidelines (March 2019), GHG Protocol and ISO14064-1:2018 standards: the equity share and control (financial or operational) approaches. An operational control consolidation approach was used to account for emissions. Table 1 describes the business units that are within the operational boundary approach.

The environmental data associated with any divestments is removed from the baseline, intervening years and current year to ensure relevant comparisons and consistent performance towards the green bonds.

Company/ Business Unit	Description
Networks businesses	
SSEN Transmission	SSEN Transmission, operating under licence as Scottish Hydro Electric Transmission plc (SHET), owns, operates and develops the high voltage 132kV, 275kV and 400kV electricity transmission system in the north of Scotland and remote islands. Its network consists of underground cables, overhead lines on wooden poles and steel towers, and electricity substations, extending over a quarter of the UK's land mass crossing some of its most challenging terrain.
SSEN Distribution	SSEN Distribution, operating under licence as Scottish Hydro Electric Power Distribution plc (SHEPD) and Southern Electric Power Distribution plc (SEPD), is responsible for safely and reliably maintaining the electricity distribution networks supplying over 3.8 million homes and businesses across central southern England and the north of Scotland.

Energy businesses	
SSE Renewables	SSE Renewables develops, builds, operates and invests in assets that generate electricity from renewable sources, providing electricity to customers across the GB and Ireland markets, who are increasingly seeking lower-carbon sources of energy. It is a leading developer and operator of renewable energy across the UK and Ireland, with a portfolio of around 4GW of onshore wind, offshore wind and hydro.
SSE Thermal	SSE Thermal generates electricity from thermal sources (gas, oil and multifuel) in a reliable way, supporting balancing of the electricity systems in GB and Ireland. It has around 5GW of installed capacity and its Combined Cycle Gas Turbine (CCGT) fleet is among the most flexible in the UK and Ireland electricity systems. SSE Thermal's Gas Storage business holds around 40% of the UK's underground capacity.
Customers	SSE Business Energy and SSE Airtricity provide energy and related services to households, businesses and public sector organisations across Great Britain and the island of Ireland. SSE Business Energy provides a potential shopfront and route to market for SSE's low-carbon energy solutions and green products to non-domestic customers across GB, and has with almost 0.5 million customer accounts. SSE Airtricity supplies approximately 680,000 customers across the island of Ireland. It is Ireland's largest supplier of 100% green energy and provides low-carbon energy solutions and green products to customers.
SSE Enterprise	SSE Enterprise is increasingly focused on distributed energy solutions. The business invests in, builds and connects localised flexible energy infrastructure. It offers integration, aggregation and trading capability via the Energy as a Service platform and provides digital services for buildings, cities and businesses. It has almost 10,500 heat network customer accounts.
Energy Portfolio Management	Energy Portfolio Management (EPM) secures value for SSE's asset portfolios in wholesale energy markets and managing volatility through risk-managed trading of energy-related commodities for SSE's market-based business units.

ORGANISATIONAL BUSINESS UNITS

EXCLUDED FROM INVENTORY

SSE has excluded any joint ventures in which it does not have operational control. Below is a list of some 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 [266 to 270] of SSE's Annual Report 2021.

Scotia Gas Networks (SGN) Limited

Activities: Investment in gas networks

Reason for exclusion:

SSE holds a 33% financial investment stake in Scotia Gas Networks (SGN). SSE does not have a controlling stake in, or operational control of, this business and they do their own GHG and SECR reporting. SSE has retained the option of selling SGN since June 2020 and intends to have an agreed sale by the end of the 2021 calendar year.

SSE E&P (UK) Limited

Activities: Gas exploration and production

Reason for exclusion:

SSE invests in gas production assets in the North Sea and west of Shetland, all of which are owned by SSE E&P (UK) Limited. Although this company is wholly owned by SSE, it does not hold a controlling stake in any assets.

SSE agreed the sale of all of its interests in its portfolio of gas exploration and production in December 2020, and at 31 March 2021 these assets were accounted for as held for sale in SSE's financial statements (see SSE's Annual Report 2021, Pages 262 to 266).



GHG REPORTING CRITERIA

This section outlines the annual greenhouse gas (GHG) emissions reporting approach used by SSE plc (SSE) to report the tonnes of carbon dioxide equivalent (CO₂e covers CO₂, CH₄, N₂O and SF₆) from the Group's operational activities.

The document provides details of the amount of GHG emissions that can be directly attributed to SSE operations within the declared boundary and scope for the specified reporting period. The inventory has been prepared in accordance with requirements of the UK Government's environmental reporting guidelines (BEIS, March 2019); the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (revised edition) developed by the World Resources Institute and the World Business Council for Sustainable Development (2004); and ISO 14064-1:2018 Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals. Where relevant, the inventory is aligned with industry or sector best practice for emissions measurement and reporting.

This document aims to detail the GHG collection, collation, conversion and reporting process used by SSE to report annual GHG emissions.

GHG EMISSIONS SOURCE INCLUSIONS

The GHG emissions sources included in this inventory are those required by [BEIS reporting standards](#), [GHG Protocol](#) and [ISO14064-1:2018 standards](#). GHG emissions are classified, in accordance with these standards, into the following categories:

- **Direct GHG emissions (scope 1):** GHG emissions from sources that are owned or controlled by the company.
- **Indirect GHG emissions (scope 2):** GHG emissions from the generation of purchased electricity, heat and steam consumed by the company.
- **Indirect GHG emissions (scope 3):** GHG emissions that occur as a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Inclusion of other scope 3 emissions sources is done on a case-by-case basis in accordance with the guidance given in the Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard (Supplement to the GHG Protocol Corporate Accounting and Reporting Standard).

The following emission sources from SSE operations are included in the GHG emissions reporting:

The direct GHG emissions (scope 1) cover:

- **Generation power stations** – gas, oil and biomass consumed in SSE's thermal power generation plant (including Power Purchase Agreements) to generate electricity.
- **Gas consumption in buildings** – this is the gas consumed by SSE's non-operational buildings (offices, depots) to maintain building temperatures.
- **Network fuel consumed** – this includes diesel and gas oil used by fixed generators on islands and mobile generators to generate electricity to maintain the distribution network.
- **Company vehicles** – this is the petrol or diesel used by SSE's operational vehicles for business activities (operational vehicles are those vehicles that are owned by SSE and used by employees for SSE business activities).
- **Fugitive emissions** – use of sulphur hexafluoride (SF₆) in the transmission and distribution networks for conductivity (used in the switchgears and substations).

The indirect emissions (scope 2) cover:

- **Electricity consumption in buildings** – this is the electricity consumed by SSE's non-operational buildings (offices). This data excludes leased buildings (which represent less than 1% of employees).
- **Electricity consumption in networks** – this is the electricity used by SSE's operational buildings (e.g. substations) in the transmission and distribution network.
- **Electricity consumption in thermal power stations** – this is the electricity used by SSE's GB thermal power stations for the generation of electricity. This data excludes power stations below 100MW which do not have metering and thermal power stations in Ireland.
- **Distribution losses** – this is the electricity lost in SSE's distribution network in the north of Scotland (SHEPD) and southern central England (SEPD) transporting electricity to the customer.

The indirect emissions (scope 3) cover:

- **Business travel** – domestic (between UK airports), short haul (international flights to/from UK less than 3,700km, usually to European destinations), long haul (international flights to/from UK greater than 3,700km, usually to non-European destinations) and international (international flights to/ from non-UK destinations) travel by air, rail and car miles travelled using third party transport (this is vehicles owned and operated by other organisations that SSE employees use to conduct business activities).
- **Well to tank emissions** – this is the GHG emissions associated with the extraction, refining and transportation of the raw fuel sources to SSE's sites before they are used to generate electricity at the power station, as defined by BEIS reporting guidelines.
- **Gas sold to customers** – the amount of gas sold to customers (industrial and commercial business customers in the UK and Ireland and domestic customers in Northern Ireland and the Republic of Ireland) that is then used by our customers for heating and power purposes. This figure is calculated by taking the amount of gas sold (millions therms) converting it to kWh and then applying a carbon dioxide conversion factor provided by [BEIS reporting guidelines](#).
- **Transmission losses** – the electricity lost in the SHE Transmission network (the network between the generator and the distribution company) in the north of Scotland. The transmission of electricity is managed by the network operator, National Grid.
- **Transmission and distribution losses** – this is the transmission and distribution losses (the energy loss that occurs getting the electricity to SSE non-operational buildings from the power plant) associated with the electricity consumed by SSE's non-operational buildings (offices, depots, call centres) and operational buildings (substations and thermal power stations). This figure is calculated by taking the scope 2 electricity consumption figure for non-operational buildings and electricity consumption in networks and thermal power stations and applying a carbon dioxide conversion factor provided by [BEIS reporting guidelines](#). This data is separate to the losses that SSE's transmission and distribution networks report.
- **Vessels** – this is the fuel purchased by a third party for use in third party vessels that service offshore wind farms in which SSE has an ownership share and operates on behalf of joint venture partners. For example: Beatrice Offshore Wind Farm Limited (SSE Renewables share 40%); and, Greater Gabbard Offshore Wind Farm (SSE Renewables share 50%).

The emission sources are explained in detail in Table 2.

CARBON INTENSITY FOR ELECTRICITY GENERATION

Intensity ratios compare emissions data with an appropriate business metric or financial indicator, such as sales revenue or square metres of floor space. For SSE the most appropriate business

metric is the output from its electricity generation activities (kWh). Using an intensity ratio allows organisations to compare performance over time and with other similar types of organisations.

To calculate an intensity ratio emissions are divided by an appropriate activity metric (full time equivalents) or financial metric (£ million sales). The results of this provides a normalised data point which is called an intensity ratio.

For SSE, the intensity ratio that it reports is based on:

- SSE's carbon dioxide equivalent (CO₂e) from its electricity generation emissions data; and
- The total output from SSE's electricity generation from both thermal (gas, oil, biomass, multifuel) and renewables (onshore and offshore wind, hydro and pumped storage).

This intensity ratio is used to measure SSE's performance against its 2030 carbon intensity target which is to 'cut the carbon intensity of the electricity it generates by 60% by 2030 based on 2017/18 levels'.

Output reporting (GWh – gigawatt hours)

Output (or volume) is taken from the 1 April 2020 to 31 March 2021. The output volumes include projects that are operational. For projects that move from construction to operation during the reporting period, output data is taken from the date of commissioning.

The output refers to the generation from the thermal and renewable generating sites at the Notional Balancing Point. This is where demand is managed and is comparable across the industry for trading and monitoring.

Output data is based on meter points at the Notional Balancing Point. This data is collected by Elexon, stored on SONET (an external database that stores electricity settlement data) and managed through an internal finance management system by business finance at SSE. The data excludes the output that is constrained.

Electricity generation emissions data

The fuel consumed in SSE's thermal power generation plant (gas and oil) (including Power Purchase Agreements) and biomass to generate electricity is used to calculate the carbon dioxide equivalent emissions. This also includes diesel and gas oil used by fixed generators on islands. The emission sources are explained in detail in Table 2 in the business unit 'Generation' row.

BUSINESS UNIT	GHG EMISSIONS SOURCE	GHG EMISSIONS LEVEL SCOPE	DATA SOURCE & COLLECTION PROCESS	DATA COLLECTION UNIT	UNCERTAINTY (description)
Generation	Fuel used by power stations to generate electricity – gas, oil and biomass	Scope 1	Fuel used (gas, oil and biomass) is measured through meters and weight tickets and converted using EU ETS guidelines for the calendar year. However, SSE reporting period is from 1 April to 31 March, hence Energy Portfolio Management (EPM) team estimate GHG emissions in the final quarter using the power generation data and composition of the fuel used. The estimation is reconciled annually prior to EU ETS calendar year submission. EPM estimates power station emissions based on known plant activity, closures/ acquisitions and power generation data to estimate emissions and for emissions trading purposes.	kWh	
All business units combined	Operational vehicles & plant (diesel) *	Scope 1	Fuel is bought using fuel cards from independent fuel suppliers or dispensed at onsite fuel depot. Fuel card data is provided by independent fuel suppliers to Fleet Services. Fuel cards are reconciled with supplier invoices. Fuel dispensed from onsite depots is recorded and consolidated with fuel dispensed data from the independent suppliers.	Litres	
All business units combined	Operational vehicles & plant (petrol) *	Scope 1	Fuel is bought using fuel cards from independent fuel suppliers or dispensed at onsite fuel depot. Fuel card data is provided by independent fuel suppliers to Fleet Services. Fuel cards are reconciled with supplier invoices. Fuel dispensed from onsite depots is recorded and consolidated with fuel dispensed data from the independent suppliers.	Litres	Fuel invoices do not include fuel dispensed a few days before the invoice so there is delay in reporting periods however this balances during the year and between financial reporting periods.
All business units combined	Mobile plant (used when substations fail) – diesel and gas oil *	Scope 1	Fuel purchased is recorded through a fuel card or through purchase of fuel stock – all recorded in fleet database	Litres	

¹ The activity data highlighted with an asterisk (*) are also subject to assurance by PwC and this is separate to the carbon emissions assurance completed by PwC.

BUSINESS UNIT	GHG EMISSIONS SOURCE	GHG EMISSIONS LEVEL SCOPE	DATA SOURCE & COLLECTION PROCESS	DATA COLLECTION UNIT	UNCERTAINTY (description)
Networks – transmission and distribution	Fugitive emissions (SF ₆) – SHE Transmission, SHEPD & SEPD	Scope 1	Transmission and distribution engineers record SF ₆ top ups and exception events requiring SF ₆ top up in the asset management system, Maximo. The ENA model gives typical loss rate figure as a result of normal operation.	Tonnes	
Networks	Losses (SHEPD & SEPD)	Scope 2	Figures for network losses are calculated using standard distribution losses guidance (produced by Elexon) to compute the losses in the distribution system.	kWh	Based on industry standards for line losses and distribution losses
Generation	Thermal power station electricity consumption	Scope 2	There are 25 thermal power stations in the UK and Ireland. The large power stations (with capacity greater than 100 MW) have automatic electricity meters. Meter reading data of electricity use are transmitted through Elexon. This data is recorded on SSE's finance system TM1 and then downloaded onto an excel spreadsheet. Reconciliation of meter reads is completed with monthly invoices.	kWh	Some thermal power stations are excluded from the data because they are below 100MW (18 sites) and they do not have meters to measure consumption and electricity consumption is assumed to be minimal. Data excludes thermal power stations in Ireland.
All business units combined	Non-operational building electricity consumption *	Scope 2	Non-operational buildings are classed as offices, depots, warehouses and call centres. There are around 200 non-operational sites. Most non-operational buildings have automatic electricity meter. Records of electricity use are transmitted through automatic meter readings to Clarity and IMServ. Clarity and IMServ integrates with ESG ecomonitor web based facility where the electricity use is downloaded into an excel spreadsheet. Reconciliation of meter reads is completed with monthly invoices.	kWh	Not all non-operational buildings are on half hourly meters. Some are based on submitted actual meter reading, or estimated on billing system. Data excludes leased buildings with small number of employees (less than 1% of employees).

BUSINESS UNIT	GHG EMISSIONS SOURCE	GHG EMISSIONS LEVEL SCOPE	DATA SOURCE & COLLECTION PROCESS	DATA COLLECTION UNIT	UNCERTAINTY (description)
All business units combined	Non-operational building electricity consumption *	Scope 2	Non-operational buildings are classed as offices, depots, warehouses and call centres. There are around 200 non-operational sites. Most non-operational buildings have automatic electricity meter. Records of electricity use are transmitted through automatic meter readings to Clarity and IMServ. Clarity and IMServ integrates with ESG ecomonitor web based facility where the electricity use is downloaded into an excel spreadsheet. Reconciliation of meter reads is completed with monthly invoices.	kWh	<p>Not all non-operational buildings are on half hourly meters. Some are based on submitted actual meter reading, or estimated on billing system.</p> <p>Data excludes leased buildings with small number of employees (less than 1% of employees).</p>
All business units combined	Non-operational buildings – gas usage *	Scope 1	Non-operational buildings are classed as offices, depots, warehouses and call centres. There are around 200 non-operational sites. Most non-operational buildings have automatic gas meters. Records of gas use are transmitted through automatic meter readings to MeterPower. MeterPower integrates with ESG ecomonitor web based facility where the gas use is downloaded into an excel spreadsheet. Reconciliation of meter reads is completed with monthly invoices.	kWh	<p>Not all non-operational buildings are on half hourly meters. Some are based on submitted actual meter reading, or estimated on billing system.</p> <p>Data excludes leased buildings with small number of employees (less than 1% of employees).</p>

BUSINESS UNIT	GHG EMISSIONS SOURCE	GHG EMISSIONS LEVEL SCOPE	DATA SOURCE & COLLECTION PROCESS	DATA COLLECTION UNIT	UNCERTAINTY (description)
Networks - distribution	Substations – SHEPD & SEPD	Scope 2	<p>Substation electricity consumption is estimated as there are no meters in place. This is done by classifying the types of consumption and estimating the energy use of using the electrical load of the appliance. This includes:</p> <ul style="list-style-type: none"> • Space Heaters: Based on multiples of 3kW off peak heating on for 6hrs per day for 4 months of the year in the south and 6 months in the north (only 10% of buildings heated in HV sites). • Panel Heaters: Based on multiples of 0.07kW (only 10% of HV sites with separate lv panels). • Lighting: Based on multiples of 0.2kW, on for 10 days during the year. • Battery-Chargers: Based on multiples of 0.5kW continuous supply to DC standing loads. • Mains powered equipment: Based on 0.5kW continuous supply. • Transformer Coolers: Based on cooler ratings of individual transformers. Substations are assumed to have 2 transformers on average, with coolers in operation for 10 days of the year. • Electrical load has been calculated for each type of substation, using the principles detailed above. The calculated average annual load has then been multiplied by the relevant number of substations giving total figures in kWh 	kWh	Substations are not metered so their energy consumption is based upon estimates which are based on the size of the substation, electricity capacity and the operation activities of each building through the financial year.

BUSINESS UNIT	GHG EMISSIONS SOURCE	GHG EMISSIONS LEVEL SCOPE	DATA SOURCE & COLLECTION PROCESS	DATA COLLECTION UNIT	UNCERTAINTY (description)
Networks – transmission	Substations	Scope 2	<p>Substation electricity consumption is estimated as there are no meters in place. This is done by classifying the types of consumption and estimating the energy use of using the electrical load of the substation. This includes:</p> <ul style="list-style-type: none"> • Categorising substations based on the number of transformers connected • Categorising substations based on the number of circuits connected • Estimating the total energy use of the substation by viewing metered data from the current and previous reporting years <p>Estimates are made by comparing substations based on their size with sites that have metered data available.</p>	kWh	Substations are not metered so their energy consumption is based upon estimates which are based on the size of the substation, electricity capacity and the operation activities of each building through the financial year.
All business units combined	Flights – domestic * – short haul * – long haul * – international*	Scope 3	Booked through SSE's web based travel booking system Capita, which provides distances in km for all journeys.	km	The actual flight distance may not always be exactly as standard for the route, the conversion factors used take account of the fact that distances travelled may not be representative of the journey due to changes in flight paths for safety/ weather/ etc. as detailed by CarbonSmart guidance.
All business units combined	Train *	Scope 3	Booked through SSE's web based travel booking system Capita, which provides distances in km for all journeys.	km	Small % of train journeys will be booked direct through the train company rather than using the SSE travel desk system.

BUSINESS UNIT	GHG EMISSIONS SOURCE	GHG EMISSIONS LEVEL SCOPE	DATA SOURCE & COLLECTION PROCESS	DATA COLLECTION UNIT	UNCERTAINTY (description)
All business units combined	SSE & SEC Cars (petrol and diesel) *	Scope 3	Claims made through expenses system for business purposes using employees own cars or car ownership scheme (COS) cars. The mileage relates to the date the miles were claimed. The mileage claim data is run through the Harmony system. Distances are in miles and converted to km (using 1.609 conversion factor).	km	
Generation	Fuel purchased – gas, oil and biomass for generation of electricity	Scope 3	Fuel purchased during the financial year (gas, oil and biomass) is measured through meters and weight tickets and converted into kWh using standard industry recognised conversion factors or supplier specific factors.	kWh	Fuel purchased (diesel and oil) may not necessarily be used in the year, or in the reporting period, as there are on-site storage facilities for these fuels.
Retail	Gas sold to customers	Scope 3	<p>Gas volumes are based on settlements data published by Xoserve. SSE receives an allocation of the settlements data based on the total amount of gas used by the local distribution zone based on its portfolio of customers. This number covers both domestic (for the island of Ireland) and business customers (industrial and commercial) for Great Britain and the island of Ireland.</p> <p>The carbon emissions are calculated by taking the scope 3 gas sold to customers figure and applying the carbon dioxide conversion factor provided by BEIS reporting guidelines.</p>	Million terms	In line with gas settlement industry standard, gas reported contains a portion of unidentified gas supplied. This is to ensure total supply matches demand for the UK gas delivery.

BUSINESS UNIT	GHG EMISSIONS SOURCE	GHG EMISSIONS LEVEL SCOPE	DATA SOURCE & COLLECTION PROCESS	DATA COLLECTION UNIT	UNCERTAINTY (description)
Transmission and distribution losses for electricity use	Electricity use in non-operational buildings *	Scope 3	This is the transmission and distribution losses (the energy loss that occurs getting the electricity to SSE non-operational buildings from the power plant) associated with the electricity consumed by SSE's non-operational buildings (offices, depots, call centres). This figure is calculated by taking the scope 2 electricity consumption figure for non-operational buildings and applying a carbon dioxide conversion factor provided by BEIS reporting guidelines.	kWh	
Transmission and distribution losses for electricity use	Electricity use in substations	Scope 3	This is the transmission and distribution losses (the energy loss that occurs getting the electricity to SHE Transmission, SEPD and SHEPD substations from the power plant) associated with the electricity consumed in SHE Transmission, SEPD and SHEPD substations. This figure is calculated by taking the scope 2 substation electricity consumption and applying a carbon dioxide conversion factor provided by BEIS reporting guidelines.	kWh	
Transmission	Losses (National Grid)	Scope 3	<p>When transferring power across the SHE Transmission System, some of the power is 'lost' known as 'Transmission Losses'.</p> <p>Figures for transmission losses are calculated using standard transmission losses guidance (produced by Elexon) to compute the losses in the transmission system.</p> <p>This data is reported by National Grid as the system operator. They report this figure for the period of July to June to SSE for its assets. The figure is for the previous financial year as a result of the timing of the data capture process. This means for the financial year 1 April 2020 to 31 March 2021 the data will be based on the previous financial year July 2019 to June 2020. The data is verified by an independent third party, WSP, for National Grid.</p>	kWh	Based on industry standards for transmission losses

BUSINESS UNIT	GHG EMISSIONS SOURCE	GHG EMISSIONS LEVEL SCOPE	DATA SOURCE & COLLECTION PROCESS	DATA COLLECTION UNIT	UNCERTAINTY (description)
Renewables	Fuel used by vessels to travel to and from offshore wind farms	Scope 3	<p>There are two Joint Ventures that are operational and use vessels to maintain offshore windfarms in the UK and Ireland.</p> <p>Fuel data is collected from the third party that owns and operates the vessels. Scottish Fuels supply all the fuel data for Beatrice Offshore Windfarm Limited (BOWL) and ASCO provide fuel data for Greater Gabbard Offshore Windfarm Limited (GGOWL).</p> <p>This data is sent by each third party and collected by BOWL and GGOWL SHE teams. The fuel data is stored by Renewables SHE and consolidated into one report to cover all offshore vessel activities using excel. All data is verified using monthly invoices.</p>	Litres	Fuel used by third party in vessels contracted to support SSE's operation of offshore wind farms.

GHG CONVERSION FACTORS

To calculate all the fuel sources into GHG emissions the BEIS UK conversion factors spreadsheet developed by CarbonSmart is downloaded annually from [BEIS website](#). The following conversion factors are applied to each source of emissions (table 3).

For the Fuel Used by generation the emissions are calculated by the power stations and converted using the EU ETS guidelines. This is then verified by independent third parties and evidence submitted to regulators in accordance with EU ETS legislation.

Table 3:
Conversion Factor Source available [here](#).

ACTIVITY	CATEGORY OF EMISSION FACTORS USED
<p>Generation</p> <ul style="list-style-type: none"> • Operational vehicles & plant (diesel) • Operational vehicles & plant (petrol) • Mobile plant – gas oil • Fugitive emissions (SF₆) – SHE Transmission, SHEPD & SEPD • Fuel combustion – for mobile and fixed generation on distribution networks (diesel) – SHEPD & SEPD • Losses (SHE transmission, SHEPD & SEPD) • Non-operational building electricity consumption • Thermal power station electricity consumption • Non-operational buildings – gas usage • Substations – SHE transmission, SHEPD & SEPD • Flights - domestic • Flights – short haul • Flights – long haul • Flights – international • Train • SSE & SEC cars (petrol & diesel) • Transmission and distribution losses for electricity use in non-operational and thermal power stations buildings • Transmission and distribution losses for electricity use in SHE Transmission, SEPD and SHEPD substations • Transmission and distribution losses in the transmission (National Grid) network • Well to tank emissions for fuel purchased for generation • Gas sold to customers • Vessels fuel use 	<p>As per EU ETS categories</p> <ul style="list-style-type: none"> • Fuels • Fuels • Fuels • Refrigerant & other • Fuels • UK electricity • UK electricity and overseas electricity • UK electricity • Fuels • UK electricity • Business travel - air • Business travel – air • Business travel – air • Business travel – air • Business travel – air • Business travel – land • Passenger vehicles • Transmission and distribution • Transmission and distribution • Transmission and distribution • WTT - fuels • Fuels • Fuels

GHG EMISSIONS SOURCE EXCLUSIONS

Emissions sources in Table 3 have been identified and excluded from the GHG emissions inventory.

GHG EMISSIONS SOURCE	GHG EMISSIONS LEVEL SCOPE	DATA SOURCE & COLLECTION PROCESS
Operational vehicles on the island of Ireland	Scope 1	Minimal
Bus travel	Scope 3	Bus not used for business travel
Taxi travel	Scope 3	Minimal – taxis only taken on short journeys – distances not logged
Hire Car Travel	Scope 3	Minimal
Helicopter travel	Scope 3	Minimal
Electricity consumption in residential property and leased buildings	Scope 2	Minimal
Gas consumption in residential property, leased buildings and generation sites where it is used for heating purposes on the site itself.	Scope 1	Minimal
Waste to Landfill	Scope 3	Minimal
Water & Waste Water	Scope 3	Minimal
Fugitive emissions of methane from Gas Storage venting	Scope 1	Minimal
SF ₆ from Generation switchgear and embedded distribution	Scope 1	Minimal
Well to tank emissions from other fuel use in operations that is not related to generation activities	Scope 3	Minimal
Thermal power station electricity consumption at sites with capacity lower than 100MW (18 sites) that do not have meters to measure consumption. Thermal power stations in Ireland are excluded.	Scope 2	Minimal

GHG EMISSIONS CALCULATIONS AND RESULTS

GHG emissions for the organisation are calculated in excel spreadsheet 'Appendix 1' where they are stated by greenhouse gas, by scope, by business unit and as total emissions.

WATER REPORTING CRITERIA

This document aims to detail the water data collection, collation, conversion and reporting process used by SSE to report annual water volumes in millions of cubic meters (millions m³) for the reporting period.

WATER SOURCE INCLUSIONS

The water sources included in this inventory are those required by BEIS reporting standards and include the total water (billions m³):

- **abstracted** – the volume of water taken from rivers, lochs, sea, estuaries and mains supplies for operational activities;
- **consumed** – the volume of water used by the business to conduct its operations; and
- **returned** – the volume of water returned to source (river, loch, sea or estuary).

SSE uses water for four main purposes:

1. to cool its generation plant (thermal generation operations);
2. as process water for a variety of operations (thermal generation operations);
3. as a source of energy in hydro generation schemes; and
4. for amenities in offices and buildings.

The table below details the source of the water data, how the water data is collected and reported, and any uncertainties in the water data.



BUSINESS UNIT	WATER VOLUME SOURCE	DATA SOURCE & COLLECTION PROCESS	UNCERTAINTY (description)
Generation (thermal)	Water volumes abstracted and returned at entry and exit points of each power plant	<p>Flow meters transfer water volumes automatically from the flowmeters to the PI (process information) system. Water use data is automatically downloaded from this system into excel.</p> <p>For Great Island power station in Ireland, water for cooling is measured using a pump running hours methodology rather than flowmeters as these are not available. This methodology uses the pump performance and pump curve to measure flow rates and has been agreed with the EPA.</p>	<p>For the power stations that use flow meters, if there is a failure in the flowmeter PI system then there is backup process used which involves pump running hours (this takes account of pump performance and the pump curve to measure flow rates) and has been agreed with the Regulators.</p> <p>Data for ROI and NI covers the periods between 1 January and 31 December 2019 and GB covers the periods between 1 April and 31 March 2019/20.</p>
Hydro generation	Water volumes abstracted and returned is the water that passes through the hydro generation turbine at the SSE power station	<p>Volumes of water abstracted and returned are measured via telemetry. The telemetry system collects and records the input data (which is based on the water head (the intake and the loch level) and the power generation) to estimate the volume of water that passes through a turbine each time.</p> <p>The input data uses the power generated to calculate the flow of water that would have been required (and so effectively uses the turbine as a flowmeter).</p>	
Non-operational offices and buildings	Water	<p>Non-operational buildings are classed as offices, depots and warehouses. There are around 200 non-operational sites. Only 19 sites out of the 200 have water meters. Over 75% of the water consumption is from these 19 key non-operational sites.</p> <p>Monthly meter readings are manually recorded at the 19 sites and logged centrally.</p>	<p>Water consumption is based on 19 key properties that are metered which make up over 75% of the water consumption based on non-operational buildings employee occupation.</p>
Generation (thermal) offices and buildings	Water	<p>Monthly meter readings are manually recorded at the sites and logged centrally.</p>	

