

Module: Introduction**Page: Introduction**

CC0.1**Introduction**

Please give a general description and introduction to your organization.

SSE is a UK based company listed on the London Stock Exchange. It is involved in energy production, generation and storage; energy transmission and distribution; and supply of energy and related services to customers.

SSE's core purpose is to provide the energy people need in a reliable and sustainable way. Its strategy is to deliver the efficient operation of, and investment in, a balanced range of economically-regulated and market-based businesses in energy production, storage, transmission, distribution, supply and related services in the energy markets in Great Britain and Ireland.

SSE has three key business segments:

- 1) Networks – SSE has an ownership interest in the energy networks businesses in electricity transmission in the north of Scotland, electricity distribution in the north of Scotland and central southern England and in gas distribution in Scotland and southern England. These 'regionally defined' businesses are subject to economic regulation by Ofgem.
- 2) Retail – SSE supplies electricity, gas and related services such as telecoms in markets in Great Britain and Ireland. It is focused on attracting and retaining customers through excellent service and a brand people trust. It also incorporates SSE Enterprise, which brings together key SSE services for industrial, commercial and public sector customers.
- 3) Wholesale – SSE provides energy and related services for customers in wholesale energy markets in Great Britain and Ireland. It delivers this through Energy Portfolio Management and Electricity Generation, Gas Production and Gas Storage. Amongst other things SSE is a leader in renewable energy across the UK and Ireland.

CC0.2

Reporting Year

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

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed
Fri 01 Apr 2016 - Fri 31 Mar 2017

CC0.3**Country list configuration**

Please select the countries for which you will be supplying data. If you are responding to the Electric Utilities module, this selection will be carried forward to assist you in completing your response.

Select country
United Kingdom
Ireland
Belgium

CC0.4**Currency selection**

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

GBP(£)

CC0.6

Modules

As part of the request for information on behalf of investors, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.

If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

Further Information

Module: Management

Page: CC1. Governance

CC1.1

Where is the highest level of direct responsibility for climate change within your organization?

Board or individual/sub-set of the Board or other committee appointed by the Board

CC1.1a

Please identify the position of the individual or name of the committee with this responsibility

SSE's Chief Executive, Alistair Phillips-Davies, has overall lead responsibility for sustainability issues, including climate change. In discharging his responsibilities in relation to climate change, the Chief Executive is advised and assisted by senior management and a number of specific management committees.

The Board is responsible for setting the overall strategic direction and key sustainability policies in support of this. The Board also reviews SSE's performance

against agreed sustainability objectives.

The Executive Committee implements the sustainability policy and strategy as agreed by the Board and monitors progress against specific sustainability targets and initiatives; there are seven sub-committees which assist in the effective management of these initiatives. For example, key environmental and energy efficiency targets are monitored by the Safety, Health, Environment Advisory Committee (SHEAC) and Governance, Culture and Controls Committee (GCC) governs sustainability management and reporting (part of the Committee's Terms of Reference).

To complement our long term environmental objectives and targets, we also produce a series of annual environmental targets which are reported against on a monthly basis. Progress against these targets is also reviewed on a quarterly basis by the SHEAC (Board level committee) and additionally by the Group SHE (Safety, Health & Environment) Committee.

In addition, SSE's Director of Sustainability identifies specific sustainability issues arising from SSE's responsibilities to its customers, communities, employees and shareholders, and develops policy in the line with the values agreed by the Board. The corporate affairs and sustainability team report directly to the Chief Executive Officer. The sustainability team and the corporate affairs team support and drive sustainability performance programmes across the organisation and report progress on sustainability activities to the full range of SSE's stakeholders.

CC1.2

Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

CC1.2a

Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
All employees	Monetary reward	Emissions reduction project Energy reduction project Efficiency project Other: Behaviour	Annual appraisals for all SSE employees are based around our 6 company Core Values, one of which is Sustainability, and so their individual performance in relation to sustainability is assessed, which has implications on whether or not they receive an annual incremental pay rise and / or bonus. Climate change issues will be one topic that fits into the sustainability value and employees will have specific targets (depending on their role) that help to manage or mitigate against climate change issues.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
		change related indicator	
Other: Environment/sustainability managers	Monetary reward	Emissions reduction target Energy reduction target	There are several managers in SSE whose jobs are directly related to environmental management, and therefore their salary and any incentive is linked to the fulfilment of environmental / climate change related personal targets.
Corporate executive team	Monetary reward	Emissions reduction target Energy reduction target Other: Behaviour change related indicator	The executive team are awarded incentive payments connected with the achievement of a variety of targets, including sustainability.
Board/Executive board	Monetary reward	Emissions reduction target Energy reduction target Other: Behaviour change related indicator	The 2016/17 Annual Bonus scheme for Executive Directors was based on personal objectives, which included the achievement of sustainability targets.
Energy managers	Monetary reward	Energy reduction project Energy reduction target Efficiency project	SSE has several energy managers whose annual incremental pay rise is linked with achieving the implementation of systems which will reduce energy consumption in order to achieve targets.
Facility managers	Monetary reward	Energy reduction project Efficiency project	Facilities Managers are rewarded based on achieving targets relating to numerous things, managing and reducing energy and water consumption, and promoting other carbon saving measures such as sustainable travel.
All employees	Recognition	Behavior change	We have an annual SSE Awards ceremony, with a number of categories of awards -

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
	(non-monetary)	related indicator Other: Behaviour change related indicator	including Sustainability. An individual, team, or department, which has shown excellence in this area, often relating to carbon reduction, is recognised and rewarded through this event.

Further Information

Page: **CC2. Strategy**

CC2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

CC2.1a

Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Six-monthly or more	Board or individual/sub-set of the Board or	SSE Group which involves UK and	> 6 years	The Board is responsible for the overall system of risk management and internal control. It directly sets the Group Risk Management and

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
frequently	committee appointed by the Board	Ireland operations.		Internal Control policy and reviews risk management performance at SSE on an ongoing basis. Full details of the Risk Management Framework and wider System of Internal Control are reported in SSE's annual report.

CC2.1b

Please describe how your risk and opportunity identification processes are applied at both company and asset level

Background: 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 which are set by the Board following assessment of the opportunities available. During 2016-17 SSE continued to develop its Risk Management Framework, with a comprehensive Principal Risk Self-Assessment process being implemented through the Executive Committee and its sub-committees. This process included a full review of the Principal Risks, associated controls and monitoring information, and an assessment of emerging risks to the Group.

The Group Risk Management Framework has been designed to ensure (amongst other things) that SSE is in a position to address the issue of climate change, whether as a risk or as an opportunity. For example, climate change could present significant challenges in the management of energy-related commodity prices; equally, it could present opportunities through political or regulatory action to address it.

Group level risks and opportunities are identified through the Risk Management Framework: Strategic risks and opportunities are identified, evaluated and reviewed by the Board and reported in SSE's annual report. For example, Group level risks could involve responding to political/ regulatory action that addresses climate change or the impact of climate change on energy-related commodity prices as detailed in our Politics, Regulation and Compliance, and, Commodity Price Principal Risks.

Asset level risk and opportunity identification: Each of SSE's divisional Managing Directors must implement a Divisional Risk Approach to identify and manage key risks. For example, flooding arising from climate change can cause a significant challenge to our Networks and Wholesale divisions in the management of infrastructure and delivery of the Group's major projects.

CC2.1c

How do you prioritize the risks and opportunities identified?

Prioritisation identification:

Principal Risks are assessed based on the level of concern of the owning Committees and the overarching view of SSE's Executive Committee who additionally consider the output of the required annual Viability Assessment.

Risk Review process:

The Principal Risks are reviewed within the Principal Risk Self-Assessment process, which also includes a comprehensive review of the associated controls and an assessment of the effectiveness of these controls.

The Group Risk department works with the Managing Directors, Executive Committee and Executive Sub-Committees on an ongoing basis to develop and improve risk management tools and processes, to ensure that business level risks are identified, managed and regularly reviewed, and that risk reporting to the Board, Audit Committee and Executive Committee is in line with Corporate Governance Code requirements.

CC2.1d

Please explain why you do not have a process in place for assessing and managing risks and opportunities from climate change, and whether you plan to introduce such a process in future

Main reason for not having a process	Do you plan to introduce a process?	Comment
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CC2.2

Is climate change integrated into your business strategy?

Yes

CC2.2a

Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

1. How the business strategy has been influenced: SSE's core purpose is to "provide the energy people need in a reliable and sustainable way". The SSE SET of values-Sustainability, Service, Efficiency, Safety, Excellence and Teamwork - is part of the appraisal process and used to assess employees' performance (including

Executive Directors and Managing Directors).

SSE's sustainability value is defined as 'Our decisions and actions are ethical, responsible and balanced, helping to achieve environmental, social and economic well-being for current and future generations'. This reflects the energy 'trilemma' (security of supply, decarbonisation and affordability) and is consistent with the priorities of its key stakeholders and with the direction of public policy in the UK and Ireland.

2. Examples of how the business strategy has been influenced: SSE's strategy is to transition to a low carbon energy system by reducing the carbon intensity of the electricity it generates. It is doing that by undertaking a strategic shift away from carbon intensive fossil fuel generation towards electricity generation from renewable sources. At its core is a long-standing commitment to reduce the carbon intensity of its electricity generation by 50% by 2020, using 2006 performance as its baseline.

3. What aspects of climate change have influenced the strategy: Meeting the energy 'trilemma' is the core part of SSE's strategy. The significant impacts of climate change to SSE is the need to mitigate the impact of climate change through a move to a low carbon economy with secure and affordable low carbon energy, adapt to the potential physical impacts of climate change and ensure operations are resilient to climate changes.

4. Short Term Strategy (current to next three years) strategy: focuses on:

- Continued investment in new renewable energy capacity to support SSE's long term carbon intensity strategy.
- Continued investment in network infrastructure to facilitate new network capacity for renewable energy.
- Internal energy efficiency improvements – programmes to reduce energy use from our own operations, with £10 million capital investment, behaviour change programme and installation of AMR and smart meters.
- Emissions collection and reporting changes.

5. Long Term Strategy (from 2017 and beyond): SSE aims to support the transition to a low carbon economy: To do this SSE has a renewable investment programme (with a target of 4.3GW by 2020) and aims to decarbonise its generation portfolio (moving from coal/ gas to renewables/ gas) and reduce its carbon intensity by 50% by 2020 (baseline 2006). SSE continues to make significant investments in the electricity networks and supply of energy to enable low carbon energy to be transmitted and supplied to customers. SSE has invested in new business activities in its contracting, energy solutions, and heat businesses to provide low carbon and energy efficiency products/ services to business customers. SSE has research and development programmes aimed at low carbon technologies and has long term initiatives to help customers reduce their own energy consumption by being more energy efficient.

6. Strategic advantage over competitors: SSE's strategic advantage is:

- Its sector leading investment in renewable technology/generation capacity and balanced generation portfolio. Which it will continue to focus on by: commissioning and developing additional renewable energy capacity; lowering emissions from more efficient and flexible gas fired generation; delivering innovative solid fuel solutions; and reducing output from coal fired stations.
- Its outstanding customer service, in service provision and products. This extends to the products offered to address climate change issues and services provided to household customers to reduce energy/ carbon (eg ECO) and business customers (microgeneration).

7. Substantial Business Decisions: Climate change driven legislation and policies have impacted SSE's business decisions in the past year, including:

- Expanding SSE's renewable energy portfolio, with 34MW of new onshore wind farm capacity in 2016/17 and a further 992MW of on and off-shore capacity in construction.
- In total, including that connected at a distribution level, SSEN connected over 500MW of renewable electricity to its transmission network in 2016/17, the highest combined capacity to connect to the north of Scotland transmission network in a single year since electricity privatisation.
- New operating frameworks which involves a minimum price for a tonne of carbon in the UK, long term contracts for new low carbon sources, security of supply, and

maximum emissions for new generation have resulted in a change to the mix of SSE's generation portfolio between 2015/16 and 2016/17: with coal reducing from 22% to 3.4%, gas increasing from 42% to 66% and renewables contributing 30% in 2016/17.

- Progressing the Caithness-Moray electricity transmission link.
- Trialling more active network management such as Northern Isles New Energy Solutions Project, New Thames Valley Vision project and My Electric Avenue.
- Investment in a new 100% renewable energy product for the commercial sector as well as provision of energy-efficiency advice to business and residential customers.

8. Paris Agreement's influence on SSE's business strategy: SSE supports the long term objectives of the Paris Agreement set out by the UNFCCC, to keep global average temperature changes to well below 2 degrees and potentially below 1.5 degrees of pre-industrial levels by 2100. To contribute to these agreements, SSE is committed to:

- achieving its 50% reduction in carbon intensity target by 2020 (baseline 2006);
- investing in low carbon energy networks that help the UK power sector to reduce carbon intensity;
- recognising the external cost of carbon dioxide emissions to society and the environment by internalising the cost of carbon where practical in investment appraisals;
- helping customers better control their electricity use, by helping them to reduce consumption and to consume at times of day when the carbon-intensity of electricity is lower; and
- advocate in favour of market and regulatory frameworks in the UK and Ireland that are consistent with the Paris Agreement, thereby creating the conditions where continued investment in low carbon and renewable energy is economically viable for SSE.

9. Forward looking scenarios to inform business strategy: SSE has been collaborating with investors (eg Institutional Investors Group on Climate Change (IIGCC)) to respond to requests for more open/ transparent disclosure on climate change related risks/opportunities. SSE modelled the resilience of its business against 3 core future energy scenarios: 1.5; 2; and 3-4 degree warming scenarios. The results showed the likely events that would take place if each scenario played out and how SSE would respond.

CC2.2b

Please explain why climate change is not integrated into your business strategy

CC2.2c

Does your company use an internal price on carbon?

Yes

CC2.2d**Please provide details and examples of how your company uses an internal price on carbon**

Scope of emissions: The use of a carbon price impacts SSE's scope 1 (in particular generation emissions) and scope 3 (transmission and T&D losses) emission categories.

Rationale for using a carbon price: The use of a carbon price is a key component of many of SSE's operational and capital investment decisions. The price of carbon is reflected in decisions to run generation plant and renewable generation technologies, the investments made in new and existing capital projects and how we perform in the energy markets.

Where and how SSE uses a carbon price: For example:

- SSE's Energy Portfolio Management team internalises the price of carbon in its energy market models, for example in 2016/17 ongoing 'low spark' spreads combined with the Carbon Price Support Rate resulted in greater use of gas-fired generation relative to coal.
- SSE's capital investment decisions in future electricity generation are supported by the renewables obligation and in the future contracts for difference. These long term support mechanisms for low carbon generation influence the way in which SSE develops and invests in new renewable technologies.

Actual price and process to determine the price: The UK's Carbon Price Floor sets the carbon price up to 2021. SSE believes it is a critical part of the UK's energy policy. SSE believes that the UK's Carbon Price Floor is one of the most important policy tools the government has to help industry continue to deliver reliable and lower carbon electricity cost-effectively.

CC2.3**Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)**

Direct engagement with policy makers
Trade associations
Funding research organizations
Other

CC2.3a

On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Other: Mandatory carbon reporting/ cap and trade/ carbon tax/ energy efficiency/ clean energy generation/ adaptation resilience/ climate finance	Support with minor exceptions	SSE is supportive of the broad policy framework in place within the UK to enable investment in low carbon electricity generation. In particular the combination of the CfD and the Carbon Price Floor. SSE has welcomed the UK government's commitment to run future CfD auctions for offshore wind with a budget of £730m. SSE has engaged with the UK government and in particular the lead department BEIS to ensure that the technical details of the CfD framework continue to be fit for purpose as offshore wind projects become larger and further out at sea. SSE has also highlighted the importance of repowering onshore wind sites from the 2020s and beyond to ensure that existing renewable capacity is not lost; and in fact be replaced by larger turbines. SSE has also been closely engaged with the Scottish government on its planning policy and strategy to increase renewable energy and decarbonise the economy, which SSE fully supports and is a part of delivering.	SSE supports the objectives of this legislation. SSE believes the Contracts for Difference (CfD) to be a viable, long term support mechanism for low carbon generation. The changes to the policy framework provided welcome clarity to developers and investors of renewable technologies. SSE welcomed the decisions by the UK Government to hold CfD auctions for offshore wind and other less established technologies. SSE has provided input to the Scottish government in response to its consultation on how to improve planning legislation with a view to improving the prospects of building new and repowered onshore wind.
Cap and trade	Support with minor exceptions	Reform of the EU Emissions Trading Scheme (EU ETS) – SSE has engaged directly with the relevant departments in the UK and Irish Governments, European Commission, MEPs in the European Parliament and through other stakeholders including the Scottish Government, as well as through our trade associations on the introduction of the Market Stability Reserve (MSR) in 2015 for the EU ETS and the continued reform of the EU ETS for Phase IV (Post 2020) that it is expected to be concluded by the end of 2017.	The European Commission brought forward its proposals for the revisions of the EU ETS for Phase IV (post 2020), and these are currently undergoing scrutiny by the European Parliament and the Council of the EU (Member States). SSE supports provisions that ensure that industries at genuine risk of carbon leakage are supported to a level of the best available technologies and processes, but that doesn't undermine the EU ETS or climate change mitigation efforts. SSE's main focus for the ETS Directive has been on ensuring the legislation in "Post-Paris Ready", by incorporating the UNFCCC five-year review mechanism so that the EU can consider raising its ambition for 2030, at UNFCCC INDC (Intended Nationally Determined Contributions) discussions in 2020. In particular, SSE has supported a strengthening of the Market Stability Reserve (MSR), which will double the number of allowances that will be withheld from the market from 2019 to help bring the market back to scarcity, and drive cost-effective carbon

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Cap and trade	Support with minor exceptions	SSE supports the maintenance of the Carbon Floor Price (CFP), which has played a major part in reducing the UK's carbon emissions by triggering fuel switching the electricity market from coal to gas. SSE supports maintenance of the CPF to provide stability and predictability to low carbon investment and ensure continued steady phase out of coal generation, which also incentivises new flexible gas capacity. SSE has engaged closely with the UK government to provide pragmatic and constructive advice on maintaining a strong carbon price signal.	abatements through a robust carbon price signal. SSE welcomed the announcement in the Spring Budget announcement 2017 that the UK Government will continue to maintain Carbon Price Support rates at £18/t CO2 to April 2021. The UK government will set out its intentions at Budget 2017 later this year on what total carbon price it will seek to deliver beyond 2021. SSE supports this approach and will engage with government constructively. SSE has joined with other energy companies and civil society organisations to write open letters to the government to highlight how this market-based approach to pricing carbon can provide an efficient and cost-effective policy framework to meet UK environmental goals.
Cap and trade	Support	Climate Change Act and the 5th Carbon Budget – The 5th Carbon Budget for the period 2028 to 2032 has been adopted and sets out the trajectory for the UK to meet its legally binding 2050 carbon target under the Climate Change Act. SSE continues to engage directly with the CCC and the Government on the 5th Carbon Budget and its implications, and support its analysis to ensure a cost efficient pathway for the decarbonisation of the UK economy.	SSE awaits publication of the UK government's Clean Growth Plan, which has been delayed but is expected later this year. SSE will engage with government following its publication.
Energy efficiency	Support	Energy Efficiency Directive (EED) and other energy efficiency legislation – The EED is the main EU energy efficiency legislation to meet the EU energy efficiency targets for 2020 and 2030. The European Commission has brought forward its revised EED to ensure that the 2030 energy efficiency targets can be met. SSE has been engaging with the relevant departments in the European Commission and trade associations on this Directive in the 2030 Package, and has tried to create a wider support with the energy industry towards energy efficiency to help vulnerable customers. SSE has similar engagement on other EU energy efficiency legislation aimed at meeting the 2030 target including the Energy Performance in Buildings Directive (EPBD) and the Ecodesign Directive.	SSE has been supportive of energy efficiency targets, and supports a bottom up approach that expands upon and tightens existing legislation to develop a bottom up approach to achieving all available cost effective energy efficiency measures for the economy.
Energy efficiency	Support with minor	Energy Company Obligation (ECO) – focuses on energy efficient solutions, reducing carbon emissions and helping	SSE supports the overall aim of ECO. SSE believes that energy efficiency measures are the best approach for

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
	exceptions	<p>people out of fuel poverty. There have been two iterations of ECO so far – ECO1 and ECO2. ECO2 has been extended for eighteen months beyond its initial end date. The extension scheme is due to finish at the end of September 2018. A new scheme will be introduced in 2018. SSE is working closely with the UK Government on the design of the successor scheme. SSE will engage with UK government and other stakeholders on ways to improve energy efficiency schemes. SSE believes that energy efficiency policy must be designed to ensure cost effectiveness. Past schemes have been overly complex and therefore did not represent value for money for the customers that pay for them. The government has made welcome changes to ECO for the extension period, with the aim of reducing administrative complexity. There is a strong case for the cost to be funded progressively by taking into account an individual's ability to pay. General taxation has the advantage of being means-tested, proportionate to earnings and hence socially progressive.</p>	<p>consumers to minimise their energy bills. SSE however believes that the way in which energy efficiency measures are implemented and funded should be reviewed, so they facilitate cost effective delivery.</p>
Other: Low carbon networks	Support	<p>SSE has engaged directly with OFGEM and other departments on low carbon networks through demonstration projects. SSE is involved in developing new technologies to establish a framework of support for low carbon technologies which cost effectively manage energy efficiency measures on SSE's networks as a sustainable alternative for managing peak electricity demand.</p>	<p>SSE fully supports the low carbon networks programmes. SSE believes there is the potential for the new technologies to be included in the future network price control framework. One example of SSE developing new technologies is My Electric Avenue, which identified the impact of Electric Vehicles (EVs) on electricity network, and following on from the findings of this project a new project called 'Smart EV' which aims to create and collaborate with other Distribution Network Owners, National Grid, DECC and Ofgem on an industry-accepted solution for managing EV charging in the future.</p>
Clean energy generation	Support	<p>Renewable Energy Directive (RED) – Contains the legal backing for the 2020 renewable energy target. As part of the EU's Clean Energy Package, the European Commission has proposed revisions to the RED and will contain the EU wide binding target agreed in October 2014, for at least 27% of final energy to come from renewable energy by 2030. SSE has been engaging with the relevant departments in the European</p>	<p>SSE supports an EU wide renewable energy target for 2030 as it provides the long term certainty for investment in the necessary infrastructure to decarbonise the UK and Irish economies in a cost effective way. SSE views that offshore wind as part of a more integrated North Sea grid could enable the cost effective exploitation of a key strategic resource.</p>

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
		Commission and trade associations on the consultation to update the RED. In particular we have been assessing how strategic projects such as how the North Sea Grid could enable greater offshore wind deployment to be developed to help the EU meet its targets. SSE will engage with the European Parliament and the Council of the EU (Member States) as the legislation goes through legislative scrutiny. SSE has been engaging with the relevant departments in the European Commission and trade associations.	

CC2.3b

Are you on the Board of any trade associations or provide funding beyond membership?

Yes

CC2.3c

Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
Eurelectric (members via Energy UK, Energy Networks Association and Electricity Association of Ireland)	Consistent	Eurelectric's major objectives are to deliver carbon neutral electricity in Europe by 2050, ensuring a cost-effective, reliable supply through an integrated market and developing energy efficiency and the electrification of the demand side to mitigate climate change.	As a member of national trade associations, SSE has strongly advocated that Eurelectric supports low carbon investment and efforts to improve energy efficiency. From June 2014, SSE's Chief Executive will be the Vice President for Eurelectric for a term of 2 years which was extended for an additional year in May 2017. One of the main topics for the Presidency was the international

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
			climate talks in Paris and their implementation in to the ETS, as well as the role of a robust carbon price signal in electricity market design and the electrification of heat and transport.
Energy UK and Energy Association of Ireland	Consistent	Energy UK fully support the scientific consensus behind climate change, and as such recognise the need to decarbonise the economy, and that the energy sector is crucial to this.	As a member of these organisations, SSE has strongly advocated that Energy UK and Energy Association of Ireland supports low carbon investment and efforts to improve energy efficiency.
Confederation of British Industry (CBI) (in Northern Ireland only)	Consistent	CBI supports energy efficiency, future proofing business against climate threats and moving businesses towards carbon neutrality by enabling the market to develop the solutions that are needed to achieve these goals.	SSE advocates that the CBI supports low carbon investment, policy on carbon targets/ EU ETS/ energy efficiency.
International Emissions Trading Association (IETA)	Consistent	International Emissions Trading Association advocates emissions trading globally and the EU ETS.	As a member of this organisation, SSE has strongly advocated for emissions trading globally and reform of the EU ETS.
Carbon Capture and Storage Association (CCSA)	Consistent	The CCSA works to raise awareness, both in the UK and internationally, of the benefits of CCS as a viable climate change mitigation option, and the role of CCS in moving the UK towards a low-carbon economy.	SSE supports the commercial demonstration of CCS technology with a view to CCS contributing to a future decarbonised energy system, alongside other low carbon sources.

CC2.3d

Do you publicly disclose a list of all the research organizations that you fund?

No

CC2.3e

Please provide details of the other engagement activities that you undertake

We have done ad hoc communications with energy companies and environmental NGOs around carbon pricing. For example, SSE joined with other energy companies and civil society organisations to write open letters to the government to highlight how this market-based approach to pricing carbon can provide an efficiency and cost-effective policy framework to meet UK environmental goals.

CC2.3f

What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

Our business strategy and sustainability value (one of six of our core values) details our overall approach on climate change policy and the activities that we undertake to influence policy and regulation on climate change.

SSE has policy and public affairs specialists based in Brussels, Glasgow, Edinburgh, London, Cardiff, Belfast and Dublin who engage openly and constructively with legislators, officials and other policy makers on all aspects of energy, climate change and related environment 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 (for example the Ireland Register of Lobbying and SSE's European Declaration).

SSE's risk management framework ensures that all risks associated with climate change policy and regulation are identified, assessed, evaluated, recorded, monitored and reviewed to understand the impact of these changes to our business. As part of this risk management framework the significant policy risks and activities that are related to climate change policy would be identified and actions as well as key messages developed to ensure that there is a consistent approach to all activities that influence policy and that these messages are in line with our overall sustainability and climate change strategy.

CC2.3g

Please explain why you do not engage with policy makers

Further Information

CC3.1

Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?

Absolute target
Intensity target

CC3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
Abs1	Scope 2 (location-based)	5%	15%	2012	25131	2017	Yes, but this target has not been approved as science-based by the Science Based Targets initiative	Absolute reduction in carbon emissions associated with the energy use in SSE's property portfolio by 15% based on 2012 levels.

CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
Int1	Scope 1	99%	50%	Other: Tonnes CO2e per kWh	2006	600	2020	Yes, but this target has not been approved as science-based by the Science Based Targets initiative	SSE aims to reduce the carbon intensity of the electricity it generates by 50% by 2020 (from 2005/06 levels). In 2006 the carbon intensity figure was 600 g per kWh.

CC3.1c

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
Int1	Decrease	50			If output remained the same this would mean a reduction from 25,210 million tonnes of CO2e to 12,600 million tonnes of CO2e - a reduction of 12,600 million tonnes of CO2e. This would be a 50% reduction in relation to absolute scope 1 emissions against the baseline year of 2006.

CC3.1d

Please provide details of your renewable energy consumption and/or production target

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
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CC3.1e

For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Abs1	100%	100%	The baseline emissions were 25,131 tonnes CO2 in 2011/12. In 2016/17 carbon emissions reduced by 29% from the baseline year. SSE achieved the energy efficiency target and carbon emissions target. This is a result of the energy efficient behaviour change activities as well as an integrated capital programme to replace equipment with energy efficient alternatives across the property portfolio.
Int1	80%	100%	Scope 1 emissions fell by 27% between 2015/16 and 2016/17 from 11,021 ktCO2e to 8,004 ktCO2e. Since 2006 this has been a 68% reduction in scope 1 emissions (from 25,210 ktCO2e to 8,004 ktCO2e). SSE's scope 1 carbon intensity fell by 23% between 2015/16 and 2016/17 from 396 kgCO2e/kWh to 304 kgCO2e/kWh. Since 2006 SSE's scope 1 carbon intensity has fallen 50% from over 600 kgCO2e/kWh to 304 kgCO2e/kWh. This reduction is a result of SSE's longer term strategy of moving to a lower carbon generation fleet weighted towards gas and renewables. This means that SSE's carbon intensity target was met for the first time in 2016/17. While this target has been met, there is an ongoing imperative for SSE to continue to bring about a year-on-year contribution for supporting the UK and Ireland transition to a low carbon economy.

CC3.1f

Please explain (i) why you do not have a target; and (ii) forecast how your emissions will change over the next five years

CC3.2

Do you classify any of your existing goods and/or services as low carbon products or do they enable a third party to avoid GHG emissions?

Yes

CC3.2a

Please provide details of your products and/or services that you classify as low carbon products or that enable a third party to avoid GHG emissions

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Group of products	SSE's very high level of renewable output allows SSE to enter into some significant renewable energy contracts with customers which lowers scope 2 emissions to zero for some contracts. For example, in April 2016 SSE launched a new tariff - SSE Green - for commercial customers.	Avoided emissions	Other: Levy Exemption Certificates and Renewable Energy Guarantee of Origin (REGOs)		Less than or equal to 10%	The emissions saved by third parties are related to the scope 2 emissions (indirect emissions: electricity consumption). For third party contracts that sign up to renewable energy contracts the renewable energy is zero carbon emissions and this will reduce the scope 2 carbon emissions associated with electricity consumption for that customer. Depending on the

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
						contract that is entered and the amount of electricity used will depend on the carbon saved by customers. For avoided emissions the '% revenue from low carbon products in the reporting year' is left blank in accordance with the CDP guidance document.
Company-wide	Support of low carbon energy infrastructure: In total, including that connected at a distribution level, SSEN connected over 500MW of renewable electricity to its transmission network in 2016/17, the highest combined capacity to connect to the north of Scotland transmission network in a single year since electricity privatisation. This reduces third party scope 2 emissions as it supports the decarbonisation of electricity generation and the carbon emissions associated with grid electricity mix.	Avoided emissions	Other: Scope 2 - GHG Protocol		Less than or equal to 10%	The emissions saved by third parties are related to the scope 2 emissions. The amount of electricity consumed by a customer will be reduced as a result of a reduction in the carbon emission conversion factor which will be lowered because of a higher proportion of renewable electricity generation in the grid. For avoided emissions the '% revenue from low carbon products in the reporting year' is left blank in accordance with the CDP guidance document.
Company-wide	Move to low carbon generation: SSE's long term strategy is to provide a sustainable energy product through a diverse generation portfolio. This is achieved through investment in renewable energy technology and a move from a portfolio weighted towards coal:renewables to one weighted towards gas:renewables. For all energy	Avoided emissions	Other: Scope 2 - GHG Protocol		Less than or equal to 10%	The emissions saved by third parties are related to the scope 2 emissions. The amount of electricity consumed by a customer will be reduced as a result of a reduction in the carbon emission conversion factor which will be lowered because of a higher proportion of renewable electricity generation in the grid. For avoided emissions the '%

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
	customers the high proportion of renewable energy in SSE's generation mix plays a role in helping its customers reduce scope 2 emissions as the carbon emissions associated with the grid electricity mix is lowered.					revenue from low carbon products in the reporting year' is left blank in accordance with the CDP guidance document.
Company-wide	Provision of education and energy efficiency measures – Using energy more efficiently should allow SSE's customers to avoid carbon emissions and reduce their scope 1 and 2 emissions from their use of gas and electricity. SSE supports energy efficiency programmes such as ECO and smart metering. For example, in 2017 SSE had installed more than 500,000 smart meters. SSE also continues to educate its customers and other third parties on the subject of sustainability, climate change and energy efficiency through various publications, educational programmes and presentations.	Avoided emissions	Other: Scope 2 - GHG Protocol		Less than or equal to 10%	The emissions saved by third parties are related to the scope 1 and scope 2 emissions. The carbon saved by a customer will depend on the energy saving initiatives implemented and the energy consumed. For avoided emissions the '% revenue from low carbon products in the reporting year' is left blank in accordance with the CDP guidance document.

CC3.3

Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)

Yes

CC3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	40	
To be implemented*	0	0
Implementation commenced*	5	430530
Implemented*	8	2021069
Not to be implemented	0	0

CC3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Low carbon	During 2016/17 SSE has upgraded its electricity		Scope 1 Scope 3	Mandatory		1900000000	>25 years	>30 years	These initiatives directly influence our intensity

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
energy installation	<p>network to enable new renewable electricity that is generated to be delivered to customers. In 2016/17 SSE made progress on Caithness-Moray transmission link with the completion of enabling works at the new Blackhillock substation and Dounreay substation. This work enables more renewable electricity to be connected to the network and reduce SSE's scope 1 emissions. It also supports reduction of grid carbon emission factors and reduces scope 2 emissions for SSE and its customers. It also supports reduction of fuel purchased for SSE's generation operations and SSE's scope 3 emissions. Upgrades to the network is required under legislation as part of being a regulated energy utility. Since April 2013 (the current price control period) SSE has totalled £1.9 billion in capital investment.</p>								<p>target (question 3.1b). In order for low and no carbon sources of energy to be delivered to energy customers the generation sources need to be connected to the grid. The investment in transmission networks supports the transition to a low carbon economy by providing the connections to new renewable technologies. The column requesting 'annual monetary savings' is not applicable to these investments. It is also difficult to quantify the 'estimated annual CO2e savings' from these projects as it does not save carbon however it instead enables new renewable electricity to be generation. The column requesting 'payback' is defined as the income earned and includes the cost of capital. For all major projects, SSE investigates the project</p>

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
									and then if viable the project moves from under investigation to implementation commenced. This is why there are no projects currently in the 'to be implemented' section.
Energy efficiency: Building fabric	SSE has a five year programme with a budget of over £10 million for energy efficiency investments including: 1. A programme of large investments - such as replacement boilers, inverter speed drive controls, free cooling systems, solar PV installation) and a smaller scale programme for energy efficiency improvements (such as onsite energy audits, LED lighting and sub metering). 2. Behaviour change projects through SSE's Better Off campaign that involves: competitions and awareness raising programmes to reduce	11456	Scope 2 (location-based)	Voluntary	3045000	1568000	4-10 years	21-30 years	This initiative supports our absolute internal energy target (question 3.1a). The programme directly aims to reduce the energy SSE uses to manage its assets and therefore the carbon emissions associated with running its operations. There are no projects that are in the 'to be implemented' category.

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	energy. These programmes are aimed at reducing energy consumption from SSE's property portfolio by 15% by 2017 (baseline 2012). This reduces SSE's scope 2 emissions. The programmes were initially implemented to meet the Carbon Reduction Commitment legislation.								
Behavioral change	SSE completed the first phase two phases of the Energy Company Obligation – ECO1 and ECO2. SSE is now focused on delivering the extension ECO2 due to be completed by September 2018. In the first two phases of the scheme SSE promoted the installation of energy efficiency measures (including loft cavity and solid wall insulation and boiler replacement) in over 286,000 homes. Over the last two years ECO2 has provided around £703,316,981 of notional	1995673	Scope 3	Mandatory			4-10 years	>30 years	These initiatives support the intensity target (question 3.1b). By reducing the demand for energy this means that less energy is generated and the carbon emissions associated with energy generation are therefore reduced. There are no projects that are in the 'to be implemented' category. It is difficult to quantify the 'estimated annual CO2e savings' and 'annual monetary savings' from these projects because the projects support customers to reduce

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	lifetime bill savings for vulnerable customers.								energy however the savings will be depending on how customers use the technologies and the choices customers make based on improved awareness of their energy requirements and energy consuming activities. Investment required is not available as this data is commercially sensitive and not in the public domain.
Behavioral change	SSE is supporting the delivery of smart meters with a view to getting it right for customers first time to maximise engagement. In 2017, SSE had installed more than 500,000 smart meters. The amount of carbon saved is difficult to calculate as it depends on the amount of energy saved by customers.		Scope 3	Mandatory			4-10 years	>30 years	These initiatives support the intensity target (question 3.1b). By reducing the demand for energy this means that less energy is generated and the carbon emissions associated with energy generation are therefore reduced. It is difficult to quantify the 'estimated annual CO2e savings' and 'annual monetary savings' from these projects because the projects enable customers to make choices based on

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
									improved awareness of their energy consumption and help to support and encourage energy reduction activities by customers. There are no projects that are in the 'to be implemented' category. Investment required is not available as this data is commercially sensitive and not in the public domain.
Low carbon energy installation	Renewable energy investment: SSE completed one wind farm development during 2016/17 (Tievenameenta onshore wind farm in Northern Ireland) adding 34 MW of capacity to its portfolio. This supports SSE's strategy to increase the renewables in its portfolio, reduce SSE's scope 1 emissions and carbon intensity. Investment in renewables is required by EU legislation with country targets set and legislation	13940	Scope 1	Voluntary			16-20 years	21-30 years	These projects support our intensity target (question 3.1b) by increasing the renewable energy capacity and output. This in turn reduces our total scope 1 carbon emissions and replaces higher carbon emitting energy sources with no carbon technologies. The column requesting 'annual monetary savings' is not applicable to these investments. The column requesting 'payback' is defined as the income

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	in place to support this. In addition, SSE has plans to install a further 1GW of on and off-shore wind to increase renewable energy to 4.3GW by 2020.								earned and includes the cost of capital. For all major projects, SSE investigates the project and then if viable the project moves from under investigation to implementation commenced. This is why there are no projects currently in the 'to be implemented' section.

CC3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Compliance with regulatory requirements/standards	Examples include, meeting EU ETS allocations, ECO targets Carbon Reduction Commitment and Electricity Market Reform requirements.
Dedicated budget for energy efficiency	We have an annual budget for energy efficiency investments in larger projects within our wider property budget. We also have a separate budget for smaller scale energy efficiency improvement works which is used following onsite energy audits.
Employee engagement	We have numerous employee engagement initiatives throughout the year focussing on sustainability and the environment, highlighting issues such as energy efficiency, business and commuter travel. Examples of this include our energy reduction

Method	Comment
	initiatives, which involves SSE's Better Off campaign.
Internal incentives/recognition programs	Our employee 'Innovation station' scheme was launched a few years ago now, and rewards financially, and through recognition, good business improving ideas which are submitted. Many ideas are linked with carbon reduction.
Partnering with governments on technology development	SSE works with governments and other partners to develop low carbon technologies. For example: Leading a series of major projects to provide a flexible and decarbonised electricity system including Thames Valley Vision (TVV) (low carbon technology project); Smart EV (an electric vehicles project collaborating with other DNOs, National Grid, BEIS and Ofgem); and the 'Northern Isles New Energy Solutions (NINES)' project (using load variation techniques such as demand side response and energy storage).
Compliance with regulatory requirements/standards	A major programme of investment is under way in electricity transmission infrastructure in Great Britain to support the transition to lower carbon electricity generation, increase security of supply and promote economic growth. The requirement to connect large volumes of dispersed renewable generation, supported and incentivised by policy-makers at Scottish, UK and EU levels, represents a fundamental change from the historic role of SHE Transmission's network. Over 4.5GW of new renewable generation has been connected in the past decade in the north of Scotland. SHE Transmission's work to upgrade its network the largest capital project undertaken by SSE to support the connection of new renewable energy and customer needs: Caithness-Moray, an investment of £1.1 billion.
Dedicated budget for low carbon product R&D	SSE has research and development projects in energy efficiency, demand side management and low carbon products/ services. For example, SSE-Glen Dimplex partnership will install Smart Electric Thermal Storage Systems (SETS) in 300 plus homes in the counties of Clare, Cork, City of Dublin and Wexford. This will be done in partnership with Local Authorities, Housing Associations and community groups and aims to install innovative state of the art energy efficient space and water heating systems. In addition, SSE has secured £1.2 million of development funding for a cutting edge grid scale Lithium-ion Batter project at the SSE National Offshore Wind Turbine Test Facility at Hunterston.

CC3.3d

If you do not have any emissions reduction initiatives, please explain why not

Further Information

Page: **CC4. Communication**

CC4.1

Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s)

Publication	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) in accordance with the CDSB Framework	Complete	18-19	https://www.cdp.net/sites/2017/58/16558/Climate Change 2017/Shared Documents/Attachments/CC4.1/SSE Annual Report 2017.pdf	SSE's annual report that details SSE's climate change and carbon performance for the full year 2016/17.
In voluntary communications	Complete	20-25 and 34-37	https://www.cdp.net/sites/2017/58/16558/Climate Change 2017/Shared Documents/Attachments/CC4.1/Sustainability-Report-2017.pdf	SSE's sustainability report that details SSE's climate change and carbon performance for the full year 2016/17.
In voluntary communications	Complete	1-12	https://www.cdp.net/sites/2017/58/16558/Climate Change 2017/Shared Documents/Attachments/CC4.1/CDP2017 SSE newsviews.docx	Articles on climate change by SSE that have been published on SSE's website (sse.com/beingresponsible). This is a selection of some of the articles that have been published during the reporting year 2016/17.
In voluntary communications	Complete	5-6	https://www.cdp.net/sites/2017/58/16558/Climate Change 2017/Shared Documents/Attachments/CC4.1/HY-Sustainability-Statement_Final.pdf	SSE's 2016/17 half year sustainability statement details SSE's progress on climate change performance between April and September 2016.

Further Information

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Risks driven by changes in regulation
- Risks driven by changes in physical climate parameters
- Risks driven by changes in other climate-related developments

CC5.1a

Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
International agreements	UK and EU Climate and Energy Framework: The EU has set high level targets on carbon, renewable targets, emissions trading schemes and energy efficiency requirements for EU member states up to 2020. Thereafter there will be a single carbon reduction target	Other: Impacts investment decisions	>6 years	Direct	Virtually certain	High	The financial implications of the EU legislation and its transposition into UK legislation are significant. E.g. SSE has invested £1.7 billion in 2016/17 and 67% of this was in the economically regulated networks and renewable energy programmes. Since April 2013, SHE Transmission has invested a total £1.9 billion in	SSE's ability to manage this risk is mainly limited to its ability to influence national climate change frameworks. SSE supports the need to reduce carbon emissions and the need for a 2030 Climate and Energy Framework. SSE engages directly with relevant departments in the UK & Irish Governments, the	Costs are incorporated into ongoing stakeholder engagement activities. These costs are low in comparison to the capital costs of investment required to create the conditions to meet regulatory requirements (such as £1.7 billion investment in 2016/17 and

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>out to 2030. This legislation is proposed at EU level and will be transposed into national legislation after adoption by the European institutions. In addition the UK has its own Climate Change Act which requires an 80% reduction in carbon emissions by 2050 on 1990 levels. A set of Carbon Budgets set out interim targets up to 2050. This framework will influence the nature and structure of future investment in the energy and wider sectors up to and beyond 2030. The risk to SSE is the uncertainty in the policy and</p>						<p>capital programmes. A large proportion of this network investment is in upgrades to connect new renewable generation capacity such as Beaully-Denny and Caithness-Moray. The financial costs are likely to continue to be significant as the energy sector continues to develop to aid the transition to a low carbon economy. For example, there could be further requirements to abate or even close thermal generation.</p>	<p>European Commission and through its trade associations about the 2030 Framework. For example, SSE supports a stable UK carbon price, a continued commitment to cost effective renewable energy, an evolving role for distribution networks and retention of competition at the heart of the retail energy supply. In 2016/17, SSE joined up with other energy companies and civil society organisations to write open letters to the government to highlight how this market-based approach to pricing carbon can provide an efficient and cost-</p>	<p>67% of this was in the economically regulated networks and renewable energy programmes).</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	regulatory framework in the future. The energy sector is developing rapidly and is highly regulated and therefore any prolonged periods of legislative or regulatory uncertainty or negative material change in the sectors regulation has the potential to significantly impact the business commercially.							effective policy framework to meet UK environmental goals. In addition, SSE has a commitment to responsible political engagement and has a political engagement policy. SSE has also signed up to the Chartered Institute of Public Relations' UK Lobbying Register and participates in mandatory registration for political engagement.	
Other regulatory drivers	The Electricity Market Reform package, which was passed into UK legislation in 2013, encourages investment in low carbon generation through the	Other: Impacts investment decisions	3 to 6 years	Direct	Virtually certain	High	The financial implications of the different elements of the EMR are significant. Significant and short term changes to the framework would impact our capital projects and investment	SSE has a diversified generation portfolio to reduce the impact of regulation on any one element of its generation fleet and our investment decisions. For	Costs are incorporated into ongoing stakeholder engagement activities and major project investment processes. These costs are low in

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Contracts for Difference (CfD) which replaces the Renewable Obligation (RO). The Carbon Price Support rate which impacts how SSE's thermal generation plant runs by imposing a tax on carbon emissions in addition to the EU ETS. The Levy Control Framework limits the absolute support available for low carbon generation in order to control costs to consumers of government energy policies. Changes in these support mechanisms impacts investor certainty and has the potential to impact the cost of capital and developers' risk						decisions. For example changes to the available funding within the Levy Control Framework influences the investment decisions we could make. In 2016/17, the Carbon Price Support currently adds around £18 per tonne of carbon dioxide emitted on top of the EU ETS price. This impacts SSE's non-CfD supported renewables; the way we run our thermal generation plant and our prospective investment pipeline. For example, on 31 March 2016 Ferrybridge coal-fired power station ceased generation in part due to the impact of CPS.	example, our Energy Portfolio Management team seeks to manage the impact of policy, economy, customer and infrastructure demand and world events by maintaining a diverse and well balanced portfolio of contracts, trading positions and assets in the short and long term. SSE has a robust project management system that clearly understands the return on investment required to make a project successful. SSE also engages directly with stakeholders on key regulations. For example, SSE has been	comparison to the capital investment in the impacted projects (such as £1.7 billion investment in 2016/17 and 67% of this was in the economically regulated networks and renewable energy programmes).

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>appetite. This in turn impacts on SSE's investment decisions in renewable technologies. The risks for SSE are in relation to how we operate our generation fleet and the prospective investment pipeline.</p>							<p>engaging with UK and Irish Governments, European Commission, MEPs in the European Parliament and others on low carbon policy. During these discussions, SSE supports a Carbon Price Floor, the EU ETS, Levy Control Framework and other legislation that supports a move towards a low carbon economy and gives investors and other stakeholders greater clarity, visibility and confidence to invest in a low carbon economy. SSE has a commitment to responsible political engagement and</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								this is communicated through its political engagement policy. SSE has also signed up to the Chartered Institute of Public Relations' UK Lobbying Register and participates in mandatory registration for political engagement.	
Product efficiency regulations and standards	ECO aims to improve the energy efficiency of the GB's housing stock. The risk of the scheme is that it is complex to deliver and administer. There is currently uncertainty about the future direction of energy efficiency policy, due to the recent changes in government	Increased operational cost	1 to 3 years	Direct	Virtually certain	Low-medium	The financial implications of these schemes are significant. The UK Government is due to consult on the next phase of ECO, or the successor scheme, due to run from 2018 to 2022. This is expected to cost £640 million a year. The eighteen month extension to ECO2 is also anticipated to cost £640 million per	SSE supports improving the energy efficiency of the UK's housing stock as this is the most effective way of lifting people out of fuel poverty. SSE has learnt lessons from previous energy efficiency schemes such as CERT and CESP and has integrated corrective actions	The costs of these schemes are included in operational budgets.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	followed swiftly by a general election.						annum. For ECO, the cost of non-compliance can be as high as 10% of turnover but is typically much lower.	into other obligations such as ECO, this includes compliance conditions, contract changes and other quality control procedures. SSE engages with the relevant stakeholders in government to constructively improve upon previous and existing energy efficiency schemes. SSE has a commitment to responsible political engagement and this is communicated through its political engagement policy. SSE has also signed up to the voluntary membership of the Chartered Institute of Public	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								<p>Relations' UK Lobbying Register and participates in mandatory registration for political engagement where such registers exist SSE has capital and operational programme in place to implement schemes such as ECO. Teams are in place to identify projects, manage projects and install energy efficiency measures. For example, SSE has delivered a £3.5 million energy efficiency project in the Woodside area of Dundee. The project is being funded by SSE's ECO scheme, Scottish Governments Home Energy</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								Efficiency Programmes Area Based Schemes and Dundee City Council. The external wall insulation programme will be installed at over 600 council and privately owned tenements in Dundee.	
Product efficiency regulations and standards	Smart Meters also aim to improve energy efficiency and consumer engagement with energy. The risks of the schemes are they are complex to deliver and administer and can be subject to change. Additional costs can become a political risk as political stakeholders react to the energy industry	Other: Impacts investment decisions	3 to 6 years	Direct	Virtually certain	Medium-high	The financial implications of this scheme is significant. The UK Government estimates that rollout of smart meters to customers' homes will cost around £11 billion overall (but that benefits from the rollout will be far greater than this). Energy companies have to report progress on smart meter implementation to the government on an annual basis.	SSE has focused on building and testing systems for the roll out of smart meters, building the roll-out up incrementally to ensure a positive customer experience. At 31 March 2017, SSE had installed more than half a million smart meters.	The costs of these schemes are included in operational budgets.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	due to cost increases.								
General environmental regulations, including planning	Planning and environmental regulations impact our ability to deliver renewable energy projects and invest in new thermal and renewable technology projects.	Other: Impacts investment decisions	1 to 3 years	Direct	Virtually certain	Medium-high	The financial costs are significant as they relate to investment in new technology and capital to ensure compliance with legislation. Planning regulations put additional cost on the process for implementing new projects, and in particular renewable projects. This can increase construction costs by as much as 10% and impact the costs associated with our pipeline of projects. For example, a supportive planning framework is needed for future life extensions and repowering of existing	SSE engages directly with the UK Government, EU Commission and through our trade associations about current and future regulation reduce the impact of regulation on investment decisions. SSE has a process in place to identify the impacts to operations from new legislation and the costs/benefits associated with these impacts. SSE has a commitment to responsible political engagement and this is communicated through its political engagement policy. SSE has	Costs are incorporated into ongoing engagement with regulators, government and trade bodies to manage and mitigate the impact of these regulations. These costs are low in comparison to the capital and operational investment impacts of these pieces of legislation. These costs can impact construction costs by up to 10%.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							<p>renewables sites. The financial costs are likely to continue to be significant as the energy sector continues to be highly regulated in the future.</p>	<p>also signed up to the voluntary membership of the Chartered Institute of Public Relations' UK Lobbying Register and participates in mandatory registration for political engagement where such registers exist (for example the Ireland Register of Lobbying and SSE's European Declaration). SSE has a robust project management system that clearly understands the return on investment required to make a project successful. For example, at Strathy South wind farm SSE has been working with local</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								communities to ensure that the community support the wind farm proposal. In addition, SSE has been working with environmental organisations to ensure that the wind farm meets planning and environmental regulations. As a result of SSE's project planning and consultation process, the Strathy South community has been demonstrating its support for the wind farm.	
International agreements	Successor to Kyoto Protocol under UN Framework Convention on Climate Change will influence the targets and regulations globally post	Other: Impacts investment decisions	>6 years	Direct	About as likely as not	Medium-high	The financial implications of this framework are difficult to quantify. They are likely to be high as they will influence the structure of future investment in the energy sector and	SSE supports the need to reduce carbon emissions and the need for a robust international climate framework. SSE engages directly with	Costs are incorporated into ongoing stakeholder engagement activities.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>2030. The risk is the uncertainty of the regulatory regimes and targets that may result if the UK, Ireland or EU water-down their existing framework in the continued absence of an international deal.</p>						<p>in particular the incentives or rewards for low carbon generation.</p>	<p>BEIS, EU Commission and through our trade associations about climate change and potential new frameworks that will change energy policy in the future. For example, SSE worked with other energy companies and civil society organisations to write open letters to the government to highlight how a market-based approach to pricing carbon can provide an efficient and cost-effective policy framework to meet UK environmental goals. SSE has also engaged with key UK and Irish Governments and European</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								<p>stakeholders in conjunction with other energy companies and environmental NGOs around the Paris climate change agreement. SSE has a commitment to responsible political engagement and this is communicated through its political engagement policy. SSE has also signed up to the voluntary membership of the Chartered Institute of Public Relations' UK Lobbying Register and participates in mandatory registration for political engagement where such registers exist.</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Cap and trade schemes	EU ETS (EU Emissions Trading Scheme) presents a risk to SSE in terms of non compliance with the requirements of the scheme. There is also uncertainty around the UK's future participation in the EU ETS	Increased operational cost	Up to 1 year	Direct	Unlikely	Medium-high	There are financial penalties of not complying with the EU ETS scheme including fines up to £200 m. The costs of buying and administering the scheme are significant (for example SSE buys around 10 million tonnes CO2e allowances per annum). There could be potential cost if a decision regarding future participation in the EU ETS is not signalled by the UK government and the European Union well in advance and there is not a smooth transition in place for any change to carbon pricing arrangements.	SSE has robust compliance and reporting procedures surrounding all elements of the EU ETS scheme. SSE procures allowances in a sustainable and competitive way to meet this demand. SSE does this by having a diverse portfolio of assets, having long term contracts and power purchase agreements, trading on international exchanges and through over the counter markets. SSE has also been engaging directly with the UK and Irish Governments, the European Commission and through our trade associations about the current	Administration costs are incorporated into Energy Portfolio Management operational costs. Costs of allowances are taken into account in our trading costs.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								<p>and future EU ETS scheme measures. SSE has been reducing the impact of regulation on investment decisions. SSE has a commitment to responsible political engagement and this is communicated through its political engagement policy. SSE has also signed up to the voluntary membership of the Chartered Institute of Public Relations' UK Lobbying Register and participates in mandatory registration for political engagement where such registers exist (for example the</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								Ireland Register of Lobbying and SSE's European Declaration	
Other regulatory drivers	Future UK relationship with the EU – it is unclear whether then UK will continue to be part of the European Internal Energy Market and be a participant in the EU ETS.	Increased operational cost	1 to 3 years	Direct	Likely	Medium	The cost depends on the impact of any changes to the future trading relationship between the UK and the EU, including trading of electricity and gas via the interconnectors.	SSE is engaged with the UK government and European Commission primarily through participation in relevant trade associations both in the UK (energy UK and in Brussels (Eurelectric).	Costs are incorporated into ongoing engagement with regulators, government and trade bodies

CC5.1b

Please describe your inherent risks that are driven by changes in physical climate parameters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Uncertainty of physical risks	The key risk from climate change for our business is	Reduction/disruption in production capacity	Up to 1 year	Direct	Very likely	High	The impacts of the uncertainty of physical risks and	SSE has a diverse portfolio of generation assets to ensure	Costs are included in ongoing risk assessment

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	related to the uncertainty and variability in climate and weather that arises from climate change (such as increased intensity and frequent extreme weather events such as storms, heavy rains and snow). SSE believes that there is a strong connection between climate change and the intensity and severity of weather events. The impacts to our business involve: impacts to output of our generation assets (low winds reduce renewable output and reduced rainfall impacts our hydro plants, whilst						extreme/ variable weather and climate patterns are significant. Variable and extreme weather events can - reduce output from our generation plants, prevent energy reaching our customers and change the pattern of demand from our customers. For example, output from renewable sources decreased between 2016/17 in comparison to 2015/16 despite overall renewable operating capacity increasing by 34MW. The primary driver was the	that it can respond to challenging demand/ supply events. SSE has invested £1.7 billion in 2016/17 and 67% of this was in the economically regulated networks and renewable energy programmes. SSE has contingency, continuity and emergency response plans in place and a workforce and depots throughout the UK to respond to events and maintain/ manage the network. SSE regularly undertakes risk assessments on our assets and works with other organisations in its sector and the	work, asset development plans and emergency response activities. Costs are included in capital and operational investment programmes.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>temperature impacts the efficiency of our thermal plants) and electricity supply interruptions can reduce our ability to supply energy to our customers when required (for example snow/ice occurred in 2009/10 and 2010/11, storms in 2013/14 and heavy rain/flooding occurred in 2013/14 and 2015/16).</p>						<p>weather - there was less rainfall and wind speeds were below the long term average in 2016/17 across Great Britain in comparison to the previous year. In addition, following a colder first six months of the year relative to 2015/16, winter temperatures were again near or above average, impacting consumption volumes in the second half of the year. However, it is difficult to quantify the financial impact due to uncertainty around demand levels, volatility and the market</p>	<p>government on sector resilience plans to mitigate and manage impacts to the business. SSE has a meteorological team to enable us to plan and respond to weather related events across the business. SSE has an extensive capital expenditure programme to invest in the networks. This also includes risk assessments to ensure climate change is integrated into the design of new assets.</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							structure at the time.		
Change in precipitation pattern	Changes to precipitation impact output from SSE's hydro plants. Hydro assets rely on steady levels of rainfall throughout the year. Climate change could result in changes to precipitation patterns which to date have been reasonably predictable. This will impact our ability to generate renewable energy if there are long periods of low rain at times when there are high levels of electricity demand.	Reduction/disruption in production capacity	>6 years	Direct	Unlikely	Medium	These events can reduce output and have significant costs to the business. For example, in 2016/17 lower rainfall led to a reduction in hydro generation output despite capacity remaining unchanged. Output decreased by 23% between 2015/16 and 2016/17 from 4,326 GWh to 3,334 GWh.	SSE has a diverse portfolio of generation assets to ensure that it can respond to challenging demand/ supply events. SSE has invested £1.7 billion in 2016/17 and 67% of this was in the economically regulated networks and renewable energy programmes. SSE has contingency, continuity and emergency response plans in place. SSE regularly undertakes risk assessments on its assets and works with other organisations in its sector and the government on	Costs are included in ongoing risk assessment work, asset development plans and emergency response activities.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								sector resilience plans to mitigate and manage impacts to the business. SSE has a meteorological team to enable us to plan and respond to weather related events across the business. SSE conducts risk assessments to ensure climate change is integrated into the design of new assets and regularly reviews risk assessment work for existing assets.	
Sea level rise	Long term sea level rise due to ice melt around the world as a result of increasing global temperatures, could have an impact on power generation	Reduction/disruption in production capacity	>6 years	Direct	Very unlikely	Low-medium	The financial impact is significant as it could impact our ability to generate energy and meet demand.	SSE conducts reviews of the impacts of sea level rise and other climate change impacts for all its assets. In 2011 and updated in 2013/14 SSE identified sea level rise and	Ongoing risk assessment work integrated into existing budgets.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	facilities around the UK, including some of our own, as many large power stations are located in coastal areas, for example our Peterhead Power Station. An additional issue related to sea level rise is the risk of coastal erosion.							flooding to be low risk to its assets in its Climate Change Adaptation Report. Sector resilience plans are also in place to mitigate and manage these risks.	
Uncertainty of physical risks	Severe and unpredictable weather events represent a risk to our supply chain. It is possible that some of SSE's suppliers could be affected by weather events which do not directly impact upon SSE's own business and indirectly affect SSE's ability to deliver its services. For example,	Reduction/disruption in production capacity	1 to 3 years	Indirect (Supply chain)	Likely	Low-medium	The financial impact is significant and difficult to quantify as extreme events could impact our suppliers at different points and impact different areas of our operations. For example, between January and May 2013 a very cold snap impacted the contractors	SSE operates a supplier relationship management programme with its strategic suppliers to understand and manage financial and operational issues. If climate change was seen to be an issue this would be raised through this process and costs identified. Capital investment projects include	Ongoing supplier relationship management costs integrated into existing budgets and supplier relationship costs.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	the delivery of wind turbine components from overseas, or fuel supplies or materials for thermal generation could be impacted by severe and variable weather events.						work on the Beaulieu to Denny upgrade, this was at a time when demand was also incredibly high. This had significant costs (around 10% of project investment costs) as it delayed the project.	risk assessments and contingency plans for weather related events. SSE operates a diverse portfolio of generation assets to ensure supply meets demand. SSE encourages responsible business practices with its suppliers. There is a responsible procurement charter that sets clear standards to ensure that suppliers are conducting their businesses ethically.	
Change in mean (average) temperature	Long term increases in temperatures could lead to a reduction in demand from customers for heating throughout the year. Conversely there is also the	Reduced demand for goods/services	>6 years	Indirect (Client)	More likely than not	Low	The financial impact is low and difficult to quantify as demand is likely to be more variable and there is a trend towards a reduction in overall energy use. In	SSE has invested in a diverse portfolio of generation to enable it to respond to changing customer behaviour, generate more low carbon energy and	Changes in customer behaviour impact all our activities. Costs are integrated into operational and capital projects and energy strategy

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	possibility of demand increases from higher air conditioning usage in the summer. In summary, physical climate changes are likely to lead to higher variability in demand levels.						2016/17 energy demand was lower than in 2015/16. This was partly to do with warmer average temperatures but also as a result of energy efficiency initiatives.	ensure security of supply. Long term demand forecasting and work with agencies such as Met Office to predict long term use enable SSE to plan energy demand and forecast supply. SSE has invested in ECO and smart metering to help customers to manage energy and reduce energy demand. This helps to reduce the impact of variable energy demand for the future.	across SSE.
Change in precipitation extremes and droughts	Flooding and high winds that have occurred during recent storms in Scotland and south England impact our operations. High winds	Reduction/disruption in production capacity	Up to 1 year	Direct	Very likely	Medium	Weather conditions can affect the cost and number of engineer call outs, impact our response to events as our employees cannot turn up	Risk assessments are completed to understand the impact to existing and new assets from climate change events. Planned preventative	Costs are budgeted and integrated into ongoing planned preventative maintenance, risk assessment, emergency

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>damage overhead transmission and distribution lines, flooding prevents access to customer homes requiring help and stops SSE employees getting to work. These events also cause increased wear and tear of our assets and networks. Our overhead lines may be damaged more often as a result of more frequent storms. Damage to overhead lines due to storms is the main cause of power cuts, and as such these could become a more regular occurrence in increasingly stormy conditions. Severe storms</p>						<p>to work, require us to maintain/ manage our network more and create more demand for energy as customers respond to wetter/ colder/ stormy conditions. Costs are high for operation and maintenance and the capital investment required to mitigate against these occurrences is high.</p>	<p>maintenance across our assets and networks is conducted. Contingency and emergency response plans are in place. Customer communication plans are in place to keep customers informed and help vulnerable customers. Investment programmes are in place to mitigate against stormy conditions and flooding (for example invest in equipment to improve efficiency of operations if water quality is impacted as a result of stormy conditions). To support our infrastructure investment, emergency response and</p>	<p>and contingency planning and customer relationship management.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	may also have an impact on our proposed offshore wind generation. Storm conditions can hold up construction of projects, both onshore and especially offshore.							customer communication plans we also have set aside a Resilient Communities Fund for local communities. The £1 million fund that is available for the south of England provides money to local communities to help local groups improve the ability of their towns and villages to withstand extreme weather events.	
Other physical climate drivers	Should climate change cause long term changes to wind speeds, there will be significant impacts upon our electricity generation operations. Should wind speeds	Reduction/disruption in production capacity	>6 years	Direct	About as likely as not	Low	Financial impacts are low and associated with unplanned shutdown of wind assets.	SSE has a diverse portfolio of generation assets to ensure that it can respond to challenging demand/ supply events. SSE has invested £1.7 billion in 2016/17 and 67% of this was	Costs are budgeted in ongoing operation budgets, capital projects and contingency plans.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>decrease it would have an impact in reducing output from our onshore and offshore wind farms. On the other hand, should wind speeds increase with gales occurring more regularly there is increased risk of damage to wind turbine blades, and overhead lines due to increased wear and tear.</p>							<p>in the economically regulated networks and renewable energy programmes. Risk assessments are completed to understand the impact to existing and new assets from climate change events. Planned preventative maintenance across our assets and networks is conducted. Contingency and emergency response plans are in place. Customer communication plans are in place to keep customers informed and help vulnerable customers. Investment programmes are in place to</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								mitigate against stormy conditions and flooding (for example investment in equipment to improve efficiency of operations if water quality is impacted as a result of stormy conditions).	

CC5.1c

Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Change in demand for energy as a result of climate change as customers understand and implement more energy efficient technologies into their everyday	Reduced demand for goods/services	1 to 3 years	Direct	About as likely as not	Medium	The financial implications are reduction in sales of energy. Since 2010, total output has reduced significantly and this is a reflection of changes in customer	SSE continues to diversify its products and services by offering energy efficiency services, educating its customers on energy efficiency and offering new	Ongoing costs for customer research and marketing associated with new products.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	lives. This along with government and European objectives to reduce energy consumption and carbon emissions reduces the overall demand for energy.						demands, which is impacted by energy efficiency improvements as well as changes in the weather and economic conditions.	products that appeal to customers who want to reduce energy consumption and/ or are interested in climate change issues. For example, SSE Business Energy continued to build its offerings in the commercial sector and launched 'SSE Green' a 100% renewable energy tariff.	
	As stakeholder become more informed about the climate change issues and there is more demand for a low carbon economy, SSE will need to ensure that it is well placed to support this transition. To do this, SSE need to continue to invest in skills and technology to provide new low	Reduced demand for goods/services	3 to 6 years	Direct	About as likely as not	Low	The financial implications of fluctuating wholesale energy prices are significant. Costs of government programmes to secure supply, decarbonise electricity and upgrade aging energy infrastructure are mainly levied on electricity customer prices. As a result in 2017 SSE's 2014	SSE is engaging with stakeholders in Europe and UK to ensure that it influences the debate on energy efficiency, carbon targets, renewable energy targets and carbon pricing mechanisms. SSE has a research and development programme in new low carbon technologies.	Costs are integrated in research and development programmes, customer relationship management programmes and customer communications.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	carbon solutions. Failure to invest in the skills and technology needed to promote a low carbon economy could lead to reputation damage, lower demand for SSE's products and higher costs to the business from carbon taxes/ costs.						price freeze on electricity prices ended. The impact of regulation on prices will continue and volatility in pricing may increase in the future as the impacts of climate change are understood more fully.		

CC5.1d

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1e

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1f

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Page: CC6. Climate Change Opportunities

CC6.1

Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Opportunities driven by changes in regulation
- Opportunities driven by changes in physical climate parameters
- Opportunities driven by changes in other climate-related developments

CC6.1a

Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
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Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
International agreements	<p>2020 and 2030 Carbon and Energy Framework – has set high level targets on carbon, renewable targets, emissions trading schemes and energy efficiency requirements for EU member states. This legislation is proposed at EU level and will be transposed into national legislation after adoption by the European institutions. This framework will influence the nature and structure of future investment in the energy and wider sectors up to and beyond 2030. The opportunity for SSE is to invest in more innovative low carbon and renewable</p>	Increase in capital availability	>6 years	Direct	Likely	Medium-high	<p>The financial implications of the EU legislation and its transposition into UK legislation are significant. For example, SSE has invested £1.7 billion in 2016/17 and 67% of this was in the economically regulated networks and renewable energy programmes. Since April 2013, SHE Transmission has invested a total £1.9 billion in capital programmes. A large proportion of this network investment is in upgrades to connect new renewable generation capacity such</p>	<p>SSE supports the need to reduce carbon emissions and the need for a 2030 Climate and Energy Framework. SSE has also expressed support for a 2030 renewables target. SSE engages directly with relevant departments in the UK and Irish Governments, the European Commission and through our trade associations about the 2030 Framework to ensure that we understand the future of energy policy and the potential opportunities to our business. SSE has engaged with key UK and Irish Governments</p>	<p>Costs are incorporated into ongoing stakeholder engagement activities. These costs are low in comparison to the capital costs of investment required to create the conditions to meet regulatory requirements (such as £1.7 billion in 2016/17 and 67% of this was in the economically regulated networks and renewable energy programmes).</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	technologies to support achievement of decarbonisation objectives.						as Beaulieu-Denny and Caithness-Moray. The business opportunities are likely to continue to be significant as the energy sector continues to develop to aid the transition to a low carbon economy. However, government support will shift to more immature technologies and areas where more progress is required e.g. heat and transport.	and European stakeholders in conjunction with other energy companies and environmental NGOs around the Paris climate change agreement.	
Other regulatory drivers	Electricity Market Reform: Encourages investment in low carbon generation through the Contracts for Difference (CfD)	Increase in capital availability	3 to 6 years	Direct	Very likely	Medium-high	The CfD framework may provide further opportunities for renewable projects but this is dependent on the UK	SSE has a diversified generation portfolio and pipeline of new projects to enable it to take advantage of	Costs are incorporated into ongoing stakeholder engagement activities and major project investment

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>which replaces the Renewable Obligation (RO). EMR also includes the Carbon Price Support rate which impacts how SSE's thermal generation plant runs. The Levy Control Framework limits the absolute support available for low carbon generation in order to control costs to consumers of government energy policies. Changes in these support mechanisms impacts investor certainty and has the potential to impact the cost of capital and developers risk appetite. This in turn impacts on SSE's investment decisions in renewable</p>						<p>government's decision to hold allocation rounds and for which technologies. Currently there is a degree of certainty as to the UK government's support for offshore wind via CfDs. However, there is currently no access to a CfD for mature renewables, such as onshore wind and solar pv. This would then impact our capital projects and investment decisions. Future investment will be heavily influenced by the future regulatory framework. For example, SSE has invested £1.7</p>	<p>different legislative decisions. SSE has a robust project management system that clearly understands the return on investment required to make a project successful.</p>	<p>processes. These costs are low in comparison to the capital investment in the projects (for example £1.7 billion in 2016/17 and 67% of this was in the economically regulated networks and renewable energy programmes).</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	technologies. The opportunities for SSE are in relation to how we operate our generation fleet and the prospective investment pipeline. There is also potential for SSE to invest in more innovative low carbon renewable technologies and operating business models to support these legislative changes.						billion in 2016/17 and 67% of this was in the economically regulated networks and renewable energy programmes. The future level of Carbon Price Support will feed through to the wholesale electricity price and the revenues which SSE's generation fleet earns.		

CC6.1b

Please describe your inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean	The predicted increase in	Increased demand for	3 to 6 years	Indirect (Client)	About as likely as	Low	The financial implications are	SSE has a diversified	Costs are included in

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
(average) temperature	temperature in the UK will lead to an increase in need for air conditioning in buildings, increasing electricity consumption in the summer months. This would provide SSE with the opportunity to sell increased amounts of electricity to its customers.	existing products/services			not		high if customers demand increases significantly. However, demand is not expected to increase significantly as a result of energy efficiency measures.	generation portfolio to enable it to take advantage of different climate changes. SSE has a robust project management system that clearly understands the return on investment required to make a project successful. SSE has a diversified business offering energy efficiency solutions in addition to its other products.	capital and operational investment programmes.
Change in precipitation pattern	Should climate change cause long term changes to precipitation patterns, this could result in an increase in rainfall. This increasing rainfall would have a positive impact on the	Increased production capacity	3 to 6 years	Direct	Likely	Medium	Financial implications have the potential to be high as more energy is generated from renewable sources. This could result in a reduction in thermal generation costs	SSE has a diversified generation portfolio to enable it to take advantage of different climate changes. SSE has a robust project management system that clearly	Costs are included in ongoing risk assessment work, asset development plans and emergency response activities. Costs are included in capital and

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	annual output from SSE's hydro stations.						and output. The financial implications are difficult to quantify but are likely to be high.	understands the return on investment required to make a project successful.	operational investment programmes.
Other physical climate opportunities	Should climate change cause long term changes to wind speeds, there will be significant impacts upon our electricity generation operations. Should wind speeds increase (as has been experienced in 2014/15 and 2015/16) then this would be positive for our onshore and offshore wind farms as it would increase the output from these generation assets.	Increased production capacity	1 to 3 years	Direct	Likely	Medium	Financial implications have the potential to be high as more energy is generated from renewable sources and thermal generation costs are reduced. For example in 2016/17 SSE invested in £1.7 billion in capital projects, 67% of this was in renewable energy and regulated networks. These investments supported increased revenue from renewable energy projects. In 2016/17	SSE has a diversified generation portfolio to enable it to take advantage of different climate changes. SSE has a robust project management system that clearly understands the return on investment required to make a project successful. For example in 2016/17 renewable energy capacity increased by 34MW and output from renewable generation was 30% of the total generation	Costs are included in ongoing risk assessment work, asset development plans and emergency response activities. Costs are included in capital and operational investment programmes.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							output from renewable energy was 30% of the total generation output whilst coal contributed only 3.4%. The financial implications are difficult to quantify but are likely to be high.	output.	

CC6.1c

Please describe your inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	SSE is a leader in renewable energy across the UK and Ireland. Opportunities to promote our sustainable credentials will	Increased demand for existing products/services	1 to 3 years	Direct	Very likely	Medium-high	Financial implications are high as more customers buy energy from SSE.	SSE has a diversified generation portfolio to enable it to take advantage of different climate changes. SSE has a robust project	Costs are included in capital and operational investment programmes.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	become greater in the future as the general public become more aware of climate change and the need to be sustainable.							management system that clearly understands the return on investment required to make a project successful.	
	Transition to a low carbon economy as a result of economic conditions and regulation will provide the opportunity for SSE to invest in new products and services that support a sustainable low carbon energy system.	Increased demand for existing products/services	>6 years	Direct	Likely	Medium-high	Financial implications are high as the energy system would change to one that is focused on low carbon energy sources. It would also be focused on electricity as a source of heat/ light/ power and transform the way that the energy system is managed. SSE would therefore increase profits as a result of providing electricity to this system. SSE also would benefit in sales and profits	SSE has a diversified generation portfolio to enable it to take advantage of different climate changes. SSE has a robust project management system that clearly understands the return on investment required to make a project successful. SSE has invested in new business activities in its contracting, energy solutions, and heat businesses (SSE Enterprise) to	Costs are included in capital and operational investment programmes.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							through products and services to drive energy efficiency. For example SSE's Business Energy continued to build its offerings in the commercial sector with the launch of 'SSE Green' a 100% renewable energy tariff.	provide low carbon and energy efficiency products/ services to business customers and public sector organisations. For example, SSE Enterprise has a dedicated heat team to build on its portfolio of district heating networks; and an energy performance team responsible for securing, structuring and delivering Energy Performance Certificates.	

CC6.1d

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1e

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1f

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading

Page: CC7. Emissions Methodology

CC7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Wed 01 Apr 2009 - Wed 31 Mar 2010	22729962

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 2 (location-based)	Wed 01 Apr 2015 - Thu 31 Mar 2016	1447056
Scope 2 (market-based)	Wed 01 Apr 2015 - Thu 31 Mar 2016	

CC7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use

Defra Voluntary Reporting Guidelines

European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for installations

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

ISO 14064-1

IPCC Guidelines for National Greenhouse Gas Inventories, 2006

CC7.2a

If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

CC7.3

Please give the source for the global warming potentials you have used

Gas	Reference
Other: Sulphur hexafluoride	Other: 2013 Defra/ Decc Greenhouse Gas (GHG) Conversion Factors for Company Reporting
CH4	IPCC Fifth Assessment Report (AR5 - 100 year)
N2O	IPCC Fifth Assessment Report (AR5 - 100 year)
SF6	IPCC Fifth Assessment Report (AR5 - 100 year)
CH4	IPCC Fifth Assessment Report (AR5 - 100 year)

CC7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference
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Further Information

For question CC7.4 emission factors that have been applied and their origin are included in the spreadsheet attached.

Attachments

Page: CC8. Emissions Data - (1 Apr 2016 - 31 Mar 2017)

CC8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Operational control

CC8.2

Please provide your gross global Scope 1 emissions figures in metric tonnes CO₂e

8004371

CC8.3

Please describe your approach to reporting Scope 2 emissions

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure		

CC8.3a

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
1034320		Emissions from the generation of purchased electricity, heating and cooling consumed by the organisation. The indirect emissions (scope 2) cover: • Electricity consumption in buildings – this is the electricity consumed by SSE’s non operational buildings (customer call centres, offices). • Electricity consumption in networks – this is the electricity used by substations to manage the electricity distribution system. • Distribution losses – this is the electricity lost in SSE’s distribution network in the north of Scotland (SHEPD) and south of England (SEPD) transporting electricity to the customer.

CC8.4

Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

CC8.4a

Please provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
Gas networks	Emissions are not relevant	Emissions are not relevant	Emissions are not relevant	We have excluded any joint ventures in which we do not have operational control and operations outside Great Britain. This includes Scotia Gas Networks.
Offshore wind operations	Emissions are not relevant	Emissions are not relevant	Emissions are not relevant	We have excluded any joint ventures in which we do not have operational control and operations outside Great Britain. This includes Greater Gabbard Offshore Winds Ltd.
SSE Exploration and Production	Emissions are not relevant	Emissions are not relevant	Emissions are not relevant	Although this company is wholly owned by SSE, its stake in any assets does not exceed 50%

CC8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	Less than or equal to 2%	Data Gaps Metering/ Measurement Constraints	For building gas consumption there are a handful of small sites where AMR metering has not been installed, and so estimated reads are used. This figure is immaterial (less than 1% of the gas consumption figure). For building gas consumption data excludes leased buildings with small number of staff (less than 1% of employees).
Scope 2 (location-based)	Less than or equal to 2%	Data Gaps	Figures for network losses are calculated using standard distribution losses guidance (produced by Elexon) to compute the losses in the distribution system. For substation electricity consumption these buildings are not metered so their energy consumption is based upon estimates which are based on the

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
			size of the substation electricity capacity and the operation activities of each building through the financial year. For building electricity consumption there are a handful of small sites where AMR metering has not been installed, and so estimated reads are used. This is immaterial as it is less than 1% of the electricity consumption. For building electricity consumption data excludes leased buildings with small number of staff (less than 1% of employees).
Scope 2 (market-based)			

CC8.6

Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

Third party verification or assurance process in place

CC8.6a

Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
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Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/58/16558/Climate Change 2017/Shared Documents/Attachments/CC8.6a/PwC assurance statement - SSE final signed.pdf	1	ISAE 3410	100

CC8.6b

Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emission Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission

CC8.7

Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

Third party verification or assurance process in place

CC8.7a

Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Location-based	Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/58/16558/Climate Change 2017/Shared Documents/Attachments/CC8.7a/PwC assurance statement - SSE final signed.pdf	1	ISAE 3410	100

CC8.8

Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
Year on year change in emissions (Scope 1 and 2)	SSE reviewed the assurance activities that were in place in 2015/16. PwC were awarded a contract in 2015/16 and in 2016/17 to assure scope 1, scope 2 and scope 3 GHG emissions and the total GHG emissions for the financial years 2015/16 and 2016/17. PwC conducted a limited assurance exercise, which involved an assessment of SSE's data collection and reporting processes and an assessment of SSE's overall reporting processes on GHG emissions. As part of the review, the data was assured in comparison to the previous financial year's scope 1, 2 and 3 emissions and total carbon emissions.

CC8.9

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

CC8.9a

Please provide the emissions from biologically sequestered carbon relevant to your organization in metric tonnes CO2

Further Information

Page: CC9. Scope 1 Emissions Breakdown - (1 Apr 2016 - 31 Mar 2017)

CC9.1

Do you have Scope 1 emissions sources in more than one country?

Yes

CC9.1a

Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e
United Kingdom	7128190
Ireland	876173
Belgium	8

CC9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By activity

CC9.2a

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
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CC9.2b

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
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CC9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
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CC9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
Operational Vehicles & Plant (diesel)	32586
Operational Vehicles & Plant (Petrol)	126
Mobile Plant - Gas Oil	5383
Fugitive Emissions (SF6) - SHEPD	958
Fugitive Emissions (SF6) - SEPD	5016
Fugitive Emissions (SF6) - Transmission	5677
Fuel Combustion - SHEPD & SEPD	419
Gas consumption - non operational buildings	1307
Generation - other gases	37569
Generation	7915330

Further Information

Page: CC10. Scope 2 Emissions Breakdown - (1 Apr 2016 - 31 Mar 2017)

CC10.1

Do you have Scope 2 emissions sources in more than one country?

Yes

CC10.1a

Please break down your total gross global Scope 2 emissions and energy consumption by country/region

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
United Kingdom	1033695		151667	0
Ireland	615		1467	0
Belgium	10		52	0

CC10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By activity

CC10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
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CC10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
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CC10.2c

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
Electricity Consumption - non operational Buildings	49840	
Substations - SHEPD	4655	
Substations - SEPD	6435	
Losses - Transmission	2188	
Losses - SHEPD	224979	
Losses - SEPD	746223	

Further Information

Page: CC11. Energy

CC11.1

What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

CC11.2

Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Heat	25442157
Steam	0
Cooling	0

CC11.3

Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

25442157

CC11.3a

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Brown coal	901000
Natural gas	24541157

CC11.4

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
No purchases or generation of low carbon electricity, heat, steam or cooling accounted with a low carbon emissions factor			

CC11.5

Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
120960	120960	26296000	7955000	0	SSE generates electricity from renewables, gas and coal. SSE purchases electricity for use in its business activities. This electricity is bought on the market.

Further Information

Page: CC12. Emissions Performance

CC12.1

How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Decreased

CC12.1a

Please identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	26	Decrease	SSE's scope 1 and 2 carbon emissions fell by 26% from 12,159 ktCO ₂ e to 9,039 ktCO ₂ e between 2015/16 and 2016/17. This reduction is attributable to SSE's long term decarbonisation target which aims to reduce

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
			emissions through emissions reduction activities (i.e. move away from high carbon generation (coal) to low carbon generation (renewables)). The emissions value (percentage) is calculated as follows: Scope 1 and 2 emissions fell from 12,159 ktCO ₂ e to 9,039 ktCO ₂ e between 2015/16 and 2016/17 = 3,120 ktCO ₂ e reduction. Change in scope 1 and 2 emissions divided by the baseline year scope 1 and 2 emissions = 3,120/ 12,159 = 0.2566. Multiplied by 100 = 26%. Generation emissions contribute to over 99% of SSE's Scope 1 and 2 emissions. SSE's focus has been to switch from a generation portfolio of coal/gas to gas/ renewables. Renewables has zero carbon emissions. Gas is a lower carbon alternative to coal. Therefore removing carbon emissions from the generation portfolio will result in a corresponding reduction in scope 1 and 2 emissions. To do this, SSE has a long established strategy focused on: 1. Investment in renewables: Output from SSE's renewable generation portfolio contributed 30% of SSE's total output in 2016/17 (35% in 2015/16). 2. Change in generation mix: The reduction in the running time of coal fired power stations. With coal generation contributed 3.4% to SSE's overall generation output in 2016/17 (22% in 2015/16). Coal output reduced from 6,141 GWh in 2015/16 to 901 GWh in 2016/17.
Divestment			
Acquisitions			
Mergers			
Change in output	5	Decrease	Generation output was 5% lower than the previous year: In 2015/16 SSE's generation output was 27,776 GWh and in 2016/17 it was 26,296 GWh. This reduction is a result of a combination of factors including weather, economics and the roll out of customer energy efficiency programmes. The change in output (percentage) is calculated as follows: Output fell from 27,776 GWh in 2015/16 to 26,296 GWh in 2016/17 = 1,480 GWh reduction. Change in output between years divided by the baseline year output = 1,480 / 27,776 = 0.053. Multiplied by 100 = 5%.
Change in methodology			
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other			

Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

CC12.2

Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
311	metric tonnes CO2e	29038	Location-based	26	Decrease	Revenue remained within 1% of the previous year's figure at £29.038 billion in 2016/17 (£28.781 billion in 2015/16). Scope 1 and 2 carbon intensity compared to revenue fell by 26% from 422 to 311 kgCO2e/£million revenue between 2015/16 and 2016/17. Total scope 1 and 2 emissions reduced by 26% as a result of the emissions reduction activities implemented by SSE over the past decade. These have included implementing long term decarbonisation targets, changing the generation mix, investing in renewable technology and demand side energy efficiency measures. All these emissions reduction activities have been implemented as a response to SSE's own long term decarbonisation targets, emissions regulations, decarbonisation policy and business objectives.

CC12.3

Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
427	metric tonnes CO2e	full time equivalent (FTE) employee	21157	Location-based	26	Decrease	Total FTEs was 21,157 in 2016/17 (compared with 21,118 in 2015/16). The carbon intensity per FTE reduced by 26% from 576 kgCO2e per FTE to 427 kgCO2e per FTE. Total scope 1 and 2 emissions reduced by 26% as a result of the emissions reduction activities implemented by SSE over the past decade. These have included implementing long term decarbonisation targets, changing the generation mix, investing in renewable technology and demand side energy efficiency measures. All these emissions reduction activities have been implemented as a response to SSE's own long term decarbonisation targets, emissions regulations, decarbonisation policy and business objectives.
344	metric tonnes CO2e	megawatt hour (MWh)	26296	Location-based	22	Decrease	The carbon intensity of SSE's scope 1 and 2 emissions has reduced to 344 kgCO2e per MWh in 2016/17 from 438 kgCO2e per MWh in 2015/16 a reduction of 22%. Total scope 1 and 2 emissions reduced by 26% as a result of the emissions reduction activities implemented by SSE over the past decade. These have included implementing long term decarbonisation targets, changing the generation mix, investing in renewable technology and demand side energy efficiency measures. All these emissions reduction activities have been implemented as a response to SSE's own long term decarbonisation targets, emissions regulations, decarbonisation policy and business objectives.

Further Information

CC13.1

Do you participate in any emissions trading schemes?

Yes

CC13.1a

Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
European Union ETS	Fri 01 Jan 2016 - Sat 31 Dec 2016	15013	11310000	9733922	Facilities we own and operate

CC13.1b

What is your strategy for complying with the schemes in which you participate or anticipate participating?

The EU ETS scheme applies to SSE's generation business, which has by far the greatest carbon emitting impact of our entire business. SSE's overall strategy is to seek to comply through a mix of allowance purchase, abatement and use of project credits.

Emissions under the EU ETS are treated as a cost of generation, similar to fuel, for the purposes of managing our energy portfolio. Therefore the trading of emissions allowances is carried out in conjunction with trading associated commodities; electricity, gas and coal. In order to comply with targets we are constantly trying to improve the efficiency of our power stations and trialling various carbon abatement technologies.

CC13.2

Has your organization originated any project-based carbon credits or purchased any within the reporting period?

No

CC13.2a

Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance
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Further Information

Page: CC14. Scope 3 Emissions

CC14.1

Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, not yet calculated				Suppliers sign up to SSE's Responsible Procurement Charter that sets the standards used by SSE to engage with its suppliers on climate change and greenhouse gas emissions. SSE is part of the CDP supply chain programme and is gathering data on carbon emissions with its key suppliers through this programme.
Capital goods	Relevant, not yet calculated				Suppliers sign up to SSE's Responsible Procurement Charter that sets the standards used by SSE to engage with its suppliers on climate change and greenhouse gas emissions. SSE is part of the CDP supply chain programme and is gathering data on carbon emissions with its key suppliers through this programme.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	974488	Transmission and Distribution losses for electricity use in non operational buildings: 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	100.00%	Power Purchase Agreements are reported as Scope 1 emissions as the energy generated from these facilities is 100% used by SSE. As defined by DEFRA's reporting guidelines the transmission and distribution losses are included in this section instead of scope 2. In 2013/14 we calculated for the first

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			<p>guidelines. Transmission and Distribution losses for electricity use in substations: 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. Well to tank emissions: Fuel purchased during the financial year (coal, oil, gas and biomass) is measured through meters and weight tickets and converted into kWh using standard industry recognised conversion factors.</p>		<p>time the emissions associated with our purchased fuels (eg coal, gas and fuel oil). This is the fourth year we have completed this calculation and this data was assured by the PwC in 2016/17 and 2015/16 and Achilles in 2014/15. These emissions are material to our scope 3 emissions. PwC assure this data.</p>
Upstream transportation and distribution	Not relevant, explanation provided				<p>The Fuel and energy related scope 3 emissions cover this category and these are detailed in the above category. SSE has no other emissions associated with this category not already reported in the above category or in other categories.</p>
Waste generated in operations	Not relevant, explanation provided				<p>The carbon impact of our waste was less than 1% of the total carbon emissions and therefore it is not incorporated into our footprint.</p>
Business travel	Not relevant, calculated	10052	<p>Km for flights (domestic, short haul, long haul and international), rail and company car travel are reported and relevant DECC/DEFRA conversion factors are applied to calculate CO2e for each type of travel.</p>	100.00%	PwC assure this data.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Employee commuting	Not relevant, explanation provided				SSE has programmes in place to support our employees to make low carbon travel options when commuting, for example Bike to Work scheme. In comparison to our other scope 3 emissions these emission are not material (less than 1% of total scope 3 emissions) and the data quality would be based on employee commuting surveys and estimated mileage data from sample data sets. Therefore, once SSE has improved its material scope 3 emissions reporting it will review the relevance of this category and the gathering of the data.
Upstream leased assets	Not relevant, explanation provided				SSE does not have any activities associated with this activity.
Downstream transportation and distribution	Relevant, calculated	286440	Transmission losses – the electricity lost in the Scottish Hydro Electric (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.	100.00%	When transferring power across the SHE Transmission System, some of the power is 'lost' known as 'Transmission Losses'. Figures for transmission losses are calculated using standard transmission losses guidance (produced by Elexon) to compute the losses in the transmission system. This data is

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
					reported by National Grid as the system operator. They report this figure for the financial year 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 April 2016 to March 2017 the data will be based on the previous financial year April 2015 to March 2016. The data is verified by an independent third party, WSP, for National Grid. PwC assure this data.
Processing of sold products	Not relevant, explanation provided				SSE does not have any activities associated with this activity.
Use of sold products	Relevant, calculated	9085696	Gas sold to customers – the amount of gas sold to customers (retail and business customers) 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 (https://www.gov.uk/guidance/measuring-and-reporting-environmental-impacts-guidance-for-businesses).	100.00%	Gas volumes are based on settlements data published by Xoserve. SSE receive 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 and business customers (industrial and commercial). To calculate the domestic usage values, the monthly demand totals are divided by the

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
					mid-month customer number and then totalled for the financial year to give the total energy sold to customers. 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. PwC assure this data
End of life treatment of sold products	Not relevant, explanation provided				SSE does not have any activities associated with this activity. There is no end of life treatment of energy, once it has been used it has been used.
Downstream leased assets	Not relevant, explanation provided				SSE does not have any activities associated with this activity.
Franchises	Not relevant, explanation provided				SSE does not have any activities associated with this activity.
Investments	Relevant, not yet calculated				SSE has focused on understanding the emissions associated with its purchase of fuels, the gas sold to its customers and the transmission losses from its transmission business. For the future SSE will review this category and understand how to report the

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
					emissions associated with its investments.
Other (upstream)	Not relevant, explanation provided				SSE does not have any activities associated with this activity.
Other (downstream)	Not relevant, explanation provided				SSE does not have any activities associated with this activity.

CC14.2

Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

Third party verification or assurance process in place

CC14.2a

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/58/16558/Climate Change 2017/Shared Documents/Attachments/CC14.2a/PwC assurance statement - SSE final signed.pdf	1	ISAE 3410	100

CC14.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

CC14.3a

Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Change in output	9	Increase	The well to tank carbon emissions for the fuel purchased by SSE increased between 2015/16 and 2016/17. This was a result of a change in the generation mix with the purchase of higher quantities of gas in comparison to the previous year. Gas contributed to 66% of the generation output and coal 3.4% (in comparison to 33% and 22% respectively in 2015/16). Renewables output was down because of lower rainfall

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
				and less windy conditions than in the previous year.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Change in physical operating conditions	15	Increase	The carbon emissions associated with the transmission and distribution losses for the non operational buildings increased. This was because of a change in the number of properties owned by SSE along with a change in the use of electricity in the buildings. The electricity use increased and as a result the carbon emissions increased and the losses increased related to the electricity use.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Change in physical operating conditions	18	Increase	The carbon emissions associated with the transmission and distribution losses for the operational buildings increased. This was because of a change in the number of substations owned by SSE along with a change in the use of electricity in the buildings. The electricity use increased and as a result the carbon emissions increased and the losses increased related to the electricity use.
Downstream transportation and distribution	Change in physical operating conditions	13	Decrease	The transmission losses associated with the SHE Transmission reduced between reporting periods. This was due to improvements in the network in the previous year which resulted in fewer losses across the network.
Business travel	Emissions reduction activities	26	Decrease	SSE undertook an efficiency programme to reduce travel across the business. As a result of no fly months, increased use of video conferencing, reviews of vehicle fleet use and other efficiency measures the mileage undertaken for business travel reduced and so did the carbon emissions.
Use of sold products	Change in physical operating conditions	0.6	Decrease	2016/17 was warmer than the previous year with average temperature 0.7 degrees C above the 1981-2010 average. The mean temperature in the UK over the year was 9.5 degrees C, which is higher than the 9.2 degrees C in the previous year. Whilst overall it was warmer there were several months in which the temperature was significantly colder. This impacted the trend in household gas use and consumption remained within 1% of the previous year.

CC14.4

Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

Yes, our suppliers
Yes, our customers

Yes, other partners in the value chain

CC14.4a

Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

Providing energy brings challenges; SSE aims to meet them responsibly. The most material challenges that SSE must respond to in a sustainable way are: maintaining and developing a sustainable energy system that keeps the lights on; decarbonising electricity generation and ensuring the environmental impact of producing energy is minimised; and ensuring energy costs remain affordable. These challenges are fully integrated into SSE's strategy and business operating model.

SSE also recognises that its impact extends well beyond this trilemma of issues and this is why it also seeks to make a positive difference to people's lives by being responsible in all that it does. To help people see more clearly how a sustainable approach is at the core of what SSE does, it has developed the 'Responsible House'. Six core areas have been identified which best demonstrate SSE's commitment to acting in a responsible way and to describe how it is doing this.

This strategy provides the framework for our approach to engagement, how we prioritise our engagements and how we measure success. In particular for customers, suppliers and other business partners:

Suppliers:

Methods - SSE has developed a range of tools to encourage responsible business practices in its supply chain, including Responsible Procurement Charter; responsibility dashboard, sustainability criteria in pre-qualification process; and introduction of clauses on topics in its standard contract forms for new suppliers. SSE is also part of CDPs supply chain programme.

SSE also employs a Strategic Supplier Relationship Management programme which is aimed at SSE's top 10 to 15 suppliers. Our strategic suppliers are defined as those suppliers in the top 10 of SSE's procurement spend and provide an essential/ unique service to our business. SSE engages with this group through Joint Steering Groups held at Managing Director level. The groups discuss and initiate sustainability initiatives to drive better performance, product development and value engineered sustainable propositions. Examples include: the development and introduction of innovative and often disruptive technologies that reduce the carbon footprint of a product and improve carbon emissions performance.

Prioritizing & Measuring – SSE is part of CDPs supply chain programme. SSE will review the data from the CDP supply chain programme to support its supply chain activities.

Customers:

Methods - SSE engages with customers through various channels, written, spoken and visual communication, as well as social media. One of the main focuses of our engagement is energy efficiency and we are positively encouraging our customers to reduce their energy usage, which in turn will reduce CO2 emissions.

For household customers, SSE completed the first phase of the Energy Company Obligation (ECO). SSE is now focused on delivering the final phase of the current ECO scheme to be completed by March 2017.

For business customers, SSE has invested in new business activities in its contracting, energy solutions, and heat businesses (SSE Enterprise) to provide low

carbon and energy efficiency products/ services to business customers and public sector organisations. For example, SSE Enterprise has a dedicated heat team to build on its portfolio of district heating networks; and has a energy performance team responsible for securing, structuring and delivering Energy Performance Certificates.

Prioritizing & Measuring - SSE measures the average customer energy usage through its customer billing system.

CC14.4b

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement
Other: CDP supply chain programme	63	15%	SSE has developed a range of tools to encourage responsible business practices in its supply chain, including Responsible Procurement Charter; responsibility dashboard, sustainability criteria in pre-qualification process; and introduction of clauses on topics in its standard contract forms for new suppliers. SSE also employs a Strategic Supplier Relationship Management programme which is aimed at SSE's top 10 to 15 suppliers.

CC14.4c

Please explain why you do not engage with any elements of your value chain on GHG emissions and climate change strategies, and any plans you have to develop an engagement strategy in the future

Further Information

Module: Sign Off

Page: CC15. Sign Off

CC15.1

Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Gregor Alexander	SSE's Finance Director	Chief Financial Officer (CFO)

Further Information

Module: Electric utilities

Page: EU0. Reference Dates

EU0.1

Please enter the dates for the periods for which you will be providing data. The years given as column headings in subsequent tables correspond to the "year ending" dates selected below. It is requested that you report emissions for: (i) the current reporting year; (ii) one other year of historical data (i.e. before the current reporting year); and, (iii) one year of forecasted data (beyond 2021 if possible).

Year ending	Date range
2016	Wed 01 Apr 2015 - Thu 31 Mar 2016
2017	Fri 01 Apr 2016 - Fri 31 Mar 2017

Further Information

Page: EU1. Global Totals by Year

EU1.1

In each column, please give a total figure for all the countries for which you will be providing data for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emission intensity (metric tonnes CO2e/MWh)
2016	10557	27776	22533535	811
2017	10643	26269	19395367	738

Further Information

Page: EU2. Individual Country Profiles - Belgium

EU2.1

Please select the energy sources/fuels that you use to generate electricity in this country

EU2.1a

Coal - hard

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1b

Lignite

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1c

Oil & gas (excluding CCGT)

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1d

CCGT

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1e**Nuclear**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)
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EU2.1f**Waste**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1g**Hydro**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)

EU2.1h**Other renewables**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)

EU2.1i**Other**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1j

Solid biomass

Please complete for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1k

Total thermal including solid biomass

Please complete for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1I**Total figures for this country**

Please enter total figures for this country for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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Further Information

Page: EU2. Individual Country Profiles - Ireland

EU2.1

Please select the energy sources/fuels that you use to generate electricity in this country

CCGT
Other renewables

EU2.1a**Coal - hard**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1b

Lignite

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1c

Oil & gas (excluding CCGT)

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1d

CCGT

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2016	1292	1780	573628	0.32
2017	1292	2463	876138	0.36

EU2.1e**Nuclear**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)

EU2.1f**Waste**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1g

Hydro

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)
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EU2.1h

Other renewables

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)
2016	456	1308
2017	456	1211

EU2.1i

Other

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emissions intensity (metric tonnes CO ₂ e/MWh)
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EU2.1j

Solid biomass

Please complete for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emissions intensity (metric tonnes CO ₂ e/MWh)
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EU2.1k

Total thermal including solid biomass

Please complete for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2016	1292	1780	573628	0.32
2017	1292	2463	876138	0.36

EU2.11

Total figures for this country

Please enter total figures for this country for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2016	1748	3088	573628	0.19
2017	1748	3674	876138	0.24

Further Information

Page: EU2. Individual Country Profiles - United Kingdom

EU2.1

Please select the energy sources/fuels that you use to generate electricity in this country

Coal - hard
CCGT
Hydro

Other renewables

EU2.1a

Coal - hard

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2016	2029	6141	6353751	1.03
2017	2029	901	1214788	1.35

EU2.1b

Lignite

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1c

Oil & gas (excluding CCGT)

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1d**CCGT**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2016	3961	10160	4015392	0.4
2017	4013	14977	5839259	0.39

EU2.1e**Nuclear**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)

EU2.1f

Waste

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)

EU2.1g

Hydro

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)
2016	1450	4326
2017	1450	3334

EU2.1h

Other renewables

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)
2016	1333	3986
2017	1366	3318

EU2.1i**Other**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emissions intensity (metric tonnes CO ₂ e/MWh)
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EU2.1j**Solid biomass**

Please complete for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2016	37	75	23244	0.31
2017	37	92	22712	0.25

EU2.1k

Total thermal including solid biomass

Please complete for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2016	6027	16376	10392388	0.63
2017	6079	15970	7076759	0.44

EU2.1l

Total figures for this country

Please enter total figures for this country for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2016	8476	24688	10932388	0.42
2017	8895	22622	7076759	0.31

Further Information

Page: EU3. Renewable Electricity Sourcing Regulations

EU3.1

In certain countries, e.g. Italy, the UK, the USA, electricity suppliers are required by regulation to incorporate a certain amount of renewable electricity in their energy mix. Is your organization subject to such regulatory requirements?

No

EU3.1a

Please provide the scheme name, the regulatory obligation in terms of the percentage of renewable electricity sourced (both current and future obligations) and give your position in relation to meeting the required percentages

Scheme name	Current % obligation	Future % obligation	Date of future obligation	Position in relation to meeting obligations

Further Information

SSE is not required by regulation to incorporate a certain amount of renewable electricity into its energy mix. The Renewables Obligation requires suppliers of electricity to present OFGEM with a number of Renewable Obligation Certificates (ROCs) matching the % of their supply volume that is classed as renewables.

SSE generation has a substantial capacity of renewables that do not earn any ROCs (for example large scale hydro). SSE also has substantial capacity that does earn ROCs (for example onshore wind). SSE either supplies ROCs, or makes buyout payments within the ROC scheme. However, the amount of ROCs held is not regulated (there is no requirement in the UK within the Renewable Obligation to hold a certain amount of renewable electricity in the energy mix for generators). SSE also operates within the FiT scheme to provide renewable generation capacity and this will soon be replaced with the CfD scheme.

Page: EU4. Renewable Electricity Development

EU4.1

Please give the contribution of renewable electricity to your organization's EBITDA (Earnings Before Interest, Tax, Depreciation and Amortization) in the current reporting year in either monetary terms or as a percentage

Please give:	Monetary figure	%	Comment
Renewable electricity's contribution to EBITDA			SSE's renewable portfolio contributes around 30% of its total generation output.

EU4.2

Please give the projected contribution of renewable electricity to your organization's EBITDA at a given point in the future in either monetary terms or as a percentage

Please give:	Monetary figure	%	Year ending	Comment
Renewable electricity's contribution to EBITDA				SSE's renewable portfolio contributes around 30% of its total generation output. The Consolidated Segmental Statement will be out in July 2017 and this will provide information on this.

EU4.3

Please give the capital expenditure (capex) planned for the development of renewable electricity capacity in monetary terms and as a percentage of total capex planned for power generation in the current capex plan

Please give:	Monetary figure	%	End year of capex plan	Comment
Capex planned for renewable electricity development				In the year 31 March 2017 SSE's investment and capital expenditure totalled £1.7 billion. Economically regulated networks and renewable energy mandated by government obligations and targets accounted for 67% of this spend.

Further Information

CDP