CLIMATE CHANGE

Introduction

CC0. Introduction page

CC0.1: Introduction [maximum 5000 characters]

About

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

Our 38,800 employees work hard at every stage of the energy value chain - from sourcing and generating to servicing and supplying energy in our chosen markets. We serve our 28 million customer accounts through strong brands with distinctive capabilities which include British Gas in the UK, Bord Gáis Energy in the Republic of Ireland and Direct Energy in North America.

Our impact on climate change

We recognise that fossil fuels are a significant contributor to climate change, which is one of society's greatest global challenges. We believe that we can play an important role tackling energy's environmental impact and contribute positively to carbon emission reduction targets set at a national and international level.

We are therefore committed to minimising carbon emissions from the energy we generate and supply as well as those created from customer consumption. Our direct carbon emissions under scope 1 include those from sources we own or control such as power generation, gas production and storage as well as emissions arising from our property, fleet and travel. Indirect carbon emissions under scope 2 come from electricity purchased and consumed across our offices and assets. Scope 3 emissions are those we do not produce but are the result of the products and services provided, such as electricity and gas sold to customers from wholesale markets alongside the products and services purchased to run our business.

Reducing our impact

We are committed to tackling climate change by transforming the way energy is generated and consumed. And with over 90% of our carbon emissions arising from customer consumption, the greatest contribution we can make to combat climate change is by empowering our customers to reduce their energy emissions.

To achieve this, we provide market-leading products and services that give customers greater choice, control and understanding over their energy. One of the ways we are doing this is by investing an expected £500m in our new Connected Home business over the next five years to expand our global capabilities in cutting-edge consumer products. This builds on our existing market-leading Hive products in the UK and Republic of Ireland alongside smart-enabled offerings such as time-of-use tariffs in North America. We also provide cost-effective energy efficiency measures such as insulation and reduce reliance on fossil fuels by providing alternative energy sources like solar. These products and services can help customers save money on their energy bills as well as reduce their carbon footprint

We recognise our ongoing responsibility to source, generate and supply competitively priced energy for our customers. As we transition to a lower carbon energy future, gas remains an important part of our strategy because it is the lowest carbon fossil fuel, provides an increasingly important back-up to intermittent renewables and is more affordable than most other energy sources. In addition to our gas-fired power stations in the UK, we are a sizeable gas and oil producer and while we are reducing the scale of these operations, we will expand our trading capabilities to secure diverse and competitive supplies on the global market. At the same time, we are taking a leading role in creating a new model for generating and supplying energy through our global Distributed Energy and Power (DE&P) business, in which we expect to invest £700m over the next five years. We believe DE&P will provide a substantial opportunity for growth and will enable significant cost and carbon savings for large-scale energy users. These activities are supported by sourcing low carbon energy through our 20% stake in the UK's existing nuclear power fleet and having a joint venture interest in one wind farm while operating three further wind farms. We have however taken the decision to exit being an operator of wind generation by the end of 2017 although we will continue to be an enabler of other operator's wind projects through a limited number of Power Purchase Agreements. In addition to targeting carbon emission reduction in our power generation, we target reductions in the emissions associated with our property and fleet.

We also understand the wider role we can play in mitigating climate change in supply chains and communities. For example, we work collaboratively with partners to raise and maintain high environmental standards in our supply chain through our responsible procurement programme and engage communities via dedicated educational initiatives that ensure future generations use energy more sustainably.

CC0.2: Reporting Year

01 Jan 2015 - 31 Dec 2015

CC0.3: Country list configuration

Select country
United Kingdom
United States of America
Canada
Ireland
Norway
Netherlands
Trinidad and Tobago

CC0.4: Currency selection

GBP(£)

Management

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 [maximum 5,000 character limit]

Centrica's Chief Executive has overall responsibility for the business' impact on climate change. Issues associated with climate change are represented consistently at the highest level through his membership of the Board, the Centrica Executive Committee (CEC) and attendance where applicable, at the Safety, Health, Environment, Security and Ethics Committee (SHESEC). The Chief Executive also Chair's SHESEC's sub-Committee, the Health, Safety, Environment and Security Committee (HSES), where climate-change related issues may be discussed bi-monthly.

Individual Performance:

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** [maximum 2,400 characters]
Environment/Sustainability managers	Monetary reward	Emissions reduction target	Delivery of Group and Business Unit specific environment plans are incentivised and may include reductions in Group internal carbon footprint, carbon intensity and total carbon emissions.

centrica

Other: Employees within British Gas Energy Efficiency	Monetary reward	Efficiency project	Incentives are provided for meeting our Energy Company Obligation (ECO) targets which aim to improve energy efficiency in a cost-effective way. Development of non-ECO funded energy efficiency and renewable heat for residential and commercial customers is also encouraged via monetary rewards.
Other: Renewables - operation teams	Monetary reward	Efficiency target	Renewables incentive targets are a combination of business profit and individual performance measures. Individual performance targets are determined by employee role and may include wind farm performance reliability and asset integrity.
Other: Power Generation and Exploration and Production (E&P) - operation teams	Monetary reward	Efficiency target	Power generation and E&P incentive targets are a combination of business profit and individual performance measures. Individual performance targets are determined by employee role and may include combined-cycle gas turbine (CCGT) efficiency, compliance with EU Emissions Trading System (EU ETS) and management of greenhouse gas emissions from E&P operations.
Other: Employees nominated by colleagues	Monetary reward	Other: Environmental recognition	Employees in Direct Energy can nominate colleagues who exemplify core company values, including those championing the environment. Individuals or teams selected as winners receive recognition alongside a prize of US$2,500 (£1,674).

CC2. Strategy

Risk Management Approach:

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** [maximum 1,000 characters]
Six-monthly or more frequently	Board or individual/sub-set of the Board or	UK, Republic of Ireland, Netherlands,	➢ 6 years	The Board is responsible for determining the nature and extent of the principal risks it is willing to accept, including those relating to climate change.

	committee appointed by the Board	Norway, Canada, United States, Trinidad & Tobago		The Board and its Committees set objectives, performance targets and policies to attain a balanced and transparent approach to the management of these risks and opportunities, supported by a robust system of internal control. This is underpinned by a clear delegation of authority and effective policies and procedures that span our core operations. This Group-wide risk process looks over a period of up to 3 years. In addition to our Group risk process, during 2015, the Board also explored climate change related risks and opportunities out to 2020 as part of our strategic review. We also assess climate change risks through our forecasting of carbon prices through to 2030, which is approved by the CEC every 6 months.

CC2.1b: Please describe how your risk and opportunity identification processes are applied at both company and asset level [maximum 2000 characters]

Identifying our principal risks and developing strategies to mitigate them, is essential to delivering our strategy. Climate change is specifically categorised as a risk area and managed through inclusion in business risk management processes and procedures. Each identified risk from individual asset to company level together with related controls, are consistently assessed and reported according to the Group Risk Management Policy, Standards and Guidelines. Principal risks that threaten the business undergo robust assessment and forms the basis of our annual viability statement.

At an asset level, Business Units and Group Functions are confronted with risks and opportunities that have the potential to impact the Group's assets, liabilities, financial position and reputation. These risks and opportunities are accurately identified, assessed and subject to regular reporting, monitoring and challenge.

At a company level, the SHESEC is authorised by the Board to review the effectiveness of identifying and managing environmental risks and opportunities that could materially affect performance and reputation. The SHESEC sets objectives, performance targets and policies for managing principal risks and opportunities which are monitored, discussed and agreed quarterly by the Board. We also hold an annual Board Planning Conference during which climate change related risks and opportunities are examined alongside other strategic issues. The Business Units subsequently develop detailed plans to execute strategies while maximising opportunities and modelling commercial returns. The CEC then assesses proposals for commercial viability, market landscapes and risks to any investment or future regulation.

CC2.1c: How do you prioritize the risks and opportunities identified? [maximum 2000 characters]

At least quarterly, Business Units and Group Functions review the internal and external environment for new and emerging risks or changes to existing risks that could impact the delivery of our strategy. Risks are reported to a Risk, Assurance and Control Committee (RACC) or equivalent management meeting to evaluate, challenge and advise on material risks and consider the adequacy of mitigating controls.

Risks are prioritised by assessing potential financial and non-financial impacts alongside the likelihood of materialisation. A 1-5 impact and likelihood scale is used with the overall rating (1-25) calculated through multiplying impact by likelihood. Financial impacts are relative to operating profit targets. Further statistical modelling, scenario planning and commercial analyses are carried out where applicable.

The most material risks including High Impact/Low Likelihood risks are reported to the Group Risk, Assurance and Control Committee (GRACC), to ensure a clear understanding of our risk profile and the effectiveness of controls which are informed by related assurance activity. The GRACC is chaired by the Chief Executive, with membership comprising of the CEC.

Following the GRACC, the Audit Committee receives the updated paper which includes a CEC approved assessment of our principal risks and the adequacy of associated controls. These reports, supplemented by management discussions, enable the Committee to monitor performance and ensure remedial action is taken if significant failings or weaknesses are identified.

Ultimately, the Board, SHESEC and CEC are responsible for identifying and prioritising risks and opportunities. Meetings occur throughout the year to continually evaluate the Group strategy in relation to the external economic, competitive, regulatory and policy context which includes risks and opportunities relating to climate change.

Business Strategy:

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
[maximum 7,000 characters]

i Business strategy influence - The Board and the Centrica Executive Committee (CEC) have dedicated meetings throughout the year to agree and review Centrica's strategy. Central to this is assessing changes to the external environment, including economic, competitive, regulatory and policy factors. Changes in climate policy are routinely reviewed and combined with information from regulatory and operational teams to help the CEC understand the risks and opportunities associated with low carbon markets, predominantly in the UK, EU and North America. We also explored climate change related risks and opportunities as part of Centrica's wider strategic review conducted in 2015.

ii Climate change influence on strategy - Our strategy on climate change must balance the needs of a secure and competitive energy supply while transitioning to a lower carbon future. Legislative risks and opportunities associated with climate change such as emissions reduction and renewable targets set at a national and international level, significantly influence our strategy. For example, UK Government climate change commitments inform our UK power generation strategy and our revised target to reduce carbon intensity to 200gCO2/KWh by 2020. Moreover, mandatory UK Government schemes like the smart meter roll-out give customers greater understanding over their energy while presenting new opportunities to provide propositions that can help customers reduce their energy use.

iii Short term strategy - In the short term, we are building on our strengths as a customer-facing business, which includes delivering products that enable customers to use energy more efficiently through Connected Home and distributed generation technology. This approach capitalises on opportunities arising from government policies such as the smart meter roll out in the UK and North America as well as meeting demand from customers for products that allow greater control over energy.

iv - v Long term strategy, strategic advantage - Following our 2015 strategic review, we decided that everything we do should focus on our purpose of satisfying the changing needs of our customers. This gives focus for the role we can play on climate change; providing customers with the products and services that enable greater choice, control and reduction over their energy use.

Low carbon and energy efficient products – Expanding our market-leading position in Connected Home products is a key strategic priority which enables us to differentiate our business by offering a range of services beyond the supply of gas and electricity. We have already sold around 500,000 smart thermostats in the UK and North America which

help customers save money and carbon by controlling their heating and hot water remotely. This builds on our leadership position in the UK's mandated smart meter roll-out having installed 2.5m in homes and businesses since 2009. Smart meters enable customers to reduce their energy use through greater insights into their energy consumption and provide a platform for smart-enabled offerings. In North America for example, customers using Time-of-Use products enabled by smart meters, can earn bill savings and balance demand on the grid by lowering energy use during a peak event. Our team of 9,000 skilled engineers give us a strategic advantage over our competitors, installing smart and Connected Home devices and products like efficient boilers and solar panels. We calculate these products have helped our UK customers save 22mtCO2e since 2008, which significantly contributes to our fulfilment of mandated carbon reduction targets.

Distributed Energy & Power (DE&P) – DE&P has significant growth potential and can help reduce climate impacts by revolutionising the traditional way energy is generated and consumed. We are doing this by giving industrial, commercial and public sector customers the ability to take control of their energy and reduce, generate and manage it themselves. DE&P will bring together flexible and local generation, energy storage, renewable technologies, energy efficiency measures and smart building management systems to keep costs and emissions as low as possible. We also continue to operate a small gas-fired power generation portfolio which after the capacity market auction, will mostly operate as peaking units. We will however maintain a watching brief as the Capacity Market evolves so that we can adjust our outlook, where applicable.

Low carbon generation fleet – Nuclear and wind are an essential component of our energy mix and play a central role in decarbonising energy. We have one of the lowest carbon intensities among major UK energy generators, which in 2015 reduced by 24% to 117gCO2/KWh. Nuclear provides a stable low carbon baseload and our 20% stake in EDF Energy Nuclear Generation's eight nuclear plants helped avoid nearly 9.8mtCO2e based on our equity share, compared to if the electricity had been generated by the prevailing UK fossil fuel mix. We also have a joint venture interest in one wind farm and operate three further wind farms. Combined, these sites are capable of meeting the energy needs of nearly 350,000 homes. In 2015 however, we concluded that owning and operating wind farms no longer fitted our customer-focused strategy. We will therefore sell our interests in wind by the end of 2017, in favour of being an enabler of other operators wind projects through a limited number of Power Purchase Agreements. Nuclear and wind constituted 54% of all power we sold in the UK during 2015 which led to us having one of the lowest carbon intensities of all power sold to our UK customers, demonstrated by our carbon intensity being33% lower than the UK average of 360gCO2/kWh.

Exploration and Production (E&P) – Gas remains an important part of our strategy because it is one of the most affordable energy sources for heating homes and running businesses, is the lowest carbon fossil fuel and backs up intermittent renewable energy. In North America in particular, gas also contributes to reducing emissions by displacing coal. In 2015, we clarified E&P's role as one that will provide cash flow and balance sheet strength. E&P's scale will consequently reduce to 40-50mmboe per annum. A growing share of our energy will therefore be secured on the global market, with a focus on Liquefied Natural Gas.

vi Business decisions - In 2015, we decided to invest £1.2bn over the next five years to establish two new businesses: Connected Home and DE&P. Our investment in these areas will ensure that we further grow our capabilities and competitive advantage to deliver on our purpose, while enabling greater control and energy reductions for customers.

CC2.2c Does your company use an internal price of carbon?

Yes

CC2.2d: Please provide details and examples of how your company uses an internal price of carbon [maximum 5,000 characters]

Our power generation operations in the UK and Republic of Ireland together with some of our oil and gas assets in the North Sea and Netherlands, are currently subject to the E U Emission Trading System (EU ETS) carbon price and/or the UK carbon price floor, which are set at an EU and UK level respectively. In 2015, the combined impact of EU ETS carbon price and UK carbon price floor was around £22/tCO2e. The costs mostly apply to our scope 1 emissions from gas-fired power generation and are reflected in the traded price of electricity.

We produce internal forecasts of both the EU ETS carbon price and the UK carbon price floor at least to 2030. These projected carbon prices are used for near-term forecasts of business performance as well as longer-term forecasts, which are factored into new capital investment decisions for which these carbon prices apply.

We support the use of carbon prices as a mechanism for incentivising decarbonisation. This is because we believe that if carbon pricing mechanisms continue over the long term, it will impact attractiveness of investment opportunities by providing financial incentives to grow lower carbon generation. For example, following a previously volatile EU ETS carbon price, we forecast an upward trajectory in carbon prices in the future which will impact the viability of high carbon power investments such as coal versus lower carbon power investments in gas, nuclear and renewable energy.

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** [maximum 2,400 characters]	**Proposed legislative solution** [maximum 2,400 characters]
Other: Renewable Heat Incentive (RHI)	Support	**Renewable Heat Incentive** We continue to support the Renewable Heat Incentive (RHI) and believe it is a crucial mechanism for supporting market growth in new, low carbon technologies. The RHI does this by incentivising products such as biomass heating, air source heat pumps and hybrid systems, which are an essential driver for commercial, industrial and domestic sectors to reduce their carbon emissions. We continue to back the extension of the RHI to include other important technologies such as gas heat pumps, which are classified as renewable under the EU Renewable Energy Directive. Following extensive industry engagement with the Department of Energy and Climate Change (DECC) on the issue, a successful Market Potential Review for gas heat pumps occurred and we remain engaged with Government on the extension of scope in the next phase of the scheme. We also undertook extensive engagement with other stakeholders	We support Government's extension of the RHI announced in 2015 to 2021, but we believe Government's focus for the scheme should be on delivering the most cost-effective renewable heat solutions which have the greatest potential. We are concerned that recent changes proposed to the biomass tariffs for example, will not incentivise efficient investment and will therefore fall short of delivering anticipated deployment levels. We would also like to see greater support under the RHI scheme to enable increased adoption of renewable heating technologies. In particular, we advocate for greater flexibility in financing options to stimulate growth in the sector and extend its scope to high-potential technologies such as Gas Absorption Heat Pumps. In doing so, we believe the RHI will not only potentially transform the market for renewable heat, but support the UK Government's ambition to achieve around 90% of heat from non-fossil fuels by 2050.

		to facilitate adoption of the proposal, including trade associations across the UK and EU. We have additionally responded to various consultations throughout 2015, including the Government's Comprehensive Spending Review.	
Other: Feed-in Tariff (FIT)	Support	**Feed-in-Tariff** We support the Feed-in Tariff (FIT) which has been essential to the growth of distributed electrical generation in the UK. In 2015, the support provided for emerging technologies through the FIT was substantially reduced as a result of a Government review of the scheme. We responded to the review and argued that following the sector's significant growth in recent years, solar is now able to operate without subsidy. However, we suggested an appropriate tax-based support regime would give the sector the certainty it needs to maintain growth in the future. We also advocated that support for emerging technologies, such as microCHP, should continue to allow for commercialisation. Alongside the review, we responded to a number of Department for Energy and Climate Change (DECC) consultations and HM Treasury consultations in 2015, which largely focused on employing a tax-based regime to support solar. We also showcased the benefits of solar and microCHP with Government and key decision makers through visits to our solar installations and Innovation Lab. We have continued to work closely with industry stakeholders in trade associations and at external meetings to reinforce our position on these issues.	Following the significant reduction of the FIT for solar, we would like to see the introduction of a tax-based support regime, through enhanced capital allowances. We also believe in the value of extending support to other technologies such as battery storage, which can help use renewable power more efficiently. While we approve of retained support for microCHP following the FIT review, we continue to advocate for the introduction of a degression formula that we believe will enable economic returns to remain stable as installation and manufacturing costs fall.
Energy efficiency	Support	**Energy efficiency in homes and businesses** We support the delivery of energy efficiency measures across the UK and believe programmes like the Energy Company Obligation (ECO), can play a significant role in	**ECO** The design for ECO's replacement scheme should ensure targets are achievable, based on an accurate assessment of remaining housing stock, the cost of

		meeting carbon reduction targets, tackling fuel poverty and increasing energy security. **ECO** With ECO due to end in 2017, we engaged extensively with DECC, Government, trade bodies and other organisations on the future of the obligation. Our engagement focused on ensuring ECO has deliverable targets for suppliers, is affordable for consumers and that sufficient time is provided to suppliers for implementing the scheme. This will reduce the risk of destabilising the energy efficiency supply chain which could drive up costs. In 2015, we also responded to the Government's consultation on the introduction of minimum energy efficiency standards in the private rented sector, the Energy and Climate Change Select Committee's inquiry into home energy efficiency and the National Audit Office's study into value for money for ECO and the Green Deal. **Green Deal** We were involved with the Green Deal from its inception and support the intention to create a market for energy efficiency among able-to-pay households. However, the Green Deal had lower than expected take-up and in 2015, the Government withdrew its support for the Green Deal Finance Company (GDFC). We have engaged Government and the GDFC on Green Deal improvements that can help shape its replacement. **Businesses** While energy efficiency in homes has steadily improved since the mid-1990s, the energy efficiency of the non-domestic stock has improved little in recent years. We therefore support the Government's announcement in 2015 that it would review the energy efficiency tax landscape. We engaged officials in HM Treasury, Department of Business, Innovation and Skills (BIS) and DECC to highlight areas where we believe greater energy efficiency could be encouraged and we discussed our	identifying eligible households are viable and proper consideration given to consumer demand. Central to this, is our belief that the Government should be realistic about the extent to which the obligation can focus on the fuel poor and the necessity of a new way to identify these households up-front. Improved data sharing and proxies are therefore essential. In the long term, we also propose that obligation costs, be moved into general taxation from bills which is a less regressive model. **Green Deal** It is vital that lessons learned from the Green Deal are used to inform future schemes for able-to-pay households. For example, new schemes should not be overly reliant on finance offerings to drive demand and if there is a finance scheme, the process to secure funds should be simple. Ultimately, we believe long-term sustainable demand for energy efficiency, needs to be supported by a solid understanding of consumer wants and needs, driven by incentives and regulation. This could include fiscally-neutral incentives such as variable stamp duty or council tax, taxpayer funded offers or closing loopholes in regulations that include minimum standards in the private rented sector. **Businesses** To drive energy efficiency uptake with businesses, a range of approaches must be considered which reflects the different energy demands, fuel types and use - from public sector and manufacturing to offices and community centres. For example, larger commercial and industrial businesses tend to already invest in energy efficiency but could benefit from changes to the Enhanced Capital Allowance, which would enhance attractiveness of measures while supporting development of distributed energy systems that can potentially generate substantial carbon and cost savings.

		views on the topic with trade associations, UK Green Building Council and think tanks.	
Other: Smart meters	Support	**Smart meters** **UK** We strongly support the roll-out of smart meters which is a Government mandated programme. This is because smart meters enable accurate billing and help customers make more informed energy choices by showing their energy use and costs in real-time. They are also the first step on the journey to Connected Homes and grids. That is why British Gas is leading the industry in the installation of smart meters, having fitted 2.5m in homes and businesses by the end of 2015. To support an effective roll-out, we have shared learnings through industry working groups, consultations and regular meetings with Government and other stakeholders. These include how to engage customers and shape data management systems, handling of consumer data alongside delivering optimal industry design and maximum consumer benefits. We also jointly lead the 'energywise' project with UK Power Networks, which is a three-year smart grid trial in Tower Hamlets, and aims to facilitate learning from smart meters and how they can better support vulnerable customers. The trial explores how smart meters and decentralised energy can make demand and supply more flexible and is the first smart grid project to focus on the impact of pre-payment smart meters which are often used by vulnerable customers, as well as customers living in flats. **North America** Direct Energy continued to share learning and customer insights from our innovative, smart-enabled products through major industry conferences as well as at meetings with regulators and legislators across different states and legislative bodies.	**UK** We are supportive of the proposed smart meter architecture. We are working with other industry participants as part of the creation of Smart Energy GB, an independent organisation designed to champion and communicate the switch to smart meters with the public. The Government-appointed, Data Communications Company (DCC), are making good progress towards system completion, of which we will be an early and active participant in testing to ensure it functions at optimal levels. Prior to DCC 'Go-Live', we will continue to install the current industry standard specification metering equipment that will subsequently be migrated onto DCC systems. This strategy has ensured the early delivery of smart meter benefits to millions of customers. We also believe there is consumer benefit in receiving appropriate energy efficiency advice with a smart meter, which has resulted in all of our smart meter engineers being trained to provide relevant advice to customers during installation. We will continue to work with both Government and industry to guarantee that as many of our customers as possible, are able to benefit from smart meters. **North America** We believe it is critical that smart meter data be timely, accurate and consistent. This will enable REPs to offer innovative products using 15-minute interval usage data that will empower the introduction of energy saving products and applications for customers. In addition, Direct Energy encourages utilities to increase service levels as smart meter deployment completes, to ensure optimal availability and quality of associated data. Direct Energy is also supportive of legislation which balances the protection of privacy interests with

		This has enabled us to highlight the positive impacts of load-shifting to off-peak periods and show how increased energy awareness helps customers reduce consumption. In Texas, we continue to engage regulators and other key stakeholders to encourage regulated utilities who own the smart meters to provide increased regularity and completeness of smart meter data to retail energy providers (REPs) so that we can maximise our smart offerings. Direct Energy is also working with policy makers in many jurisdictions to address key regulatory barriers, such as smart meter deployment, data quality, access to smart meter data, the billing relationship and privacy concerns around customer data.	provision of innovative new energy products and applications.

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** [max 2,400 characters]	**How have you, or are you attempting to, influence the position** [max 2,400 characters]
Energy UK	Consistent	**Energy UK** is the trade association for the energy industry. It represents over 80 members made up of generators, gas and electricity suppliers as well as other businesses operating in the energy industry. Energy UK and its members are committed to driving the sustainability agenda by reducing the sector's environmental impact. This is reflected in Energy UK's vision for the UK to have, 'a more decarbonised energy supply and one that is secure, diverse and affordable with greater local heat and power'. The association has a range of initiatives underway to make these ambitions a reality, which will ensure the industry makes	Centrica is represented on Energy UK's Board and chairs the working group on climate change resilience and adaptation. We are also active members of working groups that for example, focus on power generation and environmental policy. While views held within Energy UK on climate change related issues are predominantly consistent with our own, there are occasional divergences between members, such as over the smart meter roll-out. As leaders in the UK's mandatory smart meter deployment and a firm believer in the value they can create in giving customers greater control and understanding over their energy consumption and costs, we aim to influence and

		a positive contribution to society, economy and the environment.	increase awareness of smart meter benefits with members throughout the association.
Renewable Energy Association (REA)	Consistent	**The Renewable Energy Association (REA)** was established as a not-for-profit trade association, to represent British renewable energy producers and promote renewable energy use across the UK. The REA focuses on achieving the right regulatory and legislative framework to deliver an increased renewables contribution to the UK's electricity, heat and transport needs. The REA is broadly aligned with the Committee on Climate Change's (CCC) view on a low carbon future. Within the area of on-site generation, REA and our views are also largely in agreement, supporting the RHI, the FIT and the use of building regulations to encourage low carbon buildings.	We have representatives on the Solar Board, the Wood Heat Association Board and the On-site Renewables Board, which focuses on the use of decentralised renewable energy systems. Centrica representatives also speak at events on behalf of the REA.
Heating and Hot Water Industry Council (HHIC)	Consistent	**The Heating and Hot Water Industry Council (HHIC)** is committed to driving, supporting and promoting the sustained growth of the UK's residential heating and hot water industry. The HHIC informs and advises on these issues to tackle challenges and influence Government on how best to meet the 2020 and 2050 carbon targets. Membership is made up of heating manufacturers together with new renewable entrants to the market.	We are a proactive member of HHIC, participating in the Low Carbon Technology, Micro CHP, Hybrid and Boiler technical and policy working groups that help inform and shape Council positions. Through participation on these working groups, we can also contribute to industry responses, standards and consultations from Government and regulators while developing initiatives that support the introduction of innovative renewable and low carbon heating technologies in the UK.
Energy Manager Association (EMA)	Consistent	**The Energy Managers Association (EMA)** was established to bring cohesion to the energy management profession in order to help the UK meet its energy obligations, which include those relating to carbon reduction. To accomplish this, the EMA aims to establish a best practice approach to energy management that will improve the standing of the profession and drive it into the heart of British businesses.	Centrica is represented on various advisory boards within the EMA and provides input on carbon reporting, training standards, behaviour change and industry standards. As the leader in delivering Energy Performance Contracts (EPCs) in the UK during 2015, we have used our involvement in the Association to influence and increase awareness of best practice EPC policy development.

		The EMA works closely with energy managers across the UK to influence future policy development so that it functions at optimal levels for practioners. Engagement largely focuses on Government departments such as the DECC, BIS and the Department for Environment, Food and Rural Affairs (DEFRA).	
Association for Decentralised Energy (ADE)	Consistent	**The Association for Decentralised Energy (ADE)** is an advocate of an integrated approach to delivering energy locally, designed around the needs of the user. As an industry leader, the ADE brings together interested parties from across the sector to develop a sustainable environment for combined heat and power, district heating and cooling technologies as well as demand-side energy services. Being an advocate for the proliferation of decentralised energy generation, our views are consistent with those of the ADE.	We are a member of ADE and work with them to promote district heating and create the policy environment to encourage growth in the sector.
Oil and Gas UK (OGUK)	Consistent	**Oil & Gas UK (OGUK)** aims to strengthen the long-term health of the UK offshore oil and gas industry by working closely with stakeholders across the sector on issues ranging from safety and skills to innovation and environmental impact. We agree with OGUK that sourcing and generating energy is an industrial process that inevitably has an environmental impact but we believe this impact can be justified when we look at the benefits energy brings to society. We collectively agree that it is essential however that energy companies collaborate with Government and wider stakeholders alongside employing effective management practices, that ensures adverse environmental impacts are mitigated as much as possible, and we strive to be in a position where stakeholders agree these impacts are acceptable. Our views are consistent with those held by OGUK. This is demonstrated by our commitment to operate to the highest operating standards wherever we work in the world, ensuring we maximise the positive contribution our presence can make in society while reducing negative impacts.	Centrica is well represented across a broad spectrum of OGUK workgroups and forums. Most notably, we hold a seat on the influential Oil and Gas Operator Council and are members of the OGUK Board, which sets the association's position on policy. We are also represented across the full range of Environmental, Health and Safety work streams to drive and share improvements across the industry. Through these engagements, we ensure that OGUK's aims and actions align as closely as possible with Centrica's own responsible approach to safeguarding the environment.

CC2.3d: Do you publically 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 [max 5,000]

We believe that regular and meaningful stakeholder engagement is important because it enables us to better understand and manage issues most important to our stakeholders and our business. By involving stakeholders, we can demonstrate our accountability, increase our understanding of their views, identify opportunities as well as manage risks and impacts more effectively. Our engagement is mainly as an individual company rather than as a group of companies. Stakeholder interactions are conducted through a variety of methods from one-to-one meetings to formal committees and workshops, spanning issues such as customer service to safeguarding the environment.

Throughout the year, we engaged Government through direct meetings and consultation responses on evolving energy policy to help it become more cost-effective while strengthening energy security and enabling a lower carbon future. This included discussions with the UK Government on a range of issues such as the content of the recent Energy Bill which has since been passed into law, the smart meter roll-out and the future of energy efficiency schemes.

We also engaged various stakeholders on expanding the range of innovative products and services we provide. For example, the British Gas Customer Board met quarterly during 2015 and provided feedback on our customer-focused approach, specifically exploring our Connected Home offerings and how they can give customers greater control over their energy consumption. To ensure learning is maximised, feedback from the Customer Board is shared with senior executives to ensure insights are embedded in our strategy, where appropriate. We also worked with start-ups and industry experts to identify new products with strong market potential that are capable of maximising carbon and cost savings. Where trials of new products such as power storage units have occurred, we share learning with Government and key industry and certification bodies, to ensure the right regulatory and standard frameworks exist to support their adoption in the UK.

The communities in which we operate are important to us so we engage community stakeholders to ensure we make a positive and lasting impact. In our E&P and DE&P businesses, project managers and issue specialists engage key stakeholders to ensure each project fully assesses, understands and has plans in place to manage potential impacts which form an essential part of the approval process throughout a project's lifecycle. These engagements include collaboration with environmental NGOs and local interest groups on a range of issues spanning the decommissioning of power stations to the growth of distributed energy and the potential positive impact this could have in keeping carbon emissions and energy costs as low as possible. We also engage social enterprises through Ignite, the UK's first corporate impact investment fund focused on energy and backed by Centrica, which will invest £10m over 10 years to grow the positive social and environmental impact enterprises can make in society. So far, we have committed £8m to projects that include growing the green skills of young people not in education employment or training (NEETs) as well as generating renewable solar energy for low income communities which together with our other investments, have benefitted 26,000 people. Additionally, our £1.2m Community Action Partnership with National Energy Action works alongside local authorities to create individual action plans that equip communities with the tools to use energy more efficiently. Through the partnership, we have reached over 91,000 people including over 68,700 during 2015. We are furthermore helping the next generation understand the importance of using energy more sustainably through our flagship school education programme, Generation Green. Through Generation Green, over 14,000 schools have benefitted from free classroom resources as well as energy efficiency and low carbon technologies that save around 2,787tCO2e annually.

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 [max 5,000]

To better manage risks and opportunities related to climate change, Centrica actively contributes to the development of public policy by engaging key stakeholders which include government and regulators in the UK**,** Republic of Ireland, EU, US, Canada and Norway. We ensure our engagements on policy across the business are consistent with our overall approach to climate change and Group strategy by having dedicated policy groups that develop detailed policy positions which are fed into the CEC for review and approval. The CEC therefore has ultimate ownership and sets the company's position on public policy for key issues like climate change.

In 2015 for example, the Energy Efficiency Steering Group met four times and agreed a comprehensive position on the energy efficiency obligations placed on energy suppliers while our European Policy Group met three times to develop positions on issues such as power market design, financial services legislation and data protection. The work of these policy groups and any new approaches to public policy were then shared with the CEC.

CC3. Targets & Initiatives

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 and intensity targets

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 CO_2e)	Target year	Is this a science-based target?	Comment
Abs1	Other: Scope 1+2 (location-based) + 3 (business travel)	97	25	2007	71600	2015	Yes	The target encompasses the internal carbon footprint of British Gas and spans the carbon emissions from our core property, fleet and travel. The target was developed as science-based and covers the vast majority of British Gas' emissions. We recognise that this target does not meet all of the science-based target criteria currently used by CDP, however we will continue to engage with them and the Science Based Targets initiative (SBTI) with the aim of standardisation in this developing area. As part of the mid-term target, we aimed to deliver a 25% reduction of carbon emissions between 2007 and 2015. We surpassed this target, achieving an overall reduction of 28%. 97% of British Gas' overall carbon emissions were captured within the target's scope.

Abs2	Other: Scope 1+2 (location-based) + 3 (business travel)	87	25	2015	60451	2025	Yes	Our longer term target out to 2025, commits us to make a further 25% reduction in our core internal carbon footprint and spans 87% of British Gas' overall carbon emissions. To achieve this target, we will need to reduce our carbon emissions by an average of 2.5% each year, which we consider is appropriate for British Gas' sector. The target was developed as science-based and while we recognise this target does not meet all of the science-based target criteria currently used by CDP, we will continue to engage with the organisation and the SBTI with the aim of standardisation in this developing area. During this forthcoming period, the majority of our carbon savings will come from reducing our property scope 1 and 2 emissions, delivered through energy efficiency measures, solar, distributed generation and LED installations. We will also target a reduction in scope 1 van emissions alongside savings secured from company car use as a result of rolling-out high efficiency and electric/hybrid vehicles.
Abs3	Other: Scope 1+2 (location-based) + 3 (business travel)	1	20	2007	108324	2015	No, but we are reporting another target which is science-based	This target encompasses the internal carbon footprint of Centrica, which incorporates the carbon emissions from our core property, fleet and travel. The target is global but does not cover emissions from Centrica's power generation or oil and gas production, the reporting and management of which are treated separately. The target concentrates on areas where the majority of our employees have the ability to influence results. This focus is important for engagement purposes and enables us to benchmark our operational performance against the majority of other businesses. Although the percentage of emissions from our internal carbon footprint appears immaterial when compared to Centrica's total scope 1, 2 and 3 footprint, and is therefore not consistent with science-based targets, our approach to managing the impacts in these areas is important because it helps us innovate and trial new technologies which aid our ability to provide market-leading products and services for customers, while

								engaging employees in the importance of understanding and mitigating adverse environmental impact. In 2015, we exceeded our 20% mid-term target, having achieved an overall reduction of 27% from 2007.
Abs 4	Other: Scope 1+2 (location-based) + 3 (business travel)	2	20	2015	102738	2025	No, but we are reporting another target which is science-based	Our longer term target out to 2025 commits us to make a further 20% reduction in Centrica's core internal carbon footprint. During this forthcoming period, the majority of our carbon savings under this target will come from reducing our property scope 1 and 2 emissions delivered through energy efficiency measures, solar, distributed generation and LED installations. We will also target a reduction in scope 1 van emissions alongside savings secured from company car use as a result of rolling-out high efficiency and electric/hybrid vehicles.

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	Is this a science based target?	Target year	Comment
Int1	Scope 1	92	54	Metric Tonnes CO2e per megawatt hour (MWh)	2008	0.433	Yes	2020	We have set a Group target for power generation carbon intensity of 200gCO2/kWh by 2020. Using the unit stated, this translates to a target of 0.2tCO2e/MWh. The target represents a 54% reduction from the 2008 base year, which means we will need to reduce our power generation carbon intensity by an average of 4.5% each year. The target covers all emissions from our own power generation by equity and has been

									internally assessed as science-based, using the Sectoral Decarbonisation Approach (CDP/WRI). The Sectoral Carbon Intensity Pathway for Power Generation requires a carbon intensity reduction of 28% between 2010 and 2020. Our target will go beyond this reduction, aiming to cut our carbon intensity by 33% when viewed over that 2010 to 2020 period. We recognise that this target does not meet all of the science-based target criteria currently used by CDP, however we will continue to engage with them and the SBTI with the aim of encouraging standardisation in this developing area. Our carbon intensity at the end of 2015 was 0.117tC02/MWh. This was ahead of target and reflects poor market conditions for gas-fired power generation alongside an increase in the proportion of nuclear and renewable generation. If market conditions for gas-fired power generation recover in the coming years, we expect our carbon intensity to increase as it will be more economical for our power stations to generate energy.

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	54	No change	0	If output was to remain at the same level as 2008 and carbon intensity achieves 0.2tCO2/MWh in 2020, there would be a 54% decrease in our scope 1 and 2 emissions compared to

					2008. Our generation output is unlikely to be the same in 2020 as in 2008 due to the evolution of our power generation portfolio and the highly uncertain nature of the power market. It is therefore not possible to predict the change in our carbon intensity to an accurate degree.

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
Abs 1	100	100	By the end of 2015, we had achieved a 28% reduction in British Gas' core internal carbon footprint compared to our 2007 baseline. This performance means we exceeded our 2015 mid-term target of 25% reduction. We are now embarking on our longer-term target (Abs 2).
Abs 2	0	0	Our longer term target to reduce British Gas' core internal carbon footprint by a further 25% by 2025 was established in 2015, which also serves as the target's base year. Consequently, carbon reduction activities only commenced in 2016.
Abs 3	100	100	We secured a 27% reduction in Centrica's core internal carbon footprint by the end of 2015, compared to our baseline year of 2007. This means we have surpassed our 2015 mid-term target of 20% reduction. We are focused now on delivering our longer term target (Abs 4).
Abs 4	0	0	In 2015, a longer term target was also established for Centrica to reduce its core internal carbon footprint by a further 20% by 2025, with 2015 as the base year. Carbon reduction activities have therefore only commenced in 2016.
Int1	58	100	In 2015, we exceeded our equity-based 2020 carbon intensity target of 0.2tCO2e/MWh by 40%. However, the current power generation market is considered atypical and not representative of future generation, with some of our power stations having been placed into temporary preservation whilst others were sold. In 2015, we reassessed the 2020 target and adjusted it from 0.26 to 0.2tCO2e/MWh, to better reflect changes in our generation portfolio and now that there is more certainty following the UK capacity market auctions.

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** [maximum 2,400 characters]	**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** [maximum 2,400 characters]
Group of Products	**Energy efficiency measures** Three measures make up the biggest reductions in customer gas use (customers' scope 1 emissions): wall insulation, loft insulation and energy efficient boilers. We deliver boilers through our established central heating installation business and insulation through a number of delivery channels including third-party contracts, the UK Government brokerage market and contracts with local authorities.	Avoided emissions	Other: Reduced data Standard Assessment Procedure (RdSAP) methodology, as set in the Energy Company Obligation legislation (ECO)	-	-	By the end of 2015, measures we installed in customers' homes under the UK Government's mandatory ECO scheme, will generate lifetime savings of 15.8mtCO2e. When the ECO scheme closes in March 2017, we are required to have delivered lifetime carbon savings of 20mt, which we are on track to achieve. The Government is currently developing the replacement scheme for ECO, which will influence delivery of these measures in the future. ECO savings are calculated using industry approved software that converts lifetime carbon savings attributable to each measure to kg/CO2 savings, which is used in banking with Ofgem. Products included are loft, cavity and solid wall insulation, gas boiler replacement and repair alongside glazing, heat pumps and biomass boilers.
Product	**Solar**	Avoided emissions	Other: UK: Internal calculation method using average	-	-	The solar panels we installed in the UK during 2015, saved16,000tCO2e and

	We help customers reduce reliance on fossil fuels by investing in alternative energy sources such as solar energy (customers' scope 1 and 2) in the UK and North America. Solar energy has growth potential in North America and to capitalise on Direct Energy's residential solar capabilities acquired in 2014, we introduced an electricity solar bundle pilot in Texas. The bundle enables a growing number of customers to benefit from new solar panels installed and is incentivised by giving one free year of electricity.		irradiance of 900kWh/kWp and using BRE Standard Assessment Procedure (SAP 2012) CO2 emissions factor for grid electricity of 0.519 kg/kWh. North America: Carbon savings calculated using average annual productivity per KWh and Environment Protection Agency (EPA) emission factors.			created an estimated saving of £2.5m on energy bills. In North America, the solar panels we delivered in 2015 saved 17,510tCO2e and generated US$4.0m (£2.6m) in estimated bill savings.
Product	**Biomass boilers** Installation of small and medium scale biomass boilers (customers' scope 1 and 2), providing customers with a source of low carbon energy.	Low carbon products	Other: Biomass classified as a renewable (therefore low carbon) energy source in the EU Renewable Energy Directive (2009/28/EC). Notional carbon savings calculated using SAP methodology.	0.1	Less than or equal to 10%	In the UK, we installed 20 biomass boilers for residential, commercial and local authority buildings in 2015. These installations generated lifetime carbon savings of 225,000tCO2e, equating to annual savings of 7,350tCO2.
Product	**Smart meters** Smart meters can help reduce carbon emissions because they give customers greater visibility over how much energy is being used and its costs in real-time, empowering customers to take control over their energy and cut consumption. For example, in 2014/15, British Gas residential customers with smart meters were able to reduce their energy consumption by an average of 3% for both gas (customers' scope 1) and electricity (customers' scope 2).	Low carbon product	Other: British Gas methodology approved by the Department of Energy and Climate Change (DECC)	-	-	Our analysis of smart meter customer consumption uses a methodology approved by DECC and is based on a sample of more than 100k smart meter customers over a two-year period, comparing consumption before and after smart meter installation with comparable standard meters. Using this input data, we calculate that the smart meters we installed during 2015 will save our customers 51,335tCO2e per annum.

	We have taken a leadership position in the UK's mandatory smart meter roll-out, having installed over 2.5m in homes and businesses by the end of 2015.					
Group of Products	**Connected Home products** Connected Home products can help reduce energy's impact on the environment by giving customers greater choice and control over their energy (customers' scope 1 and 2). In the UK, we are putting customers in control of their homes, with just a few taps on the Hive app. For example, we have sold over 300,000 smart thermostats which enable a growing number of customers to control their heating and hot water from wherever they are. This has led to 58% of surveyed users believing their smart thermostat has helped save money on their energy bill by reducing unnecessary energy use. In 2016, we are expanding the range of Hive products to include offerings like smart plugs and lights, giving even more control over household energy consumption. In North America by the end of 2015, Direct Energy had sold nearly 200,000 smart thermostats enabling customers to save around 11% on their heating bills and around 15% on cooling bills. We also installed 1,850 Programmable Communicating Thermostats in low-income households during 2015, which show users how they can improve their energy efficiency and reduce their energy bill. In 2015, Direct Energy additionally provided smart LED bulbs and switches, allowing customers to control appliances remotely and target energy savings. We also ran a pilot in North America to evaluate the carbon and cost benefits of remote controlled smart electric water heaters. We believe this could help customers shift their water heating to off-peak hours	Low carbon products		-	-	Providing cutting-edge Connected Home products that enable us to satisfy the changing needs of our customers, is a significant focus for Centrica now and in the future. To grow our capabilities in this area, we will invest £500m over the next five years in our new, global Connected Home business.

	and store it for use at peak hours. Moreover, the heaters provide great potential for absorbing excess wind and solar power from the grid and using it to heat and store the water, ensuring better utilisation of low carbon energy.					
Group of products	**Time-of-use and prepaid tariffs** Direct Energy continues to offer time-of-use (TOU) products which incentivise customers to cut their energy demand at peak times. This reduces strain on the grid and the need to turn on additional power plants to meet demand, thereby avoiding associated carbon emissions from power generation (customers' scope 2). TOU customers on the Free Saturdays/Sundays plan are shifting up to 2% of their energy use each month to the free day, which is typically an off-peak day when the generation source is more efficient. In 2015, we also triggered our voluntary (opt-in) behavioural demand response programme called Reduce Your Use Rewards. The programme enables customers to save 5% on monthly energy bills if they lower usage during a high peak event. The programme works in collaboration with ERCOT, the grid operator, which asks consumers and businesses to reduce electricity demand during peak hours. On average, prepaid products in North America, help reduce electricity consumption by around 11% - sometimes as high as 18% (customer's scope 2).	Avoided emissions	Other: North America: Carbon savings calculated using EPA emission factors.	-	-	We calculate that customers using TOU and prepayment plans in North America saved 62,800tCO2e during 2015. In 2016, British Gas expects to roll-out its own TOU tariff to help reduce consumption at peak hours in the UK. Earlier trials showed that household peak demand could be reduced by up to 11% and scaling this up could help the UK avoid needing to build more than 2GW of generation capacity.
Product	**Low carbon power generation** The low carbon intensity of our renewable and nuclear power generation helps reduce customers' emissions from electricity emissions (customers' scope 2). In 2015, our power generation carbon intensity continued to decline to 117gCO2/kWh, compared	Avoided emissions	Other: The generation and use of low carbon power offsets the use of other power sources and emissions avoided can be calculated using Department for	-	-	6mtCO2e was avoided through our renewable and low carbon power generation in 2015 when compared to the UK grid average.

	with 433gCO2/KWh (base year: 2008). Of the power we generated in 2015 based on our equity share, 4.8% was from renewable sources and 66% from nuclear, resulting in over 70% of our energy produced from low carbon sources. We also continue to purchase a substantial amount of renewable and lower carbon power. This has helped us fulfil 54% of our UK customers' energy needs from non-fossil fuels. As a result, the carbon intensity of all power sold to our UK customers in 2014/15 was 240gCO2/kWh, 33% lower than the UK average of 360gCO2/kWh.		Environment, Food and Rural Affairs (DEFRA) grid average carbon intensity data. Any emissions associated with the generation of low carbon power are also accounted for.			

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 CO_2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO_2e (only for rows marked *)
Under investigation	17	-
To be implemented*	150021	186,572
Implementation commenced*	25	2,354,794
Implemented*	151839	19,184,344
Not to be implemented	59	-

CC3.3b: For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity [maximum 2,400 characters]	Estimated annual CO_2e savings (mt CO_2e)	Scope	Voluntary /Mandatory	Annual monetary savings (£)	Investment required (£)	Payback period	Estimated lifetime of the initiative (years)	Comment [maximum 1,500 characters]
Energy efficiency: Building fabric	**Energy Company Obligation (ECO)** To replace Carbon Emission Reduction Target (CERT) and Community Energy Saving Programme (CESP), the UK Government introduced ECO which will run between 2013 and 2017. ECO mandates energy suppliers such as British Gas, to fund professionally installed insulation and boilers in residential homes to reduce energy use and carbon emissions, particularly in homes that are fuel poor and could benefit from reducing their energy costs. We expect the ECO programme to cost over £1.3bn and deliver lifetime carbon savings of 20mtCO2e**. In 2015, we committed £188m* towards ECO and installed more than 149,000 measures, such as solid and cavity wall insulation, district heating and boilers. These products will deliver lifetime carbon savings totalling 4.2mtCO2e** which equates to annual savings of 178,000tCO2e**^. Part of our focus through ECO in 2015 was community-based district heating in the social housing sector. We connected over 2,600 domestic properties to district heating schemes during the year, enabling them to benefit from a more efficient and low carbon heating supply.	170650	Scope 3	Mandatory	25360000	1200000000	4-10 years	>30 years	*2015 costs have been aligned with methodology for reporting to Ofgem which includes administration fees. **The carbon savings stated for ECO include the following components: Carbon Emissions Reduction Obligation (CERO), Carbon Saving Community Obligation (CSCO) and Home Heating Cost Reduction Obligation (HHCRO). HHCRO is typically reported to Ofgem in lifetime heating bill savings but has been converted into lifetime and annual carbon savings achieved to highlight the full extent of the emissions savings through ECO.

	In addition, we installed, operated and maintained two large biomass fuelled district heating schemes in 2015 which supplied heat to around 1,500 properties^. Since ECO's inauguration in 2013, the measures we have installed will generate lifetime carbon savings of 15.8mtCO2e**.								^Carbon savings from biomass delivered outside of ECO, have been reported separately under 'Biomass boilers - UK', and constituted 7,350tCO2e.
Low carbon energy installation	**Biomass boilers – UK** In 2011, we completed the full purchase of Econergy for £6.5m, to develop our capabilities in biomass heating. This investment built on our initial £1m stake secured in 2009. We installed 20 biomass boilers for residential, commercial and local authority buildings in 2015. These installations generated lifetime carbon savings of 225,000tCO2e, equating to annual savings of 7,350tCO2e. We are also a UK distributor of Froling biomass boilers and in 2015, we supplied 205 boilers and CHP units to our network of installer partners.	7350	Scope 3	Voluntary	0	7500000	4-10 years	21-30 years	Due to the reduction in UK gas prices during 2015 there was no cost saving through biomass boilers with the primary benefits around carbon saving and security of supply for customers.
Low carbon energy installation	**Solar products – UK** In 2015, we completed 697 installations of solar panels for commercial and domestic customers with a total installed generation capacity of 34MWp. This was a substantial increase compared to 2014 when we completed 280 installations of solar panels, collectively providing 7MWp of generation capacity. Annually, the solar panels we installed in the UK in 2015, saved 16,000tCO2e and an estimated £2.5m on customer energy bills. We invested £2.8m in 2008 to acquire Solar Technologies to build our solar offering in the UK.	16000	Scope 3	Voluntary	2500000	2800000	4-10 years	16-20 years	No further comments.

Low carbon energy installation	**Solar products – North America** Solar is an expanding market in North America and constitutes a growing focus for Direct Energy. Through solar, customers can benefit from greater choice around how they generate and consume energy, while lowering their environmental impact. Direct Energy added solar power to the range of products offered to our residential customers by acquiring Astrum Solar in 2014 for US$53m (£33m). In 2015, we installed more than 2,100 residential solar installations, resulting in over 18.3MWp of capacity which will save 14,480tCO2e and US$3.9m (£2.5m) per year Solar is also provided to our business customers through a US$125m (£78m) fund with SolarCity, of which Direct Energy contributed US$50m (£31m). In partnership with SolarCity during 2015 and based on our 40% equity share, Direct Energy financed and placed in commercial operation 3.7MWp of solar projects, which will generate annual carbon savings of 3,030tCO2e. We anticipate these installations will save our business customers US$129,344 (£84,000) per year on their energy bills. Combined, these installations collectively save 17,510tCO2e annually.	17510	Scope 3	Voluntary	2616872	64000000	4-10 years	21-30 years	No further comments.
Energy efficiency: Building services	**Centrica property – LED install** In pursuit of our internal carbon reduction target, we rolled-out energy efficient LED lighting across four of our sites during 2015 in the UK. The LEDs generate additional energy savings through advanced controls that enable the lights to automatically dim so that they maintain a set illumination level, as well as switch on and off via motion detection to avoid unnecessary usage.	110	Scope 2 (location-based)	Voluntary	23840	615882	> 25 years	21 – 30 years	The installations were delivered as part of an EPC contract, so costs involve risk mitigation.

	The installations will help save 110tCO2e and £23,840 in cost savings each year.								
Energy efficiency: Building services	**Centrica property – Building Management Systems (BMS) upgrade** To support the delivery of our internal carbon reduction target, we upgraded the BMS of five sites in the UK during 2015. The BMS improves our control of different building services which include being able to control the temperature and set carbon control points (energy consumption alarms). These controls will save 112tCO2e alongside £21,240 annually.	112	Scope 1, Scope 2 (location based)	Voluntary	21240	126218	4 – 10 years	16 – 20 years	The installations were delivered as part of an EPC contract, so costs involve risk mitigation.
Low carbon energy installation	**Centrica property – Biomass boilers & solar** To help achieve our internal carbon reduction target, we installed biomass boilers and solar PV arrays at offices across the UK during 2015. Four sites received biomass boilers to supplement their gas heating systems. The biomass boilers will generate savings of 158tCO2e and £31,959 per year. We also installed a solar PV array at one of our offices in 2015. The array will help us generate renewable energy and consequently, enable us to avoid 43tCO2e annually. The array will also secure annual cost savings totalling £9,388.	201	Scope 1 Scope 2 (location-based)	Voluntary	41347	402762	11-15 years	21 – 30 years	The installations were delivered as part of an EPC contract, so costs involve risk mitigation. Savings and payback include Feed in Tariff and Renewable Heat Incentive payments.
Transportation: fleet	**Fleet** With our fleet emissions forming the largest single component of our internal carbon footprint reduction target, we continued to implement our low carbon fleet roadmap in 2015. This resulted in	227	Scope 1	Voluntary	60000	5200000	<1 year	6-10 years	No further comments.

	reducing our scope 1 emissions by over 227tCO2e during the year. A key way we achieve emission reductions from our fleet is by replacing our commercial vehicles with increasingly efficient and smaller models, where possible. In total, we exchanged over 2,300 commercial vans in our UK fleet during 2015, mainly for more efficient versions. To inform our vehicle assessment and selection process, we continued to utilise data from the GPS installed in all our new vans and over 8,000 of our existing vans, which helps us calculate actual fuel consumption and identify where upgrades should be made. Another focus for reducing fleet emissions is through the growth of electric vans. In 2015, we maintained our leadership position in electric commercial fleets, with our British Gas fleet having over 100 electric powered NV200 vans. Our ambition is to have 258 electric vans in our fleet by 2017 and over 2,000 by 2025.								
Behavioral change	**Company cars and driving** We engage our employees in order to positively influence their behaviour and enable carbon savings that help us achieve our internal carbon footprint target. A key element of how we influence employee behaviour is through our company cars. We have shaped our company car policy to promote low carbon alternatives, both by choice editing and fiscal incentives. In 2015 for example, an additional 45 employees chose hybrid and electric vehicles (EV), bringing the total number of our employees driving low carbon cars to 220. To further encourage a growth in EV take-up, we have 46 EV charge points	7	Scope 1	Voluntary	0	632000	<1 year	Ongoing	No further comments.

	available across our properties, up from 38 charge points in 2014. As a result of our action, emissions from our company car fleet reduced by 2% in 2015 compared to 2014. Meanwhile, the average tailpipe emissions declined by 3% from 2014, to 107gCO2/km. Annual monetary savings are significant over the target period, but were negligible in 2015.								
Low carbon energy installation	**Nuclear plant life extensions** In 2009, we invested £2.3bn in a 20% stake in nuclear power producer, EDF Energy Nuclear Generation, to increase the amount of low carbon baseload power available to our customers. EDF Energy has announced an average of 8.3 years of plant life extensions for its Advanced Gas-cooled Reactor (AGR) fleet since 2009, avoiding a projected 94.8mtCO2e. Based on our 20% equity share, this equates to nearly 19mtCO2e. These emission savings are based on the DECC long run marginal emissions factor curve, which assumes new build generation plants will be a mix of CCGT and renewables alongside Carbon Capture and Storage(CCS), with an increasing proportion of low carbon generation over time. Our investment means that we do not have to purchase as much energy on the market, which has a higher carbon intensity than our own generation.	18962600	Scope 1 Scope 3	Voluntary	-	2300000000	4-10 years	6-10 years	Our recording of lifetime extensions has been aligned to measurement by our joint venture partners, EDF. This means that we capture the projected carbon savings from lifetime extensions agreed since 2009, using the forecast output and DECC's long run marginal emissions factor curve, which forecasts the carbon content of new build generation plant. Annual monetary savings have not been disclosed due to the commercial sensitivity of the data.
Process emissions reductions	**Nuclear plant reduction in fuel use** Having power stations that operate as efficiently as possible can not only save carbon emissions, but money too.	280	Scope 1	Voluntary	145000	0	< 1 year	6 – 10 years	The saving has been evaluated on a conservative basis by comparing to the previous best fuel oil

	In 2015, EDF Energy worked on reducing their fuel oil use at Heysham 1 by improving practices relating to how and when the auxiliary boilers were used, alongside changes to the gas turbine testing regime. The changes resulted in Heysham 1 achieving its lowest ever fuel oil use at just under 1m litres, down from 2.75m litres in 2014. This surpassed the lowest fuel oil use by EDF Energy prior to 2015, which occurred in 2011 when 1.4m litres of fuel oil was used. Comparing 2015 performance with2011, yields a reduction in fuel oil usage of 450k litres, £725,000 and 1,400tCO2e. Based on our equity share, this yields 90k litres, £145,000 and 280tCO2e.								usage year of 2011. Only the saving achieved in 2015 is included. Other stations in the nuclear fleet are reviewing the findings from Heysham 1 to explore how similar measures could be implemented to reduce their own fuel oil usage.
Energy efficiency: Processes	**Gas power station cooling water pump optimisation** As part of our commitment to reduce our operational footprint, we optimised the running of cooling water pumps at South Humber Power Station during periods when the station is not generating. A cooling water pump can be shut down when less cooling is needed, which results in saving electricity and associated generation emissions. The electric motors for the pumps are the largest drives on site. In phase 1 of the site (3 turbines), the pump is 1650kW whilst phase 2 (2 turbines) is 1200kW. Annual carbon and cost savings generated from this optimisation total 8,370tCO2e and £627,714.	8370	Scope 1	Voluntary	627714	0	< 1 year	Ongoing	This initiative required no capital investment, only management time.
Energy efficiency: Building services	**Power station LED lighting**	35	Scope 2 (locatio	Voluntary	4400	11000	4-10 years	6-10 Years	The cost to purchase LED lighting at Barry power station was

	To support our commitment to reduce our operational footprint, we installed energy efficient LED lighting across some of our power stations in 2015. We replaced old light fittings with LED units at both Barry power station and South Humber power station. These improvements to our power stations will save 35tCO2e and £4,400 annually.		n-based)						around £11,000 while costs for LED units at South Humber power station was £107,000. At the latter site, units were replaced at the end of their life and the full purchase price was claimed back through a Government-backed energy efficiency scheme. Consequently, we have only disclosed costs for LED lighting at Barry power station.
Low carbon energy installation	**Lincs Transmission Entry Capacity (TEC) increase** Wind farms provide an important source of renewable energy but in high wind conditions, turbines sometimes need to be curtailed in order not to exceed the TEC agreed with National Grid. In 2015, we increased the TEC of Lincs wind farm in the UK in order to reduce periods where the wind turbines are curtailed. As a result, Lincs will be able to increase its energy yield and save 892tCO2e each year driven by incremental electricity generation as a result of the TEC increase. Volume benefits are however partially offset by an associated increase in operating expenses, principally those relating to Transmission Network Use of System (TNUoS) costs.	892	Scope 1 Scope 3	Voluntary	30000	33750	4-10 years	16-20 years	No further comments.

CC3.3c: What methods do you use to drive investment in emissions reduction activities?

Method	Comment [maximum 2,400 characters]
Compliance with regulatory requirements/standards	**Mandatory schemes** We are required to comply with the Renewables Obligation, ECO, the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme, the Energy Savings Opportunity Scheme (ESOS) and the EU Emissions Trading System. We have used the platforms provided by the legislation to underpin the strategic shift in our UK businesses towards energy and energy services (not just energy supply) alongside energy efficiency in our own operations.
Other	**Internal carbon emission reduction targets** By setting and publishing carbon reduction targets that have gained executive support, investment into low carbon technologies has been stimulated and the business has focused on initiatives to meet these goals. In 2015 for example, to help reach our internal carbon footprint target, we invested in a number of technologies such as solar, biomass and LED lighting across our properties and are a UK leader in electric commercial fleet transport.
Other	**Corporate strategy** Our corporate strategy balances maintaining security of supply, providing affordable energy while delivering a lower carbon future. Core to our strategy for our customer-facing business is to enable our customers to control their energy in a simpler, smarter and more efficient way. This means the business model for our residential customers is evolving to provide both energy and low carbon products and services for the Connected Home, which give customers greater insights into their energy use. We are also giving large-scale energy users such as commercial business and hospitals, the ability to take control of their energy and use it more efficiently through our Distributed Energy and Power business (DE&P). DE&P does this by bringing together flexible and local generation with storage and renewable technologies alongside energy efficient and building management systems.
Dedicated budget for energy efficiency	**Dedicated budgets for low carbon technologies** British Gas Energy Efficiency (BGEE) is a dedicated area of British Gas responsible for fulfilling two key mandatory obligations placed on all major UK energy suppliers - that of upgrading our customers to smart meters and delivering energy efficiency improvements under ECO, both of which help reduce our scope 3 customer carbon emissions. Our budget enables us to deliver energy efficiency obligations on time and in the most cost-effective way in order to minimise the cost per tonne of carbon saved. This has helped us complete the first phase of ECO (January 2013 - March 2015) and continue towards the second phase (April 2015 – March 2017), having delivered lifetime savings that will total 15.8mtCO2e (including carbon equivalent for HHCRO component) alongside energy bill savings for vulnerable and low income households which amounts to £1.8bn. British Gas also has a remit to operate outside of these obligations, providing energy efficiency related products and services primarily within the social housing sector. We have additionally invested over £10.8m to expand opportunities in microgeneration through the acquisition of leading companies. This includes Solar Technologies in 2008 for solar, Econergy in 2011 for biomass and renewable heat as well as Cool Planet Technologies in 2010 for heat pumps. In 2015, we also had a £5.3m dedicated budget for deploying energy efficiency and low carbon technology across our UK property portfolio. This was used to deliver on our internal carbon footprint target which committed us to achieve a 25% reduction by 2015 from a 2007 base year.

Dedicated budget for low carbon product R&D	**Dedicated budgets for low carbon product R&D** In 2015, we created a new global Connected Home business in which we will invest £500m over the next five years. This investment will enable us to continue our development of innovative products and services that connect customers with their entire homes and help them better manage their energy. Our Connected Home brand, Hive, was created in 2013 and has a dedicated R&D budget which delivered its first product, Hive Active Heating, to help customers control their heating and hot water remotely. This means customers can reduce wasted energy if, for instance, they leave their heating on when they are away from home. Throughout 2016, Hive will bring to market a range of new products that put customers in charge of their entire homes with just a few taps on the app, such as smart plugs and lights. Smart meter customers can also benefit from 'my energy' in the UK and 'Direct Your Energy' in North America, which provide an interactive online tool that enables greater insights into energy use by breaking it down into appliance categories and patterns of consumption while providing tips to target where energy savings can be made. We have R&D budgets to source, test and bring new microgeneration products to market for residential and business customers. The microgeneration technology team also work with a wide range of internal and external stakeholders, including supporting projects with multiple external partners through Innovate UK and EU projects in Horizon 2020, helping to influence EU as well as UK future direction on low carbon and renewable technology.
Employee engagement	**Engaging employees** We have used a variety of methods that empower our people to embody more sustainable behaviours, which not only help our business reduce its environmental impact but enable us to meet our internal carbon footprint targets. For example, to drive down emissions from travel, we trained over 13,000 drivers in efficient driving techniques, used financial incentives to encourage 220 employees to drive less polluting company cars like hybrids or EVs and made driving EVs more convenient and affordable by providing charging stations at 46 of our sites. Our network of Green Teams also coordinated activities and events across our sites to celebrate World Environment Day, enabling us to highlight key environmental messages and encourage sustainable behaviours.
Other	**Training and skills** We are investing in the skills of our people and new recruits to satisfy the changing needs of our customers and support the transition to a lower carbon society. Training our apprentices and engineers is key to enabling the delivery of products and services that can help reduce energy use. Over the past five years, we have invested £30,000 in each of our apprentices which included training on the installation of solar panels and smart meters. With smart meters for example, we see an immediate link between delivering high quality apprenticeship training and securing the timely roll-out of 53m smart meters required across homes and business by 2020. We believe that quality installations will provide a positive customer experience that will be crucial in driving customer engagement with smart meters in order to help them reduce carbon emissions and energy bills. To deliver the mandatory roll-out effectively, we have led the development of the Dual Fuel Smart Meter Installer Trailblazer Apprenticeship and in 2015, we recruited more than 960 smart meter apprentices and had over 1,750 smart energy engineers in the field. Engineers also receive ongoing training that gives them the skills necessary to make homes more energy efficient and share advice with customers that can empower them to take greater control over their energy consumption.

	We are also a founding partner of Movement to Work which aims to support young people not in education, employment or training (NEETs) into work. Since the programme started in 2014, we have trained 438 NEETs of which 274 were trained in 2015, with nearly half subsequently moving into full-time employment or further training. In addition to work placements, the training included a bespoke course in sustainability delivered through our partnership with Global Action Plan. Over the next two years, Centrica has committed a further 600 training placements for NEETs.
Other	**Ignite** We are investing in innovative energy entrepreneurs through Ignite, the UK's first corporate impact investment fund focused on energy and backed by Centrica. Ignite is investing £10m over 10 years and uses the expertise of our people to grow the impact of social enterprises across every point of the energy chain to help tackle big issues in society, such as climate change and fuel poverty. By the end of 2015, Ignite had committed £8m to 12 social enterprises which has benefitted over 26,000 people. Our investments include securing renewable solar generation for low income communities, enabling low carbon electric vehicle transport and growing the green skills of NEETs. In addition to generating positive impacts in society, Ignite also creates commercial benefits for our business. We are building the entrepreneurial skills of our people, opening new dialogues with potential business partners and customers as well as securing a pipeline of low carbon projects for the future. Profits from Ignite's investments are reinvested to grow the impact of even more social enterprises.

Communications

CC4. Communications

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 [maximum 2,400 characters]
In mainstream reports but have not used the CDSB Framework	Complete	Annual Report 2015: Chairman's Statement (p2-4), Chief Executive's Statement (p5-9), Our Focus for Long Term Growth (p14-19), How We Do Business (p22-27), Business Reviews (p28-33), Principal Risks and Uncertainties (p38-43).	[TO UPLOAD]	The Annual Report is online and downloadable.
In voluntary communications	Complete	Corporate Responsibility (CR) Performance Update 2015 – Entire document including: Chief Executive's introduction (p1), Strengthening Relationships (p2), Supporting changing customer needs (p3), Securing energy to fuel society (p4), Reducing our carbon emissions (p5), Non-financial key performance measures (p.6-8).	[TO UPLOAD]	The CR Performance Update communicates Centrica's annual strategic progress on material issues. The Update forms part of a wider reporting suite which includes the data centre, case studies and blogs alongside the Responsibility section of our website. The document is online and downloadable.
In voluntary communications	Complete	2015 CR reporting data – Environment Tab.	[TO UPLOAD]	There are 150 environmental data points reported annually in our online data centre, which includes a breakdown of our GHG emissions. Disclosure

				demonstrates our robust approach to managing our environmental impacts and our transparency in reporting. The data centre is online and has download functionality.
In voluntary communications	Complete	CR Communications – Entire document.	[TO UPLOAD]	The document contains a series of blogs, case studies, speeches and press releases on climate change related issues spanning GHG emissions, energy efficiency, renewable generation, low carbon products and community engagement. These stories form a core part of our ongoing CR reporting, which are also distributed on social media channels to encourage engagement and share progress on environmental issues.
In voluntary communications	Complete	Our Business Principles – Entire document.	[TO UPLOAD]	Centrica's guide to sound business practice explains the standards we expect from our people and how to put our principles into practice. One of the key commitments is to 'protect the environment'. The document is online and available for download.

Risks & Opportunities

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 driven by changes in regulations

Risk driver	**Description** [maximum 2,200 characters]	**Potential impact**	**Timefr ame**	**Direct/ Indirec t**	**Likelihoo d**	**Magnitu de of impact**	**Estimated financial implications**	**Management methods**	**Cost of manageme nt**
Uncertainty surrounding new regulation	**Lack of clarity from Government on decarbonisation policies** In summer 2015, Government restricted the subsidies available to new renewable electricity projects amid concerns about affordability for consumers. Industry suffered a period of uncertainty because existing subsidy schemes were closed down but Government provided little clarity on what support – if any – would be available to low carbon electricity in future. This uncertainty impacts	Other: Increased capital cost and/or reduction in capital availability	>6 years	Direct	About as likely as not	Medium	Government has indicated that up to £730m will be made available to Less Established low carbon CfD technologies in the current Parliament, subject to industry	We continue to engage with Government and regulators to support a stable investment climate and encourage the provision of long-term investment signals where possible. This messaging is conveyed in consultation responses and industry meetings.	The costs are built into annual operational budgets.

	investment in both conventional and low carbon sources of generation, as renewable deployment and carbon tax rates affect electricity market prices and therefore decisions on new investments and existing asset life extensions. The March 2016 Budget went some way to addressing this uncertainty, clarifying the intended level of UK carbon tax to 2020/21 and indicating high level plans for allocating low carbon contracts for difference (CfDs) in the next few years. We expect further information to be published in the Autumn Statement. The Government's longer term decarbonisation policies are unclear, which makes investment decisions more challenging. For example, we do not know whether Government intends to decarbonise primarily through carbon taxes or whether it intends to rely predominantly on direct subsidies for renewables in the 2020-2030 period.						achieving significant cost reductions. This gives an indication of the level of renewable deployment we might expect in the early 2020s, although a clearer long term trajectory on carbon tax rates would be helpful – we expect this to be published in the Autumn Statement.		
Uncertainty surrounding new regulation	**Uncertainty surrounding new regulation - microgeneration & Energy Company Obligation (ECO)** The subsidy regime for microgeneration technologies has been changed since August 2015. For solar, Feed-in Tariffs (FIT) have been substantially reduced along with withdrawal of solar from accessing Renewable Obligation Certificates (ROC). The impact of these changes is expected to significantly reduce future deployment levels of solar PV. Solar has also been excluded from future CfD funding rounds. The EU minimum import pricing cap for Chinese PV modules has been extended and will be in place until early 2017.	Other: Reduced return on investment	1 to 3 years	Direct	About as likely as not	High	Our UK heat networks and solar businesses had annual revenues of £22m and £33m respectively in 2015; changes to Government incentives could impact these revenues. In 2015, we committed £188m towards ECO.	We manage our in-house heat networks and solar businesses carefully with a balanced mix of recruitment and subcontracting to ensure that as we grow, we have flexibility to respond to any changes in demand. We use a number of delivery channels to mitigate ECO costs. For example in 2015, these included our	Our fixed costs for managing and delivering our heat networks and solar businesses are approximately £5.9m and £2.3m per annum respectively.

	UK subsidies for low carbon heating technologies are primarily channelled through the Renewable Heat Incentive (RHI). The Government has proposed a number of reforms to the RHI which are due to come in from April 2017, subject to consultation. If the changes are implemented as proposed we expect a significant contraction in the biomass market due to reductions in the level of subsidy available. The current ECO scheme is due to run until the end of March 2017. The UK Government has indicated that it will be extended by one year until 2018, followed by a four year, fuel poverty focused obligation running to 2022. Public consultation into the nature of the extension has been delayed from March to July 2016, meaning that the specifics of the new scheme will not be confirmed until late 2016 or early 2017. As we usually plan ECO delivery 1-2 years in advance, the uncertainty caused by the delayed consultation could lead to a slowing of delivery or even a hiatus around Winter 2016. Consumer uptake for Green Deal (GD) finance was much lower than hoped by Government and the single provider of Green Deal Loan Funding (GDFC) was closed to new loans in 2015. This highlights the potential risk to investment in projects that may be cancelled or changed.						We invested £25m in Green Deal before the GDFC closed to new business in 2015, some of which may be lost, although the GDFC is still viable.	internal insulation business, third-party contracts and contracts with local authorities.	

Uncertainty surrounding new regulation	**Uncertainty surrounding new regulation - smart meters** UK Government statements on smart meters have reaffirmed support for roll-out as standard by 2020 and their commitment that once installed, other than in exceptional circumstances, smart meters can only be replaced by equivalent or updated models. This provides confidence for smart meter installations going forward. In the US, smart meters are deployed and owned by regulated utilities and not by Direct Energy. This reliance on third parties can cause uncertainties around the timeliness, accuracy and consistency of data. Delays in data provided to customers on time-of-use (TOU) plans can make it difficult for them to precisely track their usage and savings. Having greater access to near real-time data would provide the ability to offer enhanced products but currently this is dependent on the utility. In other jurisdictions, uncertainty as to deployment timelines may limit commercial opportunities as well as regulatory barriers related to data access and customer billing relationship.	Other: Reduced return on investment	1 to 3 years	Direct	Unlikely	High	As the UK leader on smart meters, we have invested hundreds of millions of pounds installing smart meters.	In the UK, the smart business case is subject to a detailed review in line with our financial planning process and significant scale decisions are subject to internal due diligence processes managed by Finance and the Smart Leadership team and a twice annual review by the Centrica Executive Committee (CEC). Direct Energy has committed resources to pursue the delivery of timely and accurate interval data to support TOU products. This has resulted in the decision by the network operator, ERCOT, to begin reporting on advanced metering system (AMS) data performance, a big step forward in AMS data transparency. In addition a project has commenced to consider transferring ownership and operation of the web portal and data repository from the utilities to the grid operator, providing more transparency in governance and operations, as well as	Direct Energy has annual staff costs of at least £125k committed to managing smart meter risks, including issues related to accuracy and timeliness of data.

								providing additional forms and more timely access to15-minute interval data used for settlement purposes.	
Uncertainty surrounding new regulation	**Changes to regulation promoting distributed energy** The changing make-up of the UK energy mix, moving from traditional centralised power stations to the inclusion of solar and wind, demands an increased proportion of more flexible generation and management of energy to cope with the intermittency of renewables and maintain electricity security. The continuing trend for growth in UK distributed generation has meant that there is an increased scrutiny of charging arrangements. Regulatory changes following reviews have the potential to disrupt the economics for flexible power projects and stymie investment.	Other: Reduced return on investment	1 to 3 years	Direct	Unlikely	High	We are looking to invest £700m in Distributed Energy & Power (DE&P) over the next five years.	Centrica is supportive of a policy environment that continues to encourage the development of a 'smart power' system which will give large scale energy users, such as businesses and hospitals, the ability to take control of their energy and use it more intelligently to reduce, generate and manage it themselves. Our DE&P business, which we created in 2015, brings together flexible, local generation with storage and renewable technologies alongside energy efficiency measures and smart building management systems. In 2015, we continued to work with the regulators and Government to support a regulatory regime that is fair and encourages innovation.	Management costs are incorporated within annual operational budgets.

Fuel/energy taxes and regulations	**Energy Company Obligation** In the UK there is a risk that we fail to meet our legal obligations under ECO, which requires energy suppliers to improve the insulation of harder-to-treat properties in the domestic sector and to invest resources in reducing heating costs for vulnerable households. In addition to the risk of enforcement action, there is also the reputational damage of not meeting our target as well as the risk that forecasted costs for delivery are exceeded. Unexpected changes to ECO could have the effect of increasing bills for our customers. We are on track to deliver our ECO obligation by the end of 2016, three months ahead of the deadline of March 2017. This contingency reduces the risk of missing the overall target.	Increased operational cost	Up to 1 year	Direct	Unlikely	Low-Medium	If we were unable to deliver ECO within the estimated costs there is the risk that the additional cost would increase bills for our customers, making us less competitive. Failure to comply with ECO requirements could risk enforcement action which can lead to fines designed to compensate for consumer detriment. For example in 2014, British Gas agreed to pay £11.1m to help vulnerable customers following failure to deliver the Carbon Emissions Reductions Target (CERT) and Community Energy Saving Programme (CESP), by the 2012 deadline. We completed the shortfall in	We have entered a number of contracts with third parties to deliver ECO and installed more than 149,000 measures in 2015. We work closely with the heating and insulation industry and Government to develop capacity, new technologies and best practice to increase cost effectiveness of delivery. In July 2015, after a wide-ranging strategic review, Centrica announced a Group-wide efficiency programme in order to be competitive in a fast-changing energy market. As part of the ongoing implementation of that strategy, British Gas is proposing to make a reduction of roles including the closure of our loft and cavity wall insulation business. The closure of our insulation business does not undermine our ability to deliver ECO cost effectively and our focus for managing our ECO target now includes accessing energy efficiency measures from our own installer	In 2015, we committed £188m towards ECO.

							2013, benefiting vulnerable customers with an additional £110m savings on energy bills.	base, local authority schemes, the Government brokerage market and third party contracts.	
Cap and trade schemes	**EU Emissions Trading Scheme** There is a risk that we fail to meet the requirements of the EU Emissions Trading Scheme (EU ETS), either through failing to secure proper verification of our emissions, or surrendering insufficient emission allowances to match the verified levels.	Increased operational cost	Up to 1 year	Direct	Very unlikely	High	There are financial penalties associated with non-compliance with the EU ETS - these are triggered if insufficient allowances are retired in any one year for compliance purposes. For Centrica's assets, we have processes in place to ensure our compliance. However, if for any reason we were not compliant, this could result in a fine of up to €140m (£113m).	We manage this risk by ensuring a close match between our forecasted levels of emissions under the system and our holding of valid emissions allowances throughout any year, including in 2015. A large portion of our emissions come from our power stations covered by the system: forecast levels of emissions are determined by expected running patterns, which are in turn dependent on plant availability and relative fuel prices. In 2015, as in other years, we secured the necessary carbon allowances to meet any individual power volume sale at the same time as power was sold, to mitigate any risk on exposure to carbon markets. We also have firm procedures for ensuring relevant actions are undertaken in a timely manner to	Management costs are dependent on the level of activity in any given year – due to the decreasing price of wholesale power this is falling. We estimate the total employee and external costs for carbon-related management including EU ETS and carbon pricing - e.g. UK Carbon Price Floor and carbon analysis - to be in the region of £250k per year.

								meet verification and retirement deadlines.	
Carbon taxes	**Carbon pricing** The pricing of CO2 emissions has a direct impact on the economics of our power stations and the cost of electricity that we purchase from other generators. Due to the competitive nature of wholesale power markets, the price of power includes the full opportunity cost of CO2, irrespective of whether the allowances needed to offset emissions were purchased or given as free allowances. We stopped receiving free allowances in April 2013 and we now buy all the allowances for our power stations on the market. The outlook for the cost of carbon - Carbon Floor Price (CPF) and EU ETS - is uncertain as the European Union is currently considering the regulation for the new phase of the EU ETS from 2021, and the UK Treasury has frozen the CPF at £18 per tonne until 2020/21. A risk for the future is what the cost of CO2 will be and the impact this has on the relative economics of different forms of generation and across Europe (most European countries do not have a CPF in place and therefore are able to benefit from energy exports to GB across the interconnectors). Changes to carbon prices can also lead to changes in asset values and our hedged positions. Our capacity to borrow money may change as lenders consider carbon risk in their lending decisions.	Increased operational cost	3-6 years	Direct	More likely than not	Medium	There is no set financial risk that can be calculated surrounding the profitability of our power stations in relation to carbon pricing. This is because we can only forecast the potential cost of regulatory uncertainty around the carbon price regime at the time we set the price of power.	To mitigate the risks around pricing of carbon emissions, we produce our own forecasts of future carbon prices, with strong emphasis on credible high and low scenarios, as well as a 'central' view. We factor the economic costs of carbon into generation dispatch decisions and recover the costs through energy sales arrangements. The exposure of our supply business to carbon prices via electricity prices is recognised and treated as another 'commodity exposure' that needs to be hedged within our commodity risk management procedures.	Management costs are dependent on the level of activity in any given year. We estimate the total employee and external costs for carbon-related management including EU ETS and carbon pricing - e.g. UK Carbon Price Floor and carbon analysis - to be in the region of £250k per year.
Emission reporting obligations	**Canadian emission reporting obligations for Exploration & Prodcution (E&P) oil and gas assets**	Other: Increased regulatory reporting burden or	Up to 1 year	Direct	Unlikely	Low	In 2015, carbon CAD$153k (£79k) was required to purchase	To help mitigate risks, emission reporting and compliance requirements are met through a regular	Upstream emission reporting obligations are

	In Canada, Centrica reports Criteria Air Contaminants (CAC's) at the federal level as part of the National Pollutant Release Inventory (NPRI), an emission threshold based programme. No carbon offset credits are required for compliance at the federal level and the key principle of the NPRI is the public's 'right to know' what substances are being released into the environment. There are two provincial regulations that relate to CO2 equivalent emissions for our Canada E&P oil and gas assets: Specified Gas Emitters Regulation (SGER) and the Specified Gas Reporting Regulation (SGRR). Provincial offset credits must be purchased for large emitters to offset emissions that did not meet provincial reduction targets. Offset credits are purchased from the provincial government or other sectors that have voluntarily reduced their emissions in Alberta. Centrica must purchase off sets annually and due to new legislation, carbon pricing is increasing.	regulatory enforcement action					carbon credits for carbon compliance purposes. Failure to comply may result in a fine of not more than CAD$500k (£258k) in the case of a corporation.	review of all applicable government regulations. We actively liaise with local government bodies to potentially forecast regulatory change. A third party verification process has been built into the GHG reduction programme to provide a reasonable level of assurance. Verification is used to test the validity of past data. The independent verifier may provide observations on areas for improvement.	managed by one full time employee with estimated staff costs of around CAD$115k (£59k).
Renewable energy regulation	**Reduced forecasting accuracy due to embedded renewable generation** UK Government climate change obligations have resulted in incentives for installed embedded generation, leading to a significant expansion of decentralised generation. The primary technology is solar panels and by the end of 2015, 9GW of capacity had been installed in total in the UK, almost doubling capacity in one year. New technologies are driving changes in customer behaviour, which without mitigation would increase costs related to	Increased operational cost	Up to 1 year	Direct	Likely	Low-medium	Forecasting inaccuracy is extremely important, with cost of error ranging from £6m-£20m a year. The electricity balancing Significant Code Review implemented in November 2015, increased the incentives	In recent years, we have developed a tool to forecast solar generation and the impact on demand. This has enabled us to mitigate around £1m of the risk per year. We continue to refine the tool as the installation profile of solar changes across the UK. However, other technologies such as wind and de-centralised generation	We have invested around £40k per year to develop, implement and maintain models to accurately forecast the impacts of solar generation.

	the reduced accuracy of demand forecasting. Therefore investment in new modelling and data sources is required. Embedded generation volumes are not metered so rather than seeing the generation, we see lower demand. This 'pollution' of demand has made it more difficult to forecast accurately. Future factors linked to climate change obligations and reduction in demand forecasting accuracy are smarter settlement, time-of-use pricing, and other forms of decentralised microgeneration (e.g. wind, CHP, fuel cells).						for counterparties to balance positions and therefore increases the potential cost of forecasting inaccuracy. The phased implementation of the changes to Price Average Reference (PAR), mean a further increase in cost is expected in November 2018.	are likely to follow a similar trajectory and require ongoing investment to mitigate these risks.	
General environmental regulations	**Change in environmental regulation** Due to the continual change and update of environment and climate change legislation, there is a risk of failure to identify, comply with, or meeting the reporting obligations of environmental regulations, which often include elements relating to carbon emissions. New regulation may require changes to plant operations across our E&P, Power and Storage businesses (e.g. air pollution impacts) with resulting financial implications.	Increased operational cost	1 to 3 years	Direct	Unlikely	Low	The financial risk is dependent on the nature of non-compliance, but prosecution for a legislative breach could lead to a fine as determined to be appropriate by the relevant regulator. Other breaches could lead to operational restrictions being imposed, which could impact upon	All of our Business Units have processes in place for identification, assessment and management of new and changing legislation as an ISO14001 requirement. New and amended legislation is screened for its relevance to the business, our current compliance status is assessed and any required action to comply is undertaken.	There is a resource implication associated with the time taken to keep abreast of legislative changes, assess the business impact and ensure compliance and reporting requirements are met.

							business profitability.		

CC5.1b: Please describe your inherent risks that are driven by change in physical climate parameters

Risk driver	Description [maximum 2,200 characters]	Potential impact	Timeframe	Direct / Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management methods	Cost of management
Other physical climate drivers	**Severe weather events** The main physical threats from climate change to our assets and operations are from the increased intensity and frequency of severe weather events and other changes to weather patterns. We believe that there is a connection between climate change and the intensity of severe weather events - such as prolonged and heavy rainfall in the UK and greater intensity of hurricanes in America. If severe weather events continue to increase in frequency and intensity, our business could be at risk from higher insurance premiums. In addition, there are equity and commodity risks if supply of electricity is interrupted. **E&P, Gas-fired Power Fleet and Gas Storage** Structural damage to onshore or offshore infrastructure could cause a major accident, injury or loss of primary containment, as well as financial loss due to physical damage to assets. It could also lead to cessation of business operations. For example, flooding in 2008 disrupted output at our Brigg power station for a short duration. Coastal flooding is also a risk for all of our coastal-based assets, such as our	Reduction/disruption in production capacity	Up to 1 year	Direct	Unlikely	Low-medium	Weather-related risks such as flooding can have a significant financial impact on our power stations, especially in the event of a prolonged shutdown. The actual figure would depend on which facility was affected, whether nuclear or gas-fired and the condition of the market at the time the power station was switched off. For instance, a shutdown of a nuclear power station due to a severe weather event would cost approximately £1m per day (£200K by	When designing and constructing power stations, we always take into account flood risk. This risk continues to be managed across our power stations. We use tools provided by the Environment Agency (EA) (such as flood risk maps), our meteorology teams and business continuity arrangements to identify assets at a higher risk of flooding in extreme circumstances and regularly undertake risk assessments. For nuclear plants, safety case reviews are undertaken regularly as part of normal business both internally and by the Office for Nuclear Regulation, and through the life extension programme. These look to improve the resilience of nuclear power plants to severe weather events,	Management costs for flood and severe weather risk were incorporated into initial build costs and ongoing risk management budgets for our gas-fired power stations. Around £13m (~£2.6m based on our 20% equity share) was invested before the end of 2014 to improve nuclear power flood

	Morecambe and Easington processing facilities and our Humber power station. **Wind** In July 2015 Centrica announced its decision to divest their wind farms by the end of 2017. We sold the Glens, Lynn and Inner Dowsing wind farms early in 2016, however we will continue to operate them until March 2017. Until the sale of our final asset, Lincs, physical risks to our wind farms include patterns of high pressure during hot spells, excessively cold periods and still days reducing wind speeds and periods where wind speeds reach in excess of 25m/s affecting output as the machines automatically shutdown to protect the turbines. **Nuclear** During December 2013 storms in the UK, the grid connection was lost at the Dungeness nuclear power station, of which we own a 20% stake along with our JV partners and operators EDF, when debris caused a fault in the switch yard. Following the 2011 events at Fukushima, UK assessments concluded that the sea defences of our nuclear power plants needed to withstand a one in 10,000 year event.						Centrica's equity share).	including factoring in any changes to the likelihood of severe weather events occurring. During 2013, the Dungeness B plant was taken offline for two months as a precaution to ensure its flood defences could protect the station from adverse weather. Improvement measures included fleet-wide flooding analysis, a perimeter flood barrier and flood defence strengthening. The upgrade of defences was designed to protect from a one in 1,000-year weather event to one that occurs every 10,000 years. Flood risk assessment is undertaken for the Easington gas terminal and an adverse weather preparedness plan is in place to manage emergency situations. An adverse weather policy for offshore operations indicates the controls to be implemented in response to specific weather parameters such as high winds.	defence resilience.
Other physical climate drivers	**Risks to gas-fired power generation fleet** The main risk drivers for our gas-fired power generation fleet include unpredictable and adverse weather conditions, rising sea levels drought and flooding.	Other: Reduction in production capacity/ Increased	>6 years	Direct	Exceptionally unlikely	Low	Higher temperatures can reduce both efficiency and output from power stations. From the	We have worked with DECC on sector resilience plans to mitigate and manage the impact of physical risks and with Energy UK in producing its sector response to	Management actions and costs are incorporated within annual

	Increasingly unpredictable and adverse weather conditions such as warmer summers may increase pressure on gas supplies while at the same time affecting the efficiency of our power facilities. The loss of efficiency due to higher ambient temperatures is slightly more prevalent in air-cooled condensed plants, of which we have two in active service (Barry and Langage). Very low temperatures can also reduce efficiency if we have to deploy anti-icing systems on gas-fired stations. Flooding of sites or access routes has been identified as potential risks from climate change to our gas-fired power stations. Over the expected life of the assets, the risk remains low. Our gas-fired power stations are at risk from drought as they require a reliable source of water for use in their boilers. There is also a risk from tightening regulation and lowering of abstraction licence allowances. However, after assessment in 2011, we concluded that the risks from drought or water shortages as a consequence of climate change and sea level rise was also low during the expected life of the stations. Any new assets that we invest in will take account of the physical climate risks which could affect their design.	operational cost					baseline data used in a 2010 Energy UK paper assuming a uniform air temperature of 32°C across the UK, the Centrica gas-fired fleet would experience a drop of between 5-10% in maximum output. In a worst case scenario of flooding, sites have to be shut down until flood water has receded. In the event of water scarcity and drought affecting our power stations, it may mean an impact of several million pounds. However, the risk of either scenarios is low.	DEFRA's report on adaptation. An update to this report commenced in 2014 at a trade association level and the completed report was completed and submitted to DEFRA in August 2015. We address flood risk issues as part of our business-as-usual plans for our power stations, including in the aspects and impacts registers. All UK power stations have reviewed their water usage and taken action to reduce the consumption of water.	operational budgets.
Other physical climate drivers	**Supporting vulnerable customers** We currently focus our resources for vulnerable customers on supporting them through cold winters in the UK, which could be more severe due to climate change. Our most vulnerable population are registered on an industry Priority Services Register. This Register ensures vulnerable customers	Increased operational cost	>6 years	Indirect (Client)	Unknown	Low-medium	We have spent over £1bn supporting vulnerable people in the last 3 years.	By supporting vulnerable customers through improvements in energy efficiency and other assistance, we can help make them more resilient to colder winters. In 2015, we helped over 1.9m vulnerable UK households	In 2015, we contributed more than £220m supporting vulnerable people.

	receive priority attention for reconnection or resumed supply in the event of a power outage and other services including an annual free gas safety check in some cases. Our own internal policies also ensure that vulnerable customers are provided with appropriate products, services and support which enhance access to energy. We also invest in the British Gas Energy Trust, an independent charity, which provides vulnerable customers with energy advice and grants. We never knowingly disconnect vulnerable customers for non-payment.							through free debt and payment assistance; free energy efficiency advice; products and services; energy rebates as well as energy and household grants. The energy efficiency measures we installed in 2015 as part of the affordable warmth component within ECO will cut heating costs by more than £400m for vulnerable customers. We also have a 5-year partnership with Shelter to help 1m households in the rented sector improve the standard of their homes by 2017. Since 2004, we have invested £85m through mandatory and voluntary contributions to the British Gas Energy Trust. This has helped over 175,000 people with debt advice and grants for energy and household bills. In 2015, we contributed £11.5m to support around 24,500 people and awarded more than 16,000 grants.	
Other physical climate drivers	**Maintaining business continuity through snow, ice and extreme weather** Changing patterns of snowfall are a risk to our British Gas business. Extremes of cold weather increase the number of engineer call-outs through contracts managed by British Gas Insurance Limited (BGIL) and place additional pressure and safety risks on our workforce.	Increased operational cost	Up to 1 year	Direct	Unlikely	Low	Weather conditions can affect the number and cost of engineer call-outs and there are financial impacts if our employees are unable to make it to their	British Gas has a Winter Contingency Plan to prepare for peak periods, where our businesses work together to ensure sufficient resources are available to cope with periods of high customer demand. BGIL manages call-out risks by conducting	We have dedicated members of staff managing business continuity including challenges around

	2015 was an unpredictable year in terms of extreme weather, reinforcing the importance of pro-active mitigation to support our customers and maintain critical business processes during disruption. During the sustained period of cold weather in winter 2012/13, British Gas completed record levels of breakdown visits, 11% higher than the winter period of 2011/12. This compares to the winter quarter for 2011, which was the warmest last quarter on record and the number of engineer visits decreased correspondingly. In a more recent example, for a period of a week in December 2015, up to 40 Smart Energy Experts worked alongside the Network operator and other suppliers in Carlisle to check the safety of around 5000 properties and restore power.						places of work. To give an indication of the potential scale, using an example other than snow or ice, one office was closed for four days due to a fire in an adjacent building. This led to costs of around £150k for the back-up site and other impacts on business operations.	annual or biennial safety and maintenance inspection visits and caps on certain work in high risk areas. We have proactive employee plans to raise awareness of severe weather and encourage preparedness allowing employees to work from home, where possible. The majority of our power station sites hire 4x4 vehicles to support employees getting to work during adverse weather. In the 2013/14 winter period, extensive flooding led to pro-active monitoring and risk management for a number of sites with one site being closed for a week. This meant our business continuity plans were put into operation, which included working from home and at alternative sites.	snow, ice and extreme weather, with associated staff costs of around £60k. Other teams such as Facilities and Security provide additional assistance which includes site monitoring.
Change in temperature extremes	**Reduced accuracy of demand forecasting** Physical changes related to climate change could reduce the accuracy with which we are able to forecast demand. Electricity cannot easily be stored and in the UK, the National Grid matches generation with customer demand for each second of every day. Being able to forecast customer demand accurately is key to making the most efficient decisions. Any mismatch between customer demand and what we have bought is subject to a cost. If electricity suppliers do	Increased operational cost	Up to 1 year	Direct	Unlikely	Mediu m-high	During an extreme cold spell our peak load could increase by up to 10% (or up to 5% during a heatwave). We estimate that the potential cost of imbalance can exceed £500k per day, dependent upon	We have engaged with the Met Office to ensure that the seasonal and diurnal changes that can be expected as a result of climate change are reflected in the 'seasonal normal' temperatures used in the long-term demand forecasting process. We take regular advice from our meteorologist on weather impacts and use	The majority of our actions to mitigate the reduced accuracy with which we are able to forecast demand due to climate change are part of

	not buy enough electricity to meet our customers' needs in advance, an extra cost may be incurred based upon the last minute and short balancing actions made by National Grid. Extreme weather can impact customer demand, making it less predictable and variable and thus increasing the mismatch between generation, demand and costs. While 2015 was relatively benign in the UK, in 2013 there were two significant weather events that had a material impact on costs: a spell of severe winter weather in March and April and the St Jude Day Storm in October. The extreme weather during those periods caused significant variance between actual and forecast consumption, the cost of which exceeded £600,000. These events are expected to become more frequent. In October 2015, the Met Office began naming storms, with 11 named storms affecting the UK between November 15 and March 16. None of the storms were as devastating as those experienced in 2013, however, five had a significant impact on costs, with the average cost of days affected by the storms being more than double the average daily cost throughout Winter 15/16. In North America, extreme low temperatures were experienced in the first part of 2014 due to the polar vortex, which caused additional variability between forecast and actual demand. This led to additional network system charges estimated at approximately US$110m (£65m) while margin pressures occurred across most of our energy supply markets. Overall operating profit in Direct Energy fell by 46% compared to 2013. In 2015, overall gas and electricity volumes delivered to Direct Energy customers were slightly down compared to 2014 due to a warm December in 2015 but this did not						underlying accuracy and prevailing market conditions. In the UK, during 2013 there were two weather events that had a material impact on costs: Severe winter weather in March and April and the St Jude Day Storm. Together these came to over £600,000. Although not as devastating as 2013, the five most significant named storms of Winter 15/16 added costs of c£200k. In North America, the extreme low temperatures experienced in the first part of 2014 caused by the polar vortex, led to additional network system charges estimated at approximately US$110m (£65m).	real time system margin information to optimise our forecast. We also factor in outage reports from network operators in our daily review of our forecast. We are currently in the process of developing our forecasting capabilities to enable more frequent forecasting of demand. We are working towards being able to use weather forecasts refreshed hourly to provide the most up to date demand forecast possible. Previously, we only used four weather updates each day.	business-as-usual risk mitigation, which is estimated to cost in excess of £100k per annum.

	impact demand forecasting to the same extent as during the first part of 2014.								
Change in temperature extremes	**Increased frequency of extreme weather patterns** Extreme weather events are likely to become more prevalent due to climate change and can have substantial positive or negative impacts on our energy supply and retail businesses. They can also affect our commodity costs. The Group's profitability is partly dependent upon our ability to manage our exposure to unseasonably warm or cold weather and to stabilise the impact of such fluctuations through effective risk mitigation strategies. Revenues can be negatively affected if we are unable to mitigate fluctuations in pricing and demand due to volatility in weather patterns. During 2014, we experienced extreme weather patterns in our main markets in the UK and North America. In the UK, British Gas Residential operating profit fell in 2014, with average profit per customer of £42 nearly £10 lower than the previous year. This reflected lower average gas and electricity consumption predominantly due to the mild weather in the UK in 2014 compared to colder than normal temperatures in 2013. In North America, extreme low temperatures experienced in the first part of 2014 caused by the polar vortex, led to additional network system charges estimated at approximately US$110m (£65m) and margin pressures across most of our markets in energy supply. Overall operating profit in Direct Energy fell by 46% compared to 2013. However, extreme cold weather in the first half of 2015 was	Other: Reduced demand for goods/services and increased commodity costs	Up to 1 year	Direct	Very unlikely	High	In North America, the extreme low temperatures experienced in the first part of 2014 caused by the polar vortex, led to additional network system charges estimated at approximately US$110m (£65m). This was not the case in 2015, where Direct Energy Operating Profit (£328m) more than doubled compared to 2014 (£150m), as there was no repeat of the additional network system charges.	We have an active forward buying and selling programme to mitigate the risks of sudden commodity price movements and track supply chain risks to ensure security of supply. We are evolving as a business towards providing both energy supply and services to residential and business customers. This means we will become less exposed to extreme changes in consumption of our energy supply.	Management costs for our forward buying and selling programme strategy are commercially confidential.

	effectively managed, resulting in increased margins and growth in margin under contract in Direct Energy Business, although this benefit was partially offset by un-seasonally warm weather in the fourth quarter of 2015.								

CC5.1c: Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	**Description** [maximum 2,200 characters]	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management methods	Cost of management
Changing consumer behaviour	**Falling energy consumption** The Group is exposed to the risk of falling energy consumption. The UK Government sees both domestic and commercial energy efficiency as a key part of meeting its carbon targets, whilst energy policy in the US is typically state specific and therefore more fragmented. UK energy consumption has been falling since 2005, driven by improved energy efficiency and changing customer behaviour as a result of greater environmental awareness, reaction to price changes and the general economic downturn. These factors have significantly reduced the overall demand from British Gas' energy customers. Since 2009, British Gas customers have reduced their underlying energy consumption by 6% for gas and 11% for electricity. The 2015 National Energy Efficiency Data-Framework (NEED) report, which studies underlying nation-wide customer consumption patterns and is commissioned by DECC, shows that installing a new efficient condensing boiler leads to an annual median reduction in gas consumption of nearly 9% whereas	Reduced demand for goods/services	Up to 1 year	Direct	Likely	Medium-high	Continuing reduction in gas and electricity consumption could have a significant impact on the Group's profits without mitigating actions.	Our shift in focus towards energy services is helping to reduce our reliance on revenue from energy supply only. To further develop our leadership capabilities in cutting-edge products, we acquired AlertMe, an energy management and services company and have established a global Connected Home business in which we will invest £500m over the next five years. Panoramic Power was also acquired to lead the future development of wireless sensors that identify ways businesses can reduce operating costs. We have established a new global Distributed Energy & Power (DE&P) business and expect to invest £700m by 2020 to revolutionise the traditional, centralised way of generating and supplying energy. We will give large	We expect to invest £1.2bn in our Connected Homes and DE&P businesses to develop our service offerings to our customers. The installation and maintenance of smart meters will cost British Gas and other leading energy suppliers an estimated £11.5bn. In 2014, we acquired Astrum Solar for US$53m (£33m) to enter the US residential solar market.

	cavity wall insulation leads to a saving of nearly 8%. Smart technology will also reduce demand for energy; tracking the use of a control group of smart meter customers showed consumption savings of 3% for gas and 3% for electricity during 2015 Long-term UK gas demand will ultimately be driven by industry decisions around generation mix, the impact of Government climate change initiatives and economic growth. The decline in consumption in North America is more gradual than seen in the UK and varies across our chosen markets due to lower wholesale gas prices from indigenous shale reserves, weather variations and market factors.							scale energy users such as businesses and hospitals, the ability to take control of their energy and use it more intelligently to reduce, generate and manage it themselves. DE&P will bring together flexible, local generation with storage and renewable technologies alongside energy efficiency measures and smart building management systems. We are leading the national roll-out of smart meters in the UK having already installed over 2.5m smart meters by the end of 2015. Building on our acquisition of Astrum Solar in July 2014, in 2015 Direct Energy Solar completed more than 2100 residential solar installations with a combined power output of 18.34MWp.	
Other drivers	**Uncertainty over new technologies** The future success of the business will be dependent in part on our continuing to play a leading role in the introduction of new technologies and in implementing the necessary operational and organisational changes to meet the requirements of new markets. Whilst representing new opportunities, these developments also create threats to our future profitability. Uncertainty over new technologies poses a risk to the development of our energy efficiency and other low carbon-related products and services which we expect to be key components of our downstream	Other: Profitability	1 to 3 years	Direct	About as likely as not	Medium	Centrica and other leading energy suppliers will have the responsibility for the installation and maintenance of smart meters in the UK, at an estimated cost of £11.5bn.	We have entered the market for Connected Homes to provide new services to our customers and also to protect our position in energy supply and services from non-traditional competitors. We have continued to build our capabilities in smart technologies. In 2010, we acquired an initial stake in AlertMe (a provider of home energy management services) and in early 2015, acquired the whole business.	Management costs for smart metering are built into annual operation budgets with an additional capital investment of €4.5m (£3.6m) for a stake in PPC. In early 2015, we acquired AlertMe,

	profitability. The lack of volume of installs and performance data evidence for new microgeneration technologies, are significant barriers for their introduction as there is no formal process with Government to add new innovation to schemes such as RHI and FIT. For smart meters today there is an interoperability risk that if a customer switches supplier they will lose their smart meter functionality, negating the customer benefit. The introduction of a common infrastructure via the Data and Communications Company (DCC) will eventually mean customers can switch supplier and retain their smart benefits and we await its introduction in summer 2016. The DCC is, however, anew infrastructure provider and unproven so far. Some further technology development is also needed for smart meters to ensure reliable local communications can be established to cater for gas and electricity meters in all building types. In the US, there is the risk that regulators could favour one smart meter technology over another, which could constrain the technology available to create new smart-enabled products and services. The US market is already very fragmented with each state having its own energy rules and policies. Also, lack of utility-wide deployments or access to data will restrict our pursuit of providing customers with more valuable technology and services. There is also the risk that other non-traditional competitors will begin to offer energy services, directly or through white						Smart meters present risks to the business including short-term interoperability issues around the scale of implementation, but also offer opportunities such as new smart-enabled products and service offerings. We have established a global Connected Home business in which we will invest £500m over the next five years.	By the end of 2015, we had installed over 2.5m smart meters in UK homes and businesses. We have switched to SMETS-capable meters at the earliest opportunity and are leading the industry in their deployment.	building on our existing 21% stake, taking the overall purchase price to £65m.

	label relationships with other energy suppliers.								
Other drivers	**Low carbon skills shortage** In the future, there is a risk that we may lack the necessary skills among our employee base to take maximum advantage of a low carbon economy and keep up with demand for new technologies, including solar, energy efficiency products and the UK smart grid. Lacking the necessary future skills among our employee base would impact our ability to grow our energy services business and to fulfil mandatory Government programmes such as ECO.	Reduction/disruption in production capacity	1 to 3 years	Direct	About as likely as not	Low-medium	There is a risk of lost income if demand outstrips supply and a risk of enforcement action if we are unable to fulfil our ECO commitments, which can lead to fines designed to compensate for consumer detriment. For example in 2014, British Gas agreed to pay £11.1m to help vulnerable customers following failure to deliver the Carbon Emissions Reductions Target (CERT) and Community Energy Saving Programme (CESP), by the 2012	We have a diversified approach to managing our significant ECO target which includes accessing energy efficiency measures from our own installer base, local authority schemes, the Government brokerage market and third party contracts. We are training engineers in low carbon skills and new technologies. In 2015, British Gas invested £24.5m in training our 1,200 apprentices and nearly 9,000 engineers to install boilers, smart meters and energy efficiency products, including through our six academies. We recruited more than 960 smart meter apprentices, and we now have over 1750 smart energy engineers in the field.	In 2015, British Gas invested £24.5m in training.

							deadline. We completed the shortfall in 2013, benefiting vulnerable customers with an additional £110m savings on energy bills.		
Changing consumer behaviour	**Brand and reputational damage** Public trust in the UK energy sector continues to be low. As such, rebuilding the reputation of the Group is of vital importance to growing our business, preventing the loss of customers to competitors, protecting profitability and limiting regulatory intervention. As a leading provider of low carbon products and services, we are reliant on customer trust in our low carbon credentials and capabilities. Lower levels of trust could lead to reduced market share and profitability as well as restricting our ability to develop energy services offerings in response to declining energy demand. In addition, we could suffer significant reputational damage if our upstream portfolio is not regarded as environmentally responsible, impacting our ability to influence Government policy and undermining our licence to operate. Maintaining our leadership response to pressing social and environmental challenges also helps to maintain our position as a major contributor to policy debates in the markets in which we operate. The reputation of the energy sector has been damaged with key	Reduced demand for goods/services	Up to 1 year	Direct	Unlikely	Medium	Brand and reputational damage can arise through the perception that energy companies are not proactively supporting or managing climate change issues effectively - however it is difficult to quantify brand risk. Lower levels of trust could impact our reputation as a leading provider of low carbon products and reduce our	We are differentiating ourselves as an energy services provider and improving our customer service, recruiting over 350 new service advisors by the end of 2015. In 2015, we delivered 149,000 energy efficiency measures in the UK as part of our commitments under ECO. We are also adapting to the changing market with competitive fixed price and collective switch offerings. In February 2016, we announced a further cut in our residential gas prices, becoming the only major UK energy supplier to cut prices three times since the start of 2015. We are also working in other ways to earn trust through transparency and support for vulnerable customers. For instance, to help customers manage bill payments without getting into debt, British Gas	British Gas is investing an additional £50m between 2015 and 2017 which will enhance customer service systems, increase resourcing by around 10% and deliver extra training to call centre advisers. In 2015, we contributed more than £220m supporting vulnerable people.

	stakeholders in the UK, as a result of heightened media and political focus on the industry and more direct intervention by the UK Government and regulator. These conditions, together with a competitive market environment, contributed to a 1% fall in British Gas residential energy customer accounts over the year in 2015. This provides a sense of the scale of the risk a loss of trust can have for the Group.						share in a range of markets, such as those for renewable heat and solar where we have businesses with annual revenues of £22m and £33m respectively in 2015.	set up flexible payment plans for over 185,000 households in 2015. Since 2004 we have invested £85m through mandatory and voluntary contributions to the British Gas Energy Trust. This has helped over 175,000 people with debt advice and grants for energy and household bills. In 2015, we contributed £11.5m to support around 24,500 people and awarded more than 16,000 grants. We continue to deploy a reputational tracking and monitoring programme, which in 2015, was rolled out across the business. Working with a market-leading agency, we are able to monitor corporate reputation and its drivers to identify areas for improvement and focus.	

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 other climate-related developments

CC6.1a: Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description [maximum 2,200 characters]	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management methods	Cost of management
Other regulatory drivers	**Developing capabilities through Government schemes** Government energy efficiency schemes provide opportunities to develop new capabilities, products and services. The Carbon Emissions Reductions Target (CERT) and Community Energy Saving Programme (CESP) schemes, which concluded at the end of 2012, enabled British Gas to build capacity at scale on energy efficiency, installing measures with lifetime carbon savings of around 100m tonnes. In early 2013, the Energy Company Obligation (ECO) was introduced which requires energy suppliers to improve the insulation of properties in the domestic sector and to invest in resources that reduce heating costs for vulnerable households. Many of the ECO activities focus on fitting insulation and energy efficient boilers. The scale of our market share (one third) allows us to invest in training and new technologies to take advantage of the current exciting growth opportunities in energy efficiency, microgeneration and efficient heating systems.	Increased demand for existing products/services	Up to 1 year	Direct	Likely	Medium	ECO has provided the opportunity to tap into new markets, leverage the energy efficiency capacity, skills and services we have built through CERT and CESP, and align with our strategy to be a leading energy services provider.	ECO will require us to deliver lifetime carbon savings of 12.0mt by 2017 (or 20mt when including the equivalent carbon savings from the Home Heating Cost Reduction Obligation). British Gas has in place a dedicated team to manage delivery of the target. Our management team is focused on delivering ECO at the most cost-effective rate for our customers and using the scheme to maximise the benefits for British Gas customers. Our 2015 £27m partnership with Southampton City Council is part-funded by ECO and will bring solid wall insulation and other energy efficiency measures to 1,500 social houses.	In 2015, we committed £188m towards ECO.
Other regulatory drivers	**Support for new technologies** Legislation to provide financial support for microgeneration coupled with cost declines in technology have helped grow a substantial market for distributed energy technologies. Whilst recent changes to this financial support will have a negative impact	New products/business services	Up to 1 year	Direct	Likely	High	Smart meters present opportunities to enhance the customer experience and increase retention.	A prime opportunity exists to engage customers in energy efficiency advice during smart meter installations; British Gas has led the industry on smart meters, having fitted over 2.5m in UK by the end of 2015. We	We have invested in smart metering through a €4.5m (£3.6m) stake in PCC and acquiring

	we believe there is still a significant opportunity for distributed energy. We are looking to expand in this area. The subsidy regime for microgeneration technologies has been changed since August 2015. For solar, Feed-in-Tariffs (FITs) have been substantially reduced along with withdrawal of solar from accessing Renewable Obligation Certificates (ROC). However, we still believe there are opportunities for solar particularly for industrial and commercial customers. The Renewable Heat Incentive (RHI) supports renewable heat technologies, such as biomass heating, for the non-domestic and domestic markets. Though the changes currently proposed are likely to create a contraction in the biomass market due to reductions in the level of subsidy available, there will still be potential renewable heat opportunities. Smart meters provide potential significant commercial opportunities. They can enable the creation of new propositions, increase customer satisfaction and opportunities for engagement on other energy efficiency services. The provisional findings of the Competition and Markets Authority Review in July 2015 demonstrated support for the roll-out of smart meters, which could stimulate competition and facilitate greater innovation in smart products and services. In the US, the introduction of smart meters in certain States has enabled Direct Energy (DE) to provide customers with new products. Prepayment plans help customers to proactively manage their energy consumption and on average enable 11% reductions in electricity usage and sometimes as high as 18%. Time-of-use						Satisfaction levels for smart meter customers are around 50% higher than those with a standard meter. In 2013, the UK Government provided a revised timescale to roll-out smart meters as standard by 2020 – a likely total of 53m smart meters. There are over 50m smart meters deployed in the US, almost 40% of homes. In the US. the smart meter-enabled product, 'Free Power Saturday/Sunday', has reduced customer attrition by over 30%. Regulations such as FIT and RHI are likely to continue to drive opportunities for	have acquired AlertMe and created a new business, Connected Homes, to further develop smart-enabled products and services. In North America, using smart meters we have created TOU products like 'Free Saturday/Sunday' and we are rewarding customers in Texas who reduce their energy use during 'Peak Events', or times when the energy supply is threatened due to high consumption. DE also provides smart LED bulbs and wi-fi enabled switches that allow customers to control appliances remotely. In 2015, we acquired Panoramic Power and began to deploy its wireless sensor technology to help business customers better manage their energy use by delivering live energy information that customers can act upon. DE is also utilizing big data usage analytics to create value-added insights for customers. In 2015 in the UK, we installed solar panels providing 34.3MW of power at peak capacity and 20 biomass boilers providing around 7MWth of heat generation capacity.	AlertMe in 2015, building on our existing 21% stake, taking the overall purchase price to £65m. Since 2008 we have invested £10.8m in acquiring solar, biomass & heat pump businesses. Our fixed costs for managing and delivering our renewable heat and solar businesses are approximately £5.9m and £2.3m per annum respectively. Direct Energy has invested US$200k (£132k) to develop our Free Day time-of-use products, Nest partnership & digital projects initiatives.

	(TOU) plans cut the overall demand on the grid at peak times, reducing the need to turn on additional fossil fuel power plants. DE has also partnered with Nest to bundle energy plans with smart thermostats that provide customers with the ability to control and learn about their energy usage and has added a programme that allows DE to initiate changes in a customer's thermostat settings for a short period of time.						solar and renewable heating: the commercial market for renewable heat could be worth around £0.5bn by 2020 based on the impact assessment associated with the recent RHI consultation; the solar market has been estimated to be around £1bn by 2020 based on a previous study, although this may have reduced due to changes in subsidy and the market environment.	The microgen technology team continue to investigate new products, with the greatest focus around micro CHP, power storage, gas heat pumps and hybrid systems. We look to test and improve products and where possible to reduce costs which increase potential market adoption and carbon savings.	
Air pollution limits	**Environmental Protection Agency (EPA) carbon pollution standards** In the United States, the prospect for any federal climate legislation in the near term has largely disappeared. As a result, the US EPA has issued greenhouse gas regulations for both new and existing power plants. The US Supreme Court has put the regulations for existing power plants on hold while the courts review the rule. At the state level, climate change action remains slow and limited to specific states (California, RGGI in North Eastern states) although many states	Increased demand for existing products/services	1 to 3 years	Direct	About as likely as not	Low-medium	The net financial implications of current federal regulatory policies are unclear as the EPA's carbon control rules are not final.	Direct Energy leverages smart meters to provide energy efficiency advice and personalised reporting on a weekly basis to customers with smart meters in Texas. We also offer multiple time-of-use products to incentivise consumers to shift their usage to off-peak periods such as Saturday and Sunday. We bundle our energy with control-based tools, such as	Ongoing costs to develop low carbon and energy efficiency products and services are built into our operational budgets. For instance, it costs over US$200k (£132k) to develop Direct

	are considering compliance options with the federal carbon regulations. At the industrial level, a market in low carbon products and services could develop once the court hold is lifted on the rule for existing plants. It is possible that in addition to fuel switching or improving power plant efficiency, states may need to explore other solutions such as demand-response programmes and rooftop solar in order to meet their emission reduction goals. This could develop the market for low carbon products and services which we are able to provide.							the Nest and Meridian Smart Thermostats that enable customers who were not previously programming their schedule to reduce energy use by up to 20%. Our energy efficiency technologies give control to our customers and are paired with the heating, ventilation and air conditioning services we offer such as seasonal tune-ups and maintenance that make it easy for our customers to have a more efficient home. Building on our acquisition of Astrum Solar in July 2014, in 2015 Direct Energy Solar completed more than 2100 residential solar installations with a combined power output of 18.34MWp.	Energy's Free Day time-of-use products, Nest partnership and digital initiatives. In 2014, we acquired Astrum Solar for US$53m (£33m) to enter the US residential solar market.
Other regulatory drivers	**Regulation to promote distributed energy generation** We welcome the focus on ensuring appropriate policy and regulation is in place to support innovation and investment in decentralised energy technology. The growth of new decentralised technology will help the UK on its path to an increasingly 'smart power' system in the UK as we continue to decarbonise. Using a combination of embedded generation, storage, energy efficiency and demand side response measures, distributed energy has a key role to play in helping the UK to balance the key priorities of keeping energy	Other, Increased demand for existing products/service and new products/business services	1 to 3 years	Direct	Likely	High	We are looking to invest £700m in DE&P by 2020.	In 2015 we established a new global DE&P business and expect to invest £700m between now and 2020 to revolutionise the traditional, centralised way of generating and supplying energy. This gives large scale energy users such as businesses and hospitals, the ability to take control of their energy and use it more intelligently to reduce, generate and manage it themselves. DE&P is bringing together flexible,	Management costs are incorporated within annual operational budgets.

	affordable and secure while meeting our carbon reduction commitments. Through Government and regulatory support there are some accessible incentives and subsidies available. These can help encourage decentralised energy and better management of the grid which will provide opportunities for our Distributed Energy & Power (DE&P) business and energy customers.							local generation with storage and renewable technologies alongside energy efficiency measures and smart building management systems.	

CC6.1c: Please describe the inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	**Description** [2,200 characters max]	**Potential impact**	**Timeframe**	**Direct/ Indirect**	**Likelihood**	**Magnitude of impact**	**Estimated financial implications**	**Management methods**	**Cost of management**
Changing consumer behaviour	**Consumer behaviour change on energy saving** Changing consumer behaviour is an increasing factor in the market for low carbon products and services. Concern about rising energy costs in the UK has focused attention on reducing energy consumption and weather events across the US have raised awareness for consumers and businesses around their energy use and environmental footprint. In the UK, smart meters and new smart-enabled propositions are influencing consumer behaviour. British Gas customers with smart meters have already reduced their energy bills by an average of 3% both for gas consumption and electricity during 2015. We expect this figure to rise to around 5% when we measure the impact of additional feedback tools like apps and as we further develop our interactive online	Increased demand for existing products/services	1 to 3 years	Direct	More likely than not	High	Central heating installations revenue, which involves fitting energy efficient boilers for customers in the UK, reached £284m in 2015. Our leading position in smart metering is helping us enhance our customers' experience and increase retention. The report, Winning Smart Home Strategies for Energy Management,	British Gas installed over 100k high efficiency domestic boilers in 2015, which can reduce heating bills by around £180 per year. By the end of 2015, we had installed over 2.5m smart meters in the UK through our own in-house metering operations business and in early 2015, we fully acquired AlertMe, the UK-based energy management products and services company, which enables us to deliver new innovations for the future connected home.	We expect to invest £1.2bn in our Connected Homes and DE&P businesses to develop our service offerings to our customers. We have made capital investments of €4.5m (£3.6m) for a stake in PPC and in early 2015 we acquired AlertMe for £65m

	tool, my energy, which provide smart meter customers with insights into their patterns of consumption. There is an increasing demand from industrial and commercial customers to lower their bills, maintain a secure energy supply and reduce their carbon footprint. This provides an opportunity to help them operate, monitor and optimise their energy assets through our new Distributed Energy & Power (DE&P) business. IN North America, we have partnered with Nest to create new product offerings by combining energy supply with smart thermostats that provide our customers with the ability to control and learn about their energy usage. We also continue to expand the range of smart-enabled time-of-use products which are improving customer retention, while also reducing demand on the grid during periods of peak energy consumption. We are capitalising on demand for solar power through our partnership with SolarCity which enables us to provide solar electricity directly to commercial and industrial customers. We also acquired Astrum Solar in 2014, a residential solar installation business, and continue to grow this business activity as the demand for solar power increases. Direct Energy Solar was ranked 9th in terms of market share nationally by Greentech Media in 2015. In New York City we are partnering with businesses to facilitate the conversion from oil to natural gas in conjunction with a commodity product offering.						estimates smart thermostats will account for over 50% of the total US market by 2017. The total US market size for residential and non-residential solar was estimated to be around $10bn in 2015 and could be over $20bn by 2020 (based on 2016 prices for solar power). The viability and use of distributed generation and storage technologies by households and businesses is set to grow rapidly. According to some forecasts, distributed generation, such as solar and small scale flexible gas turbines, could grow from a 2% global market share in 2014, to 12% in 2030.	In 2015, we established a new global DE&P business and expect to invest £700m up to 2020 to give large scale energy users such as businesses and hospitals, the ability to take control of their energy. DE&P brings together flexible, local generation with storage and renewable technologies alongside energy efficiency measures and smart building management systems. In the US, we offer time-of-use products to incentivise consumers to shift their usage to off-peak periods and we bundle our energy with control-based tools, such as Nest and Meridian Smart Thermostats that enable customers who were not previously programming their schedule to reduce energy use by up to 20%. In 2015, Direct Energy Solar completed more than 2100 residential solar installations with a combined power output of 18.34MWp. In 2015, we completed 12 contracts for 16 buildings for businesses to facilitate the conversion from oil to natural gas.	(including our previous 21% stake). In 2014, we acquired Astrum Solar for US$53m (£33m) to enter the US residential solar market and we continue to offer our residential customers solar panel installation through Direct Energy Solar. We have also agreed to fund up to US$50m (£31m) as part of the SolarCity deal. Direct Energy has also already invested over US$200k (£132k) to develop our Free Day time-of-use products, Nest partnership and digital initiatives.

Reputation	**Differentiating our business through low carbon products and services** A positive reputation on the low carbon agenda can differentiate us from our competitors and provide us with the necessary credibility to influence policy-making. Our commitment to microgeneration and smart metering gives us a significant opportunity to differentiate our businesses and to tap into growing markets for low carbon products and services. British Gas went early in its smart meter roll-out, having already installed over 2.5m in homes and businesses by the end of 2015, helping consumers have more control over their energy use. We are also committed to delivering our obligations to help consumers reduce carbon emissions through the Energy Company Obligation (ECO). Customers who have received energy efficiency and other low carbon products from us are often more likely to perceive the business more positively and have increased levels of satisfaction – for example, UK smart meter customers score 50% higher in customer satisfaction (measured by Net Promoter Scores) than standard customers. We support innovation and best practice across the industry. For example, we are working jointly with UK Power Networks on 'energywise', which aims to facilitate learning on smart for vulnerable and fuel poor customers. 'energywise' is a 3-year smart grid project involving 350 homes in Tower Hamlets. Trials will be conducted to understand the challenges and best approaches to engaging with these groups	Increased demand for existing products/services	1 to 3 years	Direct	About as likely as not	Low-medium	The commercial market for renewable heat could be worth around £0.5bn by 2020 based on the impact assessment associated with the recent Renewable Heat Incentive (RHI) consultation. Also, the solar market has been estimated to be around £1bn by 2020 based on a previous study, although this may have reduced due to changes in subsidy and the market environment. The potential market for community based schemes is significant, with £188m committed towards ECO in 2015, which includes community based schemes.	In 2015, we installed solar panels collectively providing 34.3MW of power at peak capacity and 20 biomass boilers providing around 7MWth of heat generation capacity. Our acquisition of AlertMe and investment in PPC are also helping us take a leading position in the Connected Home market. In 2015, we installed more than 149,000 energy efficiency measures in the UK as part of our commitments under ECO, saving 4.2mtCO2 over their lifetime and cutting heating costs by more than £400m for vulnerable customers. By maintaining control of ECO delivery through our in-house Construction Services business, we have been able to develop award-winning regeneration schemes in collaboration with our social housing clients. For instance, our 2015 £27m partnership with Southampton City Council is part-funded by ECO and will bring solid wall insulation and other energy efficiency improvements to 1.5k social houses.	Since 2008, we have invested £10.8m in acquiring solar, biomass and heat pump businesses. Our fixed costs for managing and delivering our renewable heat and solar businesses in the UK are approximately £5.9m and £2.3m per annum respectively. In 2014, we acquired Astrum Solar for US$53m (£33m) to enter the US residential solar market and we continue to offer our residential customers solar panel installation through Direct Energy Solar. We have also agreed to fund up to US$50m (£31m) as part

	of customers, how they can benefit from energy efficiency and participate in demand side response, along with quantifying the network service that these customers could provide. The project is the first smart grid project to focus on the impact of pre-payment smart meters as well as customers living in flats. In North America, we are differentiating our Direct Energy business as the company that helps our customers use less of the product we sell. Our investment in solar and development of demand response, smart thermostat and energy saving products and services supports the reputation we want to develop as the company that saves customers energy.							Our involvement in 'energywise' puts us at the forefront of learning around smart metering and the technical solutions required to overcome the current limitations with installing smart meters in buildings that are tall, have flats and multiple dwelling units. In 2015, Direct Energy Solar completed more than 2100 residential solar installations with a combined power output of 18.34MWp and provided solar energy to business customers through our fund with SolarCity, financing 3.7MWp worth of solar projects.	of the Solar City deal.
Other drivers	**Attracting and retaining skills and talent** Skills development is key to building a successful low carbon energy business. By pursuing a leadership position in smart metering, the connected home and distributed energy and power, we aim to be able to attract, recruit and retain highly skilled employees. This has enabled us to improve our credibility in the marketplace and our smart energy and low carbon skills can be a key differentiator for us against our competitors. Our expertise in smart, the connected home and microgeneration, along with our nearly 9,000 engineers, enables us to capitalise on new opportunities related to downstream	Other: Increased productivity	Up to 1 year	Direct	About as likely as not	Medium	We expect to invest £1.2bn in our Connected Homes and DE&P businesses to develop our service offerings to our customers.	In 2015, British Gas invested £24.5m in training our 1,200 apprentices and nearly 9,000 engineers to install boilers, smart meters and energy efficiency products, including through our six academies. We recruited more than 960 smart meter apprentices, and we now have over 1750 smart energy engineers in the field.	British Gas invested £24.5m in training apprentices and engineers in 2014.

	carbon reduction by new regulation or consumer behaviour change.								

CC6.1e: Please explain why you do not consider your company to be exposed to inherent opportunities driven by physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure [maximum 2400 characters]

We have identified the following low-level opportunities associated with the physical impacts of climate change.

- Long-term changes to weather patterns will create challenges for our customers. While the possibility of milder winters will lead to a reduction in energy demand for heating, warmer summers will create increased demand for cooling during the day and night. This could lead to significant changes in patterns of demand. Our primary opportunity is to play a major role in helping our millions of customers adapt to the effects of climate change. This includes helping them to manage their changing demand patterns through energy management products such as time-of-use tariffs, smart thermostats and other energy usage management tools.

- The UK Government has stated its commitment to ensuring that society is adapting to the effects of climate change and identified its role as a coordinator in providing an environment conducive to adaptation. This could provide us with opportunities to expand our whole-house approach and to position ourselves as the preferred supplier able to meet new requirements in a holistic manner.

- We cannot be specific about other opportunities available to us until the physical impacts of climate change and Government responses become more certain. However, we anticipate that the infrastructure required to adapt to the unavoidable consequences of climate change, in both public and private sectors, will create further opportunities.

Evaluation process and relevance

Meetings occur throughout the year to continually evaluate the Group strategy in relation to the external economic, competitive, regulatory and policy context which includes risks and opportunities relating to climate change. The specific nature of the opportunities provided by the physical changes related to climate change are considered uncertain and therefore low in relative prioritisation compared to other strategic opportunities over our business planning timeframes.

Emissions

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	Tue 01 Jan 2008 - Wed 31 Dec 2008	10781982
Scope 2 (location-based)	Tue 01 Jan 2008 - Wed 31 Dec 2008	113098
Scope 2 (market-based)	Tue 01 Jan 2008 - Wed 31 Dec 2008	113098

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

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 [maximum 5,000 characters]

The 'other' category selected refers to the Defra Guidance on How to Measure and Report your GHG Emissions; IPIECA Petroleum Industry Guidelines for Reporting GHG Emissions; EU Emissions Trading System (EU ETS) and GRI Sustainability Reporting Guidelines.

We subscribe to best practice environmental accounting and disclosure. We apply the WRI and WBCSD Greenhouse Gas Protocol Initiative and GRI Sustainability Reporting Guidelines in our approach. We annually update our Group procedure for environmental reporting, which sets out Centrica's reporting methodology based on the external

publications in question 7.2. We have calculated that over 95% of our activity data is directly measured, either by ourselves through methods such as continuous emissions monitoring or by third party service providers, who record our consumption of their products and services. Where this is not possible, we have calculated our performance using appropriate reference factors.

The data is submitted through an online data collection system. The submitters are employees/contractors within the Business Units who are identified as having the best access to accurate data for specific indicators. While the submitters are the 'owners' of the data, it is collated and quality assessed centrally at Group level. Where possible, we use independently verified data such as EU ETS emissions and in 2015, we had our scope 1 and 2 publicly assured to ISAE 3000 (Revised).

CC7.3: Please give the source for the global warming potentials you have used

Gas	Reference
Select from: • CO2 • CH4 • N2O • HFCs • PFCs • SF6 • NF3 • Other, please specify	Select from: • IPCC Fifth Assessment Report (AR5 – 100 year) • IPCC Fourth Assessment Report (AR4 - 100 year) • IPCC Third Assessment Report (TAR - 100 year) • IPCC Second Assessment Report (SAR - 100 year) • IPCC Fourth Assessment Report (AR4 - 50 year) • IPCC Third Assessment Report (TAR - 50 year) • IPCC Second Assessment Report (SAR - 50 year) • IPCC Fifth Assessment Report (AR5 -20 year) • IPCC Fourth Assessment Report (AR4 - 20 year) • IPCC Third Assessment Report (TAR - 20 year) • IPCC Second Assessment Report (SAR - 20 year) • Other, please specify
CO2	IPCC Fifth Assessment Report (AR5 - 100 year)
Other: Nitrous oxide	IPCC Fourth Assessment Report (SAR - 100 year)
CH4	IPCC Fourth Assessment Report (SAR - 100 year)
HFCs	IPCC Fourth Assessment Report (SAR - 100 year)
PFCs	IPCC Fourth Assessment Report (SAR - 100 year)
SF6	IPCC Fourth Assessment Report (SAR - 100 year)
Other: Chlorodifluoromethane (HCFC-22)	IPCC Fourth Assessment Report (AR4 - 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 the page

Fuel/Material/Energy	Emission Factor	Unit	Reference

Further Information

The location-based result has been used as a proxy since a market-based result cannot be calculated for our base year of 2008. We have started calculating our market based scope 2 from 2015.

Refer attached for all Emission Factors required for 7.4.

CC8. Emissions Data

CC8.1: Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Equity share

CC8.2: Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

4272477

CC8.3: Does your company have any operations in markets providing product or supplier specific data in the form of contractual instruments?

Yes

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
120539	103370	We purchase power with supplier specific emissions in the Republic of Ireland and the UK.

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 [maximum 2,400 characters]	**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**
Fugitive and venting emissions from non-operated offshore assets. These emissions will include small quantities of natural gas that mainly consists of methane.	Emissions are not relevant	No emissions from this source	No emissions from this source	We do not currently collect fugitive and venting emissions from our UK offshore assets (gas and oil platforms) where we have an equity share but are not the operator. This is a practical approach that reflects the difficulty in obtaining this data and the materiality of the data. We estimate the excluded emissions are 0.1% of Centrica's scope 1 emissions.

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	More than 2% but less than or equal to 5%	Data Gaps Assumptions Data Management	Company car fuel use is mainly calculated based on submissions of mileage data and not actual volume used; Vehicle size and fuel type data is averaged and not at individual vehicle level; Fugitive gas from pipes and equipment can only be calculated and not directly measured. Building gas consumption is estimated based on personnel number, floor space or historical data where it is a shared building or the actual consumption data is not available. Where current EU ETS emission data is unavailable for a non-operated offshore asset, the emissions are based on the previous year's EU ETS emissions.
Scope 2 (location based)	More than 5% but less than or equal to 10%	Assumptions	For buildings where the landlord pays the utilities, we calculate electricity use based on the proportion of the building occupied. For some small offices, electricity for buildings has been estimated based on full-time equivalent employee occupancy.
Scope 2 (market based)	More than 5% but less than or equal to 10%	Assumptions	In the UK we supply the power for the vast majority of our offices and facilities; however, there are a few sites where the power supply is managed by the landlord. In these instances we do not know the supplier. This equates to less than 5% of our UK office electricity consumption. Countries where we have negligible power consumption, such as a single shared office, we have not attempted to calculate the market based value as the impact on the overall emissions is immaterial. As per scope 2 location based, buildings where the landlord pays the utilities and shared buildings, typically calculate electricity use based on proportion of building occupied. For some small offices, electricity for buildings has been estimated based on full-time equivalent employee occupancy.

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 document	Page/ section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Limited assurance	centrica_assurance_statement_2015	Page 1 & 2	Other: ISAE3000 (Revised)	100
Annual process	Complete	Limited assurance	basis_of_reporting_2015	Page 38-49, Total carbon emissions	Other: ISAE3000 (Revised)	100

CC8.7: Please indicate the verification/assurance status that applies to your reported Scope 2 emissions

Third party verification or assurance process in place

CC8.7a: Please provide further details of the verification/assurance undertaken for your 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 document	Page/ section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Location based	Annual process	Complete	Limited assurance	centrica_assurance_statement_2015	Page 1-2	Other: ISAE3000 (Revised)	100
Location based	Annual process	Complete	Limited assurance	basis_of_reporting_2015	Page 38-49, Total carbon emissions	Other: ISAE3000 (Revised)	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
Progress against emission reduction target	2015 was the target year for our 2007 to 2015 core internal carbon footprint reduction target. As such, the 2015 in scope emissions (scope 1, 2 and 3 emissions relating to buildings, company cars, commercial fleet and business travel) were assured.

CC8.9: Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

Yes

CC8.9a: Please provide the emissions from biologically sequestered carbon relevant to your organization in metric tonnes CO2

2879

CC9. Scope 1 Emissions Breakdown

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	2436445
North America	598531
Ireland	757131
Rest of world	480370

CC9.2: Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By activity

CC9.2d: Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
Power generation	2156813
Gas & oil production	2041038
Office	5186
Fleet	69440

CC10. Scope 2 Emissions Breakdown

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 emissions (metric tonnes CO2e)	Scope 2, market-based emissions (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling (MWh)
United Kingdom	80302	63018	173715	0
North America	38075	38075	144405	0
Ireland	1886	2001	4499	0
Rest of World	276	276	2151	0

CC10.2: Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By activity

CC10.2c: Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2 location-based emissions (metric tonnes CO2e)	Scope 2, market-based emissions (metric tonnes CO2e)
Office electricity	27283	22768
Operational imported electricity	93256	80602

Further Information

CC10.1a - The majority of the power used in the United States is purchased from our landlords at our offices and therefore the supplier is unknown. As such, no market based scope 2 emissions can be calculated and location based scope 2 emissions are applied as a default.
Power consumed in the 'Rest of World' category is immaterial. As a result, we have not attempted to identify the market based emissions associated with it, but have defaulted to location based emissions.

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	0
Steam	0
Cooling	0

CC11.3: Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year.

18047673

CC11.3a: Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Natural gas	17550900
Diesel/Gas oil	312643
Other: Petrol	97966
Other: Fuel oil	84925
Other: Gas oil	91
Biodiesels	506
Other: Biomass	642

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 you provided in CC8.3a

Basis for applying a low carbon emission factor	MWh associated with low carbon electricity, heat, steam or cooling	Comments
No purchases or generation of low carbon electricity, heat, steam or cooling accounted with a low carbon emissions factor	0	No further comments.
Off-grid energy consumption from an onsite installation or through a direct line to an off-site generator	2027	We generated and consumed 2027MWh of power on site, generated by a number of our UK offices using renewable microgeneration technology.

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
327290	325263	2027	2027	2027	As a power generation company we generate large volumes of power from our centralised power stations. However, this power generation does not align with the intent of the question and has therefore been omitted. The values entered relate to decentralised power generation typical of a non-power generation company.

Further Information

CC11.1: As an energy and services company, interpreting this question presents challenges. Under one definition, virtually all operational spend may be deemed to have been spent on energy as that is the purpose of our business. However, to provide comparisons with other companies and industries, we have interpreted this as energy used in the running of our business. The figure provided is an approximate figure based on the electricity and heating used at our offices, imported electricity used at our power stations and petrol/diesel costs for our fleet. We have employed an average price across our operations and have not included the costs of natural gas used to generate electricity or the costs of electricity purchased from third party providers for supply to our customers. These are specific to our business as an energy and services company and involve commercially sensitive contracts. We publish the amount of natural gas used and electricity purchased but not the costs.

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**	**Comment** [maximum 2,400 characters]
Emissions reduction activities	6.9	Decrease	Our Thermal power stations continue to implement energy efficiency programmes, including more efficient usage of large electric cooling motors and energy efficient lighting. The total savings are 8405tCO2. This equates to (8405 /5,587,885)*100 = 0.15% decrease. Our 2020 power generation carbon intensity target of 200gCO2/KWh will be largely achieved through investment in low carbon power generation. In 2015, our nuclear generation increased and allowing for a small reduction in wind generation, this equates to an equivalent of 371,605t reduction in our absolute emissions compared to 2014 (6.7% decrease) (371,605/5,587,885)*100 = 6.65% decrease. Our UK customer energy and carbon reduction initiatives have reduced customers' gas demand, which then reduces our Scope 1 and 2 emissions. We calculate that for a given customer base, the initiatives have reduced our gas production emissions by 3,222tCO2 (3,222/5,587,885)*100= 0.06% decrease. British Gas has implemented emission reduction initiatives in their fleet through behavioural change and vehicle improvements while offices have undergone improvements such as lighting, Building Management Systems and microgeneration. This has reduced our emissions by 774tCO2 (774/5,587,885)*100 = 0.014% decrease. In total, emission reduction projects delivered savings totalling 384,006tCO2 in 2015. Our total scope 1 and 2 emissions in the previous year were 5,587,885tCO2, therefore achieving a percentage saving of 6.9%: (384,006/5,587,885)*100 = 6.9%
Divestment	0.0	No change	No divestments occurred in 2015 that had a material impact on emissions.
Acquisitions	6.2	Increase	Bord Gáis Energy was purchased in mid-2014 and therefore, the 2014 emissions are approximately half those of 2015. This is demonstrated by the 2014 H2 value (344,434tCO2) being similar to the H1 2015 value (377,994TCO): (344,434/5,587,885)*100 = 6.2%.
Mergers	0.0	No change	N/A
Change in output	19.0	Decrease	2015 market forces meant that our UK gas-fired power stations ran less than in 2014, meaning a decrease of 17% in associated emissions (958,765/5,587,885)*100 = 17.2% decrease. Market conditions and operational issues have led to a reduction in hydrocarbon production, resulting in a 174,000 tonne decrease in carbon emissions (174,000/5,587,885)*100 = 3.1% decrease.

			Bord Gais's Whitegate power station had a decrease in outages and the higher generated power output resulted in an increase in emissions. The emissions from output are calculated as (70,149/5,587,885)*100 = 1.26% increase. In total, 1,062,616tCO2 were saved in 2015 due to change in output while our total scope 1 and 2 emissions in the previous year were 5,587,885tCO2. We therefore achieved a percentage saving of 19.0% (1,062,616/5,587,885)*100 = 19.0% decrease.
Change in methodology	0.0	No change	N/A
Change in boundary	0.0	No change	N/A
Change in physical operating conditions	0.0	No change	N/A
Unidentified	2.0	Decrease	The unidentified changes equate to 111,454tCO2 (111,454/5,587,885)*100 = 2.0% decrease.
Other	0.3	Increase	Operational issues requiring increased power generation and shutdown at an operational facility resulted in a 19,000tCO2increase in emissions (19,000/5,587,885)*100 = 0.3% increase.

CC12.1b: 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** [maximum 2,400 characters]
0.000157	metric tonnes CO2e	27971000000	Location-based	17.3	Decrease	The 2015 financial intensity figure is 0.000157. This is a 17.3% reduction on 2014's intensity and is a result of our scope 1 and 2 emissions dropping by 21.4%, mainly as a result of reduced UK thermal power generation, while our revenue decreased by 4.9%. The reduction in emissions intensity by revenue reflects the difficult market conditions for gas-fired power stations in the UK and the company's new strategic direction which has greater emphasis towards customer-focused products and services. To a lesser degree, the reduced emissions from our exploration and production business and from internal energy efficiency initiatives, have also contributed to a lower intensity. Together, this has enabled the continued decoupling of revenue and carbon emissions.

CC12.3: Please provide an additional intensity (normalized) metric that is 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** [maximum 2,400 characters]
0.117	Metric tonnes CO2e	Megawatt hour (MWh)	18366259	N/A	24	Decrease	Centrica has set a 2020 target of 0.200tC02/MWh (200gCO2/KWh) for power generation from our global assets, based on equity share.

							In 2015, our power generation carbon intensity was 0.117tC02/MWh (117gCO2/KWh); a reduction of 0.37tC02/MWh from our 2014 intensity (0.154tC02/MWh). This reduction has been driven largely by a reduction in thermal power generation from our UK fleet of gas-fired power stations. The reduction in output is mainly as a result of continuing challenging market conditions for gas-fired power stations in the UK. While the current carbon intensity is lower than the 2020 target, our intensity may rise in the coming years should market conditions improve making it more economical for our gas-fired power stations to generate power.

CC13. Emissions Trading

Pre-population
None of the questions on this page are eligible for pre-population if you responded last year.

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	Thu 01 Jan 2015 - Thu 31 Dec 2015	790519	1345065	2135584	Facilities we own and operate.
Alberta Emissions Trading Regulation	01 Jan 2015 – 31 Dec 2015	320599	10144	311893	Facilities we own and operate.

CC13.1b: What is your strategy for complying with the schemes in which you participate or anticipate participating? [maximum 5,000 characters]

EU Emissions Trading System (EU ETS)

The cost of carbon has become an important factor in all investment decisions taken by Centrica in the power and gas markets. We actively use all available methods to manage our exposure to the risk of rising carbon costs through abatement and emissions trading. Centrica has been actively trading in the EU Emissions Trading market for over ten years and has also been active in the international carbon credit market. We aim to meet the cost of our carbon emissions in the most economic manner for our customers and shareholders. Centrica believes that flexibility is important to help installations manage their carbon exposure. We are constantly looking to manage our carbon position using both abatement and carbon credits. Using the trading markets enables us to effectively manage cost exposures arising with regards to carbon pricing through the EU ETS. We also have in place robust procedures to ensure verification of our emissions and subsequent surrender of sufficient emissions allowances is carried out in line with the scheme requirements.

Alberta Greenhouse Gas Reduction Program

We have been active in the Alberta Greenhouse Gas Reduction Program since acquiring the Wildcat Hills Gas Plant in 2010. Emission reporting and compliance requirements are met through a regular review of all applicable government regulations. Professional consulting services are also employed to make recommendations for future events or procedures such as the design of an information or control system. A third party verification process has been built into the GHG reduction programme to provide assurance. Verification is also used to test the validity of past data and the independent verifier may provide observations on areas for improvement. Allowances are surrendered in line with the scheme requirements for our verified emissions.

CC13.2: Has your organization originated any project-based carbon credits or purchased any within the reporting period?

No

Further Information

CC13.1a, EU ETS: For completeness, the allowances, purchases and verified emissions under the EU ETS for Centrica Storage Limited (CSL) have been included in the response in 13.1a in addition to those from our power generation and gas and oil exploration and production businesses.

CC13.1a, Alberta Greenhouse Gas Reduction Program: Allowances required for compliance are based on emission intensity. One facility exceeded the baseline emission intensity in 2015 resulting in the requirement to purchase 10,144 emission credits (verified value).

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	% of emissions calculated using data obtained from suppliers or value chain suppliers	Explanation
Purchased goods and services	Relevant, calculated	3137568	Calculation is made using emissions of purchased goods and services in our UK supply chain alongside spend analysis and sector specific emissions data. The original analyses related to 2014 spend. To calculate 2015 emissions, the 2015 spend equivalent was calculated and the percentage change applied to the 2014 emissions.	0	In 2014, UK purchases and spend, was used to calculate our purchased goods and service emissions. This detailed analysis was not repeated in 2015; so we have calculated our 2015 emissions based on revised 2014 emissions, pro-rated based on the percentage change in spend (12% decrease in 2015).
Capital goods	Not relevant, explanation provided	0	N/A	0	Centrica did not undertake any significant capital projects in 2015.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	70403304	This relates to power purchased for resale to customers, but excludes traded power. The activity data is power sold (MWh) and the associated carbon is based on site specific emissions where we have site specific contracts and one year Grid Rolling Averages for electricity purchased off the open market in the UK. In North America, the carbon emissions are calculated using national emission factors. Together, this totals 66,890,697tCO2e. Additionally, the Electricity Distributor associated emissions (including transmission and distribution losses) equate to 3512607tC2e. Note where relevant, the scope 2 location based approach has been used.	0	Centrica does not generate all the power that our customers require and hence, we purchase power from third parties and resell it to our customers. This is one of our main sources (45.5%) of scope 3 emissions and therefore very relevant to the company. It includes transmission and distribution losses associated with the power we purchase for resale. While Centrica does generate power, we do not capture the emissions associated with the extraction and production of the fuels used for the generation of the power in our scope 3 emissions, as we are an integrated company, meaning we extract and process fuel gas. These emissions are therefore

					mainly included in our scope 1 and 2 emissions.
Upstream transportation and distribution	Not relevant, calculated	21715	These emissions are a combination of transportation sources in our supply chain. Data from key logistics suppliers are provided by the service provider (2,487tCO2e). We also collect data from our offshore support providers, including from supply and safety ships (19,288tCO2e). The emissions are calculated by multiplying the fuel use activity data by DEFRA emission factors.	11	These emissions currently equate to 0.1% of our scope 3 emissions and therefore are not relevant in terms of magnitude. Our influence over the emissions is limited and they are not deemed an area that exposes us to risk.
Waste generated in operations	Not relevant, calculated	2540	Emissions are calculated based on operational/office waste recycled/ disposed (42,857 tonnes of waste) multiplied by the most appropriate DEFRA emission factors.	0	Carbon emissions associated with waste in our supply chain are not considered relevant from a materiality perspective, relative to other scope 3 emissions (0.002%). A significant reduction occurred in 2015 as a result of a decline in operational waste tonnage.
Business travel	Relevant, calculated	14983	Business travel emissions include those arising from business flight and rail use, employees using their own vehicles for business purposes and helicopter flights for personnel to offshore assets. The flights (9013tCO2e) and rail (439tCO2e) are calculated based on journey distance provided by our travel provider, multiplied by DEFRA emission factors. Emissions from employees using their own vehicles for business purposes (2415tCO2e) are based on expense claims, using a generic emission factor for car mileage. Helicopter flights (3116tCO2e) are based on fuel consumption multiplied by DEFRA emission factors.	0	While this is only a small component of our scope 3 emissions (0.01%), it is an area that we can partly influence. Rail and flights are therefore part of our internal carbon footprint target.
Employee commuting	Not relevant, explanation provided	0	N/A	0	This is an immaterial (approximately 0.01%) component of our scope 3 emissions and we have limited ability to influence the emissions.

Upstream leased assets	Not relevant, explanation provided	0	N/A	0	Our reporting approach includes upstream leased assets in our scope 1 and 2 emissions. Therefore, this field is not relevant.
Downstream transportation and distribution	Not relevant, explanation provided	0	N/A	0	Emissions associated with the transportation and distribution of our products are included within the following source of scope 3 emissions: 'Fuel-and-energy-related activities (not included in scope 1 or 2)'. This is because they relate to transportation and distribution losses from power and gas distribution.
Processing of sold products	Not relevant, explanation provided	0	N/A	0	As Centrica's primary products are electricity and gas that are used as end products, the emissions from the processing of sold intermediate products is not relevant.
Use of sold products	Relevant, calculated	80834843	Emissions are calculated based on the quantity of gas sold to residential and business customers (energy units), multiplied by the emission factor for natural gas. This totals 65,707,787tC02e. Crude oil production emission calculations are based on the CDP scope 3 Oil and Gas Guidance generic conversion and emission factors. This results in 15,127,056tC02e.	0	This is a relevant component of our scope 3 emissions in respect to its size (52.2% of our scope 3) and is relevant to the sector. For the first time, we have also calculated the emissions associated with the crude oil that our production and exploration business produced in 2015.
End of life treatment of sold products	Not relevant, explanation provided	0	N/A	0	We sell negligible volumes of product relative to the quantity of gas, electricity and services we supply. These emissions are therefore not relevant.
Downstream leased assets	Not relevant, calculated	48	Emissions are calculated through multiplying the floor area of our leased assets by energy consumption conversion factors. These are based on typical consumption volumes for the type of facility. The estimated energy consumption is then multiplied by DEFRA emission factors (Electricity emissions 30tC02e; gas emissions 18tC02e).	0	Centrica only leases four properties. The emissions are estimated based on typical consumption values. The emissions are immaterial, do not expose us to risk and hence are not relevant.

Franchises	Not Relevant, calculated	5532	Fleet emissions (4596tC02e) have been based on the number of Dyno Franchisee vehicles, multiplied by their typical miles per gallon (MPG) and annual mileage. The building emissions (963tCO2e) have been calculated based on the approximate number and size of franchisee buildings. These are then converted into electricity consumption values before being converted into carbon emissions.	0	Centrica operates the Dyno Franchise in the UK. While we do not directly track franchisee carbon emissions, we have estimated their emissions based on the franchisee vehicle and building numbers. The emissions are very small relative to the total scope 3 emissions (less than0.001%).
Investments	Not relevant, explanation provided	0	N/A	0	Centrica is not a financial organisation.
Other (upstream)	Not evaluated	0	N/A	0	N/A
Other (downstream)	Not evaluated	0	N/A	0	N/A

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 document	Page/section reference	Relevant verification standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	Complete	Limited assurance	centrica_assurance_statement_2015	Page 1-2	Other: ISAE3000 (Revised)	1
Annual process	Complete	Limited assurance	basis_of_reporting_2015	Page 31-37, Total carbon emissions	Other: ISAE3000 (Revised)	1

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 (%)**	**Direction of change**	**Comment** [maximum 2,400 characters]
Purchased goods and services	Change in methodology	3	Decrease	The 2015 value is based on original analysis undertaken in 2014, but with a slightly different methodology applied and a pro-rated reduction based on the reduction in spend in 2015.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Change in output	5	Decrease	There was a decrease in North American power purchased for resale due to lower customer demand.
Upstream Transportation and Distribution	Change in output	14	Decrease	In 2015, there was a decrease in shipping activity associated with our offshore interests which includes oil wells, platforms and wind farms. The ships are used for support as well as the transfer of personnel, goods and surveys. The decrease was across all the relevant Business Units due to changes in production and operation.
Waste generated in operations	Change in output	40	Decrease	There was a significant reduction in our operational waste disposed to landfill in 2015, compared with 2014. There was also a reduction, but less significant, of operational waste recycled. The decline is largely attributed to more remediation work undertaken in our Canadian operations during 2014.
Business travel	Change in output	8	Increase	Business travel has increased in all activity areas including rail, flights, helicopter travel and employees using their own vehicles for business purposes. This may, in part, be due to the increasingly integrated nature of our global operations.
Downstream leased assets	Divestment	97	Decrease	Three leased properties closed during 2015, one of which had particularly high estimated emissions, causing our leased asset emissions to fall significantly.
Franchises	Change in output	11	Decrease	In 2015, there was a decrease in the number of franchisee vehicles and franchisee properties compared to 2014 which made our emissions decline.
Use of sold products	Change in methodology	23	Increase	For the first time, we have included the calculated emissions associated with use of the crude oil that we produce in 2015. As a result, our reported emissions increased.

Use of sold product	Change in physical operating conditions	2	Decrease	Centrica sold less gas to our customers resulting in a reduction of associated emissions. Weather has a strong influence on the volume of gas our customers require and a mild winter and cool summer contributed to the reduction.
Use of sold products	Emissions reduction activities	0.05	Decrease	Part of the reason for selling less gas to our customers can be attributed to the low carbon products and services we have provided to them such as installing insulation in our customer's homes.

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

CC14.4a: Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success [maximum 4,500 characters]

We collaborate with our suppliers to better manage environmental, social and economic impacts which include GHG emissions, as well as supporting our customers reduce their emissions.

i Strategy for Prioritisation

Our strategy for supplier engagement is based on the potential supply chain risks and opportunities (R&O). Therefore while we undertake generic supply chain management strategies, we mainly focus on the suppliers who can have the greatest influence on our R&O:

1. Minimum expectations are set for all suppliers through supplier contracts
2. Potentially higher risk suppliers are assessed to identify their Corporate Responsibility (CR) risk
3. Where necessary, suppliers receive an additional audit to inspect operations
4. Solutions are offered to customers to reduce their carbon emissions and raise awareness on energy reduction strategies

ii Methods of Engagement

1. Engagement with suppliers starts with us being clear that we expect them to uphold our Business Principles, which include a commitment to protect the environment. We also include CR clauses in supplier contracts and if underperformance is identified, we work with those suppliers on a remediation plan. Our supplier management programme also enables us to monitor performance through regular meetings with suppliers.

2. We have a supply chain risk management process that includes a supplier self-assessment tool. This requires higher risk suppliers (based on sector, country and spend) to report on issues that include their carbon risk and management approach. The tool enables us to understand associated R&O and where a supplier has scored inadequately, we work with them to develop an improvement plan.

3. If we identify a high risk supplier through the self-assessment tool or through another avenue, we can conduct an audit to better understand and manage risks. This can result in effective engagement where other approaches have been unsuccessful.

4. By supporting customers to lower their energy consumption, we can reduce the biggest source of carbon emissions related to our business, while saving our customers money. We do this by making their homes more energy efficient by installing low carbon products such as solar panels and providing technology like smart meters, time-of-use plans and personalised smart energy reports to help them better understand and manage their energy use.

iii Measuring Success

Success in our supply chain is measured in the following ways: Ensuring that all our suppliers agree to and understand the CR clauses in supplier contracts; effective identification of potential high risk suppliers and managing that risk; seeing progressive improvement in supplier understanding and management of carbon, measured through periodic assessment. For example, during 2015, 46 potentially higher risk suppliers completed a self-assessment questionnaire. Of those assessed, no suppliers were deemed high risk and a quarter received a medium risk rating. The majority of the latter are now developing and implementing corrective action plans.

Success for our customers is to enable them to be smarter with their energy consumption which can reduce their carbon footprint and energy bills. This can be measured through monitoring installation of low carbon products and services, calculating theoretical customer carbon savings and actual energy and carbon saving studies. Increased customer awareness of how they can reduce and control energy use is also a sign of success that can be demonstrated through customer surveys. During 2015, we installed energy efficiency measures in the UK which will achieve approximately 236,000t of annual savings over their lifetime. We calculate that since 2008, we have helped our UK customers save over 22mtCO2e. We are leading the roll-out of smart meters, having installed over 2.5m in UK homes and business by the end of 2015. Our Hive Active Heating device also allows customers to control and set preferences for heating using mobile devices. As a result, 87% of Hive users feel they now have an easier way to control their heating while 58% believe it has helped save money on their energy bills, by actively reducing unnecessary energy use.

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

Number of suppliers	**% of total spend**	**Comment** [maximum 2,400 characters]
84	18	We engage our suppliers through our supply chain risk management process that includes a supplier self-assessment tool. This is based on a risk profile approach using criteria around country, sector and spend rather than focusing purely on our spend profile. 84 suppliers in our portfolio had a valid CR assessment score in 2015. Their related spend, as a percentage of our total spend, excludes transport and distribution costs. Where a supplier is deemed to have inadequate performance, we work with them to develop an improvement plan. We also engage with our suppliers during all contract negotiations by including CR clauses in supplier contracts and working closely with them to embed these clauses from the outset of our relationship. This is mandatory for all new suppliers or for those renewing an existing contract.

CC14.4c: If you have data on your suppliers' GHG emissions and climate change strategies, please explain how you make use of that data

How you make use of the data	**Please give details** [maximum 2,400 characters]
Use in supplier scorecards	Our risk based supplier self-assessment tool helps us understand and manage the risks associated with individual suppliers, including providing information about their carbon emission strategies, policies and procedures. Where there is unacceptable risk, we work with our suppliers to reduce that risk.

Further information:
CC14.2a: Proportion of reported scope 3 emissions verified are 0.01%. 1% has been provided as the answer because the response requires a number between 1 and 100.

Sign off

CC15. Sign off

CC15.1: Please provide the following information for the person that has signed off (approved) the CDP climate change response

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

centrica

Module: Electric utilities

Page: EU0. Reference Dates

EU0.1

Reference dates
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 2019 if possible).

Year ending	Start date	End date
2015	01 Jan 2015	31 Dec 2015
2014	01 Jan 2014	31 Dec 2014
2020	01 Jan 2020	31 Dec 2020

Further Information

Please note that 2020 figures are indicative only and represent publicly known developments. All other figures are assumed to stay the same as 2015 and do not recognise other future changes in the generation portfolio.

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)
2015	5937	18362	2145630	0.117
2014	6072	19881	3050746	0.153
2020	5699	17484	2145630	0.123

Further Information

The 2015 production dropped as a result of poor market conditions for gas-fired power generation in the UK.
The Whitegate power station in the Republic of Ireland had its first whole year of generation under Centrica ownership in 2015.

2020 figures are indicative only and are based on 2015 asset portfolio unless a future change is known and the information is publicly available.

Page: EU2. Individual Country Profiles - Canada

Further Information

It is not applicable for Centrica to complete the Canada section.

Page: EU2. Individual Country Profiles - Ireland

EU2.1

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

CCGT

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)
2015	440	1926	755256	0.392
2014	440	870	344175	0.396
2020	440	1926	755256	0.392

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)
2015	440	1926	755256	0.392
2014	440	870	344175	0.395
2020	440	1926	755256	0.392

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 in CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2015	440	1926	755256	0.392
2014	440	870	344175	0.395
2020	440	1926	755256	0.392

Further Information

In the Republic of Ireland, Centrica has one CCGT power station; therefore the ‘CCGT’, ‘Total Thermal’ and ‘Total Figures for this country’ are the same.

Page: EU2. Individual Country Profiles - Netherlands

Further Information

It is not applicable for Centrica to complete the Netherlands section.

Page: EU2. Individual Country Profiles - Norway

Further Information

It is not applicable for Centrica to complete the Norway section.

Page: EU2. Individual Country Profiles - Trinidad and Tobago

Further Information

It is not applicable for Centrica to complete the Trinidad and Tobago section.

Page: EU2. Individual Country Profiles - United Kingdom

EU2.1

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

CCGT
Nuclear
Other renewables

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)
2015	3475	3432	1383440	0.403
2014	3565	6853	2700191	0.394
2020	3475	3432	1383440	0.403

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)
2015	1777	12126
2014	1777	11255
2020	1784	12126

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)
2015	245	878
2014	290	903
2020	0	0

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)
2015	5252	15558	1390374	0.089
2014	5342	18108	2706571	0.149
2020	5259	15558	1390374	0.089

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 in CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2015	5497	16436	1390374	0.085
2014	5632	19011	2706571	0.142
2020	5259	15558	1390374	0.089

Further Information

2020 figures are indicative only and are based on 2015 values unless a change has occurred to our generation portfolio and the information is publicly available.

EU2.1d: A small component of this power is generated through open cycle generation, however all our UK power stations are CCGT design and hence they have all been included in the above values. Please note there is a small quantity of carbon emissions as a result of nuclear power generation, but no opportunity to include in the table. The 2015 carbon emissions from nuclear were 6,934tCO2e.

EU2.1e: The nuclear name plate capacity has been aligned to our 'Reference Unit Power' figures. The production numbers are aligned to those shared with EDF. A production value is not available for 2020, as such; the most recent reporting year value has been used.

EU2.1k: The table includes the minor carbon emissions resulting from the nuclear generation, as well as the CCGT generation.

Page: EU2. Individual Country Profiles - United States of America

Further Information

It is not applicable for Centrica to complete the North American section

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?

Yes

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
Other: UK - Renewables Obligation	29	34.8	2017	The date of the future obligation is April 2016 - March 2017. Our position in relation to meeting our obligations will be formalised during October 2016 but Centrica remain fully compliant with the requirements of the Renewable Obligation.
Other: Renewable Portfolio Standards (Various)				Our obligations vary from state to state across the US.

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		2.7	The achieved power price (including ROCs) for renewables in 2015 was £115/MWh. The total generation for which we received revenue was 878GWh. This resulted in renewables contributing 2.7% of total Centrica EBITDA.

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	0	0	2020	Centrica's strategy is to exit being an operator and owner of wind generation and therefore, renewable electricity's contribution to EBITDA will be nil in the long term. We will instead be an

Please give:	Monetary figure	%	Year ending	Comment
				enabler of other operator's wind power, by securing wind energy through a limited number of Power Purchase Agreements.

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	0	0		Centrica's strategy is to stop being an operator and owner of wind generation and hence capital expenditure in the long term will be nil.