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SSE's Economic Contribution to the UK, Scotland and the Republic of Ireland Financial Year 2015/16

June 2016



pwc

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Introduction

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Section 1 – Introduction

Purpose and scope of this study

This is a PwC study commissioned by SSE plc, a major energy company operating in the UK and the Republic of Ireland (“Ireland”). This report estimates SSE’s gross contribution to Gross Domestic Product (GDP) and employment in the UK, Scotland and Ireland. It covers its contribution directly, indirectly in its supply chain, and via employees spending their wages in the wider economy (its “induced contribution”). SSE has commissioned this report to continue building awareness within SSE and amongst its stakeholders of the contribution it makes to the economy.

This report updates previous reports we have produced for SSE, which covered its contribution to the UK, Scottish and Irish economies in each financial year (‘FY’) between FY12 and FY15. In this report, we have focused on SSE’s contribution to UK, Scottish and Irish GDP and employment in FY16 (see table 1.1).

Our analysis covers the SSE Group which incorporates SSE’s Wholesale, Retail, Enterprise and Networks businesses. The data provided by SSE include its subsidiaries but exclude joint ventures and associates, as defined in SSE’s annual accounts. As a result, the figures presented underestimate the total size of SSE’s economic footprint.

This report presents the results for FY16 and, in places, includes those from the previous reports to show how SSE’s total contribution to the economy has changed over the past five years.

Limitations

This study of SSE’s contribution to GDP and employment represents a gross analysis and does not take into account the extent to which any part of this contribution might have happened in the absence of SSE. The current report does not look at any other economic, social and environmental impacts created by SSE’s direct operations or supply chains. Indirect and induced contributions are estimated using Input-Output models. Data used for this analysis were provided to us by SSE and collected from statistics authorities such as the Office for National Statistics (ONS). They have not been audited by PwC. Further information on our methodology and data sources is available in the Appendix to this report.

Table 1.1: Indicators assessed for this report

Indicator covered in the study	Measured as	Methodology
Contribution to GDP	Gross Value Added (GVA), which is the company-level equivalent of GDP	Analysis of financial statements and Input-Output modelling
Employment supported	Headcount	Analysis of headcount data and Input-Output modelling

Details of our methodologies can be found in the Appendix

SSE’s and PwC’s role in this project

SSE provided PwC (“we” or “us”) with input data for our calculations on profits, wages, employment headcount and expenditure. SSE also provided the geographical location and sector of the economy for approximately 95% of the companies with which it spent its money in FY16 using its professional judgement and published guidance from statistics authorities. We used these data, as well as data from statistics authorities, as inputs to estimate SSE’s economic contribution using economic models built by us.

We have not tested or audited any of the data provided by SSE or obtained from statistics authorities that have been used within the models. We provide no assurance over these data or any outputs based on these data.

Note: This report has been prepared solely for the benefit of SSE in accordance with the terms of our engagement letter and we accept no liability to any other user. The information contained in this report should not be relied on by anyone else. For a full disclaimer, please refer to the back cover of this report.



Section 1 – Introduction

Key findings¹: SSE's contribution to UK, Scotland and Ireland GDP and employment

Contribution to the Scottish economy

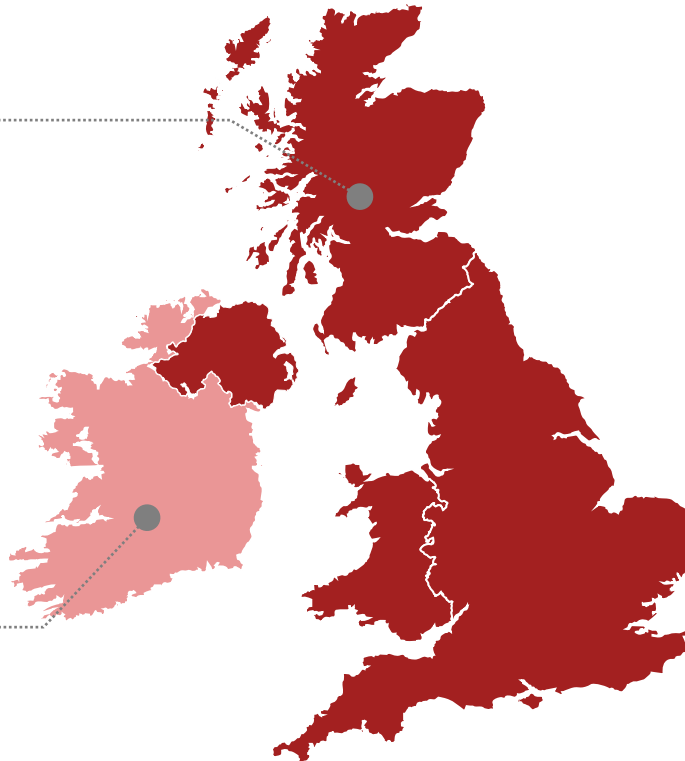
In FY16, SSE contributed **£1,555m** to Scottish GDP and supported **17,290** jobs in Scotland.

Over the last five years, SSE contributed **£7,078m** to the Scottish economy (in current prices).

Contribution to the Irish economy

In FY16, SSE contributed **€805m** to Irish GDP and supported **4,910** jobs in Ireland.

Over the last five years, SSE contributed **€4,321m** to the Irish economy (in current prices).



Contribution to the UK economy

In FY16, SSE contributed **£8.87bn** to UK GDP and supported **113,640** jobs in the UK.

Over the last five years, SSE contributed **£45.40bn** to UK economy (in current prices).

For every person employed by SSE directly, SSE supported **4.6** jobs elsewhere in the UK economy in FY16, which is higher than the UK average of 2.1.

At **£129,670** in FY16, SSE's average output per employee was **2.4** times the UK national average.

¹ Throughout the report we present rounded data for presentational purposes. Therefore, some numbers may not exactly match the equivalent numbers that SSE reports in its financial accounts. Furthermore, any derived statistics, such as multipliers and SSE's labour productivity are calculated on the basis of the underlying data, not the rounded figures presented in this report.

*SSE's contribution to UK GDP and
employment*

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Section 2 – SSE’s contribution to UK GDP and employment

Direct contribution to the UK economy



In FY16, SSE directly employed 20,370 people in the UK.

SSE directly employs staff with a range of different skills, including engineers, technicians, business administration staff and customer support personnel. These staff are employed across the SSE Group.

SSE’s direct contribution to GDP in FY16 amounted to £2.64bn.²

Combining SSE’s direct contribution to GDP and the size of its workforce implies that SSE’s average output per worker was £129,670 in FY16. This compares to £54,540 (in current prices) for the UK national average in 2014 which implies that SSE’s average productivity is 2.4 times the national average.³ Note that where national statistics are provided on a calendar year basis we use 2011 to compare with FY12, 2012 with FY13 and so on as outlined within the Appendix. If the latest 2015 calendar year data are not available we use 2014 statistics adjusted to current prices.

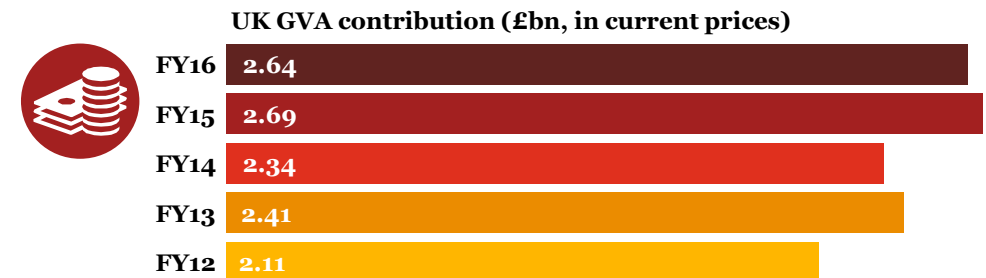
At £129,670, SSE’s average output per employee in FY16 was 2.4 times the UK national average of £54,540

Figure 2.1: Direct contribution to UK employment



Source: SSE, PwC analysis. Rounded to the nearest 10 jobs.

Figure 2.2: Direct contribution to UK GDP



Source: SSE, PwC analysis. We have adjusted past results using the GDP deflator so that the price level is more comparable with our FY16 results. The values are expressed in current prices rather than the price level for the year of analysis.

² SSE’s direct contribution to GDP is estimated from data contained in its financial accounts, which are prepared on an accruals basis for the financial year. For a more detailed description of the approach used in this section, please refer to the Appendix of this report.

³ Source: ONS. Average output per employee is defined as Gross Value Added per employee.



Section 2 – SSE’s contribution to UK GDP and employment

Total contribution to UK GDP and employment



We estimate that SSE supported 113,640 jobs in the UK in FY16 which is equivalent to 0.4% of UK employment in 2014. This implies that approximately 1 in every 280 jobs in the UK is supported by SSE’s activities. For every member of SSE’s 20,370 direct employees, SSE supported another 4.6 jobs elsewhere in the UK – a total employment multiplier of 5.6. This is higher than the UK average multiplier of 3.1.⁴

Over the last five years, SSE has supported an annual average of 112,110 jobs in the UK.

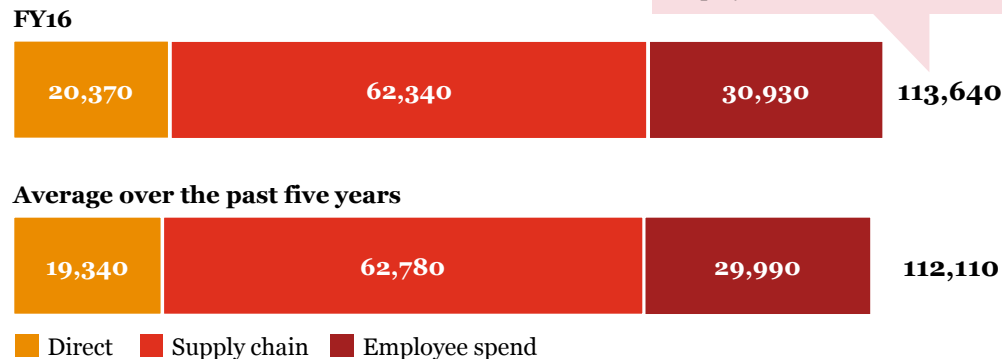
The total contribution of £8.87bn to UK GDP in FY16 is equivalent to approximately 0.5% of UK GDP in 2015. Over the last five years, we estimate that SSE has contributed £45.40bn to UK GDP (in current prices).

Figure 2.3: SSE’s employment multiplier in the UK



Source: SSE, PwC analysis.

Figure 2.4: Total UK employment supported



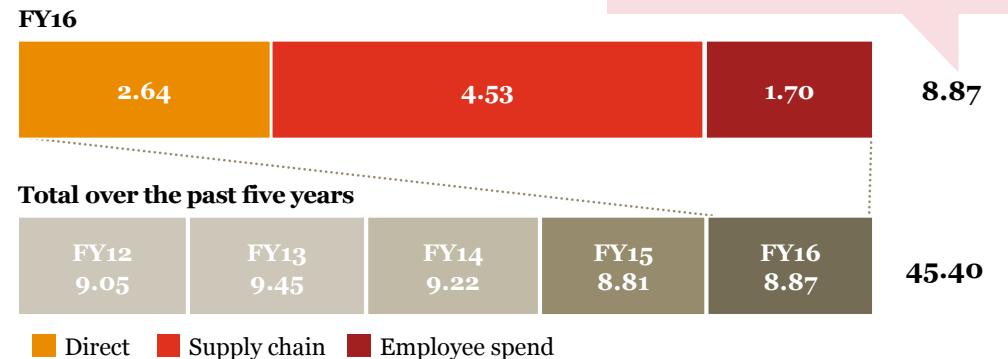
Source: SSE, PwC analysis. Rounded to the nearest 10 jobs.

⁴ Source: ONS, PwC analysis. UK average defined as the unweighted average of all UK sectors.

⁵ Source: Business Register and Employment Survey (BRES), PwC analysis.

⁶ Source: ONS. GDP measured at factor cost.

Figure 2.5: Total contribution to UK GDP (£bn in current prices)



Source: SSE, PwC analysis. We have adjusted past results using the GDP deflator so that the price level is more comparable with our FY16 results. The values are expressed in current prices rather than the price level for the year of analysis.

*SSE's contribution to Scotland GDP and
employment*

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Section 3 – SSE’s contribution to Scotland GDP and employment

Direct contribution to the Scottish economy



In FY16, SSE directly employed 7,240 people in Scotland.

SSE directly employs staff with a range of different skills, including engineers, technicians, business administration staff and customer support personnel. These staff are employed across the SSE Group.

SSE’s direct contribution to GDP in FY16 amounted to £959m.⁷

Combining SSE’s direct contribution to Scottish GDP and the size of its workforce implies that SSE’s average output per employee in Scotland was £132,450 in FY16. This compares to £48,660 (in current prices) at a national level for Scotland in 2014. This implies that SSE’s average productivity is 2.7 times the national average.⁸ Note that where national statistics are provided on a calendar year basis we use 2011 to compare with FY12, 2012 with FY13 and so on as outlined within the Appendix. If the latest 2015 calendar year data are not available we use 2014 statistics adjusted to current prices.

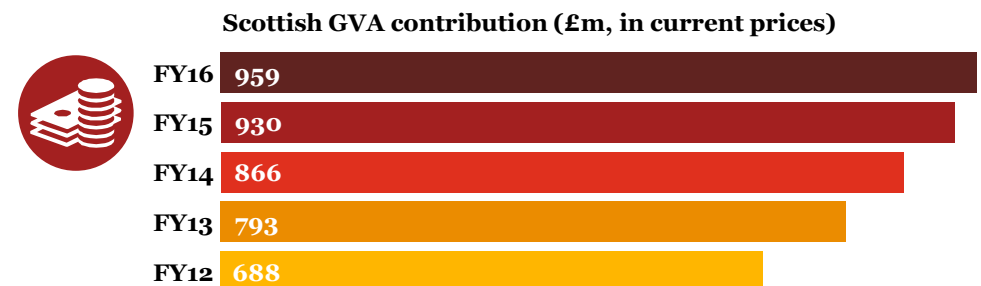
At £132,450, SSE’s average output per employee in FY16 was 2.7 times the Scottish national average of £48,660

Figure 3.1: Direct contribution to Scottish employment



Source: SSE, PwC analysis. Rounded to the nearest 10 jobs.

Figure 3.2: Direct contribution to Scottish GDP



Source: SSE, PwC analysis. We have adjusted past results using the GDP deflator so that the price level is more comparable with our FY16 results. The values are expressed in current prices rather than the price level for the year of analysis.

⁷ SSE’s direct contribution to GDP is estimated from data contained in its financial accounts that are prepared on an accruals basis for the financial year. For a more detailed description of the approach used in this section, please refer to the Appendix of this report.

⁸ Source: ONS. Average output per employee is defined as Gross Value Added per employee. The latest consistent data available for Scotland are for calendar year 2014. We convert to current prices using the GDP deflator, a measure of price inflation in the economy.



Section 3 – SSE’s contribution to Scotland GDP and employment

Total contribution to Scottish GDP and employment



We estimate that in FY16 SSE supported a total of 17,290 jobs in Scotland. This is equivalent to 0.7% of Scotland’s employment in 2014 and implies that approximately 1 in every 143 jobs in Scotland are supported by SSE’s activities.

SSE’s contribution to Scottish GDP is largely driven by the GVA it generated directly. We estimate that in FY16 SSE’s operations in Scotland made a direct contribution of £959m to Scottish GDP, as part of a total contribution of £1,555m.⁹

The direct contribution to Scottish GDP is driven by the high proportion of SSE employees located in Scotland, as SSE’s UK profits are apportioned to Scotland based on the Scottish share of total UK wage payments. In addition, Scotland’s relatively small and open economy means the multiplier effect tends to be smaller than in larger, more closed economies. We estimate that SSE’s supply chain in Scotland contributed £410m to Scottish GDP. Spending by employees of SSE and those in its Scottish supply chain contributed a further £186m.

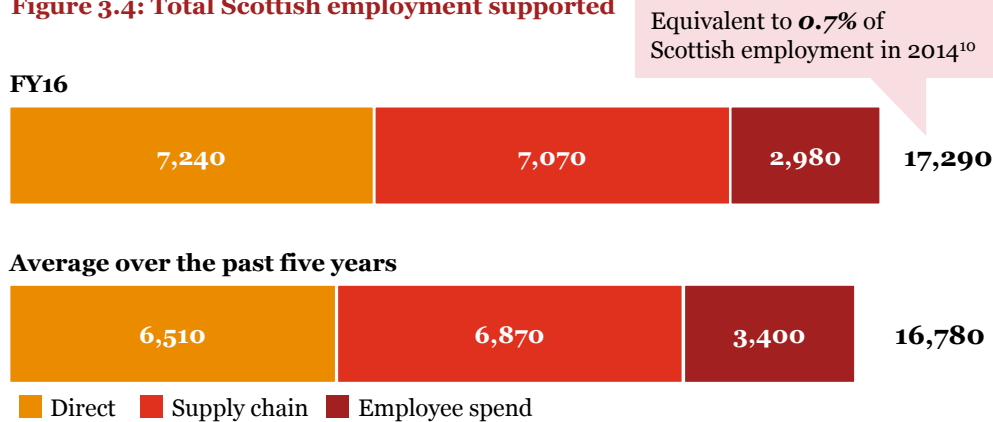
SSE’s total contribution of £1,555m in FY16 is equivalent to approximately 1.3% of Scottish GDP in 2014.

Figure 3.3: SSE’s employment multiplier in Scotland



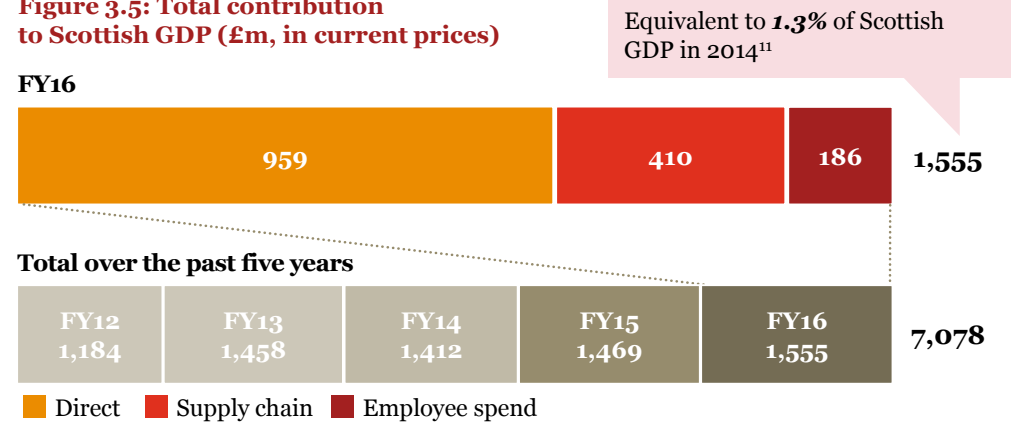
Source: SSE, PwC analysis.

Figure 3.4: Total Scottish employment supported



Source: SSE, PwC analysis. Rounded to the nearest 10 jobs.

Figure 3.5: Total contribution to Scottish GDP (£m, in current prices)



Source: SSE, PwC analysis. We have adjusted past results using the GDP deflator so that the price level is more comparable with our FY16 results. The values are expressed in current prices rather than the price level for the year of analysis.

⁹ Please note that we look at the overall contribution of SSE to Scotland, which includes procurement from the rest of the UK and the Republic of Ireland. This does not reflect the multiplier effect of Scottish operations only.

¹⁰ Source: BRES, PwC analysis.

¹¹ Source: ONS. GDP measured at factor cost. The latest consistent data available for Scotland are for 2014. We have adjusted to current prices using the GDP deflator.

*SSE's contribution to Republic of Ireland
GDP and employment*

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Section 4 – SSE’s contribution to Republic of Ireland GDP and employment

Direct contribution to the Irish economy



In FY16, SSE directly employed 750 people in Ireland.

SSE directly employs staff with a range of different skills, including engineers, technicians, business administration staff and customer support personnel. These staff are employed across the SSE Group in its Retail, Wholesale and Enterprise businesses in Ireland.

SSE’s direct contribution to GDP in FY16 amounted to €163m.¹²

Combining SSE’s direct contribution to Irish GDP and the size of its workforce implies that SSE’s average output per employee in Ireland was €218,090 in FY16. This compares to the Irish national average output per employee of €89,660 (in current prices) in 2014, which implies SSE’s average productivity is 2.4 times the national average.¹³ Note that where national statistics are provided on a calendar year basis we use 2011 to compare with FY12, 2012 with FY13 and so on as outlined within the Appendix. If the latest 2015 calendar year data are not available we use 2014 statistics adjusted to current prices.

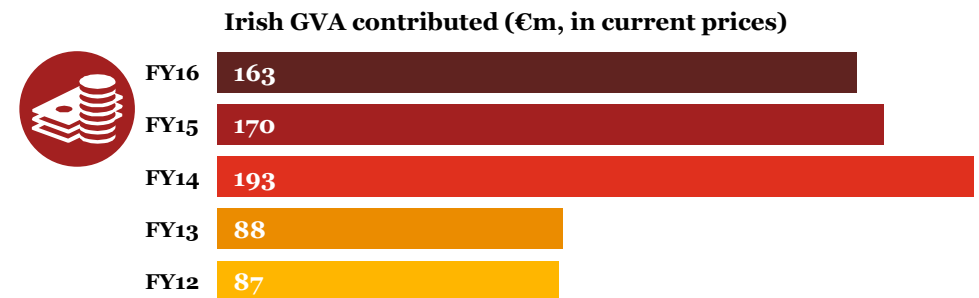
At €218,090, SSE’s average output per employee in FY16 was 2.4 times the Irish national average of €86,280

Figure 4.1: Direct contribution to Irish employment



Source: SSE, PwC analysis. Rounded to the nearest 10 jobs.

Figure 4.2: Direct contribution to Irish GDP



Source: SSE, PwC analysis. We have adjusted past results using the GDP deflator so that the price level is more comparable with our FY16 results. The values are expressed in current prices rather than the price level for the year of analysis.

¹² SSE’s direct contribution to GDP is estimated from data contained in its financial accounts that are prepared on an accruals basis for the financial year. For a more detailed description of the approach used in this section, please refer to the Appendix of this report.

¹³ Source: Central Statistics Office (CSO). Average output per employee is defined as Gross Value Added per employee.



Section 4 – SSE’s contribution to Republic of Ireland GDP and employment

Total contribution to Irish GDP and employment



We estimate that SSE supported a total of 4,910 jobs in Ireland in FY16.¹⁴ This is equivalent to 0.3% of Irish employment in 2015 and implies that approximately 1 in every 365 jobs in Ireland are supported by SSE’s activities.

For every member of SSE’s 750 Irish employees, SSE supported another 5.6 Irish jobs – a total employment multiplier of 6.6.¹⁵ Over the last five years, SSE has supported an annual average of 4,870 jobs in Ireland.¹⁶

SSE’s total contribution to Irish GDP in FY16 of €805m is equivalent to approximately 0.5% of Irish GDP in 2014. This brings SSE’s total contribution to the Irish economy between FY12 and FY16 to €4,321m when expressed in current prices.

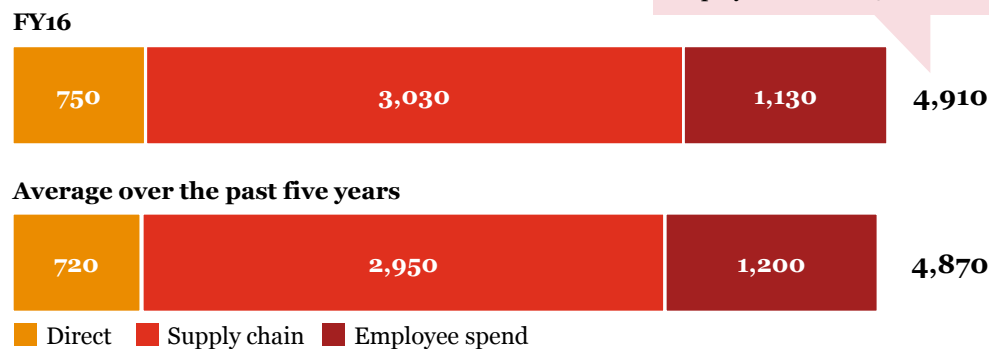
On average, 16% of this contribution was from SSE’s direct operations, 73% from its supply chain spend and 10% from spending by its employees and those of its suppliers. The supply chain contribution is partially a result of spending in Ireland by SSE’s UK business.

Figure 4.3: SSE’s employment multiplier in Ireland



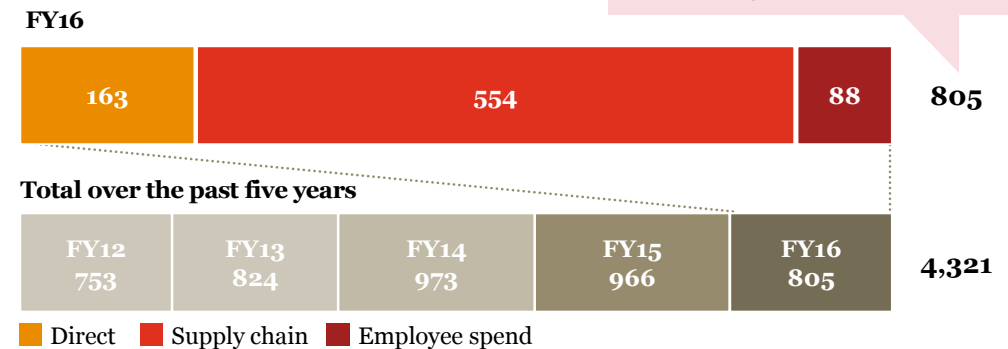
Source: SSE, PwC analysis.

Figure 4.4: Total employment supported in Ireland



Equivalent to **0.3%** of Irish employment in 2015¹⁷

Figure 4.5: Total contribution to Irish GDP (€m, in current prices)



Equivalent to **0.5%** of Ireland’s GDP in 2014¹⁸

Source: SSE, PwC analysis. We have adjusted past results using the GDP deflator so that the price level is more comparable with our FY16 results. The values are expressed in current prices rather than the price level for the year of analysis.

¹⁴ Please note that we look at the overall contribution of SSE’s to Ireland, which includes procurement from the UK business. This does not reflect the multiplier effect of Irish operations only

¹⁵ Source: SSE, PwC analysis.

¹⁶ Please note that in light of a significant update to the Irish economic model used in this analysis all past results for Ireland have been restated, please see page 20 of the Appendix for more information on this update.

¹⁷ Source: CSO, PwC analysis.

¹⁸ Source: CSO. GDP measured at factor cost.

Appendix

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Section 5 – Appendix

Economic contribution approach (1/7)

Overview

SSE's economic contribution is defined in terms of its contribution to GDP and employment supported.

Contribution to GDP is measured in terms of Gross Value Added (GVA). GVA is a monetary measure of the value a company adds during its production process. Hence, it is the difference between the price of its products (outputs) and the price of the inputs it uses in producing these (or intermediate consumption). GVA is an alternative term for GDP at factor cost, which is GDP before taxes and subsidies on products. As such, GVA is the company-level equivalent of GDP.

The contribution to GDP and employment is estimated at the direct, indirect and induced levels. The direct contribution results from the company's own operations: it includes the people employed directly by a company and the economic value the company creates. The indirect contribution is generated in a company's supply chain through the procurement of inputs. The induced contribution is generated through the spending by employees throughout the value chain from their earnings. It includes both SSE's own employees and those within its supply chain. In our report these contributions have been called direct, supply chain spend and employee spend to make it easier for readers not familiar with the economic terminology.

SSE provided us with the input data to estimate its direct economic contribution. We also relied upon data from various statistics authorities to build the economic Input-Output models used in our calculations (as described on the following pages). We did not carry out any testing of, and do not provide any assurance over, the underlying data provided by SSE or obtained from the other external sources, and hence do not provide any assurance over outputs based on such data.

Approach to estimating direct economic contribution

We estimate SSE's direct contribution to GDP using an income approach from data contained in its financial accounts that are prepared on an accruals basis for the financial year (rather than relating to the cash spent during the year). The following equation is used:

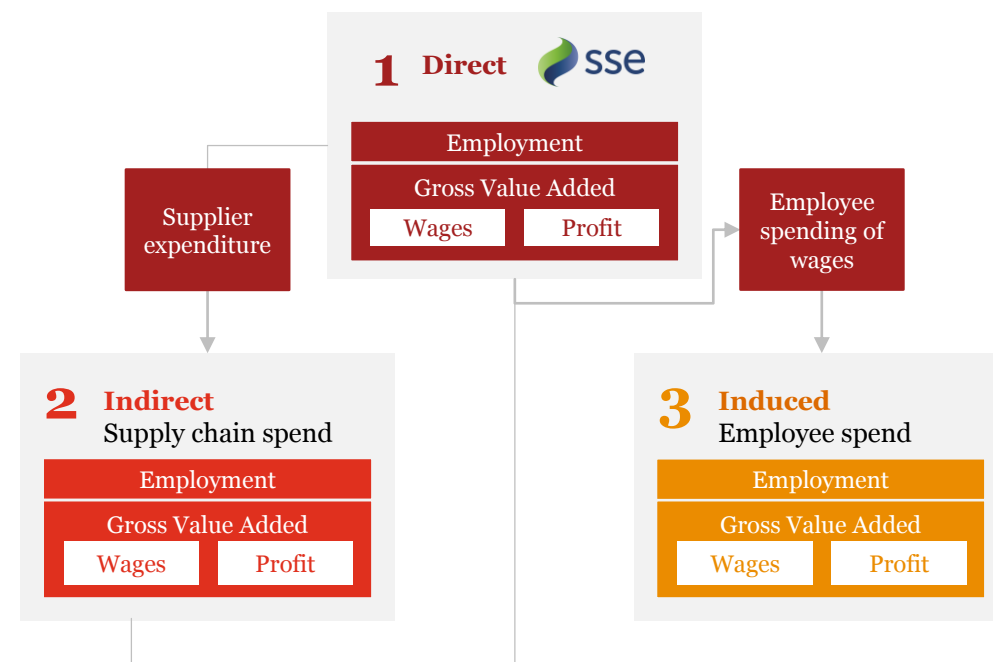
$$\begin{aligned} &\text{Direct contribution to GDP} \\ &= \text{profit before interest and taxation} + \text{employee costs} \\ &\quad + \text{depreciation} + \text{amortisation.} \end{aligned}$$

These data are provided by SSE for the UK and Ireland. SSE do not provide separate financial data for Scotland and therefore it was agreed with SSE to apportion a share of SSE's direct contribution to UK GDP to Scotland on the basis of employee compensation.

Direct employment is taken directly from SSE's human resources data. The breakdown by country and nation is based on the home address of its employees.

A more detailed explanation of our approach can be found on the following pages.

Figure 5.1: The relation between the three levels of economic contribution



Section 5 – Appendix

Economic contribution approach (2/7)

Approach to estimating indirect and induced economic contribution

The indirect and induced economic contributions are estimated using an Input-Output model which describes how different industries in the economy relate to each other. On this basis we can estimate how activity by one company stimulates activity elsewhere in the economy.

SSE's indirect (or supply chain) contribution is estimated using its procurement data. SSE gathered and provided data from its accounts which it analysed to identify the sectors of the economy from which it purchases its inputs. The Input-Output tables show how much a typical business in each supplier's sector requires to produce one unit of output. Equally, it shows what inputs are required from other sectors to produce one unit of its own output. In this way we can estimate SSE's input requirements through the entire supply chain and estimate the total value of production stimulated. This process of one company stimulating economic activity in other companies is referred to as the multiplier effect.

In addition to the above, an Input-Output table provides data on the share of revenue that constitutes profit and wages for each sector. We apply this ratio to the total production value stimulated to estimate the total GVA in the supply chain by sector. We also use government statistics on employment in each sector to estimate the total employment associated with SSE's activity. We derive the average output per head by sector and apply this to the total production value stimulated in each sector in the supply chain. In this way, we estimate the indirect employment supported by SSE.

These steps are repeated to estimate the induced contribution, but through using wage data to estimate how much production is stimulated in the supply chain that supports the products employees buy, e.g. accommodation, food and entertainment.

The data sources used for our modelling are described on the following pages.

Figure 5.2: A simplified version of an Input-Output table, the basis for an Input-Output model

	Agriculture	Manufacturing	Transport	Retail	Financial services	Household demand	Gov't demand	Gross capital formation	Export demand	Total demand
Intermediate consumption										
Agriculture										100
Manufacturing	10								20	
Transport										
Retail										
Financial services					50					
Final consumption										
Imports										
Taxes minus subsidies										
Employee wages			20							
Gross operating surplus										
Total output	100									

Section 5 – Appendix

Economic contribution approach (3/7)

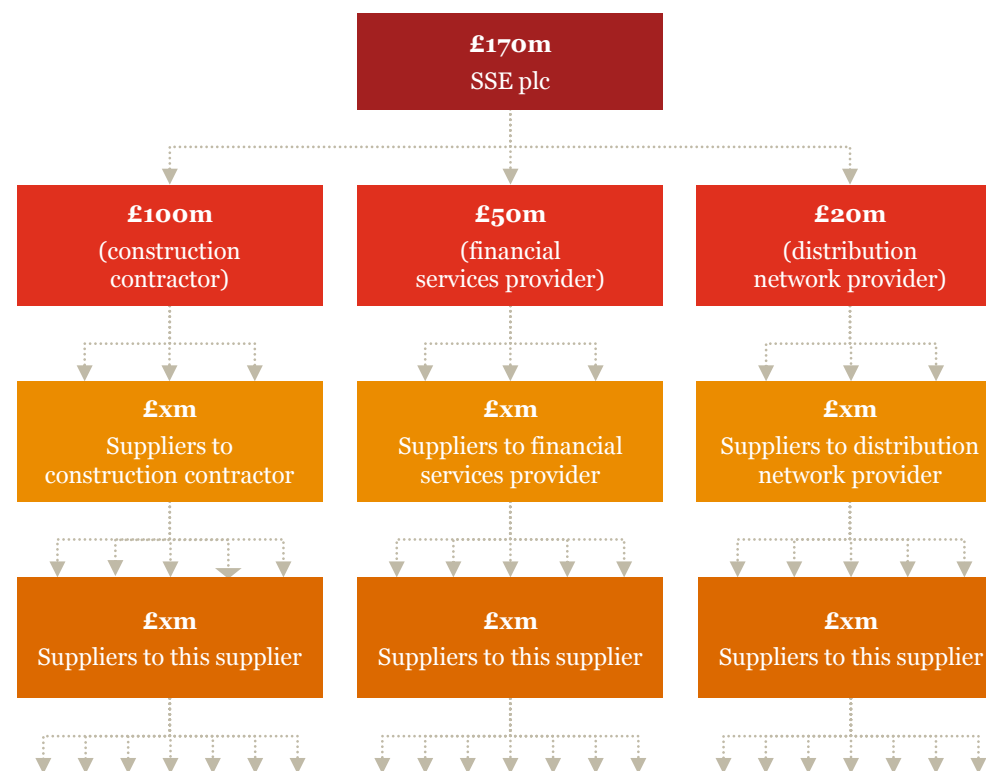
Model data sources

The Input-Output models for each geography are based on Input-Output tables provided by the relevant national official statistics offices. These are described in detail on the next page.

Input-Output tables are based on data collected through business surveys undertaken by national statistics offices on an annual basis. We have combined data from the Input-Output tables with employment data for the relevant years to obtain employment to output ratios. These have been updated using estimates for labour productivity and inflation to reflect the time period covered by our assessment. It should be noted that this type of adjustment does not capture structural changes in the economy that occur between the Input-Output table year and the year of analysis. This means that results should be treated with caution for sectors that have changed significantly since the preparation of the most recent Input-Output tables.

SSE provided us with the input data we used to estimate its direct economic contribution. We also relied upon official statistics to build the economic models used in our calculations (as described on the following pages). We did not carry out any testing of, and do not provide any assurance over the underlying data provided by SSE or obtained from any other external source.

Figure 5.3: A simplified representation of the relationship between SSE and its supply chain (note: hypothetical numbers used below)



Section 5 – Appendix

Economic contribution approach (4/7)

Table 5.1: Key data sources

Country	Source
<i>Input-Output tables</i>	
UK	ONS. UK Input-Output Analytical Tables, 2010
Scotland	Scottish Government. Input-Output Analytical Tables, 2012
Ireland	CSO. Input-Output Tables for Ireland, 2011
<i>Employment data</i>	
UK	ONS. Annual Employment Statistics (BRES)
Scotland	Scottish Government. Input-Output Analytical Tables, 2012 and ONS Annual Employment Statistics (BRES)
Ireland	CSO. Quarterly National Household Survey (QNHS) and Earnings Hours and Employment Costs Survey (EHECS)
<i>GDP data</i>	
UK	ONS. GVA statistics
Scotland	Scottish Government. Quarterly National Accounts
Ireland	CSO. National Accounts
<i>Inflation data</i>	
UK and Scotland	ONS. GDP deflator
Ireland	IMF. International Financial Statistics database
<i>Labour productivity</i>	
UK and Scotland	ONS. Labour productivity statistics
Ireland	OECD. Productivity statistics
<i>Household income</i>	
UK	ONS. UK Economic Accounts
Scotland	Scottish Government. Input-Output Analytical Tables, 2012
Ireland	CSO. National Accounts
<i>SSE profits, wages, headcount and expenditure data</i>	
All geographies	SSE

Section 5 – Appendix

Economic contribution approach (5/7)

Data treatment

- SSE provided all data related to its business. We obtained other inputs for our modelling from statistics authorities.
- We have used these data in our analysis, but we have not tested any of these input data and so do not provide any assurance over them.
- SSE used its judgement to map approximately 95% of its supplier expenditure to the relevant sector of the economy and the geographical location of the supplier.
- As agreed with SSE, we apportioned all remaining expenditure using the proportional distribution of the mapped expenditure, to obtain total expenditure by sector and country.
- SSE also provided data on employment headcount, profits and wages from its annual accounts.
- The data provided by SSE are for the financial year 1 April 2015 to 31 March 2016. The data that underpins our economic model, as well as those used to contextualise our estimates, are measured on a calendar year basis. We denote financial year data as FY[yy] (where yy denotes the end of the period) and calendar year data as 20[yy]. When comparing financial years to calendar years, we use 2011 for FY12, 2012 for FY13, 2013 for FY14, 2014 for FY15 and 2015 for FY16.
- In order to ensure consistency between our model and SSE's financial data, we have adjusted past values so that they are measured in comparable prices. All financial data received from SSE reflect the prices paid or received for goods and services during FY16. Ideally, to account for price changes that have occurred since the year of the national statistics that we use and SSE's financial data, we would adjust past values to the average price level of FY16. However, due to time lags in the provision of data, price level data are not available for the first quarter of 2016 at the time of analysis. Therefore, we adjust past values to 2015 prices using the GDP deflator for the relevant country. For convenience, we refer to this approximately equivalent price level as "current prices". The previous estimates of SSE's economic contribution between FY12 and FY15 that are presented in this report have been adjusted to current prices in the same way.
- To contextualise SSE's estimated economic contribution we use national GDP and employment data from statistics authorities. 2015 data are not yet available for the relevant UK and Scottish employment statistics or Scottish and Irish GDP. Consequently, where 2015 data are not available SSE's estimated economic contribution in FY16 is compared to calendar year 2014 statistics, the latest year for which data are available. The Scottish and Irish 2014 GDP data are inflated to current prices.
- A significant share of SSE's purchases is related to commodity trading. As agreed with SSE, we have only included SSE's net expenditure on energy commodities as this better measures the economic contribution of the company. For financial instruments, we have only included the commission paid by SSE, for the same reason.
- Part of SSE's expenditure is Feed-In Tariff (FIT) payments. These are subsidies to renewable energy generators required by Ofgem based on their share of the retail market. SSE pays these subsidies directly to generators and also indirectly via balancing payments administered by Ofgem. SSE has mapped FIT expenditure as payments to the UK Public Administration and Defence sector, consistent with previous economic contribution reports published by SSE. However, this is a simplification as these payments are eventually distributed across a range of generators who operate across a variety of sectors. This simplification has been made because the available information about the recipients of FIT was limited. In future, the accuracy of the results would be improved if more specific data became available. For the FY15 analysis we tested the sensitivity of our results to this specific approach, and found that alternative assumptions about the sectors of the economy in receipt of FIT payments could change the total UK employment contribution by up to 3% and up to 1.5% for the UK GDP contribution. However, in the absence of more reliable information on the specific beneficiaries of SSE's FIT payments, we have agreed with SSE that this is a reasonable way to treat FIT transactions for the purposes of this analysis.
- In the FY15 report we corrected for a small error in the data from FY14 that affected the depreciation and amortisation rate, which forms part of the direct GVA impact of SSE. Therefore, the UK and Scotland FY14 figures increased by 1% and 2% respectively compared to the results initially stated.

Section 5 – Appendix

Economic contribution approach (6/7)

Modelling methodology

- We have used Input-Output Analytical Tables and employment statistics from the UK Office for National Statistics (ONS), Ireland's Central Statistics Office (CSO) and the Scottish Government to create economic models that we have used, in conjunction with the data provided by SSE, to estimate SSE's indirect and induced economic contribution.
- All of the analysis is presented in gross terms. We have not assessed the net contribution of SSE to the economy (i.e. we have not considered what would have happened in the economy if SSE did not exist).
- SSE is a group of companies and we have excluded any transactions between the individual companies that make up the group to avoid double-counting contributions.
- Our analysis does not cover SSE's joint ventures and associates, as defined in SSE's annual accounts, unless they are suppliers to SSE, in which case they are treated like other suppliers in the analysis. SSE's subsidiaries are included in the analysis.
- Employment and GVA are different indicators that are driven by the same underlying economic activity. They should not be considered as additional to each other.
- We have used three stand-alone models to estimate SSE's economic contribution in the UK, Scotland and Ireland. These models are not linked and the results presented are, therefore, only related to the direct expenditure in each geography. They do not take into account feedback loops between geographies. For example, if SSE within Scotland purchases goods from an English supplier, and that English supplier sources goods from Scotland to enable it to meet SSE's demand, this additional spending in Scotland is not captured. The results, therefore, represent a conservative estimate of SSE's economic contribution (particularly in Scotland). For this reason, SSE's contribution in England, Wales and Northern Ireland cannot be derived by calculating the difference between the results for the UK and Scotland.
- The estimated economic contribution for UK, Scotland and Ireland is based on total SSE expenditure in these regions. For example, the economic contribution for Ireland reflects the purchases of the entire SSE Group from suppliers within Ireland, not just the purchases made by SSE Ireland.
- The Scottish Government has released a new 2012 Input-Output table for Scotland. As with previous occasions when new Input-Output tables have been released, we have used the new table in our analysis of SSE's economic contribution in FY16. However, past results have not been restated using this new table. The FY12 and FY13 results for Scotland are still based on the 2009 Input-Output table and the FY14 and FY15 results are still based on the 2011 table, which were the latest available at the time of the analysis. This should be taken into consideration when comparing results across years.
- We have used the FY16 average exchange rate to convert all foreign currency transactions. This approach is consistent with the principles outlined in International Accounting Standard 21 'The effects of changes in foreign exchange rates'.
- SSE's UK direct GVA is apportioned to Scotland based on Scotland's share of SSE's UK wage payments, as agreed with SSE.
- Where the estimates of SSE's contribution to GDP have been summed across the 5 years of analysis, no discount rate has been applied to account for changes in society's time preference for money.

Change in Ireland's economic model

- All indirect and induced figures for Ireland between FY12 and FY15 have been restated using a new 2011 Input-Output table released by the CSO. The CSO releases Input-Output tables every five years and the next expected release was in 2018 following the publication of a 2010 Input-Output table in 2013. However, due to a change in the national accounts compilation standards used in Ireland the CSO chose to release a new 2011 table earlier than 2018. This 2011 table was published for the first time based on the European System of National and Regional Accounts (ESA) 2010 and reflects a significant change to the 2010 table which had previously been used. As the changes to the updated table were significant we have re-estimated SSE's economic contribution for all years of analysis to allow for inter-year comparison. In addition to this change, an error within the previous model used to estimate SSE's economic contribution in Ireland has been corrected. The combined effect of these two changes has been to reduce the estimated GVA and employment contribution of SSE within Ireland for all years of analysis.

Section 5 – Appendix

Economic contribution approach (7/7)

Table 5.2: Key definitions

Indicators	Definition
<i>Model indicators</i>	
GVA	GVA is a measure of the value generated in the economy and represents the difference between the value of goods and services sold and the goods and services used as an input to their production. Hence, it is the company-level equivalent of GDP: adding up the GVA of all individual companies in the economy is equivalent to a country's GDP after adjusting for taxes and subsidies on products, which are components of GDP that are not included in the calculation of GVA.
Employment	Employment supported: expressed as number of jobs (headcount).
Multipliers	GVA multiplier: total GVA (direct + indirect + induced) for every £1 or €1 of GVA generated directly by SSE. Employment multiplier: total employment (direct + indirect + induced) for every job supported directly by SSE.
<i>Contextual metrics</i>	
Labour productivity	SSE's labour productivity is defined as SSE's direct GVA per employee (based on headcount). National labour productivity is defined as national GVA divided by national employment. National labour productivity was calculated using 2014 employment data and 2014 GVA data adjusted to current prices.
SSE contribution to GDP as % of national GDP	SSE's contribution to national GDP as a percentage of total GDP at factor costs. For the UK we used 2015 GDP data and for Scotland and Ireland we used 2014 data (the most recent available) and adjusted to current prices using GDP deflator data from the ONS and IMF.
SSE supported employment as % of national employment	Total employment supported by SSE as a percentage of national employment. We used 2014 employment data (the latest available) for the UK and Scotland and 2015 data for Ireland.

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