



# Energy

in Northern Ireland

2020



## Energy in Northern Ireland 2020

**Issue No:**

3

**Date of Publication:**

25 June 2020

**Theme:**

Business and Energy

**Issued by:**

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## Reader Information

### Purpose

This publication aims to provide a comprehensive and accessible overview of key statistics and information relating to energy in Northern Ireland. The report endeavours to present a disparate range of existing and emerging information and statistics into a single coherent source. The majority of statistics and data included are National Statistics or Official Statistics sourced from producers such as the Department for Business, Energy and Industrial Strategy (BEIS), the Northern Ireland Statistics and Research Agency (NISRA) and the Office for National Statistics (ONS) among others.

### Reporting Period

The data presented in the report was the most up-to-date available at the time of publication. Where possible, data for 2019 or 2020 has been used although some data relates to earlier periods.

### Target audience

This publication is intended to be helpful and informative to a wide range of stakeholders with an interest in the energy sector including: Department for the Economy (DfE), elected representatives, academics, energy interest groups, the media and general public.

### Next Updates

It is intended that this report will be updated in full every two years. Therefore, the next edition will be published during 2022.

### An Official Statistics Publication

Official Statistics are produced to a high professional standard. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from any political interference. As we want to engage with users of our statistics, we invite you to feedback your comments on this publication to [sean.donnelly@economy-ni.gov.uk](mailto:sean.donnelly@economy-ni.gov.uk).



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## Energy in Northern Ireland 2020

This is the third edition of a publication which aims to provide a comprehensive and accessible overview of key statistics and information relating to energy in Northern Ireland. The report endeavours to present a disparate range of existing and emerging information and statistics into a single coherent source. The majority of statistics and data included are National Statistics or Official Statistics sourced from producers such as the Department for Business, Energy and Industrial Strategy (BEIS), the Northern Ireland Statistics and Research Agency (NISRA) and the Office for National Statistics (ONS) among others.

The publication is structured around 6 chapters including: 1) key socio-demographic statistics for Northern Ireland to provide a broad context; 2) the economic contribution of energy to the local economy; 3) electricity generation, transmission, distribution and supply; 4) renewable electricity generation; 5) total energy consumption; and 6) energy and the consumer.

As we want to engage with users of our statistics, we invite you to feedback your comments to [sean.donnelly@economy-ni.gov.uk](mailto:sean.donnelly@economy-ni.gov.uk).



Chapter 1  
**Northern Ireland in Context**



## Chapter 1: Northern Ireland in Context

The scale and nature of energy within any given country or region is shaped by a complex inter-play of factors and, inevitably, direct comparisons between differing regions or countries in respect of energy generation, distribution and consumption will reflect these factors. The following key facts relating to Northern Ireland, its geography, climate, population, transport, housing and economy are intended to provide a broad scene setting context for the picture of energy in Northern Ireland as rehearsed in this report.

### Geography

- Northern Ireland is situated on the north eastern part of the island of Ireland, sharing a land border with the Republic of Ireland to the south and west, and is dependent on air and sea routes for travel and connectivity within the United Kingdom and farther afield.
- At 14,130<sup>1</sup> km<sup>2</sup>, the area of Northern Ireland comprises around 20% of the area of the island of Ireland<sup>2</sup> and around 6% of the area of the United Kingdom.
- At the time of the 2011 Census, of Northern Ireland's 1.8 million people, over six in ten (63%) lived in a small/medium/large town or city with one in ten living in an intermediate settlement or village and just over one quarter (28%) living in open countryside or in a settlement of less than 1,000 people<sup>3</sup>.

### Climate<sup>4</sup>

- The climate of Northern Ireland is characterised by equability, a consequence of the moderating effects of the Atlantic Ocean bringing relatively mild winters and cool summers. However, the indented shape of the coastline and the presence of high ground introduce localised differences in temperature, cloud and precipitation.
- The mean annual temperature at low altitudes in Northern Ireland varies from about 8.5 °C to 10.0 °C, with the higher values occurring around or near to the coasts. The January mean daily minimum temperatures vary from about 0.5 °C in the upland areas to about 2.5 °C on the coast. July is normally the warmest month in Northern Ireland, with mean daily maximum temperatures varying from about 17.5 °C in the upland areas and along the north coast to almost 20 °C in low lying areas south of Lough Neagh and in Fermanagh.
- Northern Ireland is one of the windier parts of the UK, with the windiest areas being over the highest ground and along the coasts of Counties Antrim and Down. The strongest winds are associated with the passage of deep areas of low pressure close to or across the UK. The frequency and strength of these depressions is greatest in the winter half of the year, especially from November to January, and this is when mean speeds and gusts (short duration peak values) are strongest.

1 <https://webarchive.nationalarchives.gov.uk/20160108051201/http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/administrative/the-countries-of-the-uk/index.html>

2 <https://www.worldatlas.com/webimage/countrys/europe/ireland/ielandst.htm>

3 <http://www.nisra.gov.uk/archive/geography/review-of-the-statistical-classification-and-delineation-of-settlements-march-2015.pdf>

4 [https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/regional-climates/northern-ireland\\_-\\_climate--met-office.pdf](https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/regional-climates/northern-ireland_-_climate--met-office.pdf)



- On the whole, Northern Ireland is cloudier than England because of the hilly nature of the terrain and the proximity to the Atlantic. The dullest parts of Northern Ireland are the upland areas of the north and west, with annual average sunshine totals of less than 1,100 hours. Mean monthly sunshine figures reach a maximum in May and are at their lowest in December. Whilst the key factor is variation in the length of the day through the year, cloud cover plays a part as well. A feature is the reduction in mean monthly sunshine that typically occurs in July and August, accompanied by increased cloudiness, which is associated with an increase in the prevalence of westerly winds.

## Population

- The Northern Ireland population in mid-2018<sup>5</sup> was estimated to be 1.882 million people. The number of children aged 0 to 15 years was 393,500 (21%), the working age population (persons aged 16 to 64) was 1,179,900 (63%) whilst the older population (persons aged 65 and over) was 308,200 (16%).
- The Northern Ireland population is projected to grow from 1.882 million in 2018 to 1.902 million people by 2020, 1.938 million by 2025, 1.959 million by 2030 and 1.972 million by 2035. Projected population growth from 2020 to 2035 is therefore estimated to be around 4%<sup>6</sup>.
- Projections for the number of households in Northern Ireland (2016 based) indicate growth from 725,127 households in 2016 to 740,528 in 2020, 763,976 in 2025, 784,580 in 2030 and 800,061 in 2035<sup>7</sup>. Projected growth in the number of households from 2020 to 2035 is therefore estimated to be around 8%.
- Between 2020 and 2035, the projected percentage growth in households at 8%, is double the projected percentage growth in the population (4%).
- At 2018, the number of people per square kilometre was estimated to be 136 for Northern Ireland, 430 for England, 151 for Wales and 70 for Scotland<sup>8</sup>. For the UK as a whole, the number of people per square kilometre was estimated to be 274.

## Transport

- In 2018, and compared to the UK as a whole (78%), households in Northern Ireland (82%) report a slightly higher level of car ownership which has been a consistent picture over recent years<sup>9 & 10</sup>.
- In Northern Ireland in 2018, of the 957,500 licensed cars, over half (57%) were diesel fuelled compared to 40% of the 32.5 million cars licensed in the whole of the UK<sup>11</sup>.
- In the period 2016-18, 70% of all journeys were made by car, 19% on foot, 5% by public transport, 1% by bicycle and 5% by other means<sup>12</sup>. By broad comparison and for England in 2018, 61% of journeys were made by car, 27% on foot, 7% by public transport, 2% by bicycle and 3% through other means<sup>13</sup>.
- Looking at the recent Northern Ireland trends from the Travel Survey for Northern Ireland, travel habits have not changed considerably. Northern Ireland residents travelled, on average, 5,868 miles per person per year in 2016-2018, around the same as 10 years ago (6,032 miles in 2006-2008).

5 <https://www.nisra.gov.uk/publications/2018-mid-year-population-estimates-northern-ireland>

6 <https://www.nisra.gov.uk/publications/2018-based-population-projections-northern-ireland>

7 <https://www.nisra.gov.uk/publications/northern-ireland-household-projections-2016-based>

8 <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland>

9 <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure/datasets/percentageofhouseholdswithcarsbyincomegroupuptenureandhouseholdcompositionuktablea47>

10 <https://www.nisra.gov.uk/publications/chs-results>

11 <https://www.gov.uk/government/statistical-data-sets/all-vehicles-veh01#licensed-vehicles>

12 <https://www.infrastructure-ni.gov.uk/publications/travel-survey-northern-ireland-depth-report-2016-2018>

13 <https://www.gov.uk/government/statistics/national-travel-survey-2018>



- In Northern Ireland, on average, 903 journeys were made per person per year over the period 2016-2018 (just over 2 journeys per day), a decrease from 2006-2008 (926 journeys per person per year). In 2016-2018, the average journey length was 6.5 miles. The average time each person spent travelling in 2016-2018 was 304 hours per year (approximately 50 minutes per day), no real difference from 10 years ago (306 hours in 2006-2008). The average journey time in 2016-2018 was 20 minutes.
- During 2016-2018, public transport accounted for 7% of total distance travelled in Northern Ireland. Over the last 10 years, average distance travelled by public transport per person per year has remained around the same (430 miles in 2006-2008, 438 miles in 2016-2018). 5% of all journeys in 2016-2018 were on public transport, the same as in 2006-2008. There were 47 public transport journeys per person per year in 2016-2018, similar to 10 years ago (49 in 2006-2008). On average, public transport journeys were 9.8 miles in length in 2016-2018.

## Housing

- At Census 2011, Northern Ireland's household accommodation type comprised 38% detached housing, 28% semi-detached, 25% terraced and 9% flats/apartments. By comparison for the UK as a whole, household accommodation type comprised 23% detached housing, 30% semi-detached, 24% terraced and 22% flats/apartments<sup>14</sup>.
- In terms of energy efficiency of the housing stock in Northern Ireland, the Standard Assessment Procedure (SAP) is Government's standard method of rating the energy efficiency of a dwelling, with a higher SAP rating indicating better energy efficiency. In 2016, and based on the SAP 2012 methodology, this averaged 66.3 for Northern Ireland<sup>15</sup> compared to an average of 62 for England<sup>16</sup> in 2016.
- In Northern Ireland in 2016<sup>17</sup>, household central heating systems were mostly oil fired (68% of households) compared to 24% with gas central heating and 8% other central heating including solid fuel, electric and dual fuel systems.

## Economy

- The number of Pay As You Earn (PAYE) or VAT registered businesses in Northern Ireland at 2019 was 75,490.<sup>18</sup> For the UK as a whole, there were 2.72 million businesses registered in 2019<sup>19</sup>.
- In 2019, just over half of all registered businesses in Northern Ireland were within the agriculture (25%), construction (14%), retail (8%), and professional, scientific and technical (8%) sectors. By comparison the agriculture sector accounted for 6% of all UK registered business, with 13% in construction, 8% in retail and 17% in professional, scientific and technical<sup>20</sup>.
- In 2019 the Office for National Statistics (ONS) published first estimates for regional Gross Domestic Product (GDP) across the UK covering the period 1999 to 2018<sup>21</sup>. GDP is the total value of all the goods and services that a country (or region) produces or provides in a particular year. In 2018, Northern Ireland's GDP per head was £25,981 compared to £31,976 for the UK as a whole, £32,857 for England, £29,660 for Scotland and £23,866 for Wales. Looking at GDP per head at NUTS3 (Local Authority) levels throughout the UK, Northern Ireland had no NUTS3 areas in the top 10 UK NUTS3 areas, but had three in the bottom 10.

14 <https://2011.census.gov.uk/key-statistics-and-quick-statistics-for-local-authorities-in-the-united-kingdom>

15 <https://www.nihe.gov.uk/Working-With-Us/Research/House-Condition-Survey>

16 <https://www.gov.uk/government/statistics/english-housing-survey-2016-energy-efficiency>

17 <https://www.nihe.gov.uk/Working-With-Us/Research/House-Condition-Survey>

18 <https://www.nisra.gov.uk/statistics/business-statistics/inter-departmental-business-register>

19 <https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/bulletins/ukbusinessactivitysizeandlocation/2019>

20 <https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/bulletins/ukbusinessactivitysizeandlocation/2019>

21 <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/regionaleconomicactivitybygrossdomesticproductuk/1998to2018#gross-domestic-product-by-uk-constituent-country-and-region>

Chapter 2  
**Energy and the Economy**



## Chapter 2: Energy and the Economy

### Summary of Key Points

#### Activity-Based: Low Carbon and Renewable Energy (LCRE) Economic Contribution

- In the three year period 2016-2018 in Northern Ireland, an estimated annual average of around £1 billion in turnover and 5,900 full time equivalent (FTE) jobs were generated directly by businesses active in the LCRE economy in each of the years 2016 to 2018.
- Over the period 2016-2018, businesses in Northern Ireland annually generated an average of 2.2% of direct UK LCRE turnover (i.e. £1.0 billion out of £44.2 billion) and provided 2.7% of direct UK LCRE full-time equivalent employment (i.e. around 5,900 out of some 218,600 direct FTE employees).
- Of the total LCRE activity in Northern Ireland in the period 2016-2018, Energy Efficient Products was the group that accounted for the largest proportion of direct turnover (32%) and direct FTE employees (49%).

#### Sector-Based: Energy Economic Contribution

- In 2017, some 3,860 employee jobs were in the energy sector (constructed from a combination of Standard Industrial Classification codes) in Northern Ireland. This was equivalent to some 0.5% of all employee jobs in Northern Ireland in 2017.
- The proportion of employee jobs in the energy sector for Northern Ireland in 2017 (0.5%) was the lowest of all UK countries for this year: England (0.9%), Scotland (2.7%) and Wales 1.2%.
- The total number of energy sector enterprises in Northern Ireland increased from 240 in 2010 to 855 in 2019, a more than three and a half fold increase. This was the largest percentage increase of all UK countries over this period. The major contributing factor to the overall rise in the number of energy sector enterprises in Northern Ireland was the large increase in the 'Electricity, gas, steam and air conditioning supply' sector (a fourteen fold increase over the period 2010 to 2019).
- Gross Value Added (GVA) per head in Northern Ireland for businesses operating in the 'Electricity, gas, steam and air conditioning supply' sector in 2018 was around five times higher than the 'all sectors' average for Northern Ireland.



## Introduction

This chapter presents information on the number of businesses, turnover and employment from a UK-wide business survey of Low Carbon and Renewable Energy economic activity. It also provides some information on employment, economic output and the number of registered enterprises in Northern Ireland's energy sector using other definitions and sources.

### Low Carbon and Renewable Energy Economy (LCRE) Survey

The Low Carbon and Renewable Energy Economy (LCRE) survey<sup>22</sup> was despatched for the first time in 2015, for the reporting year 2014. The survey has been carried out annually since then with the most recent results relating to 2018 published in January 2020. Around 1,300 businesses in Northern Ireland were sampled for the 2018 survey. The LCRE survey was designed by the Office for National Statistics (ONS) to provide greater detail on low carbon and renewable energy activities in the UK and its regions, following demand from stakeholders for official statistics on this topic. The survey was developed in consultation with stakeholders from UK and devolved government departments, including the Department for the Economy.

The LCRE survey collected information on business activity across a number of Low Carbon and Renewable Energy activities such as: electricity production from wind, solar, hydropower or other sources; the design, manufacture or installation of energy efficient products; the design, production and installation of infrastructure for generating heat directly through solar, thermal, geothermal or other means (i.e. renewable heat); the design and manufacture of vehicles with specific technology to significantly reduce or remove emissions; and the design, manufacture and installation of fuel cells and energy storage systems. A full list of all 17 sectors can be found in Annex 2.1.

It is worth noting that the LCRE survey collected information from businesses where some or all of their activities could be defined as low carbon or renewable energy activities. Indeed, Low Carbon and Renewable Energy activities were the primary activity of only around one quarter of all businesses active in the LCRE economy across the UK in 2018<sup>23</sup>. The financial sector was excluded from the survey and the LCRE survey therefore reports on the non-financial business economy.

The key variables collected by the LCRE survey included number of businesses<sup>24</sup>, turnover and employment. The main results for Northern Ireland, along with comparisons to England, Scotland, Wales and the UK are presented below.

### LCRE Headline Results by Region

Estimates from the LCRE are survey-based estimates. Surveys gather information from a sample rather than from the whole population and results from sample surveys are always estimates and not precise figures. This means that they are subject to some uncertainty and this can also have an impact on how changes in the estimates over time should be interpreted. A more complete picture of how the LCRE economy is changing over time will be possible once longer-term trends are available. Whilst the ONS report and associated tables will show estimates for individual years for Northern Ireland, the preference here, given the LCRE is a relatively new sample survey which is still subject to ongoing development, is to show (where possible) an annual average for a three year period for some key variables (employment and turnover).

22 A copy of the main release and data tables is available <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/latest>

23 Low Carbon and Renewable Energy activity is classed as the primary activity of a business if 50% or more of its full-time equivalent (FTE) employees are working in the Low Carbon and Renewable Energy sectors. In the UK in 2018, businesses whose primary activity was within the LCRE sector accounted for one quarter of all businesses active in the LCRE economy, over half (56%) of turnover and around three quarters (73%) of FTE employees. See [here](#) for further details.

24 Activity in the low carbon and renewable energy economy is spread across a wide range of industries. Many sectors are small but growing, and for many businesses, low carbon activity is secondary rather than primary activity. For this reason, estimates of the number of businesses are subject to particular volatility and are not considered here.



**Table 2.1 LCRE Direct Activity Key Statistics by UK Country - Annual Average Turnover and Full-Time Equivalent (FTE) Employment, 2014-2016, 2015-2017 and 2016-2018**

	Turnover (£billion)			Employees (FTE)		
	2014-2016	2015-2017	2016-2018	2014-2016	2015-2017	2016-2018
<b>UK</b>	41.7	42.1	44.2	215,900	210,600	218,600
<b>England</b>	32.9	33.3	34.9	175,800	171,000	178,200
<b>Scotland</b>	5.8	5.8	6.1	23,400	23,000	23,100
<b>Wales</b>	2.1	2.0	2.1	11,000	11,100	11,500
<b>Northern Ireland</b>	<b>1.0</b>	<b>0.9</b>	<b>1.0</b>	<b>5,700</b>	<b>5,500</b>	<b>5,900</b>

Source: Office for National Statistics (<https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2018/relateddata>)<sup>25</sup>

### Direct Activity Annual Averages – Northern Ireland

Table 2.1 shows that in the three year period 2016-2018 in Northern Ireland, an estimated annual average of around £1 billion in turnover and 5,900 full time equivalent (FTE) jobs were generated directly by businesses active in the LCRE economy in each of the years 2016 to 2018. The table also highlights that Northern Ireland estimates have been fairly steady over the period. As noted in the ONS report, in general, changes in the estimates are not usually greater than the level that is explainable by sampling variability. This means movements in the estimates should be treated as indicative only.

### Regional Estimates

Over the period 2016-2018, England accounted for around four-fifths of both direct annual average UK LCRE turnover (79.1%) and UK LCRE direct annual average employment (81.5%). Businesses in Scotland engaged in LCRE activities provided some 13.8% of direct annual average UK LCRE turnover and 10.6% of UK LCRE direct annual average employment.

Over the period 2016-2018, businesses in Northern Ireland annually generated an average of 2.2% of direct UK LCRE turnover (i.e. £1.0 billion out of £44.2 billion) and provided 2.7% of direct UK LCRE full-time equivalent employment (i.e. 5,900 out of 218,600 direct FTE employees). Direct LCRE annual average turnover and employment in Wales was around twice that of Northern Ireland.

25 Calculated from annual data published by ONS. See Annex 2.2 for notes to this table.





## LCRE Activity by Group

The headline results for Northern Ireland shown above can also be broken down into broad groups as shown in Table 2.2 below. These groups are aggregations of the 17 sectors within scope of the LCRE survey. Further details on which sectors fit into each group is detailed in Annex 2.1.

**Table 2.2 Northern Ireland Annual Average Direct Activity - LCRE Turnover and FTE Employment by Group, 2014-2016, 2015-2017 and 2016-2018<sup>26</sup>**

	Turnover (£million)			Employees (FTE)		
	2014-2016	2015-2017	2016-2018	2014-2016	2015-2017	2016-2018
<b>Low Carbon Electricity</b>	298	255	284	700	700	800
<b>Low Carbon Heat</b>	48	51	59	400	400	300
<b>Energy from Waste &amp; Biomass</b>	*	*	*	<200	<200	<200
<b>Energy Efficient Products</b>	317	304	314	3,100	2,800	2,900
<b>Low Carbon Services</b>	9	10	*	<200	<200	<200
<b>Low Emission Vehicles</b>	*	*	*	1,400	1,500	1,600
<b>Total</b>	994	940	988	5,700	5,500	5,900

Source: Office for National Statistics (<https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2018/relateddata>)<sup>27</sup>

Note that estimates in italics in Table 2.2 above have a coefficient of variation (which is a measure of the error around an estimate) that is greater than or equal to 20% and these estimates should therefore be used with caution. Further details on this are given in Annex 2.3.

The table shows that the Energy Efficient Products group accounted for the around one third of annual average direct turnover and about half of annual average direct employees in each of the three time periods shown. The Low Carbon Electricity group also accounted for about one third of annual average direct turnover but only some 13% of direct annual average employees. Whilst information on turnover for the Low Emission Vehicles<sup>28</sup> group is not available (due to the small number of businesses operating in this sector), this group accounted for at least one quarter of the annual average total FTE employees in Northern Ireland in each of the three time periods shown.

26 Cells in the table marked \* are figures that have been suppressed to avoid disclosure of individual company details.

27 See Annex 2.3 for notes to this table

28 Low Emission Vehicles group includes Low Emission Vehicles & Infrastructure and Fuel Cells & Energy Storage sectors.



## Energy Sector Using Data from Other Sources

Whilst the data from the Low Carbon and Renewable Energy Economy survey presented above gives details of such activity across all businesses in the non-financial sector in Northern Ireland, there are other sources of data which can provide a longer time series and some more detailed breakdowns in terms of the number of businesses, employment, Gross Value Added and turnover in the broader energy sector.

The following data is based on a definition of the energy sector using aggregations of individual Standard Industrial Classification<sup>29</sup> groups. The Standard Industrial Classification (SIC) is a system that is used to classify businesses by the type of economic activity in which they are engaged. Whilst the following data is useful, it should be borne in mind that the Standard Industrial Classification system does not lend itself to measuring non-traditional or new sectors that straddle a number of different industries – like the renewable energy sector and low carbon economy<sup>30</sup>. The SIC-based energy sector data presented below will include activities such as mining and extraction (though there are few businesses in Northern Ireland engaged in such activities) but also electricity generation from traditional (fossil fuel based) plants that would not be covered in the Low Carbon and Renewable Energy Economy survey data presented earlier.

## Energy Sector Enterprises

Table 2.3 below shows that the total number of energy sector<sup>31</sup> enterprises in Northern Ireland increased from 240 in 2010 to 855 in 2017 (a three and a half fold increase). Over the same period, the total number of enterprises in Northern Ireland increased by 9%.

The major contributing factor to the overall rise in the number of energy sector enterprises is the large increase of the number of enterprises in the SIC division ‘Electricity, gas, steam and air conditioning supply’: up from 35 in 2010 to 490 in 2019. Indeed, the majority of enterprises in this sector in 2019 (around 470 of the 490 businesses, or 96%) were in the SIC group 35.1: Electric power generation, transmission and distribution, and there were almost 15 times as many enterprises in this SIC group in 2019 (470) compared to 2010 (30). This trend coincides with the large growth in recent years in the number of renewable electricity producers in Northern Ireland.

29 More information on the Standard Industrial Classification can be found at <https://webarchive.nationalarchives.gov.uk/20160105230903/http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/standard-industrial-classification/index.html>

30 See page 18 of <https://www2.gov.scot/Resource/0054/00541605.pdf>

31 Based on the Standard Industrial Classification (SIC) definition using the following SIC codes: 05, 06, 09, 19, 20.14, 35, 36, 38.22, 71.12/2 and 74.90/1.



**Table 2.3 Number<sup>32</sup> of Energy Enterprises<sup>33</sup> in Northern Ireland (March of each year), 2010 to 2019**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>SIC 05: Mining of coal and lignite</b>	0	0	0	0	0	0	0	0	0	0
<b>SIC 06: Extraction of crude petroleum and natural gas</b>	0	0	0	0	5	0	0	0	0	0
<b>SIC 09: Mining support service activities</b>	0	0	5	5	10	15	10	5	5	10
<b>SIC 19: Manufacture of coke and refined petroleum products</b>	5	5	5	5	5	5	5	5	5	5
<b>SIC 20.14: Manufacture of other organic based chemicals</b>	0	0	0	0	0	0	0	0	0	0
<b>SIC 35: Electricity, gas, steam and air conditioning supply</b>	35	50	75	140	205	240	335	395	485	490
<b>(SIC 35.1: Electric power generation, transmission and distribution)</b>	(30)	(40)	(65)	(125)	(195)	(225)	(315)	(375)	(460)	(470)
<b>SIC 36: Water collection, treatment and supply</b>	5	10	5	10	10	5	10	10	10	15
<b>SIC 38.22: Treatment and disposal of hazardous waste</b>	0	0	0	5	0	0	0	0	5	5
<b>SIC 71.12/2: Engineering related scientific and technical consulting activities</b>	175	170	185	180	195	220	245	240	270	285
<b>SIC 74.90/1: Environmental consulting activities</b>	20	25	25	30	30	45	45	50	60	45
<b>Total Energy Sector<sup>34</sup></b>	240	260	300	375	460	530	650	705	840	855
<b>All Enterprises</b>	68,525	67,960	67,490	66,690	66,650	67,050	69,095	70,715	73,120	74,565
<b>Energy Sector as a Percentage of All Enterprises</b>	0.4%	0.4%	0.4%	0.6%	0.7%	0.8%	0.9%	1.0%	1.1%	1.1%

Source: Inter-Departmental Business Register, ONS<sup>35</sup>

The table above shows that the energy sector accounted for 1.1% of all enterprises in 2019. The proportion has grown each year, from 0.4% in 2010 to 1.1% in 2019. Indeed, over the period 2010-2019 the average annual increase in the number of energy sector enterprises was 15.4% whilst the average annual increase for all enterprises in Northern Ireland was 1.0%.

32 Figures have been rounded to the nearest 5. \* Counts under 5 have been suppressed.

33 It is not yet possible to routinely and systematically estimate the number of enterprises operating in the renewable energy industry. The figures above will capture some of these enterprises but it is only an approximation, given the lack of any agreed or clearly defined 'renewables' classification using SIC.

34 Based on SIC definition using the following SIC codes: 05, 06, 09, 19, 20.14, 35, 36, 38.22, 71.12/2 and 74.90/1.

35 Data extracted from NOMIS (<https://www.nomisweb.co.uk/>) in February 2020.



It is also possible to look at changes in the number of energy enterprises for other regions as a comparison. This is shown in Table 2.4 below.

**Table 2.4 Number of Energy Sector Enterprises and All Enterprises by Country, 2010 and 2019**

Country	Enterprises in Energy Sector <sup>36</sup>				All enterprises				Energy sector as % of All	
	2010	2019	Change	% Change	2010	2019	Change	% Change	2010	2019
<b>England</b>	9,680	21,120	11,440	118%	1,797,910	2,360,780	562,870	31%	0.5%	0.9%
<b>Scotland</b>	1,695	4,045	2,350	139%	144,565	177,075	32,510	22%	1.2%	2.3%
<b>Wales</b>	495	985	490	99%	89,370	106,015	16,645	19%	0.6%	0.9%
<b>Northern Ireland</b>	<b>240</b>	<b>855</b>	<b>615</b>	<b>256%</b>	<b>68,525</b>	<b>74,565</b>	<b>6,040</b>	<b>9%</b>	<b>0.4%</b>	<b>1.1%</b>
<b>United Kingdom</b>	12,120	27,005	14,885	123%	2,100,370	2,718,435	618,065	29%	0.6%	1.0%

Source: Inter-Departmental Business Register, ONS<sup>37</sup>

The table above shows that Northern Ireland had the largest percentage increase in the number of energy sector enterprises over the period 2010 to 2019 (an increase of 256%). Indeed, this was around double the proportional increase of any other country.

Whilst all countries showed a higher percentage increase in the number of energy sector enterprises compared to the percentage rise in the number of all enterprises, the difference was greatest for Northern Ireland (256% compared to 9%). In the UK, the number of energy sector enterprises increased by 123% compared to a 29% rise for all enterprises.

The last two columns in the table show the number of energy sector enterprises as a percentage of all enterprises for 2010 and 2019 respectively. Whilst Northern Ireland lagged behind the UK average and other UK countries in 2010 (NI was lowest at 0.4%), by 2019 energy sector enterprises as a proportion of all enterprises in Northern Ireland (at 1.1%) was slightly higher than the UK average and higher than Wales and England (both 0.9%). Scotland has by far the highest proportion with some 2.3% of all enterprises there located in the energy sector in 2019.

36 Based on SIC definition using the following SIC codes: 05, 06, 09, 19, 20.14, 35, 36, 38.22, 71.12/2 and 74.90/1.

37 Data extracted from NOMIS (<https://www.nomisweb.co.uk/>) in February 2020.



## Energy Employment

In 2017, there were some 3,860 employee jobs in the energy sector in Northern Ireland. This is equivalent to about 1.3 per cent of the number of energy sector jobs in Great Britain (GB)<sup>38</sup>.

**Table 2.5 Employee Jobs in the Energy Sector<sup>39</sup> in Northern Ireland and GB, 2015 and 2017**

	2015 NI	2017 NI	2015 GB	2017 GB
<b>SIC 05: Mining of coal and lignite</b>	0	0	2,000	1,300
<b>SIC 06: Extraction of crude petroleum and natural gas</b>	0	0	15,700	12,200
<b>SIC 09: Mining support service activities</b>	*	*	22,900	18,700
<b>SIC 19: Manufacture of coke and refined petroleum products</b>	*	*	8,400	8,500
<b>SIC 20.14: Manufacture of other organic based chemicals</b>	*	*	9,400	7,900
<b>SIC 35: Electricity, gas, steam and air conditioning supply</b>	1,843	1,828	123,800	134,400
<b>SIC 36: Water collection, treatment and supply</b>	*	1,226	33,500	36,800
<b>SIC 38.22: Treatment and disposal of hazardous waste</b>	0	*	7,300	7,100
<b>SIC 71.12/2: Engineering related scientific and technical consulting activities</b>	732	749	74,600	70,300
<b>SIC 74.90/1 Environmental consulting activities</b>	79	57	9,300	10,200
<b>Total Energy Sector<sup>40</sup></b>	2,654	3,860	306,900	307,400
<b>All Employee Jobs<sup>41</sup></b>	728,900	756,700	28,533,700	29,543,300
<b>Energy Sector as Percentage of All Jobs<sup>42</sup></b>	0.36%	0.51%	1.08%	1.04%

Sources: Business Register and Employment Survey: NISRA<sup>43</sup>; Office for National Statistics<sup>44</sup>

The table above shows that in GB, just over 1% of all employee jobs in 2015 and 2017 were in the energy sector. In Northern Ireland 0.36% of all employee jobs in 2015 were in the energy sector and 0.51% for 2017. However, it should be noted that employee jobs data was not available for SIC 36 (Water collection, treatment and supply) for Northern Ireland in 2015 but this data was available for 2017. As there are no figures for the number of jobs in SIC 36 in 2015 the actual change in the number of 'Total Energy Sector' jobs in Northern Ireland between 2015 and 2017 is not known.

38 Great Britain, rather than the UK, is used as a comparator here as data for some individual SICs are not available at UK level due to such SICs being unavailable/disclosive at the Northern Ireland level.

39 Based on SIC definition using the following SIC codes: 05, 06, 09, 19, 20.14, 35, 36, 38.22, 71.12/2 and 74.90/1.

40 This is the sum of jobs for those sectors for which data is available and therefore is an approximation as data for some SICs in the Energy Sector are not available due to disclosure rules.

41 Totals taken from spreadsheets on ONS website – see [here](#)

42 This is an approximation for NI as data for some SICs in the Energy Sector are not available due to disclosure rules.

43 See <https://www.nisra.gov.uk/publications/bres-publications-and-tables-2017> for SIC breakdown tables.

44 From Table 2 of the UK Business Register Employment Survey by ONS – click [here](#) for full tables. GB data is rounded to the nearest hundred.



In GB employee jobs data is available for every SIC within this Energy Sector definition. The table above shows that, in 2017, employee jobs data were not available in Northern Ireland in four sectors<sup>45</sup>. As shown in Table 2.3 earlier however, very few businesses (around 10 in total) were operating in these sectors in Northern Ireland in 2017. Further analysis<sup>46</sup> shows that these ten or so businesses were all micro businesses (i.e. with employment in the 0 to 9 sizeband). Therefore, whilst the employee jobs information for each sector is not available we can deduce that the total number of jobs in the four missing sectors would be in the region of 100 or less. As this would not materially affect the figure for 'Energy Sector as Percentage of All Jobs' for 2017 for NI (at 0.51%) it can therefore be compared against the figure for GB (1.04%) with the conclusion that, compared to GB, Northern Ireland has around half the proportion of jobs according to this definition of the energy sector.

Table 2.5 also highlights that the majority of energy sector employee jobs in NI are concentrated in only a few industries, with SIC 35 (Electricity, gas, steam and air conditioning supply) accounting for close to half of all jobs (47%) and SIC 36 (Water collection, treatment and supply) another 32%.

**Table 2.6 Employee Jobs in the Energy Sector<sup>47</sup> in England, Scotland, Wales, Northern Ireland and GB, 2017**

Country	Number of Employee Jobs in the Energy Sector	Total Number of Employee Jobs	Energy Sector Jobs as a Percentage of Total Jobs
England	223,550	25,828,600	0.87%
Scotland	67,800	2,471,300	2.74%
Wales	15,110	1,243,400	1.22%
<b>Northern Ireland</b>	<b>3,860</b>	<b>756,700</b>	<b>0.51%</b>
Great Britain	307,400	29,543,300	1.04%

Sources: Business Register and Employment Survey: NISRA<sup>48</sup>; Office for National Statistics<sup>49</sup>

The table above shows comparative data for England, Scotland and Wales alongside the data presented earlier for NI and GB, with all data relating to 2017. It shows that, for 2017, Northern Ireland had the lowest proportion of employee jobs in the energy sector across all the regions shown. It has already been noted that the GB proportion was more than twice the NI figure. Similarly, the proportion in Wales was more than twice that of NI, whilst the proportion in Scotland was over five times bigger.

### Gross Value Added

Table 2.7 below shows the available data for economic output of the energy industry<sup>50</sup>, as measured by the most recent Gross Value Added (GVA) statistics from the Northern Ireland Annual Business Inquiry (NIABI) as well as data from the Annual Business Survey (ABS) for the UK published by the Office for National Statistics (ONS) for comparison purposes.

45 That is SICs 09, 19, 20.14 and 38.22.

46 Business count by sizeband data for 2017 extracted from NOMIS (<https://www.nomisweb.co.uk/>) in February 2020.

47 Based on SIC definition using the following SIC codes: 05, 06, 09, 19, 20.14, 35, 36, 38.22, 71.12/2 and 74.90/1.

48 See <https://www.nisra.gov.uk/publications/bres-publications-and-tables-2017> for SIC breakdown tables.

49 Total jobs and SIC breakdowns for GB, England, Wales and Scotland were extracted from NOMIS (<https://www.nomisweb.co.uk/>) in February 2020). Data are rounded and therefore may not add to totals. The level of rounding applied varies by estimate: please see article for further information on how rounding is applied <https://www.nomisweb.co.uk/articles/1103.aspx>.

50 Based on SIC definition using the following SIC codes: 05, 06, 09, 19, 20.14, 35, 36, 38.22, 71.12/2 and 74.90/1.



In short, GVA measures the contribution to the economy of each individual producer, industry or sector. GVA at basic prices, as published in the NIABI and ABS, represents the income generated by businesses, out of which is paid wages and salaries, the cost of capital investment and financial charges before arriving at a figure for profit. It includes taxes on production (e.g. business rates), net of subsidies but excludes subsidies and taxes on products (e.g. VAT and excise duty).

**Table 2.7 Gross Value Added in the Energy Sector (£millions), Northern Ireland 2013-2018, UK 2018**

	2013 NI	2014 NI	2015 NI	2016 NI	2017 NI	2018 NI	2018 UK
<b>SIC 05: Mining of coal and lignite</b>			*				*
<b>SIC 06: Extraction of crude petroleum and natural gas</b>				*			15,423
<b>SIC 09: Mining support service activities</b>		*	*	*	*	*	2,586
<b>SIC 19: Manufacture of coke and refined petroleum products</b>		*	*	*	*	*	2,045
<b>SIC 20.14: Manufacture of other organic based chemicals</b>		*	*	*	*	*	948
<b>SIC 35: Electricity, gas, steam and air conditioning supply</b>	447	313	306	387	403	544	27,013
<b>SIC 36: Water collection, treatment and supply</b>		*	*	z	*	*	9,447
<b>SIC 38.22: Treatment and disposal of hazardous waste</b>		*					394
<b>SIC 71.12/2: Engineering related scientific &amp; technical consulting activities</b>	21	35	38	40	24	22	4,702
<b>SIC 74.90/1 Environmental consulting activities</b>		*	*	*	*	*	502
<b>All Sectors GVA<sup>51</sup></b>	19,291	19,736	20,432	21,826	22,025	23,797	1,285,468
<b>Energy Sector GVA as Percentage of All Sectors GVA</b>	2.4%	1.8%	1.7%	2.0%	1.9%	2.4%	4.9% (2.5%)

Source: Northern Ireland Annual Business Inquiry, NISRA<sup>52</sup>; Annual Business Survey, ONS<sup>53</sup>

Due to the small size (i.e. very few or no businesses) or structure (i.e. a small number of large dominant businesses) in some of the sectors in the energy industry definition used here, GVA information is limited<sup>54</sup>. Indeed, as shown above, GVA data is available for only two of the ten SICs covered by the energy industry definition used (though in some sectors – e.g. SIC 05 and SIC 06 – there is no activity in Northern Ireland). Despite this, Table 2.3 earlier showed that 755 of the 840 energy enterprises in 2018 were in SIC 35 or SIC 71122, so the GVA information above, whilst limited, does cover about 90% of all enterprises in the energy sector.

51 The NIABI and ABS cover the non-financial business economy. See <https://www.nisra.gov.uk/statistics/annual-business-inquiry/abi-sample-coverage> for more detailed information on the sectors covered by the NIABI.

52 NI data was provided by NISRA on request. 2018 data is provisional.

53 From <https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/datasets/uknonfinancialbusiness-economyannualbusinesssurveysectionsas> and 5 digit SIC data provided by ONS. 2018 data is provisional.

54 Information is suppressed, and represented with an asterisk in the tables when there are either a small number of businesses operating in a particular sector or when a business is dominant in a sector and thus publication of results would risk identifying an individual enterprise. Note that 2018 ABI data in all tables are provisional and subject to revision.



Table 2.7 shows there was a significant increase in GVA in SIC 71122 (Engineering related scientific & technical consulting activities) between 2013 and 2014, this stayed steady from 2014-2016 before falling back in 2017 and 2018 to the level seen in 2013. There was a noticeable drop in GVA in the ‘electricity, gas, steam and air conditioning supply’ sector between 2013 and 2014 (a fall of 30%), there was little change between 2014 and 2015 but GVA has increased each year since, including a significant increase (by 35% to £544 million) between 2017 and 2018.

Similar to the employment figures shown earlier, it is difficult to express the energy sector as a proportion of all Northern Ireland activity due to data for many of the energy sector SICs being suppressed. However, the table above shows that GVA in the energy sector accounts for around 2% of total GVA in each of the years shown.

Table 2.7 also shows comparative data for the UK. At the UK level there are fewer issues over suppression with only one of the ten SIC groups included in the energy sector definition not available. The table shows that Energy Sector GVA accounted for 4.9% of All Sectors GVA for the UK in 2018, about twice the NI figure for the same year. However, given GVA data is not available for all SICs for Northern Ireland, a more direct comparison would be to compare the sectors for which GVA data is available in NI against the same sectors for the UK<sup>55</sup>. This gives a comparable UK figure of 2.5%, which is equivalent to the Northern Ireland proportion of 2.4%.

### GVA Per Head

The data so far has shown that the energy sector accounts for around 1% of all enterprises, around 0.5% of all jobs but over 2% of total NI GVA. This suggests that there must be a higher than average GVA per head in this sector compared to the average for all sectors: the table below shows this data.

**Table 2.8 Gross Value Added Per Head in the Energy Sector, Northern Ireland 2013 to 2018, UK 2018**

	2013 NI	2014 NI	2015 NI	2016 NI	2017 NI	2018 NI	2018 UK
<b>SIC 35: Electricity, gas, steam and air conditioning supply</b>	£293,653	£192,781	£163,046	£188,836	£155,339	£209,161	£177,717
<b>SIC 71.12/2: Engineering related scientific &amp; technical consulting activities</b>	£35,032	£36,247	£47,000	£36,243	£29,555	£46,799	£59,519
<b>All Sectors<sup>56</sup></b>	£36,649	£36,586	£36,789	£38,951	£38,875	£41,909	£51,961

Source: Northern Ireland Annual Business Inquiry, NISRA<sup>57</sup>; Annual Business Survey, ONS<sup>58</sup>

Whilst GVA per head in SIC 71122 for Northern Ireland was about 12% above the average for all sectors GVA for 2018 (this has fluctuated above and below the all sectors average over the period shown), GVA per head in SIC 35 has consistently been much higher: around 8 times higher than the all sectors average in 2013 and 4-5 times higher between 2014 and 2018. Indeed, GVA per head in Northern Ireland for SIC 35 in 2018 was 18% higher than the equivalent GVA per head figure for SIC 35 for the UK as a whole, whereas the GVA per head figure for All Sectors in Northern Ireland was some 19% lower than the UK figure.

55 That is SIC 35 and SIC 71.12/2.

56 See <https://www.nisra.gov.uk/statistics/annual-business-inquiry/abi-sample-coverage> for information on the sectors covered by the NIABI.

57 NI data was provided by NISRA on request. 2018 data is provisional.

58 Calculated from <https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/datasets/uknonfinancialbusinesseconomyannualbusinesssurveysectionsas> and 5 digit SIC data provided by ONS. 2018 data is provisional.





## Turnover

Information on turnover is also available and this is presented below.

**Table 2.9 Turnover in the Energy Sector (£millions), Northern Ireland 2013 to 2018, UK 2018**

	2013 NI	2014 NI	2015 NI	2016 NI	2017 NI	2018 NI	2018 UK
<b>SIC 05: Mining of coal and lignite</b>			*				*
<b>SIC 06: Extraction of crude petroleum and natural gas</b>				*			25,388
<b>SIC 09: Mining support service activities</b>		*	*	*	*	*	5,383
<b>SIC 19: Manufacture of coke and refined petroleum products</b>		*	*	*	*	*	38,544
<b>SIC 20.14: Manufacture of other organic based chemicals</b>		*	*	*	*	*	3,973
<b>SIC 35: Electricity, gas, steam and air conditioning supply</b>	2,237	2,054	1,917	1,906	2,011	2,355	121,131
<b>SIC 36: Water collection, treatment and supply</b>		*	*	*	*	*	14,661
<b>SIC 38.22: Treatment and disposal of hazardous waste</b>		*					996
<b>SIC 71.12/2: Engineering related scientific &amp; technical consulting activities</b>	36	58	63	69	73	66	10,367
<b>SIC 74.90/1 Environmental consulting activities</b>		*	*	*	*	*	937
<b>All Sectors Turnover<sup>59</sup></b>	64,514	66,242	67,085	67,730	66,141	68,437	4,040,722
<b>Energy Sector Turnover as Percentage of All Sectors Turnover</b>	3.5%	3.2%	3.0%	2.9%	3.2%	3.5%	5.5% (3.3%)

Source: Northern Ireland Annual Business Inquiry, NISRA<sup>60</sup>; Annual Business Survey, ONS<sup>61</sup>

Like the GVA data presented previously, turnover information for Northern Ireland is available for only two of the ten SICs covered by the energy industry definition used. This shows that these two SICs accounted for 3.5% of total turnover in 2018. In the UK as a whole, the same two SICs accounted for a slightly lower proportion (3.3% of turnover). Data for nine of the ten SICs is available for the UK and this showed that 5.5% of All Sectors Turnover in the UK was from these sectors.

59 The NIABI and ABS cover the non-financial business economy See <https://www.nisra.gov.uk/statistics/annual-business-inquiry/abi-sample-coverage> for information on the sectors covered by the NIABI.

60 NI data was provided by NISRA on request. 2018 data is provisional.

61 Calculated from <https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/datasets/uknonfinancialbusinesseconomyannualbusinesssurveysectionsas> and 5 digit SIC data provided by ONS. 2018 data is provisional.



Turnover decreased each year in the Electricity, gas, steam and air conditioning supply sector in NI over the period 2013-2016 but increased each year afterwards, with the 2018 figure equivalent to the turnover figure in 2013 when the energy sector proportion of total turnover for Northern Ireland was also 3.5%.



## Annex 2.1 Low Carbon and Renewable Energy Economy (LCRE) Scope

The LCRE collected business activity in each of the following Low Carbon and Renewable Energy sectors.

Sector	Description
<b>Offshore wind</b>	The production of electricity from Offshore wind renewable sources and the design, production, and installation of infrastructure for this purpose. Including operations and maintenance.
<b>Onshore wind</b>	The production of electricity from Onshore wind renewable sources and the design, production, and installation of infrastructure for this purpose. Including operations and maintenance.
<b>Solar photovoltaic</b>	The production of electricity from Solar renewable sources and the design, production, and installation of infrastructure for this purpose. Including operations and maintenance.
<b>Hydropower</b>	The production of electricity from Hydropower renewable sources and the design, production, and installation of infrastructure for this purpose. Including operations and maintenance.
<b>Other renewable electricity</b>	The production of electricity from wave and/or tidal and/or geothermal renewable sources and the design, production, and installation of infrastructure for this purpose. Including operations and maintenance.
<b>Bioenergy</b>	The production of energy (electricity and heat) from renewable bioenergy sources and the design, production, and installation of infrastructure for this purpose. Including operations and maintenance. Bioenergy is liquid biofuels, solid biomass and biogas e.g. biomethane, vegetable oil, peanut oil and energy crops. This sector includes gasification and anaerobic digestion.
<b>Alternative Fuels</b>	The production of fuels for low carbon and renewable energy use which is not classified as bioenergy. Including hydrogen. Excluding compressed natural gas and LPG.
<b>Renewable heat</b>	The design, production, and installation of infrastructure for generating heat directly through solar, thermal, geothermal or other means. Including operations and maintenance. Including Ground source and Air source heat pumps. Excluding generating electricity which is then used to generate heat. Excluding heat from biomass which is classified under Bioenergy.
<b>Renewable combined heat and power</b>	The design, production, and installation of infrastructure for generating heat directly through solar, thermal, geothermal or other means where the renewable sources both generate direct heat and electricity. Including operations and maintenance. Excluding heat and power from biomass which is classified under Bioenergy.
<b>Energy efficient lighting</b>	The design, manufacture and installation of energy efficient bulbs, tubes, fittings etc designed for the purpose of using less energy to produce the same or greater amount of light.
<b>Other Energy efficient products</b>	The design, manufacture and installation of energy efficient products. Examples include: -Energy efficient doors and windows -Heating and ventilation, such as condensing boilers, ventilation and heating recovery -Insulation such as loft, external wall, roof insulation -Reducing energy consumption for heat or air conditioning by minimising 'leakage' of heat -Energy efficient building materials or technologies -Sustainable buildings and architecture -Either materials with greater insulation properties or durability properties or those requiring significantly less carbon emission in their manufacture or recycling waste materials in their manufacture Exclude: 'Smart' goods such as TVs and freezers.
<b>Energy monitoring, saving or control systems</b>	The design, manufacture and installation of systems that reduce energy consumption through effective heat or energy management. Include equipment and related systems for doing this. Examples include: -Smart heating controls      -Energy management systems -Condensation control        -Energy management software -Control system components
<b>Low carbon financial and advisory services</b>	Expert advice and education on: reducing carbon consumption, engaging in low carbon industrial activities, carbon credits and funding systems for low carbon activities and services. Include: environmental and/or energy consultants



Sector	Description
<b>Low emission vehicles and infrastructure</b>	Design and manufacture of vehicles with specific technology to significantly reduce or remove emissions. Include: hybrid vehicles, electric vehicles, fuel cell vehicles or other technologies. Exclude: small efficiency improvements such as lighter bodywork or aerodynamics. Fuel efficient, conventional vehicles are also excluded.
<b>Carbon capture and storage</b>	Capturing waste CO2 at point of emission and depositing it where it will not enter the atmosphere. Activity of doing this and the design, manufacture and installation of infrastructure for this purpose.
<b>Nuclear power</b>	The production of electricity from nuclear power and the design, production and installation of infrastructure for this purpose. Including operations and maintenance. Decommissioning and waste processing activities are excluded.
<b>Fuel cells and energy storage systems</b>	The design, manufacture and installation of energy storage systems, flywheel energy storage, fuel cells, batteries and any other form of energy storage system.

These sectors can be aggregated into the following groups:

Group	Description
<b>Low Carbon Electricity</b>	Offshore wind, Onshore wind, Solar Photovoltaic, Hydropower, Other renewable electricity, Nuclear power, Carbon capture and storage
<b>Low Carbon Heat</b>	Renewable heat, Renewable combined heat and power
<b>Energy from Waste and Biomass</b>	Bioenergy, Alternative fuels
<b>Energy Efficient Products</b>	Energy efficient products, Energy efficient lighting, Energy monitoring, saving or control systems
<b>Low Carbon Services</b>	Low carbon financial and advisory services
<b>Low Emission Vehicles and Infrastructure*</b>	Low emission vehicles and infrastructure
<b>Fuel Cells and Energy Storage*</b>	Fuel cells and energy storage systems

\* Please note that due to statistical disclosure control, the Fuel Cells and Energy Storage and Low Emission Vehicles and Infrastructure sectors have been combined in published estimates. This combined group has been labelled the 'Low Emission Vehicles' group.



## Annex 2.2 Notes to Table 2.1

Figures in Table 2.1 may not sum due to rounding.

The estimated Coefficient of Variation (CV) for the figures in Table 2.1 are shown in the table below.

The CV information is available for each year and published by the Office for National Statistics (ONS) – see <https://www.ons.gov.uk/economy/environmentalaccounts/datasets/lowcarbonandrenewableenergyeconomyfirstestimatesdataset>. However, the three year rolling annual average CV ranges given in the table below have been calculated from the ONS annual CV data and are provided as a guide to the accuracy of the three year averages for turnover and employees.

	Coefficient of Variation (CV) Range					
	Turnover (£'000)			Employees (FTE)		
Country	2014-2016	2015-2017	2016-2018	2014-2016	2015-2017	2016-2018
<b>UK</b>	CV <10%	CV <10%	CV <10%	CV <10%	CV <10%	CV <10%
<b>England</b>	CV <10%	CV <10%	CV <10%	CV <10%	CV <10%	CV <10%
<b>Scotland</b>	CV <10%	CV <10%	CV <10%	CV >=10% and <20%	CV >=10% and <20%	CV <10%
<b>Wales</b>	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%
<b>Northern Ireland</b>	<b>CV &lt;10%</b>	<b>CV &lt;10%</b>	<b>CV &lt;10%</b>	<b>CV &gt;=10% and &lt;20%</b>	<b>CV &gt;=10% and &lt;20%</b>	<b>CV &gt;=10% and &lt;20%</b>

The Coefficient of Variation (CV) is the ratio of the standard error of an estimate to the estimate itself. For example, an estimate with a CV of 5% will have a standard error that is 5% of the estimate. The smaller the coefficient of variation the greater the accuracy of the estimate. A rough guide to CVs is: less than 10% is very good, 10% is good and 20% is acceptable. CVs that are greater or equal to 20% should be used with caution.



### Annex 2.3 Notes to Table 2.2

Figures in Table 2.2 may not sum due to rounding.

The estimated Coefficient of Variation (CV) for the figures in Table 2.2 are shown in the table below.

The CV information is available for each year and published by the Office for National Statistics (ONS) – see <https://www.ons.gov.uk/economy/environmentalaccounts/datasets/lowcarbonandrenewableenergyeconomyfirstestimatesdataset>. However, the three year rolling annual average CV ranges given in the table below have been calculated from the ONS annual CV data and are provided as a guide to the accuracy of the three year averages for turnover and employees.

	Coefficient of Variation (CV) Range					
	Turnover (£million)			Employees (FTE)		
	2014-2016	2015-2017	2016-2018	2014-2016	2015-2017	2016-2018
<b>Low Carbon Electricity</b>	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%	CV >=20% and <30%	CV >=20% and <30%
<b>Low Carbon Heat</b>	CV >=20% and <30%	CV >=20% and <30%	CV >=30%	CV >=30%	CV >=30%	CV >=30%
<b>Energy from Waste &amp; Biomass</b>	*	*	*	CV >=30%	CV >=30%	CV >=30%
<b>Energy Efficient Products</b>	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%
<b>Low Carbon Services</b>	CV >=30%	CV >=30%	*	CV >=30%	CV >=30%	CV >=30%
<b>Low Emission Vehicles</b>	*	*	*	CV <10%	CV <10%	CV <10%
<b>Total</b>	CV <10%	CV <10%	CV <10%	CV >=10% and <20%	CV >=10% and <20%	CV >=10% and <20%

The Coefficient of Variation (CV) is the ratio of the standard error of an estimate to the estimate itself. For example, an estimate with a CV of 5% will have a standard error that is 5% of the estimate. The smaller the coefficient of variation the greater the accuracy of the estimate. A rough guide to CVs is: less than 10% is very good, 10% is good and 20% is acceptable. Estimates with CVs that are greater or equal to 20% should be used with caution.

# Chapter 3

# **Electricity**



## Chapter 3: Electricity

### Summary of Key Points

- At May 2020, Northern Ireland had three major fossil-fuel based electricity generating plants and a number of renewable generators which make up indigenous electricity production. Interconnection with the Republic of Ireland and Scotland help to maintain security of supply.
- As expected, electricity consumption peaks during the winter months and is at its lowest during the summer months. Monthly consumption in Northern Ireland peaked in December 2010 (at around 837 GWh) and the lowest level recorded was in June 2019 at around 565 GWh (and over 32% below peak monthly consumption).
- In general, there was a slight downwards trend in annual electricity consumption in Northern Ireland over the period 2010-2015 followed by little change over the period 2015-2019. Total consumption in 2019 (7,713 GWh) was some 8.5% lower than in 2010.
- Average annual domestic electricity consumption per meter ranged from 3,000 kWh in Belfast to 4,200 kWh in Mid Ulster District Council area in 2016-17, meaning consumption per meter in this council area is around 40% higher than Belfast and some 17% above the Northern Ireland average.
- Whilst some 92% of all electricity meters were in domestic properties at the end of 2019, the domestic sector accounted for less than two-fifths (39%) of total electricity consumption in 2019. Large consumption by a relatively small number of consumers is illustrated by the fact that just over 1% of the largest consuming non-domestic electricity consumers accounted for over half (53%) of total electricity consumption in 2019.
- In 2019, Northern Ireland was a net exporter in terms of electricity trades with the Republic of Ireland (via the North-South tie-lines). Northern Ireland exported more than was imported in each year 2017 to 2019 with exports to the Republic of Ireland in 2019 (1,126.62 GWh) at their highest level since 2007.
- In 2019, Northern Ireland was a net importer of electricity from Scotland (via the Moyle interconnector). Indeed, electricity transfers from Scotland in 2019 (1,475.44 GWh) were at their highest level since 2013.
- In 2019 (and indeed, each year since 2016), Northern Ireland was able to meet all (or the overwhelming majority of) its own electricity demands without relying on imports or transfers of electricity from other countries.

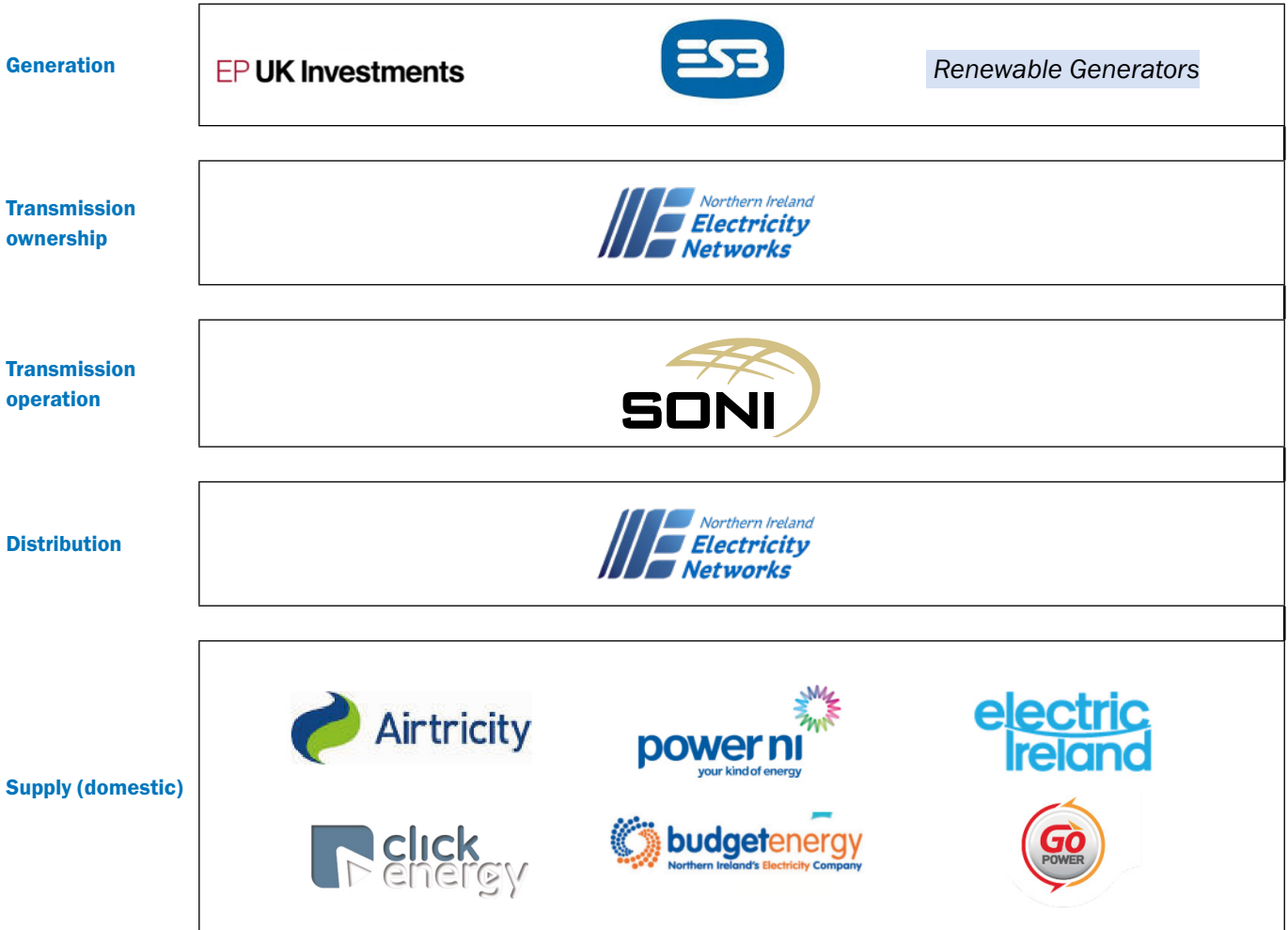




**Introduction**

The electricity system in Northern Ireland consists of the following distinct businesses: generation, transmission, distribution and supply. A diagram highlighting the structure and main participants in the electricity market at the end of 2019 in Northern Ireland is shown below.

**Figure 3.1 Structure and Main Participants of the Northern Ireland Electricity Market**





## Generation

There are three major power generating sites in Northern Ireland as follows<sup>62</sup>:

- Ballylumford (gas fuelled<sup>63</sup>) is located at the tip of the Islandmagee peninsula, is owned by EP UK Investments and is Northern Ireland's largest power station with an installed capacity of over 730 MW.
- Coolkeeragh (gas fuelled<sup>64</sup>) is located in Londonderry, is owned by ESB and has an installed capacity of some 470 MW.
- Kilroot (mainly coal and oil fuelled<sup>65</sup>) is located in Carrickfergus and is owned by EP UK Investments and has an installed capacity of some 700 MW.

In addition to the major gas/coal/oil fuelled power stations, Northern Ireland also has renewable energy sources (capacity of over 1,270 MW<sup>66</sup> from wind alone). There is also interconnection with the Scottish grid, with two 250 MW lines on the Moyle Interconnector<sup>67</sup> and interconnection with the Republic of Ireland grid is via three tie-lines with over 400 MW combined capacity<sup>68</sup>. Electricity can be imported and exported via the Moyle Interconnector and North-South tie-lines.

## Transmission

Transmission refers to the bulk transfer of electrical energy from large electricity generators to electrical substations. Transmission lines carry electricity at a very high voltage. Ownership of the transmission system lies with Northern Ireland Electricity Networks Ltd (NIE Networks), which is a subsidiary of the ESB Group, and they are responsible for transmission construction and maintenance. The transmission network is operated by the System Operator for Northern Ireland (SONI). A map of the transmission system in Northern Ireland is shown in Annex 3.1.

## Distribution

The local wiring between high-voltage substations and customers is typically referred to as electric power distribution. The conversion of high voltage into a voltage that can be used by customers is done through transformers and distribution lines then carry electricity at lower voltage levels to houses and businesses. In Northern Ireland, NIE Networks operates the distribution network which transports electricity to over 890,000 customers<sup>69</sup> in the domestic and non-domestic sectors.

## Supply

From November 2007 and the opening of the Single Electricity Market (SEM), electricity retail supply was fully open to competition, though there were no competing suppliers in the domestic market until 2010. Electricity suppliers buy energy and sell it to customers. Business and domestic consumers in Northern Ireland can choose between a number of private sector electricity suppliers to meet their individual electricity requirements.

62 The capacities for each power station are taken from Table 5.11 of the [Digest of United Kingdom Energy Statistics 2019](#). Please note that installed capacities are subject to change from year to year.

63 Ballylumford provides 616 MW capacity from natural gas generation with a further 116 MW capacity from diesel/gas oil generation.

64 Coolkeeragh provides 413 MW capacity from natural gas generation with a further 53 MW capacity from diesel/gas oil generation.

65 Kilroot provides 559 MW of capacity from coal fuelled generation, alongside 143 MW from diesel/gas oil generation.

66 As at end December 2019, figures from SONI (see <http://www.eirgridgroup.com/site-files/library/EirGrid/System-and-Renewable-Data-Summary-Report.xlsx>).

67 As per <http://www.mutual-energy.com/trading-across-the-moyle-interconnector-isem/>

68 As per <https://www.economy-ni.gov.uk/articles/cross-border-interconnection>. Capacity is 340MW North to South and 440MW South to North.

69 At end December 2019 as per Utility Regulator's Quarterly Transparency report for Q4 2019 (see page 7 of report [here](#)).



## Wholesale Electricity Markets<sup>70</sup>

A wholesale electricity market is where generators and suppliers meet to trade electricity that is then sold onto household and business consumers. Importantly, the wholesale market involves the trading of electricity for resale – it is not directly sold to the final consumer. This is distinct from the retail market where suppliers are responsible for the selling, metering, billing and collection of payments to customers. To make sure that wholesale electricity markets work well and fairly, arrangements are needed to cover market decision-making and day-to-day operations.

### The Single Electricity Market (SEM)

The wholesale market on the island of Ireland, the Single Electricity Market (SEM), was first set up in 2007. It combined what were two separate markets, for the Republic of Ireland and Northern Ireland, into one all-island wholesale electricity market. The SEM was the central pool through which generators and suppliers traded electricity on the island of Ireland.

The operation of a single wholesale market requires the physical connection of the Northern Ireland grid to that in the Republic. The Northern Ireland and Republic of Ireland transmission systems are connected via a double circuit 275 kV line between Tandragee and Louth. In addition there are two 110kV connections between Strabane and Letterkenny and Enniskillen and Corraclassy. The existing connections are proposed to be enhanced by a new 400kV North-South transmission connection (Tyrone-Cavan Interconnector) which should allow for cheaper electricity generation and improve the reliability and security of electricity supply<sup>71</sup>.

### The New Market – the I-SEM

Much has changed since the SEM was introduced in 2007. In particular, there is now much more generation from renewable sources across the island. Electricity markets are now undergoing significant changes, partly to take advantage of the opportunities from the coupling of energy markets across Europe and shared ways of trading electricity. Levels of interconnection between member states and regions have never been greater and markets are looking to take advantage of these new linkages.

For these reasons the SEM was replaced by the I-SEM which went live on 1<sup>st</sup> October 2018<sup>72</sup>. There are several key differences between the SEM and I-SEM market designs as shown in Figure 3.2 below:

70 Information on Wholesale Markets, SEM and I-SEM taken mainly from the SEM Committee's 'Quick Guide to the I-SEM' – available at [https://www.semcommittee.com/sites/semc/files/media-files/ISEM%20quick%20guide\\_1.pdf](https://www.semcommittee.com/sites/semc/files/media-files/ISEM%20quick%20guide_1.pdf)

71 See [http://www.soni.ltd.uk/\\_\\_uuid/2845daef-b91b-4a2e-9421-4ce38622052e/](http://www.soni.ltd.uk/__uuid/2845daef-b91b-4a2e-9421-4ce38622052e/)

72 See <https://www.semcommittee.com/news-centre/new-all-island-wholesale-electricity-market-goes-live>



**Figure 3.2 Key Differences between the SEM and I-SEM**

	SEM	I-SEM
<b>Market Structure</b>	One pool and timeframe	Different markets with different timeframes
<b>Trading opportunities</b>	A single opportunity for generators to submit their bids each day.	Generators and suppliers will have multiple opportunities to trade (at Day Ahead and Intra Day stages - more detail in section 3 below).
<b>Setting the market price</b>	All generator bids stacked up in order of merit, with the last generator (the most expensive) required to meet demand setting the price that suppliers pay. Suppliers are price takers.	Suppliers are makers - they set limits on what they are willing to pay in each market and, where this crosses with what generators are willing to accept, this sets the market price.
<b>Balancing supply and demand</b>	Supply and demand are matched using an algorithm.	Generators and suppliers have to match their actual with their traded generation and usage. If their generation or usage differs, their suppliers or generators are liable for these costs in the balancing market.
	SEM	I-SEM
<b>Capacity payments to generators</b>	The Capacity Payment Mechanism gives capacity payments to cover generators' fixed costs and are paid so long as the generator declares that it is available to run.	Generators are paid only when their output is required to meet demand and only if they can.
<b>Trading across interconnectors with Great Britain</b>	Capacity on interconnectors can be reserved to flow power in line with their trading approach. This may not deliver a cost-efficient flow.	Interconnection capacity allocated based on prices with electricity always flowing from the cheapest to the most expensive market.

Source: SEM Committee<sup>73</sup>

### Benefits of I-SEM<sup>74</sup>

For electricity consumers generally there are three main positive impacts of the I-SEM. Firstly, because the I-SEM facilitates trading across borders and making best use of the power available from all sources on the island of Ireland, this helps security of supply. Secondly, it will be a more competitive market than the SEM. Consumers should therefore benefit from a more competitive process for setting prices, including the use of capacity auctions. Thirdly, geographical location meant that electricity prices were, historically, higher in the all-island market than in Great Britain (though, as Chapter 6 shows, this is no longer the case). The better way of allocating power across the interconnector with Great Britain should place a downward pressure on prices because electricity will now flow more efficiently. Additionally, using the interconnectors more efficiently should contribute to the expansion of renewable generation as it should avoid the curtailment of wind generation at times of peak demand.

### Electricity Consumption – Monthly

DfE Analytical Services Unit publishes electricity consumption data for Northern Ireland quarterly as part of their Electricity Consumption and Renewable Generation in Northern Ireland publication<sup>75</sup>. The overall electricity consumption data contained in these reports is derived from aggregated meter readings supplied by NIE Networks and therefore is an accurate measure of actual electricity consumption across the domestic and non-domestic sectors. Chart 3.1 below shows total electricity consumption for Northern Ireland for each month over the period April 2008 to March 2020.

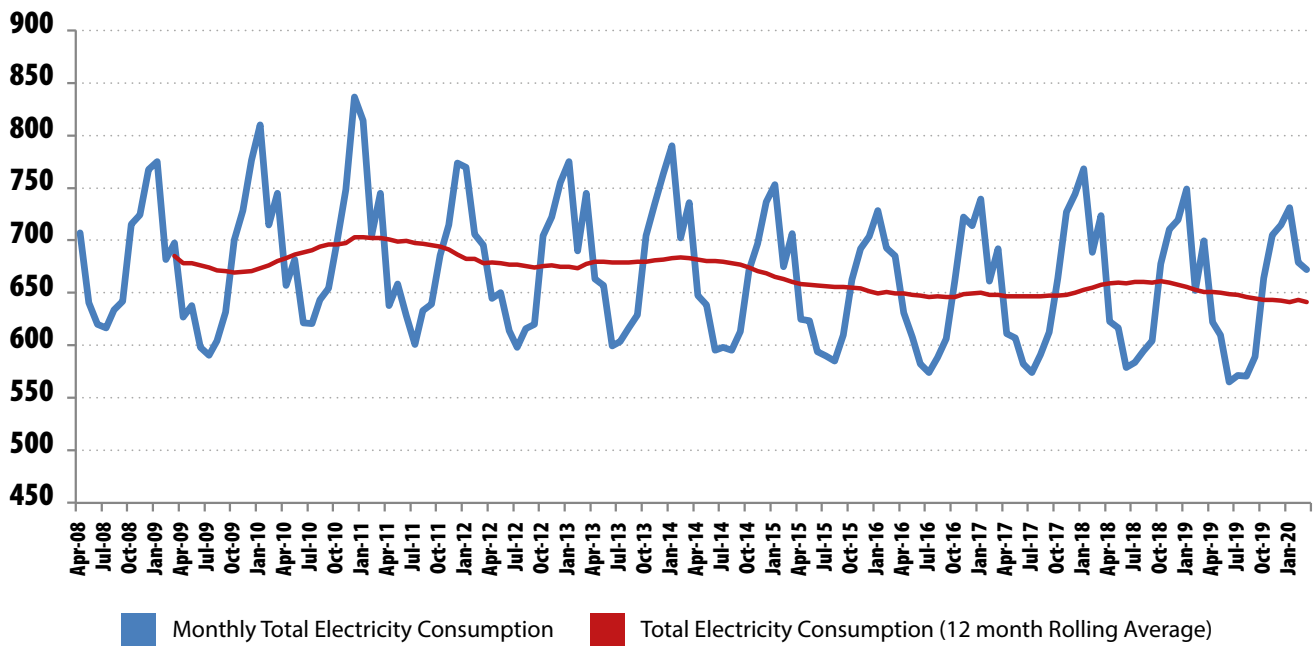
73 Information taken from page 6 of the SEM Committee's 'Quick Guide to the I-SEM' - [link here](#)

74 Information taken from page 9 of the SEM Committee's 'Quick Guide to the I-SEM' - [link here](#)

75 See <https://www.economy-ni.gov.uk/articles/electricity-consumption-and-renewable-generation-statistics> for further details on this publication.



**Chart 3.1 Monthly Total Electricity Consumption and 12-Month Rolling Average Consumption in Northern Ireland (GWh), April 2008 to March 2020**



Source: NIE Networks

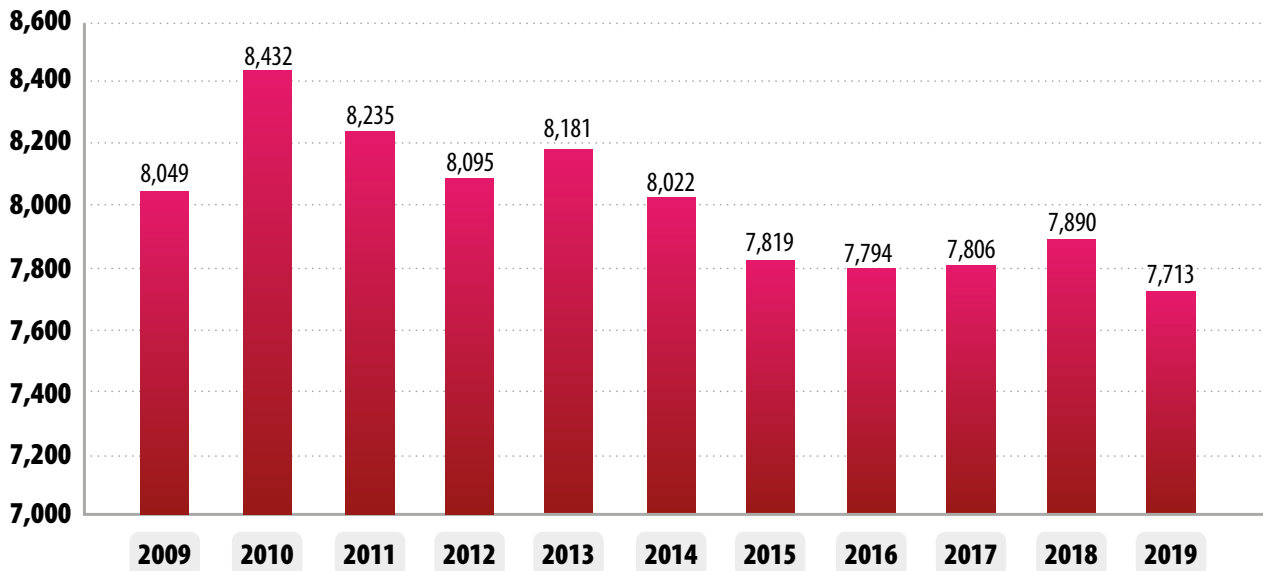
The chart shows that, predictably, electricity consumption peaks during the winter months and is at its lowest during the summer months. The 12 month rolling average line smoothes out short-term fluctuations and highlights longer-term trends in electricity consumption over the period April 2008 to March 2020. This shows an overall downwards trend in electricity consumption over the period, particularly since the start of 2011. The chart also shows that monthly consumption peaked in December 2010 (at about 837 GWh) and the lowest level recorded over the period was in June 2019 (around 565 GWh and over 32% below peak monthly consumption).



## Electricity Consumption - Annual

The chart below shows total annual electricity consumption for Northern Ireland for each year 2009 to 2019.

**Chart 3.2 Total Annual Electricity Consumption in Northern Ireland (GWh), 2009 to 2019**



Source: NIE Networks

Electricity consumption in 2019 (7,713 GWh) was the lowest in the eleven years shown (though only around 4.2% lower compared to 2009). Over the 11 year period, consumption peaked in 2010 (8,432 GWh), there was then a slight downwards trend over the period 2010-2015 (though there was a slight rise in consumption between 2012 and 2013) followed by little change over the period 2015-2019. However, annual consumption in 2019 was some 8.5% lower than the peak in 2010.

There are a number of factors which may have contributed to the reduction in consumption over the period 2010-2015, including: weather conditions, energy efficiency improvements (such as increased levels of insulation), the extension of the gas supply network, new boilers and more energy efficient appliances, increases in electricity prices, the consequences of the post 2008 recession, changes in the building stock and household composition.



## Sub-National Electricity Consumption

The Department of Business, Energy and Industrial Strategy (BEIS) have produced some experimental data in relation to domestic<sup>76</sup> and non-domestic<sup>77</sup> electricity consumption at a District Council level (the previous 26 council areas) for Northern Ireland. The latest year available is for 2016-17<sup>78</sup> and results have been aggregated into the new 11 super council areas as shown in Table 3.1 below<sup>79</sup>.

**Table 3.1 Experimental Electricity Consumption Statistics at District Council Level (kWh<sup>80</sup>), 2016-17**

Council name	Domestic			Non-domestic		
	Total consumption (kWh)	Total number of meters	Average consumption per meter (kWh)	Total consumption (kWh)	Total number of meters	Average consumption per meter (kWh)
<b>Antrim &amp; Newtownabbey</b>	218,650,700	60,890	3,600	371,468,300	3,920	94,800
<b>Ards &amp; North Down</b>	265,871,500	72,870	3,600	224,509,700	4,690	47,900
<b>Armagh City, Banbridge &amp; Craigavon</b>	330,932,700	86,110	3,800	564,995,100	7,080	79,800
<b>Belfast</b>	419,562,500	139,830	3,000	1,006,074,200	12,540	80,200
<b>Causeway Coast &amp; Glens</b>	239,619,400	65,320	3,700	263,601,800	5,370	49,100
<b>Derry City &amp; Strabane</b>	215,479,200	62,410	3,500	434,393,800	5,280	82,300
<b>Fermanagh &amp; Omagh</b>	177,198,600	48,330	3,700	365,192,700	4,840	75,500
<b>Mid &amp; East Antrim</b>	224,092,400	60,870	3,700	323,049,200	4,460	72,400
<b>Mid Ulster</b>	226,057,300	54,470	4,200	472,093,100	6,000	78,700
<b>Newry, Mourne &amp; Down</b>	275,097,500	70,590	3,900	312,123,200	6,380	48,900
<b>Lisburn &amp; Castlereagh</b>	299,071,000	82,840	3,600	359,919,800	5,120	70,300
<b>Unallocated<sup>81</sup></b>	15,533,100	7,270	2,100	25,171,300	340	74,000
<b>NI Total</b>	2,907,166,000	811,810	3,600	4,722,592,300	66,010	71,500

Source: BEIS (<https://www.gov.uk/government/collections/sub-national-electricity-consumption-in-northern-ireland>)

76 Link [here](#) to BEIS sub-national domestic electricity consumption data.

77 Link [here](#) to BEIS sub-national non-domestic electricity consumption data.

78 This covers the financial year 1 April 2016 to 31 March 2017. As Northern Ireland statistics are experimental, any year-on-year comparisons should be treated with caution.

79 Data for the old 26 District Council Areas and details of how the data was aggregated into the new council areas is provided in Annex 3.2 for information.

80 1 GWh = 1,000,000 kWh

81 Unallocated consumption is consumption that was not able to be matched to a council area due to incomplete or a lack of postcode information. Such consumption represents less than 1% of total domestic or non-domestic consumption.



For domestic consumption, data are based on billed units from customers that have been connected for at least 12 months<sup>82</sup> with non-domestic consumption based on billed units (and relate to final consumption at the point when it was derived) and, in both cases, cover the period 1 April 2016 to 31 March 2017. Therefore, the consumption figures will not match exactly with those shown for 2015 in Chart 3.2 earlier (total consumption in Table 3.1 above is some 7,630 GWh compared to total consumption of 7,794 GWh for 2016 as shown in Chart 3.2, a difference of only about 2%).

As the table shows, average domestic consumption per meter in 2016-17 ranged from 3,000 kWh in Belfast to 4,200 kWh in Mid Ulster District Council area, although consumption for most district council areas was close to the NI average of around 3,600 kWh. Domestic consumption per meter in Mid Ulster is some 40% higher than Belfast and 17% above the Northern Ireland average, whilst domestic consumption in Belfast was some 17% below the Northern Ireland average. The lower domestic consumption per meter in Belfast council area may be due factors such as the better availability of mains gas in that council area which may reduce the requirement for electricity for heating etc. or the housing mix in council areas.

Predictably, given the concentration of domestic dwellings and businesses, Belfast City Council area has the largest share of both domestic consumption (over 14%) and non-domestic consumption (over 21%). Indeed, Belfast City Council area and Armagh, Banbridge & Craigavon Council area together accounted for one-third of all non-domestic electricity consumption in Northern Ireland in 2016-17.

### **Domestic Versus Non-Domestic Consumption – Northern Ireland**

Table 3.1 above also highlights that, while 92.5% of all meters in 2016-17 were in domestic properties, the domestic sector accounted for less than two-fifths of total electricity consumption. More up-to-date information from different sources (presented in Table 3.2 below), shows that for the calendar year 2019, a similar split continues to exist between the domestic and non-domestic sectors in terms of connections (91.6% and 8.4% respectively) and consumption (36.9% and 63.1% respectively).

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82 As the data that is provided is billed information as opposed to the sales information reported, unbilled units are excluded and both meters and consumption numbers have been uplifted to match annual sales data.





**Table 3.2 Electricity Connection Numbers<sup>83</sup> & Electricity Consumption<sup>84</sup> by Market Segment in Northern Ireland, 2018 and 2019**

Market Segments	Connection Numbers		Annual Consumption (GWh)	
	At end 2018	At end 2019	2018	2019
<b>Domestic:</b>				
<b>Domestic Credit</b>	448,883	449,844	1667.2	1627.4
<b>Domestic Prepayment</b>	359,262	366,211	1227.6	1221.2
<b>Total Domestic</b>	808,145	816,055	2894.8	2848.6
<b>Non-Domestic (Industrial &amp; Commercial):</b>				
<b>I&amp;C &lt; 20 MWh</b>	49,079	50,721	348.8	341.5
<b>I&amp;C 20 - 49 MWh</b>	13,117	12,937	429.2	419.9
<b>I&amp;C 50 - 499 MWh</b>	10,053	9,934	1334.1	1312.0
<b>I&amp;C 500 - 1,999 MWh</b>	841	817	806.5	799.1
<b>I&amp;C 2,000 - 19,999 MWh</b>	253	268	1336.8	1303.2
<b>I&amp;C ≥ 20,000 MWh</b>	19	18	739.4	688.4
<b>Total Industrial &amp; Commercial (I&amp;C)</b>	73,362	74,695	4994.8	4864.0
<b>Total (Domestic + I&amp;C)</b>	881,507	890,750	7889.5	7712.6
<b>% Domestic</b>	91.7%	91.6%	36.7%	36.9%
<b>% Non-domestic</b>	8.3%	8.4%	63.3%	63.1%

Sources: Northern Ireland Utility Regulator (see <https://www.uregni.gov.uk/market-information>) and consumption data provided directly to DfE by NIE Networks

This more recent data shows that the bigger industrial and commercial (I&C) users consume a disproportionate amount of electricity. For example, those I&C customers who consumed 2,000 MWh or more of electricity in 2019 accounted for less than 0.4% of all I&C connections but were responsible for more than two fifths (40.9%) of non-domestic consumption in 2019. Indeed, a very small number of the largest energy users (i.e. those 18 customers who consumed more than 20,000 MWh of electricity in 2019) were responsible for over 14% of I&C consumption and almost 9% of the total volume of electricity consumption (both domestic and non-domestic) in Northern Ireland in 2019.

In the domestic sector, there was an increase of 7,910 customers between 2018 and 2019: this was made up of a 1.9% rise in prepayment customers (+6,949) and a 0.2% rise in credit customers (+961). Overall, using the data in Table 3.2, domestic customers in Northern Ireland consumed on average about 3,500 kWh of electricity in 2019 (an average of around 3,600 kWh for credit customers and an average of about 3,300 kWh for prepayment customers).

83 Connection numbers data for 2018 and 2019 taken from Q4 Quarterly Transparency Report for corresponding year. Note that long term vacant sites are not included in connection numbers and combined premises are included in the <20MWh category.

84 Consumption data provided to DfE by NIE Networks.



In the non-domestic sector some 85% of connections are where consumption is less than 50 MWh per annum and 98.5% of connections are where consumption is less than 500 MWh per annum. There was an increase of 1,333 connections between 2018 and 2019 in the non-domestic sector, however only two of the six non-domestic groups showed an increase in connection numbers. Indeed, the rise in connections in the non-domestic group consuming the lowest amount of electricity (i.e. the <20 MWh group) was 1,642 but all other non-domestic groups combined had a fall of 309 connections.

### Domestic Versus Non-Domestic Consumption - Regional Comparisons

Similar information for Great Britain and its regions is published by BEIS<sup>85</sup>. As shown in Chart 3.3 below, the split between domestic and non-domestic electricity consumption for GB as a whole is the same as that for Northern Ireland. In 2018, 38% of electricity in GB was estimated to be consumed in the domestic sector and 62% by the non-domestic sector (with 92% of meters in the domestic sector and 8% in the non-domestic sector for GB<sup>86</sup>).

However, as shown in the chart, the split varies across the regions of Great Britain. Domestic consumption accounted for only 24% of total electricity consumption in Inner London but was around twice this proportion in Outer London (44%) and 40% or more in four other regions (Scotland, East England, South East and South West). Indeed, the variation is even more marked across GB local authorities (equivalent to NI council areas). For example domestic consumption makes up less than 20% of total electricity consumption in five local authorities (City of London, Westminster, Neath Port Talbot, Slough and Tower Hamlets) and as much as 66% in one local authority (East Renfrewshire)<sup>87</sup>. The distribution depends on local factors, such as the type of industry/service, the mix of properties and the extent to which electricity is used for heating.

In addition<sup>88</sup>, average annual domestic electricity consumption in GB (around 3,600 kWh) was very similar to that in Northern Ireland (also at around 3,600 kWh using data for 2018 for Northern Ireland from Table 3.2). In GB regions, average annual domestic electricity consumption in 2018 ranged from about 3,000 kWh in the North East region to almost 4,000 kWh in the East and South East regions. Scotland and Wales had similar consumption values of around 3,400 kWh for 2018.

85 Full publication can be accessed at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/853760/sub-national-electricity-and-gas-consumption-summary-report-2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/853760/sub-national-electricity-and-gas-consumption-summary-report-2018.pdf)

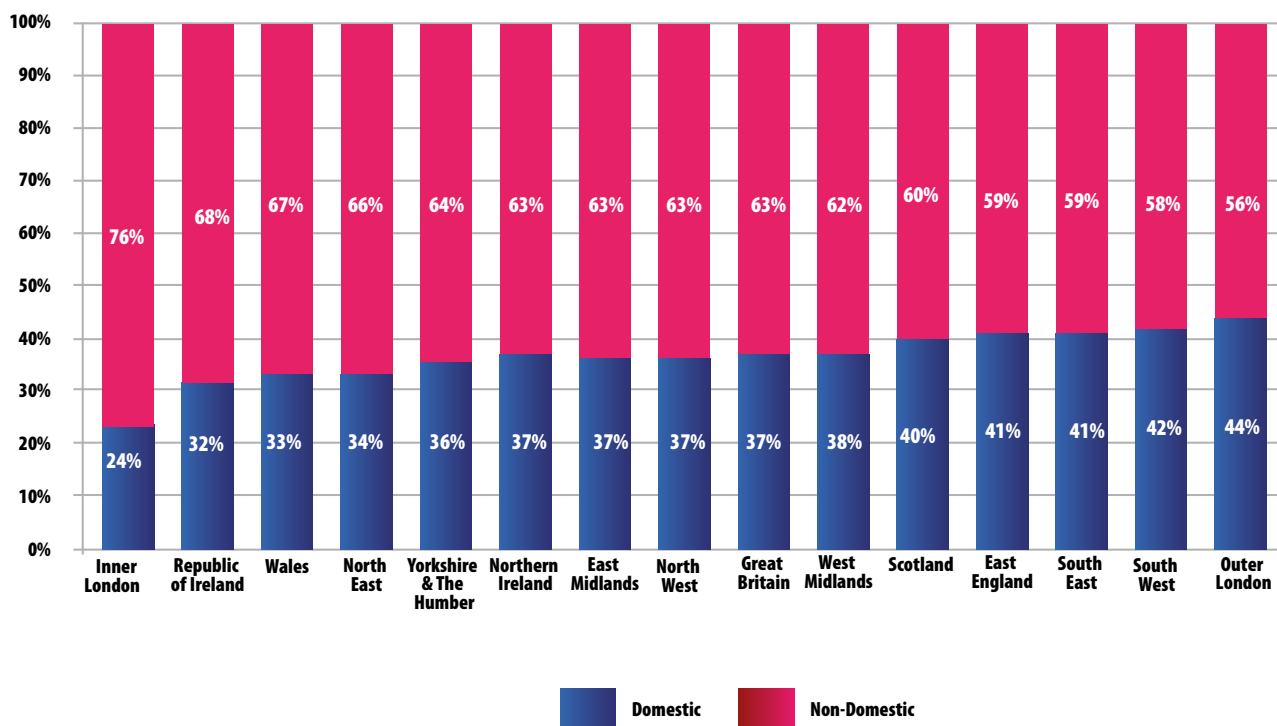
86 Calculated from data published by BEIS, available at: <https://www.gov.uk/government/statistical-data-sets/stacked-electricity-consumption-statistics-data>

87 Calculated from data published by BEIS, available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/853206/elec\\_LA\\_stacked.csv](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/853206/elec_LA_stacked.csv)

88 From page 11 of BEIS publication at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/853760/sub-national-electricity-and-gas-consumption-summary-report-2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/853760/sub-national-electricity-and-gas-consumption-summary-report-2018.pdf)



**Chart 3.3 Distribution of Domestic/Non-Domestic Electricity Consumption by Country and Region, 2018**



Sources: BEIS<sup>89</sup>; NIE Networks; Commission for Regulation of Utilities

Data published by the Commission for Regulation of Utilities<sup>90</sup> for 2018 shows a slightly different domestic/non-domestic split for the Republic of Ireland, with a higher proportion of electricity consumed in the Republic of Ireland (68%) for non-domestic purposes compared to Northern Ireland (63%). In 2018, domestic electricity consumption in the Republic of Ireland was some 8,732 GWh (accounting for 32% of all electricity consumption and equivalent to around 3 times domestic consumption in Northern Ireland in 2018) and non-domestic consumption was almost 18,400 GWh which was 68% of all electricity consumption in the Republic of Ireland and equivalent to around 3.7 times non-domestic consumption in Northern Ireland in 2018.

### Electricity Flowchart

The flowchart below (Chart 3.4) produced by BEIS<sup>91</sup> shows the relationship between generation and consumption of electricity in each of the UK countries by means of a flow diagram. Further details on generation and supply totals for the UK and its regions can be found in Annex 3.3.

89 See [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/853760/sub-national-electricity-and-gas-consumption-summary-report-2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/853760/sub-national-electricity-and-gas-consumption-summary-report-2018.pdf)

90 See Table 9.2, page 103 of <https://www.cru.ie/wp-content/uploads/2019/07/CRU19084-2018-Electricity-and-Gas-Retail-Markets-Annual-Report.pdf>

91 See [here](#) for full publication.



The flowchart shows that, for Northern Ireland, indigenous generators produced 9,366 GWh of electricity in 2018. Of this, 294 GWh was for their own use resulting in 9,072 GWh net electricity supplied by indigenous generators to the public supply system. Net imports from Scotland were 707 GWh, although there were also net exports of 471 GWh to the Republic of Ireland, so taking these into account means a total of 9,307 GWh of electricity supplied. However, 673 GWh of this was taken up through transmission and distribution losses<sup>92</sup> which leaves a total of 8,635 GWh of total consumption. Of this total consumption, 1,551 GWh was consumption by autogenerators<sup>93</sup> (see Annex 3.3 for more details) meaning 7,084 GWh was the derived figure for electricity ‘consumption from public supply’<sup>94</sup> for Northern Ireland.

The flowchart (and table in Annex 3.3) highlights the fact that England was reliant on imports of electricity from Continental Europe (19,075 GWh), Scotland (12,810 GWh) and Wales (8,252 GWh) to meet demand in 2018. These imports were equivalent to about one sixth of electricity consumption in England in 2018. As noted above, Northern Ireland was also a net importer of electricity in 2018 (707 GWh net imports from Scotland but 471 GWh net exports to the Republic of Ireland) so total net imports were only around 236 GWh or less than 3% of total consumption.

Scotland and Wales were significant net exporters of electricity in 2018. Net exports from Scotland to England (12,810 GWh) and Wales to England (8,252 GWh) were equivalent to about one third of net electricity supplied by Major Power Producers in each respective country in 2018. Wales started trading with the Republic of Ireland in 2012 and was a net exporter to them each year, with some 5,600 GWh (net) of electricity exported to the Republic of Ireland in the three year period 2013-2015. However, in 2016 (and each year since) Wales received more imports of electricity from the Republic of Ireland than it exported with net imports of 504 GWh of electricity in 2018.

Northern Ireland trades electricity with the Republic of Ireland and was a net exporter between 2004 and 2013 (see Table 3.3). However it became a net importer from the Republic of Ireland between 2014 and 2016 (though net imports were small in each of these years at less than 400 GWh) before returning to being a net exporter in 2017 and 2018 (though net transfers of electricity in each of these two years were relatively small as a proportion of total electricity consumption).

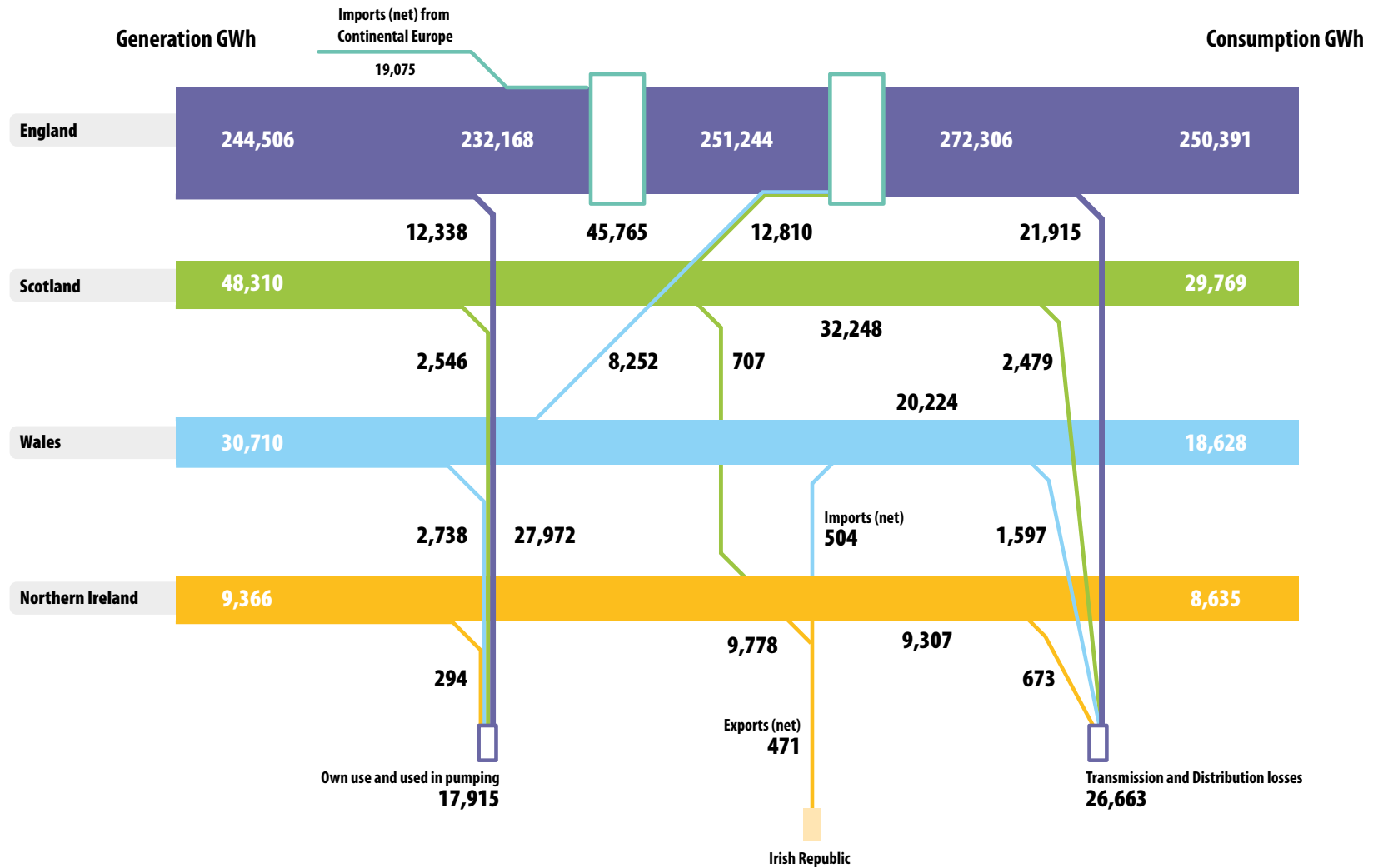
92 In general, losses are estimated from the discrepancy between power produced (as reported by power plants) and power sold to the end customers; the difference between what is produced and what is consumed constitute transmission and distribution losses. In this case, estimates of losses for each country have been made by BEIS using UK proportions. An estimate of losses due to theft has also been included along with the distribution losses estimate.

93 Autogenerators are companies who produce electricity as part of their manufacturing or other commercial activities, but whose main business is not electricity generation. Such generation is typically for sole use by the business and not for supply to the electricity network. As such, this generation and consumption would not be captured in meter readings.

94 This derived figure for consumption for Northern Ireland for 2016 (i.e. 7,084 GWh) differs from that presented earlier (i.e. 7,890 GWh in Chart 3.2). More information on such differences is given in Annex 3.4.



**Chart 3.4 Electricity Generation and Consumption Flow Chart, 2018**



Source: BEIS ([https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/853549/Regional\\_Electricity\\_Generation\\_and\\_Supply\\_2015\\_to\\_2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/853549/Regional_Electricity_Generation_and_Supply_2015_to_2018.pdf))



## Imports, Exports and Transfers of Electricity in Northern Ireland

As noted earlier, Northern Ireland has connection to the Republic of Ireland and Scottish electricity networks (via the North-South tie-lines and Moyle Interconnector respectively). Table 3.3 below highlights the volume of electricity that has passed between these countries in recent years.

**Table 3.3 Annual Imports, Exports and Transfers of Electricity (GWh), 2002 to 2019**

Year	Imports	Exports	Transfers	
	Ireland → NI	NI → Ireland	Scotland → NI	NI → Scotland
2002	140.43	147.98	815.51	0.00
2003	119.35	86.28	1,011.92	0.00
2004	0.32	1,574.21	2,793.08	0.00
2005	1.14	2,074.16	1,687.02	0.17
2006	9.93	1,787.94	941.01	35.69
2007	53.27	1,381.99	1,729.77	2.22
2008	151.56	373.33	700.14	155.25
2009	85.30	452.20	1,950.88	14.17
2010	145.42	379.13	2,298.14	0.69
2011	120.73	365.82	1,769.07	0.00
2012	172.73	333.00	2,164.31	1.93
2013	156.70	201.95	1,551.37	10.74
2014	243.03	122.14	1,108.81	64.77
2015	489.56	155.29	685.01	493.54
2016	638.64	240.04	438.46	690.43
2017	270.71	380.81	746.96	891.74
2018	376.78	847.85	1,315.29	608.52
2019 <sup>95</sup>	302.01	1,126.62	1,475.44	494.79

Source: BEIS (<https://www.gov.uk/government/statistics/electricity-section-5-energy-trends>)

Table 3.3 shows that, with the exception of 2003, Northern Ireland exported more electricity to the Republic of Ireland than it received in imports from this source in each year from 2002 to 2013. Differences were particularly large for the period 2004-2007 when Northern Ireland exported a significant amount of electricity to the Republic of Ireland. Indeed, exports to the Republic of Ireland in 2005 and 2006 were larger than the transfers from Scotland in the same years.

In each year 2014 to 2016, Northern Ireland imported more electricity from the Republic of Ireland than it exported, although the imports and exports totals account for a relatively small proportion of overall consumption of electricity (as shown earlier total electricity consumption was around 7,800 to 8,000 GWh in Northern Ireland in each year 2014-2016). However, the previous trend has returned with Northern Ireland exporting more than imported in each year 2017 to 2019. Exports to the Republic of Ireland in 2019 (1,126.62 GWh) were at their highest level since 2007.

95 Data for 2019 is provisional and subject to revision. Latest updated data is available [here](#) (see Table ET5.6).

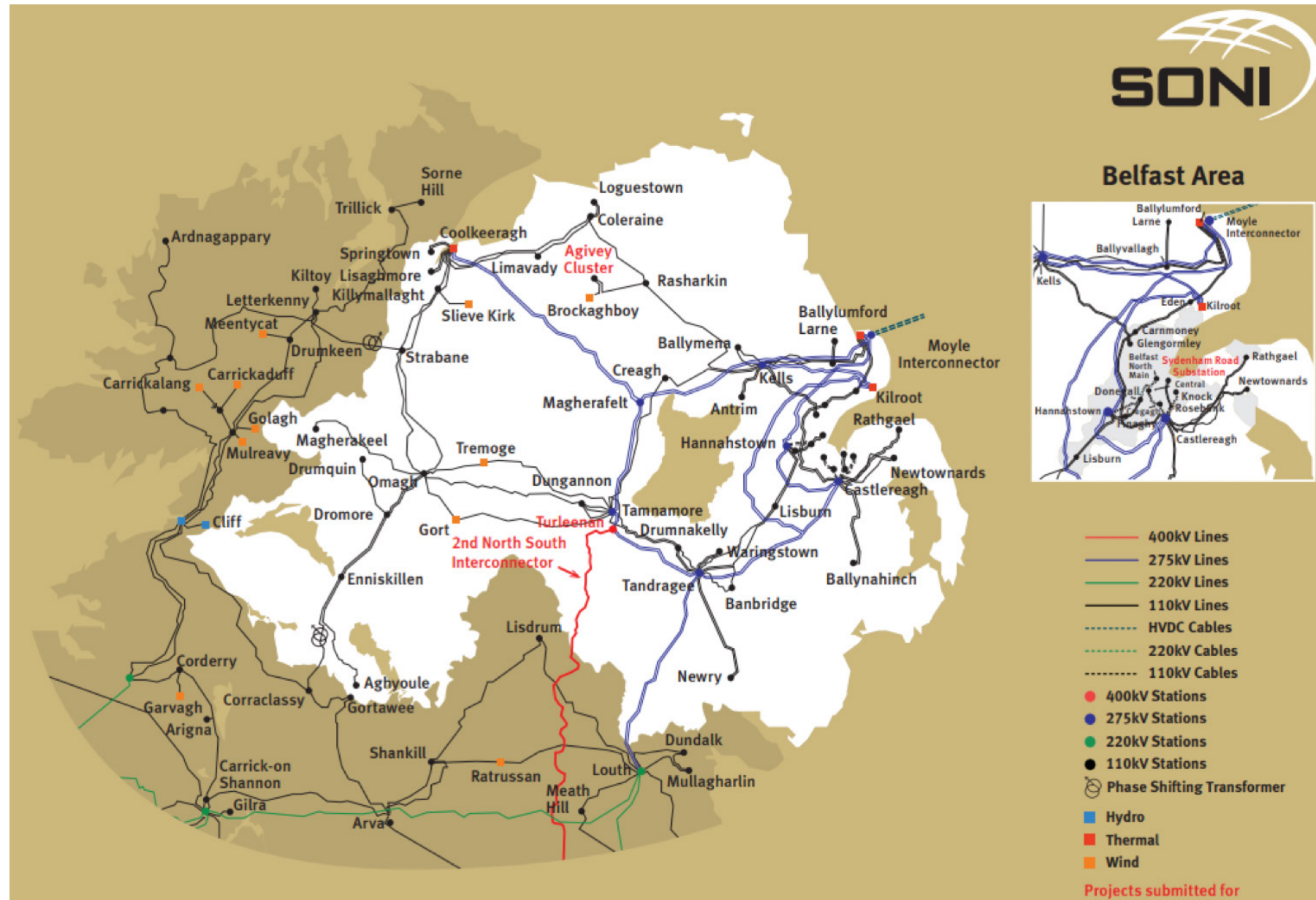


Transfers of electricity from Scotland via the Moyle Interconnector were significant in the years 2009 to 2013 when such transfers accounted for around one quarter of all electricity consumed in Northern Ireland over that period (transfers of electricity from NI to Scotland were very small during these years). However, this has changed significantly since then. Transfers of electricity from Scotland fell to around 14% of total electricity consumption in Northern Ireland in 2014 (exports to Scotland were up but still low). By 2015, transfers from Scotland accounted for less than 9% of all electricity consumed in Northern Ireland (with export volumes to Scotland now equivalent to 6% of NI consumption whereas in all previous years exports accounted for less than 1%). In 2016 and 2017, electricity transfers to Scotland from NI were more than the volume imported although the overall difference was small with fairly similar volumes transferred in each direction. Both the import and export volume was equivalent to about 10% of NI electricity consumption in 2017.

However, in 2018 and 2019 Northern Ireland again received more electricity transfers from Scotland than electricity sent to Scotland. Indeed, electricity transfers from Scotland in 2019 were equivalent to about 20% of NI consumption in 2019 and were at their highest level since 2013.



**Annex 3.1 Map of the Transmission System Network for Northern Ireland**



Source: SONI (<http://www.soni.ltd.uk/media/documents/SONI-Transmission-Map.pdf>)





### Annex 3.2 Mapping Old Council Areas to New Super Council Areas

Table 3.1 presented data for the new 11 council areas in Northern Ireland. However, the underpinning data is currently available from BEIS for the old 26 district council areas only. In order to provide data for the 11 new council areas, the data for the old 26 district councils published by BEIS has been aggregated as detailed in the table below. Please note that this is a ‘best fit’ of old council areas to new council areas and, as some of the new council areas include parts of old council areas, it is therefore an approximation of consumption for those new council areas.

For further information, a map of the previous and new local government districts can be found at [https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/11DC\\_Guidance\\_1\\_2.pdf](https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/11DC_Guidance_1_2.pdf).

New Council Areas:	Old Council Areas included in aggregation for Table 3.1:
Antrim & Newtownabbey	Antrim and Newtownabbey
Ards & North Down	Ards and North Down
Armagh City, Banbridge & Craigavon	Armagh, Banbridge and Craigavon
Belfast	Belfast
Causeway Coast & Glens	Ballymoney, Coleraine, Limavady and Moyle
Derry City & Strabane	Derry and Strabane
Fermanagh & Omagh	Fermanagh and Omagh
Mid and East Antrim	Ballymena, Carrickfergus and Larne
Mid Ulster	Cookstown, Dungannon and Magherafelt
Newry, Mourne & Down	Down and Newry & Mourne
Lisburn & Castlereagh	Castlereagh and Lisburn

Data as published by BEIS for the old 26 district council areas is available below.



## Sub-National Electricity Consumption – ‘Old’ 26 District Council Areas

Table 3.4 Experimental Electricity Consumption Statistics at District Council Level, 2016-17<sup>96</sup>

District Council	Domestic			Non-domestic		
	Total consumption (kWh)	Total number of meters	Average consumption per meter (kWh)	Total consumption (kWh)	Total number of meters	Average consumption per meter (kWh)
<b>Antrim</b>	86,207,700	22,600	3,800	179,171,800	1,740	102,700
<b>Ards</b>	134,648,200	35,950	3,700	106,289,400	2,450	43,300
<b>Armagh</b>	100,452,500	24,670	4,100	114,913,100	2,320	49,600
<b>Ballymena</b>	107,240,100	27,710	3,900	184,818,900	2,470	74,900
<b>Ballymoney</b>	51,986,400	12,640	4,100	38,116,500	1,050	36,400
<b>Banbridge</b>	81,314,400	20,680	3,900	63,758,600	1,620	39,500
<b>Belfast</b>	419,562,500	139,830	3,000	1,006,074,200	12,540	80,200
<b>Carrickfergus</b>	63,162,100	18,010	3,500	78,271,800	910	86,400
<b>Castlereagh</b>	106,603,300	30,510	3,500	120,634,700	1,490	81,200
<b>Coleraine</b>	106,689,900	30,350	3,500	157,006,400	2,420	65,000
<b>Cookstown</b>	62,136,200	14,440	4,300	165,108,500	1,570	105,400
<b>Craigavon</b>	149,165,800	40,760	3,700	386,323,400	3,140	123,100
<b>Derry</b>	152,901,400	45,750	3,300	363,124,600	3,890	93,300
<b>Down</b>	118,067,300	30,560	3,900	118,104,100	2,520	46,800
<b>Dungannon</b>	95,360,500	23,130	4,100	220,077,300	2,660	82,600
<b>Fermanagh</b>	96,762,400	27,420	3,500	255,882,000	2,720	94,200
<b>Larne</b>	53,690,200	15,150	3,500	59,958,500	1,080	55,300
<b>Limavady</b>	50,636,300	13,610	3,700	45,890,700	1,140	40,200
<b>Lisburn</b>	192,467,700	52,330	3,700	239,285,100	3,630	66,000
<b>Magherafelt</b>	68,560,600	16,900	4,100	86,907,300	1,770	49,000
<b>Moyle</b>	30,306,800	8,720	3,500	22,588,200	760	29,600
<b>Newry &amp; Mourne</b>	157,030,200	40,030	3,900	194,019,100	3,860	50,300
<b>Newtownabbey</b>	132,443,000	38,290	3,500	192,296,500	2,180	88,100
<b>North Down</b>	131,223,300	36,920	3,600	118,220,300	2,240	52,900
<b>Omagh</b>	80,436,200	20,910	3,800	109,310,700	2,120	51,600
<b>Strabane</b>	62,577,800	16,660	3,800	71,269,200	1,390	51,400
<b>Unallocated</b>	15,533,100	7,270	2,100	25,171,300	340	74,300
<b>Total</b>	2,907,166,000	811,810	3,600	4,722,592,300	66,010	71,500

Source: BEIS (<https://www.gov.uk/government/collections/sub-national-electricity-consumption-in-northern-ireland>)

96 This covers the period 1 April 2016 to 31 March 2017.



### Annex 3.3 Generation and Supply

As noted earlier Northern Ireland has three main electricity generating plants, a number of renewable generators and interconnection with grids in the Republic of Ireland and Scotland. All of these combine to fulfil the total electricity requirement for Northern Ireland. The table below, produced annually by BEIS, gives information on the generation and supply of electricity for each country of the UK. The latest available data relates to 2018.

**Table 3.5 Generation and Supply of Electricity in the UK, England, Scotland, Wales and Northern Ireland (GWh), 2018**

		England	Scotland	Wales	Northern Ireland	UK
<b>(A)</b>	Electricity Generated by Major power producers (MPPs)	208,634	39,613	26,830	<b>6,279</b>	281,356
<b>(B)</b>	Minus Electricity Used in pumping at pumped storage and other own use by MPPs	-9,152	-1,881	-2,407	<b>-140</b>	-13,580
<b>(C)</b>	Equals Electricity supplied (net) by MPPs	199,483	37,733	24,423	<b>6,138</b>	267,776
<b>(D)</b>	Electricity Generated by Other generators	35,946	8,623	3,880	<b>3,087</b>	51,536
<b>(E)</b>	Minus Own use by other generators	-3,202	-649	-331	<b>-154</b>	-4,335
<b>(F)</b>	Minus Consumption by autogenerators	-17,312	-4,216	-1,877	<b>-1,551</b>	-24,956
<b>(G)</b>	Equals Electricity supplied (net) by Other generators	15,431	3,758	1,673	<b>1,382</b>	22,245
<b>(H)</b>	Total electricity generated = (A) + (D)	244,580	48,236	30,710	<b>9,366</b>	332,893
<b>(J)</b>	Total electricity supplied (net) by indigenous generators = (C) + (G)	214,914	41,491	26,095	<b>7,521</b>	290,021
<b>(K)</b>	Electricity transferred to England (imports minus exports)	21,062	-12,810	-8,252	<b>0</b>	0
<b>(L)</b>	Electricity transferred to Northern Ireland (imports minus exports)	0	-707	0	<b>707</b>	0
<b>(M)</b>	Electricity transferred to Europe (imports minus exports)	19,075	0	504	<b>-471</b>	19,108
<b>(N)</b>	Total transfers = (K) + (L) + (M)	40,137	-13,517	-7,748	<b>236</b>	19,108
<b>(P)</b>	Total electricity supplied (indigenous generation plus imports minus exports) = (J) + (N)	255,051	27,974	18,347	<b>7,756</b>	309,129
<b>(Q)</b>	Minus Transmission losses	-5,427	-548	-378	<b>-144</b>	-6,497
<b>(R)</b>	Minus Distribution losses and theft	-16,488	-1,930	-1,219	<b>-528</b>	-20,166
<b>(S)</b>	Equals Consumption from public supply	233,136	25,495	16,750	<b>7,084</b>	282,466

Source: BEIS (<https://www.gov.uk/government/statistics/energy-trends-december-2019-special-feature-article-electricity-generation-and-supply-figures-for-scotland-wales-northern-ireland-and-england-2>)



The previous table shows figures on total generation, consumption, transfers and losses for the four regions of the UK and the UK total for 2018. The data is derived from a survey of major power producers and other generators.

The table shows that England is reliant on substantial imports of electricity from Scotland & Wales and from continental Europe (via the France and Netherlands interconnectors) to meet its electricity demands. Of particular note, in 2018 both Scotland (31%) and Wales (32%) exported around one third of its net electricity supplied by indigenous generators to England (i.e. transfers of 12,810 GWh to England out of 41,491 GWh net electricity supplied by indigenous generators in Scotland and transfers of 8,252 GWh to England out of 26,095 GWh net electricity supplied by indigenous generators in Wales).

Wales started trading with the Republic of Ireland in 2012 and was a net exporter to them each year up to 2015, with some sizeable volumes exported during this period. For example, in 2014, some 2,408 GWh out of 29,177 GWh (or 8.3%) of Wales's net electricity supplied by indigenous generators was exported to the Republic of Ireland. However, since 2016, this has reversed with Wales importing more electricity from Ireland than it supplied in each year.

Northern Ireland was a net exporter in terms of electricity trades with the Republic of Ireland (via the North-South tie-lines) in 2018, though the net amount was fairly small at 471 GWh. Indeed, Northern Ireland was a net exporter in terms of electricity trades with the Republic of Ireland in every year from 2004 to 2013 and also in 2017 and 2018. Between 2014 and 2016, however Northern Ireland was a net importer in terms of electricity trades with the Republic of Ireland, though the net amounts were small. Net exports from Northern Ireland to the Republic of Ireland were significant in the period 2004-2007 with net volumes between about 1,300 to 2,100 GWh each year.

For the first time, Northern Ireland was a net exporter of electricity to Scotland (via the Moyle interconnector) in 2016 and again in 2017, though the net amounts were small (at 252 GWh for 2016 and 145 for 2017). However, Northern Ireland returned to being a net importer of electricity from Scotland in 2018 (at 707 GWh net imports). In previous years imports via the Moyle Interconnector were substantial (for example, over the period 2009-2014 an annual average of over 1,800 GWh of electricity were transferred from Scotland to Northern Ireland).

What is notable about the BEIS data (as shown in Table 3.5 above and Table 3.3 earlier) is that in 2018 (and indeed, since 2016), Northern Ireland was able to meet all (or the overwhelming majority of) its own electricity demands without relying on imports or transfers of electricity from other countries.



### Annex 3.4 Differences in Consumption Measures

The consumption data in Table 3.5 (produced by BEIS) differs from those presented in Chart 3.2 (produced by DfE) as they are calculated in different ways. The following table shows the consumption figures from the two sources for the period 2010 to 2018. In the period 2010-2012, differences were small between the DfE estimates of consumption, as sourced from NIE Networks, and those published by BEIS (at 1% or less). Between 2013 and 2016, the differences in electricity consumption figures between the two sources was higher at around 5-7% and higher again (8-10%) for 2017-2018.

**Table 3.6 Electricity Consumption in Northern Ireland by Publication Source, 2010 to 2018**

Year	DfE	BEIS	Difference (DfE Compared to BEIS)	% Difference (DfE Compared to BEIS)
2010	8,432	8,484	-52	-0.6%
2011	8,235	8,221	14	0.2%
2012	8,095	8,011	84	1.0%
2013	8,181	7,757	424	5.2%
2014	8,022	7,429	593	7.4%
2015	7,819	7,485	334	4.3%
2016	7,794	7,458	336	4.3%
2017	7,806	7,171	635	8.1%
2018	7,890	7,084	806	10.2%

Source: BEIS (<https://www.gov.uk/government/statistics/energy-trends-december-2019-special-feature-article-electricity-generation-and-supply-figures-for-scotland-wales-northern-ireland-and-england-2>) and DfE (<https://www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables>)

The BEIS consumption estimates are, in essence, ‘calculated’ consumption figures – that is, they are derived by taking total generation minus own use, any net exports and any transmission and distribution losses then adding net imports with the residual figure being called consumption.

The figures presented earlier (in Chart 3.2 and also shown in the table above) are those used in DfE’s Electricity Consumption and Renewable Generation in Northern Ireland publication to measure progress against the Programme for Government (PfG) target and are based on actual consumption from aggregated meter readings rather than a ‘calculated’ consumption figure.

Chapter 4  
**Renewable Electricity**



## Chapter 4: Renewable Electricity

### Summary of Key Points

- The Northern Ireland Executive's Programme for Government (PfG) target for 2011-15 was to "Encourage achievement of 20% of electricity consumption from renewable sources by 2015" and this was met during 2015.
- The Executive's Strategic Energy Framework (SEF) included a target to achieve 40% of electricity consumption from renewable sources by 2020. The rolling 12 month average percentage of electricity consumption in Northern Ireland generated from renewable sources exceeded 40% for the first time for the 12 month period ending December 2018 with 40.7% achieved.
- The annual proportion of electricity consumption from renewable sources in Northern Ireland has risen considerably in recent years, from 9.7% in 2009 to 43.7% in 2019.
- Wind remains the dominant source of renewable electricity generation in Northern Ireland accounting for 84.5% of total renewable generation volumes in 2019. Such reliance on wind does mean that monthly renewable electricity generation volumes in Northern Ireland can be prone to large fluctuations, due to changing weather conditions.
- In recent years, the volume of renewable electricity generated in Northern Ireland has steadily increased as has the number of sites and installed capacity at sites generating electricity from renewable sources. The volume of renewable electricity generated in 2019 (3,368 GWh) was around five times the volume generated in 2010 (706 GWh).
- Around two thirds of renewable electricity capacity and generation was accounted for by three of the eleven Northern Ireland district council areas namely: Causeway Coast & Glens; Derry City & Strabane; and Fermanagh & Omagh.
- In terms of the fuel type used for electricity generation, in Northern Ireland in 2018 both gas (42.5%) and renewables (42.3%) accounted for similar shares. Northern Ireland's proportion of electricity generated from gas was similar to England (40.8%), significantly lower than Wales (66.9%) but significantly higher than in Scotland (15.1%).
- In terms of the percentage of total indigenous electricity generation accounted for by indigenous renewable generation, Northern Ireland had the second highest proportion (42.3%) of all four UK regions in 2018 using this measure, significantly higher than England (29.8%) and Wales (22.1%). Scotland had the highest proportion (54.9%) with the UK average at 33.0%.



## Introduction

As noted in Chapter 3, there are an increasing number of renewable electricity generators in Northern Ireland. This chapter describes the available data on such electricity generation.

## Definition

Renewable energy is energy derived from natural processes (e.g. sunlight and wind) that are replenished at a rate that is equal to or faster than the rate at which they are consumed<sup>97</sup>. Solar, wind, geothermal, hydro, and some forms of biomass are common sources of renewable energy. Renewable electricity is therefore any electricity generated from any of these sources.

## Measuring the PfG and SEF Targets

One of the Northern Ireland Executive's Programme for Government (PfG) targets for 2011-15 was to "Encourage achievement of 20% of electricity consumption from renewable sources by 2015"<sup>98</sup>. In addition, the Executive's Strategic Energy Framework (SEF) included a target to achieve 40% of electricity consumption from renewable sources by 2020<sup>99</sup>. DfE's bi-annual 'Electricity Consumption and Renewable Generation in Northern Ireland' publication aids reporting on performance against both the PfG target and SEF target<sup>100</sup>.

In these cases, renewable electricity generation data is derived by aggregating output (excluding any transmission and distribution losses) from renewable electricity generators who are connected to the transmission and distribution network using a combination of data held by Northern Ireland Electricity Networks Ltd (NIE Networks) and the System Operator for Northern Ireland (SONI)<sup>101</sup>.

Electricity consumption data is calculated by aggregating actual and estimated meter readings across both domestic and non-domestic sectors in Northern Ireland. The NIE Networks electricity consumption data includes all electricity consumed in Northern Ireland across both domestic and non-domestic sectors regardless of where the electricity was generated (i.e. it will also include consumption of any imported electricity).

Therefore, the reported percentage against the target (or headline measure) is calculated by expressing renewable electricity generation as a percentage of electricity consumption, as defined above, on a rolling 12 month average basis. The rolling 12 month average helps to take account of monthly variations to provide a better measure of the underlying trend.

97 Taken from <https://www.nrcan.gc.ca/energy/energy-sources-distribution/renewables/about-renewable-energy/7295#what>

98 See <https://www.northernireland.gov.uk/publications/programme-government-2011-2015> for more information on the Programme for Government.

99 See <https://www.economy-ni.gov.uk/sites/default/files/publications/deti/sef%202010.pdf>

100 More information on this publication is available at <https://www.economy-ni.gov.uk/articles/electricity-consumption-and-renewable-generation-statistics>.

101 Electricity produced by those who generate their own electricity (mainly for their own use but some of which may 'spill' onto the distribution network) is excluded as information about such 'micro generation' or consumption is not readily available to NIE Networks. Also, some imported electricity that is consumed in Northern Ireland will have been generated from renewable sources outside Northern Ireland. However, the full extent of this is unknown and therefore cannot be reported separately.

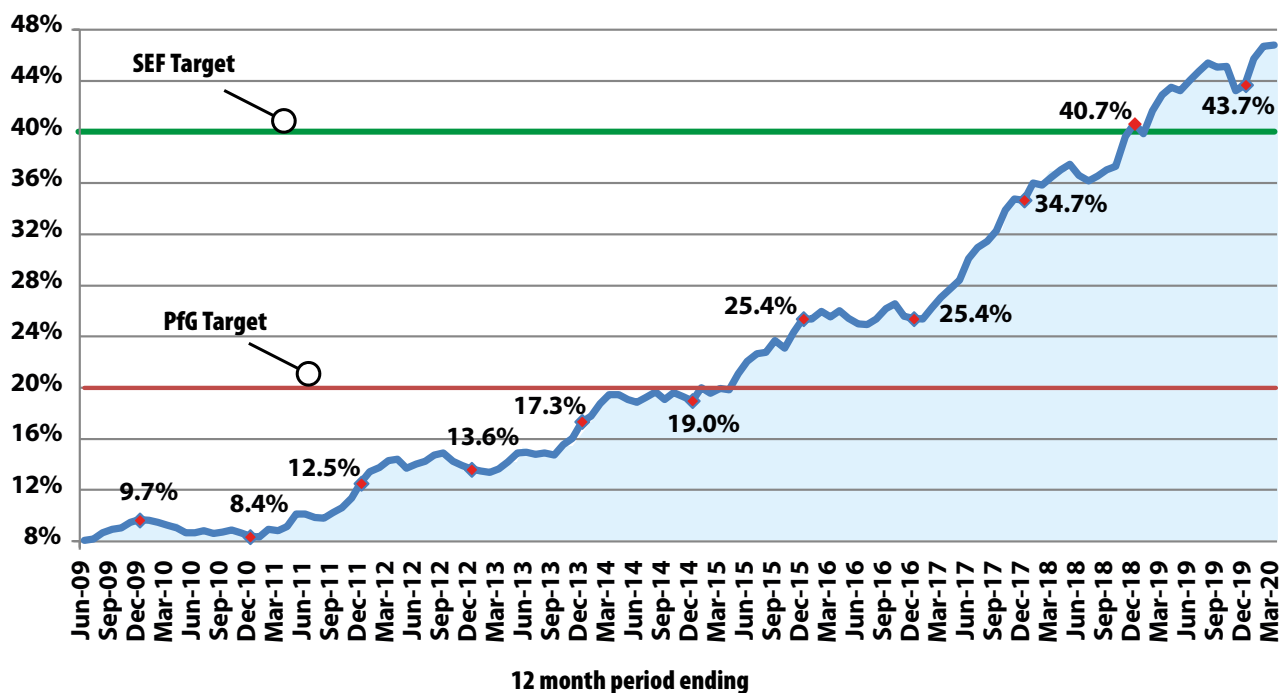




## Headline Measure – Rolling 12-Month Average

For the 12 month period April 2019 to March 2020, 46.8% of total electricity consumption in Northern Ireland was generated from renewable sources. This represents an increase of 3.9 percentage points on the previous 12 month period (April 2018 to March 2019) and is the highest rolling 12 month proportion on record.

**Chart 4.1: Rolling 12-Month Average % Electricity Consumption from Renewable Sources, June 2009 to March 2020**



Source: DfE ([www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables](http://www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables))

Chart 4.1 above shows the trend in the percentage of electricity consumption in Northern Ireland from renewable sources. In the 12 month period ending June 2009, some 8.1% of total electricity consumption in Northern Ireland was generated from renewable sources. This proportion has grown considerably with 46.8% of total electricity consumption in Northern Ireland being generated from renewable sources for the 12 month period ending March 2020. This represents an almost six-fold increase in average renewable generation volumes in comparison to the 12 month period ending June 2009. As the chart above shows, the PfG target of 20% was exceeded during 2015, the SEF target was first exceeded for the 12 month period ending December 2018 and the proportion reached a peak of 46.8% for the 12 month periods ending March 2020.

## Annual Proportion

Chart 4.1 above also shows the proportion of total electricity consumption from renewable sources for each calendar year end. After a slight drop in the renewable proportion between 2009 (9.7%) and 2010 (8.4%), electricity generation from renewable sources in Northern Ireland as a percentage of electricity consumption in Northern Ireland rose steadily to 25.4% in 2015 and 2016, and then a large 9.3 percentage point rise to 34.7% in 2017. There was another large rise of 6 percentage points between 2017 and 2018 (from 34.7% to 40.7%) and then a rise of 3 percentage points between 2018 and 2019 (40.7% to 43.7%). Such large rises are usually attributable to new renewable generation facilities coming on line and/or increased wind levels during the year. In addition, initiatives such as the DS3 programme<sup>102</sup> will have facilitated such rises being achieved.

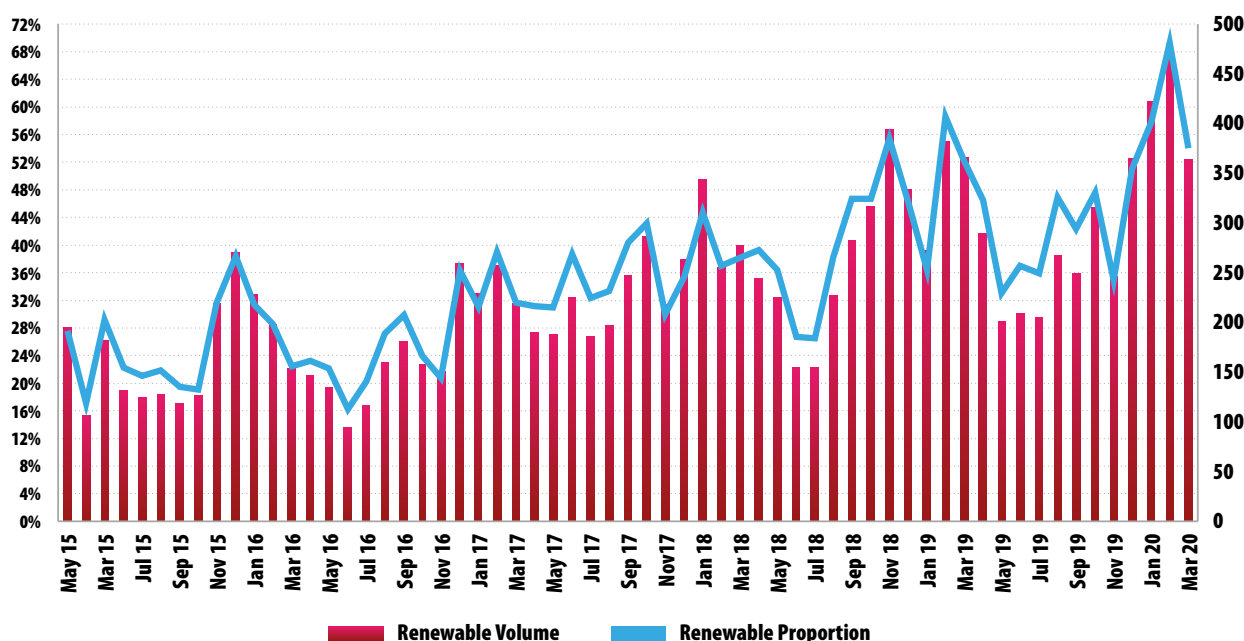
102 See <http://www.soni.ltd.uk/how-the-grid-works/ds3-programme/>



## Monthly Proportion

The proportion of electricity consumption derived from renewable sources varies markedly from month to month, as shown in Chart 4.2. For example, in February 2020, generation from renewable sources located in Northern Ireland accounted for over two thirds (69.3%) of all electricity consumed in Northern Ireland in that month. However, this compares to around 17% in April 2015 and 16% in June 2016. Such variation is due to large fluctuations in renewable electricity generation each month, caused mainly by changing weather conditions and also increases in new renewable generating installations. Given the reliance on wind generation in Northern Ireland, weather plays an important role in the volume of renewable electricity generation. Other factors, such as new renewable generation facilities coming on line at various points, can also contribute to shifts in the renewable proportion. In general, renewable generation volumes are lower in the summer months (when it is less windy) and higher in winter when wind levels are increased. Such changes in renewable generation correlate directly with the large monthly variation in the proportion of electricity consumption from renewable sources, as shown in Chart 4.2. The rolling 12 month average helps to take account of such monthly variations to provide a better measure of the underlying trend (as shown earlier in Chart 4.1).

**Chart 4.2: Percentage of Electricity Consumption from Renewable Sources and Renewable Generation Volume by month (GWh), March 2015 to March 2020**



Source: DfE ([www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables](http://www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables))

Chart 4.2 also highlights the close relationship between renewable volumes and the overall renewable proportion. The renewable proportion for measuring against the PfG and SEF targets (i.e. renewable generation in Northern Ireland divided by total consumption in Northern Ireland) is heavily influenced by changes in renewable generation (i.e. the numerator) and less so by changes in consumption (the denominator)<sup>103</sup>. As the chart above shows, the volume of renewable electricity generated can change significantly from month to month whereas changes in consumption from month to month tend to be less marked.

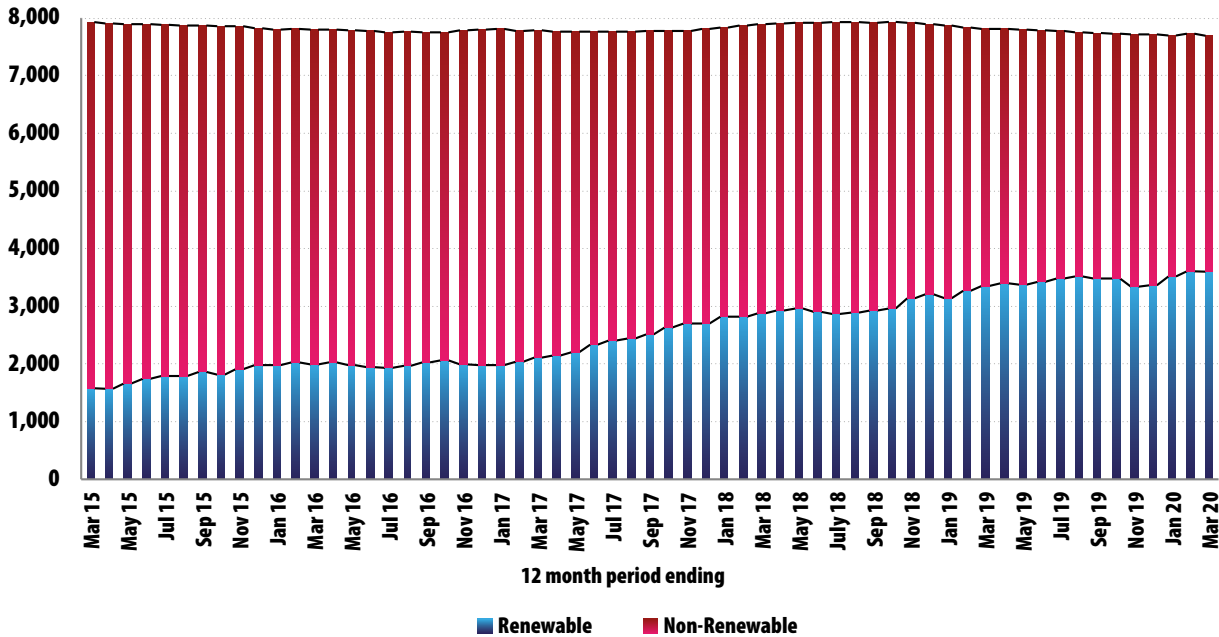
<sup>103</sup> Annex 4.1 shows the monthly renewable proportion mapped against monthly total consumption.



### Volume – Rolling 12-Month Period

Renewable generation volumes were some 1,581 GWh for the 12 month period ending March 2015 but have more than doubled to around 3,604 GWh for the 12 month period ending March 2020 (a rise of about 128%). Total electricity consumption was fairly constant over the five year period shown with only a slight decline (about 3%) from 2015-2020.

**Chart 4.3: Rolling 12-Month Volume of Electricity Consumed by Source<sup>104</sup> (GWh), March 2015 to March 2020**



Source: DfE ([www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables](http://www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables))

As Chart 4.3 shows, for the 12 month period April 2019 to March 2020, approximately 7,694 Gigawatt hours (GWh) of total electricity was consumed in Northern Ireland. Of this, some 3,604 GWh was generated from renewable sources within Northern Ireland.

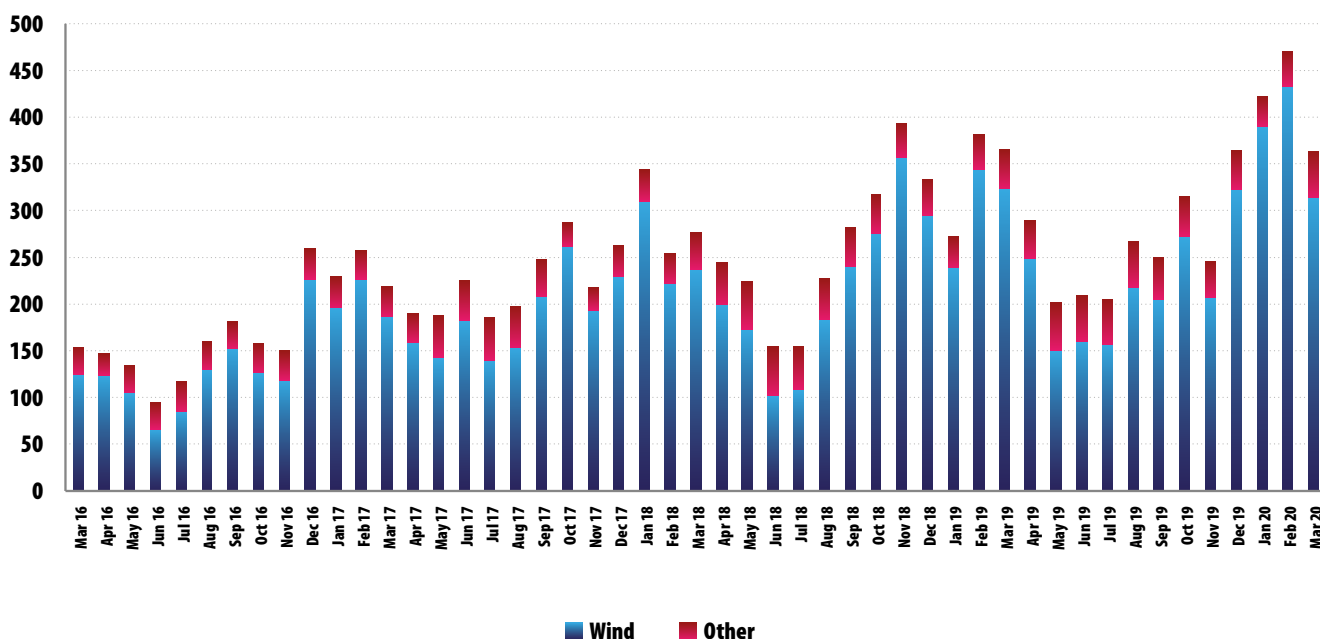
104 Non-renewable volumes are calculated by subtracting indigenous renewable generation from total consumption and is therefore an approximation. It should be noted that all imported electricity is categorised as non-renewable even though some may actually have come from renewable sources. However, information on the total volume of imported electricity from renewable sources is not known.



## Volume – Monthly

As noted earlier, given Northern Ireland’s reliance on wind for producing renewable electricity, such generation can vary markedly from month to month. As Chart 4.4 shows, there can be noticeable changes in monthly generation and the vast majority of renewable generation in Northern Ireland is still from wind sources, though the volume of renewable electricity coming from other sources has increased (mainly due to rises in solar PV and biogas).

**Chart 4.4: Monthly Volume of Renewable Electricity Generated (GWh), March 2016 to March 2020**



Source: DfE ([www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables](http://www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables))

Renewable generation volumes are lower in the summer months (when it is less windy) and higher in winter when wind levels are increased. New renewable generation facilities coming on line at various points can also contribute to shifts in renewable generation volumes. Renewable electricity generation from sources other than wind are much more stable with no large monthly fluctuations. Volumes from these other sources<sup>105</sup>, whilst relatively small in overall terms, have grown over the period shown: average monthly volumes for 2019 (43.4 GWh) were 50% higher than average monthly volumes in 2016 (around 28.8 GWh).

Indeed in some months (particularly summer months when wind generation tends to be low), other renewable sources have accounted for a substantial portion of renewable electricity generated (e.g. over one third for June 2018 and 25% or more of renewable monthly electricity generated on four other occasions since March 2016).

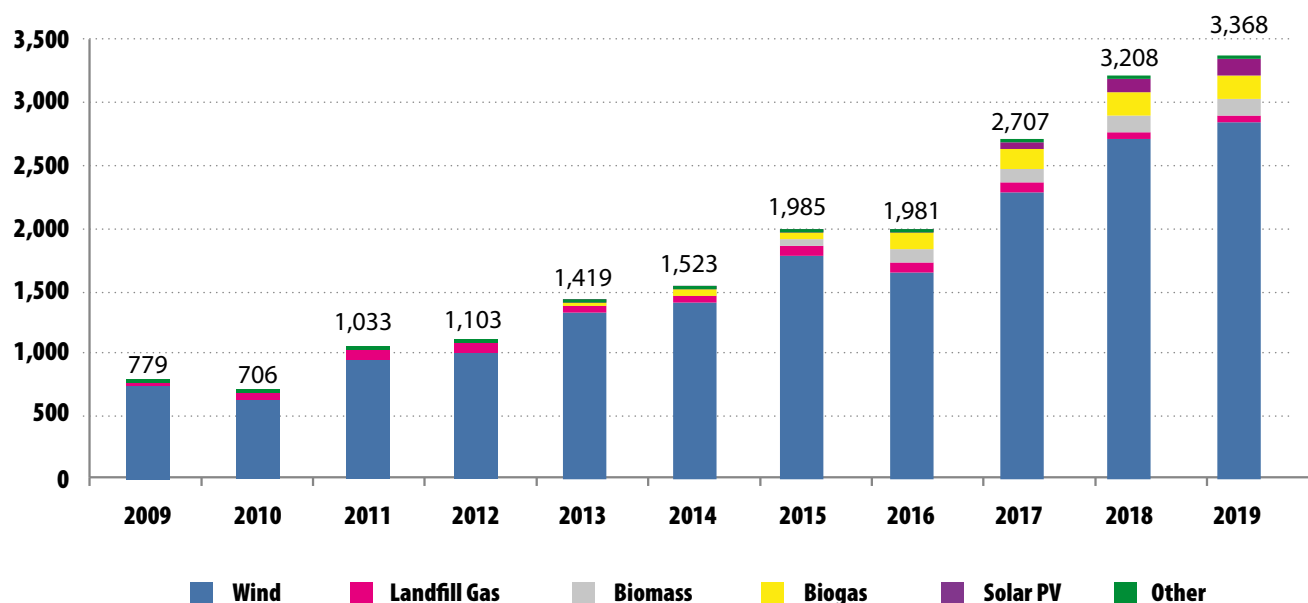
<sup>105</sup> Other sources include landfill gas, biogas, biomass, hydro, Combined Heat and Power (CHP), tidal and solar.



## Volume – Calendar Year

The chart below shows the total volume of renewable electricity generated in Northern Ireland for each calendar year 2009 to 2019, split by type of renewable generation. Total renewable generation volumes have increased substantially in recent years; they were almost four and a half times higher in 2019 compared to 2009 (from around 779 GWh in 2009 to some 3,368 GWh in 2019). Again, wind is the largest contributor (accounting for 84.5% of total renewable generation in 2019), but there have been increases of renewable electricity volumes of all types over the period 2009-2019.

**Chart 4.5 Annual Volume of Renewable Electricity Generated by Type of Generation (GWh), 2009 to 2019**



Source: DfE ([www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables](http://www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables))

Renewable generation from landfill gas sources was some 22 GWh in 2009 but was higher and remained stable between 2010 and 2014, contributing some 60 GWh annually to renewable generation volumes for Northern Ireland; this increased to over 80 GWh in 2016 and 2017 but fell back to about 60 GWh in 2019. Whilst landfill gas represented over 8% of total renewable generation in 2010, this has fallen to less than 2% of total renewable generation in 2019 due to significant increases in other renewable sources.

Generation from Biogas and Biomass grew significantly in recent years. In 2011, there was less than 1 GWh in generation from these two sources but by 2019 there was a combined total of 321.8 GWh (131.6 GWh from Biogas and 190.2 GWh from Biomass and both highest annual volumes on record) and together they represented 9.6% of total renewable generation volumes for Northern Ireland in 2019. In addition, generation volumes from Solar PV increased markedly in recent years. There was virtually no generation from Solar PV up to 2016 (less than 2 GWh in every year 2009-2016). However, this jumped to almost 67 GWh of generation in 2017 and rose to over 113 GWh in 2018 and rose again to about 118 GWh for 2019. Solar PV accounted for 3.5% of total renewable generation volumes for Northern Ireland in 2019, almost as much as the contribution from Biomass and almost twice the volume provided by Landfill Gas sources.



## Other Renewable Electricity Data – UK and UK Regions

The Department for Business, Energy & Industrial Strategy (BEIS) produce a range of data on renewable electricity, including some at a UK regional level<sup>106</sup>. Some key tables are presented here.

**Table 4.1 Number of Sites Generating Electricity from Renewable Sources, 2018**

	Wind	Hydro	Wave & Tidal	Landfill Gas	Sewage Gas	Other Bioenergy	Total exc PV	Solar PV	Total
England	<b>4,039</b>	<b>358</b>	<b>2</b>	<b>368</b>	<b>168</b>	<b>771</b>	<b>5,706</b>	<b>722,491</b>	<b>728,197</b>
East Midlands	424	30	-	39	15	111	619	85,950	86,569
East of England	888	6	-	72	15	94	1,075	102,204	103,279
North East	274	17	-	20	7	33	351	46,761	47,112
North West	523	78	-	49	24	88	762	83,502	84,264
London	31	-	-	5	10	19	65	24,318	24,383
South East	109	26	-	71	35	60	301	110,503	110,804
South West	817	125	1	39	18	128	1,128	119,487	120,615
West Midlands	174	23	-	29	19	139	384	67,621	68,005
Yorkshire and the Humber	799	53	1	44	25	99	1,021	82,145	83,166
Wales	704	314	1	26	16	77	1,138	54,578	55,716
Scotland	3,479	747	16	49	8	129	4,428	58,163	62,591
<b>Northern Ireland</b>	<b>1,263</b>	<b>81</b>	<b>-</b>	<b>17</b>	<b>2</b>	<b>130</b>	<b>1,493</b>	<b>23,919</b>	<b>25,412</b>
Other Sites	275	59	-	-	-	9	343	97,888	98,231
<b>UK Total</b>	<b>9,760</b>	<b>1,559</b>	<b>19</b>	<b>460</b>	<b>194</b>	<b>1,116</b>	<b>13,108</b>	<b>957,039</b>	<b>970,147</b>

Source: BEIS ([www.gov.uk/government/statistics/regional-renewable-statistics](http://www.gov.uk/government/statistics/regional-renewable-statistics))

Table 4.1 shows there were 1,493 non-PV<sup>107</sup> sites in Northern Ireland generating electricity from renewable sources, with 5,706 non-PV sites in England, 4,428 in Scotland and 1,138 in Wales<sup>108</sup>. There are large numbers of solar PV sites and these constitute the vast majority of sites in each country (99% for England, 98% for Wales, 93% for Scotland and 94% for Northern Ireland) although the majority will be on domestic properties generating electricity for their own consumption.

106 Data for tables 4.1 to 4.5 are available [here](#).

107 Figures for Solar PV (Photo Voltaic) sites includes all small solar PV installations, the majority of which will be on single domestic properties for own consumption. PV uptake for Northern Ireland (23,919) is based on data from the Microgeneration Certification Scheme and the Renewables Obligation.

108 There are a further 97,888 PV schemes and 343 non-PV schemes in other sites that, due to lack of appropriate geographical information, could not be assigned to one of the four countries.



There has been huge growth in the number of sites generating electricity from renewable sources in Northern Ireland over the last 10 years, particularly in solar PV installations, as shown below.

**Table 4.2 Number of Sites Generating Electricity from Renewable sources in Northern Ireland, 2008 to 2018**

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Non-PV</b>	110	430	463	502	577	674	817	910	1,093	1,357	1,493
<b>Solar PV</b>	7	250	309	484	1,449	5,231	11,878	18,666	22,788	23,696	23,919
<b>Total</b>	117	680	772	986	2,026	5,905	12,695	19,576	23,881	25,053	25,412

Source: BEIS ([www.gov.uk/government/statistics/regional-renewable-statistics](http://www.gov.uk/government/statistics/regional-renewable-statistics))

### Renewable Installed Capacity – UK and UK Regions

Table 4.3 shows there was over 1,800 megawatts<sup>109</sup> (MW) of installed capacity at sites generating electricity from renewable sources in 2018 in Northern Ireland, which was 4.2% of total UK renewable capacity. England accounted for 62.7% of total UK installed capacity, Scotland 24.9% and Wales 7.5%<sup>110</sup>.

**Table 4.3 Installed Capacity of Sites Generating Electricity from Renewable Sources (MW), 2018**

	Wind	Hydro	Wave & Tidal	Landfill Gas	Sewage Gas	Other Bioenergy	Solar PV	Total
England	9,945.0	43.5	0.1	880.4	226.2	5,615.5	11,107.6	27,818.2
East Midlands	909.1	5.4	-	68.0	20.5	257.7	1,523.2	2,783.9
East of England	2,867.7	0.1	-	185.6	19.2	363.3	1,941.7	5,377.6
North East	595.4	8.2	-	45.0	11.5	658.0	228.8	1,546.8
North West	2,500.4	10.1	-	134.8	31.6	264.6	551.4	3,492.9
London	11.3	-	-	25.8	51.7	194.2	121.2	404.2
South East	1,582.2	1.8	-	166.7	36.1	345.7	2,098.0	4,230.5
South West	339.6	11.3	-	100.5	15.3	217.5	3,245.6	3,929.8
West Midlands	15.4	1.2	-	61.0	23.8	241.4	834.6	1,177.3
Yorkshire and the Humber	1,123.8	5.4	0.1	93.0	16.5	3,073.2	563.2	4,875.1
Wales	1,862.9	169.2	0.4	46.8	12.5	188.7	1,064.5	3,345.0
Scotland	8,557.1	1,652.0	19.9	115.9	7.2	336.1	331.2	11,019.4
<b>Northern Ireland</b>	<b>1,393.0</b>	<b>11.0</b>	<b>-</b>	<b>20.1</b>	<b>0.2</b>	<b>98.9</b>	<b>321.8</b>	<b>1,844.9</b>
Other Sites	12.5	2.7	-	-	-	4.5	293.2	312.9
<b>UK Total</b>	<b>21,770.4</b>	<b>1,878.3</b>	<b>20.4</b>	<b>1,063.1</b>	<b>246.1</b>	<b>6,243.8</b>	<b>13,118.3</b>	<b>44,340.4</b>

Source: BEIS ([www.gov.uk/government/statistics/regional-renewable-statistics](http://www.gov.uk/government/statistics/regional-renewable-statistics))

Wind accounted for almost half (49%) of total installed renewable capacity in the UK in 2018, however this varies considerably among the UK regions. For example, in the North East of England region (which had a similar total installed capacity to Northern Ireland in 2018) Wind accounted for 38% of installed capacity, half the proportion of that for Northern Ireland (76%). Wind is also the predominant source of installed capacity in Scotland (78%) and Wales (56%) but in England it accounts from a much lower proportion (36%).

<sup>109</sup> Megawatts are used to measure the output of a power plant. One megawatt (MW) = 1,000 kilowatts = 1,000,000 watts.

<sup>110</sup> About 0.7% of installed capacity is in other sites that could not be assigned to one of the four countries.



In England, Solar PV (40%) and Other Bioenergy (20%) together account for over 60% of installed capacity, whereas these two renewable sources accounted for only 6% of installed capacity for Scotland, 23% for Northern Ireland and 37% in Wales in 2018.

The volume of renewable installed capacity has increased significantly in recent years in all regions of the UK. Table 4.4 below shows renewable generation capacities for the four UK countries from 2008-2018 for Wind, Solar PV and Total installed capacities.

**Table 4.4 Installed Capacity of Sites Generating Electricity from Renewable Sources (MW), Wind, Solar PV and All sites, 2008 to 2018**

	England			Wales			Scotland			Northern Ireland			UK		
	Wind	Solar PV	All	Wind	Solar PV	All	Wind	Solar PV	All	Wind	Solar PV	All	Wind	Solar PV	All
<b>2008</b>	1,091	1	2,616	375	0	602	1,745	0	3,350	<b>214</b>	<b>0</b>	<b>228</b>	3,446	23	6,837
<b>2009</b>	1,449	1	3,057	533	0	781	2,121	0	3,798	<b>299</b>	<b>0</b>	<b>322</b>	4,422	27	8,004
<b>2010</b>	1,867	65	3,702	538	3	794	2,676	2	4,369	<b>341</b>	<b>1</b>	<b>368</b>	5,421	95	9,256
<b>2011</b>	2,520	844	6,135	579	60	895	3,087	47	4,867	<b>409</b>	<b>2</b>	<b>436</b>	6,596	1,000	12,381
<b>2012</b>	3,970	1,469	8,250	644	109	1,007	3,954	91	5,811	<b>460</b>	<b>6</b>	<b>500</b>	9,030	1,753	15,649
<b>2013</b>	5,149	2,522	11,322	769	149	1,175	4,776	127	6,687	<b>581</b>	<b>27</b>	<b>645</b>	11,282	2,937	19,961
<b>2014</b>	5,895	4,770	14,766	1,182	374	1,824	5,264	167	7,309	<b>696</b>	<b>62</b>	<b>807</b>	13,074	5,528	24,920
<b>2015</b>	6,612	8,427	19,774	1,370	696	2,379	5,590	240	7,767	<b>731</b>	<b>105</b>	<b>911</b>	14,306	9,601	30,966
<b>2016</b>	7,184	10,362	22,704	1,567	962	2,865	6,487	291	8,801	<b>886</b>	<b>135</b>	<b>1,112</b>	16,126	11,930	35,665
<b>2017</b>	9,074	10,939	25,362	1,753	1,055	3,194	7,568	321	9,978	<b>1,187</b>	<b>253</b>	<b>1,551</b>	19,585	12,782	40,300
<b>2018</b>	9,945	11,108	27,818	1,863	1,065	3,345	8,557	331	11,019	<b>1,393</b>	<b>322</b>	<b>1,845</b>	21,770	13,118	44,340

Source: BEIS ([www.gov.uk/government/statistics/regional-renewable-statistics](http://www.gov.uk/government/statistics/regional-renewable-statistics))

Northern Ireland had over eight times more renewable installed capacity in 2018 (1,845 MW) than in 2008 (228 MW). England had over ten times more, Wales over five and a half times more and Scotland more than three times more renewable installed capacity over the ten year period. The growth in solar PV installed capacity from 2008-2018 has been particularly striking with each region showing large increases, though from a low base in all regions. The Northern Ireland Renewables Obligation (NIRO) scheme has obviously impacted here, particularly for microgenerators<sup>111</sup> installing solar PV technology but the opening of some larger 'solar farms' will have impacted also. Northern Ireland has seen a huge rise in installed Solar PV capacity from zero in 2008 and 2009, to 1.2MW in 2010 (equivalent to 0.3% of all installed renewable capacity in Northern Ireland in 2010) to around 322MW in 2018 (equivalent to some 17.4% of all installed renewable capacity in Northern Ireland in 2018).

111 Under the Northern Ireland Renewables Obligation (NIRO) scheme, generating stations with a capacity of 50kW or less were termed as 'Micro-NIRO' stations.



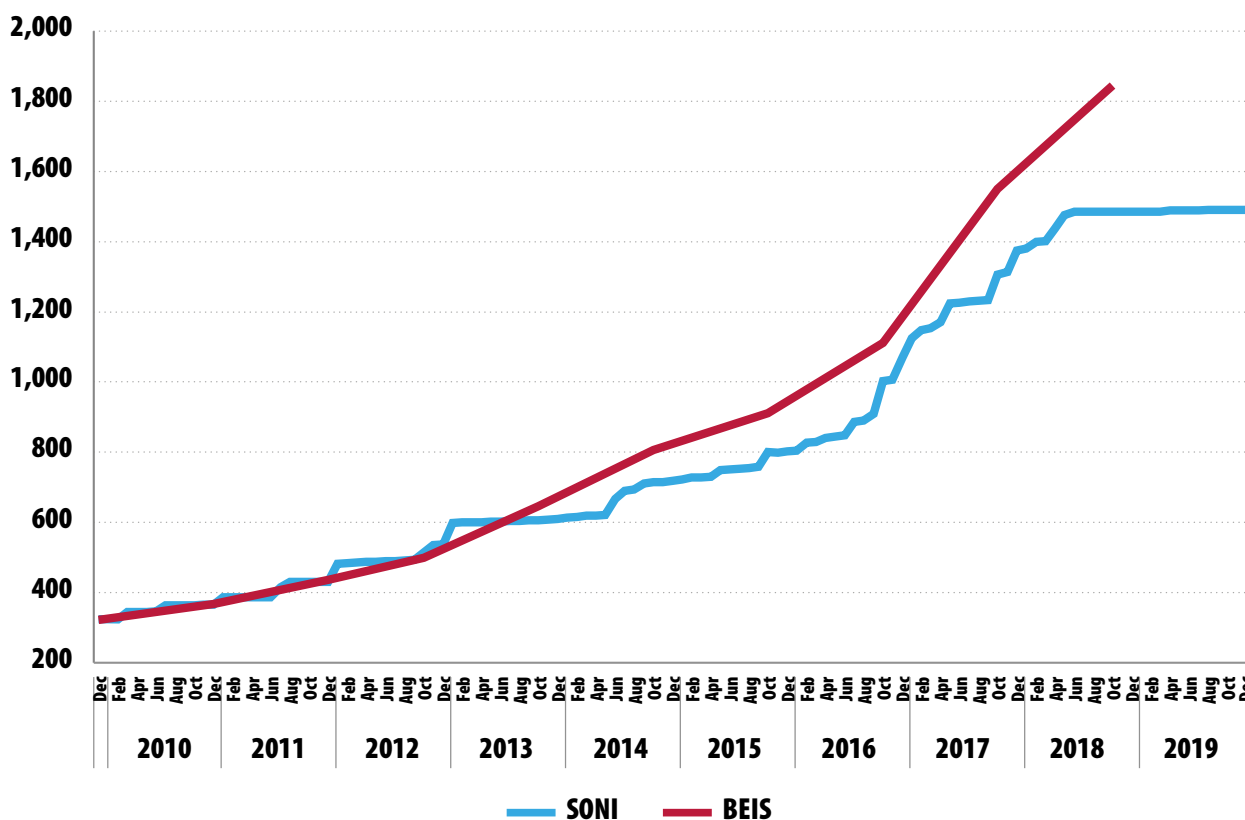


Whilst increases in Solar PV capacity are significant it is worth noting that Wind retains its role as the dominant source of installed renewable capacity for Northern Ireland. Wind still accounted for some 75% of installed renewable capacity in 2018, though this was down from about 94% between 2008 and 2011 due to the growth of other technologies such as Solar PV and Bioenergy. Of the growth in installed capacity between 2008 and 2018 in Northern Ireland (an increase of 1,617 MW) some 73% of the rise was due to increases in Wind capacity, 20% due to Solar PV and about 6% from Bioenergy.

### Monthly Installed Capacity Data

SONI also produce data on installed renewable capacity. As the chart below shows, installed renewable capacity has been increasing steadily over recent years. Note that the monthly series shows how the total installed capacity in Northern Ireland can increase in ‘steps’ as new renewable generation facilities are installed.

**Chart 4.6 Monthly and Annual Installed Renewable Capacity for Northern Ireland (MW), 2009 to 2019**



Source: SONI and BEIS ([www.gov.uk/government/statistics/regional-renewable-statistics](http://www.gov.uk/government/statistics/regional-renewable-statistics))

In general, the SONI installed capacity figure should be lower than the BEIS figure because BEIS include all microgeneration capacities, whereas SONI do not<sup>112</sup>. However, as the chart shows, the divergence in the two measures began in 2013, which would be mainly due to more recent increases in microgeneration installations (this is highlighted by the large growth in solar PV sites in Northern Ireland shown in Table 4.2 earlier).

The most recent figures published by BEIS relate to the end of 2018 and show an installed capacity of some 1,845 MW for Northern Ireland. The SONI data for December 2018 indicates installed capacity of around 1,486 MW (which is around 19% less than the BEIS figure). Whilst some of this difference may be due to different data collection methodologies between the two sources, microgeneration (particularly solar PV) will probably account for the majority of the variation between the SONI and BEIS totals. It is obvious from both sources of data that renewable installed capacity has increased significantly in recent years. For example, using BEIS data shows that there was around six times the renewable installed capacity in Northern Ireland in 2018 compared to 2009 and capacity more than doubled over the period 2015-2018.

<sup>112</sup> It is mainly micro-solar PV information that is not available to SONI, however they do include data for small scale wind which would include most wind microgeneration (i.e. single wind turbines on domestic or commercial properties).



Whilst capacity doubled between 2015 and 2018, this increase was not shared evenly among the different renewable technology types. Over 94% of the increase in installed capacity over this period (an increase of approximately 934 MW) was due to increases in just two renewable technologies: wind (+662 MW) and solar PV (+217 MW).

The more recent renewable installed capacity data from SONI (up to December 2019) shows capacity has levelled off since mid-2018. Interestingly, in December 2019 about 85% of renewable installed capacity was due to large or small scale wind, whereas wind accounted for approximately 90% or more in every month from January 2008 to November 2017. Wind still dominates but the technology mix has shown some change.

### Generation Volumes – UK and UK Regions

Table 4.5 below shows the actual volume of electricity generated from renewable sources for the latest year available, 2018. This again highlights that the majority of renewable electricity generated in Northern Ireland is wind generated – some 2,978.9 GWh out of a total 3,946.2 GWh, or 75%. This proportion has been steady since 2016 but is lower compared to earlier years as other technologies have taken a larger share. For example, in 2013, almost 89% of renewable generation in Northern Ireland was Wind generated with Bioenergy accounting for 5% and Solar PV only 0.8%. Five years later, in 2018, this had changed to Wind accounting for 75%, Bioenergy 14% and Solar PV around 8% of all renewable generation, so the generation mix has changed considerably in only a few years.

**Table 4.5 Generation of Electricity from Renewable Sources (GWh), 2018**

	Wind	Hydro	Wave & Tidal	Landfill Gas	Sewage Gas	Other Bioenergy	Solar PV	Total
England	29,997.8	126.4	-	3,287.5	912.1	26,782.2	10,931.5	72,037.4
East Midlands	2,516.0	19.1	-	235.4	94.9	1,058.6	1,476.1	5,400.1
East of England	9,484.0	0.4	-	677.2	78.8	1,793.3	1,939.3	13,973.0
North East	1,446.8	23.0	-	128.5	37.0	2,433.5	220.6	4,289.4
North West	8,054.3	29.2	-	419.3	118.3	1,081.7	531.2	10,234.0
London	15.4	-	-	159.0	197.3	597.4	116.1	1,085.3
South East	4,504.6	5.3	-	708.4	146.1	1,147.1	2,108.9	8,620.4
South West	685.0	29.7	-	354.1	55.3	845.6	3,189.6	5,159.5
West Midlands	31.5	3.4	-	257.6	108.9	945.2	802.0	2,148.7
Yorkshire and the Humber	3,260.0	16.3	-	347.9	75.5	16,879.7	547.6	21,127.1
Wales	4,529.8	288.7	-	126.3	44.2	826.6	1,014.7	6,830.2
Scotland	19,375.0	5,041.5	9.3	422.1	35.1	1,664.3	309.9	26,857.1
<b>Northern Ireland</b>	<b>2,978.9</b>	<b>30.2</b>	<b>-</b>	<b>79.9</b>	<b>0.6</b>	<b>554.0</b>	<b>302.5</b>	<b>3,946.2</b>
<i>Other Sites</i>	22.5	3.1	-	-	-	23.5	298.8	347.9
<b>UK Total</b>	<b>56,904.0</b>	<b>5,489.8</b>	<b>9.3</b>	<b>3,915.8</b>	<b>992.0</b>	<b>29,850.6</b>	<b>12,857.4</b>	<b>110,018.8</b>

Source: BEIS (<https://www.gov.uk/government/statistics/regional-renewable-statistics>)



Wind is also the prevalent renewable generation source in Scotland (72%) and Wales (66%) but accounted for a little over two fifths (42%) of all renewable electricity generated in England. England has considerable Bioenergy and Landfill Gas resources (indeed, England accounted for 89% and 84% of total UK generation for those sources respectively in 2018) and bioenergy alone accounted for 37% of all renewable electricity generated in England with the majority of this being generated in one English region (Yorkshire and the Humber). England now also generates considerable volumes from Solar PV with this source accounting for 15% of renewable electricity generated there in 2018.

The vast majority (92%) of UK Hydro renewable electricity is generated in Scotland. England accounted for a similar proportion (92%) of UK renewable electricity generated from Sewage Gas and also 85% of total UK Solar PV renewable electricity generation in 2018. Northern Ireland accounted for 3.6% of total renewable electricity generated in the UK in 2018 (the highest proportion for Northern Ireland on record) and also almost 10% of all renewable electricity generated from Onshore Wind sources in the UK as a whole.

The renewable electricity generation volumes produced by BEIS as shown above do not match exactly with the data published by DfE (and sourced from NIE Networks and SONI) as shown in Chart 4.5 earlier. Annex 4.2 shows a comparison of the two sources and seeks to explain any differences.

### Sub-Regional Renewable Data

BEIS also produce renewable electricity data at a District Council level (the previous 26 council areas) for Northern Ireland. The latest year available is for 2018 and results have been aggregated into the current eleven 'super council' areas as shown in Table 4.6 below<sup>113</sup>.

**Table 4.6 Renewable Electricity Generation, Capacity and Site Numbers by District Council Area, 2018**

District Council	Number of sites	Capacity (MW)	Generation (MWh)
Antrim & Newtownabbey	79	74	134,142
Ards & North Down	42	16	35,216
Armagh City, Banbridge & Craigavon	128	38	109,343
Belfast	19	14	37,154
Causeway Coast & Glens	169	367	807,463
Derry City & Strabane	128	332	812,798
Fermanagh & Omagh	181	501	1,065,797
Mid & East Antrim	126	142	271,287
Mid Ulster	172	120	318,413
Newry, Mourne & Down	101	18	47,293
Lisburn & Castlereagh	71	99	149,043
Unallocated	24,200	127	-
<b>Total</b>	<b>25,416</b>	<b>1,845</b>	<b>3,787,949</b>
<b>Unallocated as % of Total</b>	<b>95%</b>	<b>7%</b>	<b>0%<sup>114</sup></b>

Source: BEIS (<https://www.gov.uk/government/statistics/regional-renewable-statistics>)

113 Data for the old 26 District Council Areas and details of how the data was aggregated into the new council areas is provided in Annex 4.4 for information.

114 Whilst unallocated information in Table 4.6 is taken from BEIS published data, generation data from BEIS for Northern Ireland (as shown in Table 4.5) was 3,946.2 GWh for 2018 compared to 3,787.9 GWh for 2018 in the district council breakdown published by BEIS, a difference of 158.2 GWh or 4% which could probably be considered to be unallocated data.



‘Unallocated’ means those sites (and associated capacity and generation) that were not able to be matched to a council area due to incomplete or a lack of postcode information. As the table shows, the vast majority of sites (around 95%) were unallocated. However, further analysis shows that the vast majority (23,799 or over 98%) of the 24,200 unallocated sites are solar PV sites and, as shown in Table 4.5 above, unallocated sites account for only 7% of capacity.

The table shows that some two thirds of renewable electricity capacity (65%) and generation (71%) was accounted for by three of the eleven council areas namely: Causeway Coast & Glens; Derry City & Strabane; and Fermanagh & Omagh. This is perhaps unsurprising given that the majority of the large onshore wind turbines would be located in these council areas<sup>115</sup>. In general, the majority of capacity and generation is located in rural areas with large urban areas like Belfast or Lisburn & Castlereagh accounting for a very small proportion (around 5-6% combined) of renewable capacity and generation.

### Electricity Generation by Fuel Type - UK countries

Data is available, for each of the four UK countries, on shares of generation of electricity by fuel type. For Northern Ireland, in 2018, renewable electricity generation (42.3%) accounted for almost as much of total indigenous electricity generation as that generated from gas (42.5%).

**Table 4.7 Shares of Generation for UK and UK Countries by Fuel Type, 2013, 2017 and 2018**

	UK	Scotland	Wales	Northern Ireland	England
<b>2013</b>					
Coal	36.4%	20.3%	28.6%	<b>33.9%</b>	40.9%
Gas	26.8%	10.3%	45.9%	<b>45.7%</b>	26.6%
Nuclear	19.7%	34.9%	10.9%	<b>0.0%</b>	18.5%
Renewables	14.9%	32.0%	6.7%	<b>19.5%</b>	12.4%
Oil and Other	2.3%	2.5%	8.0%	<b>0.9%</b>	1.5%
<b>2017</b>					
Coal	6.7%	0.0%	7.9%	<b>14.4%</b>	7.5%
Gas	40.4%	8.9%	63.6%	<b>50.9%</b>	42.9%
Nuclear	20.8%	36.8%	0.0%	<b>0.0%</b>	21.5%
Renewables	29.2%	51.5%	19.7%	<b>33.7%</b>	26.0%
Oil and Other	2.9%	2.8%	8.8%	<b>1.0%</b>	2.1%
<b>2018</b>					
Coal	5.1%	0.0%	1.5%	<b>14.2%</b>	6.1%
Gas	39.5%	15.1%	66.9%	<b>42.5%</b>	40.8%
Nuclear	19.5%	28.2%	0.0%	<b>0.0%</b>	21.0%
Renewables	33.0%	54.9%	22.1%	<b>42.3%</b>	29.8%
Oil and Other	2.9%	1.8%	9.5%	<b>0.9%</b>	2.3%

Source: BEIS (<https://www.gov.uk/government/statistics/energy-trends-december-2019-special-feature-article-electricity-generation-and-supply-figures-for-scotland-wales-northern-ireland-and-england-2>)

115 See <https://iwea.com/about-wind/interactive-map> for a map of wind farm locations in Northern Ireland.



Table 4.7 shows that the fuel used for electricity generation has changed dramatically in recent years for all countries shown. In particular, the share of generation from renewables has increased substantially in all regions in recent years (see also Table 4.8). In Scotland more than half (54.9%) of all electricity generated there in 2018 was from renewable generation. In Northern Ireland, the proportion of electricity generation from renewables has more than doubled in 5 years, from 19.5% in 2013 to 42.3% in 2018.

In 2013 coal was an important fuel used in electricity generation in all countries, accounting for over one-third of electricity generated in both Northern Ireland (33.9%) and for the UK as a whole (36.4%). By 2018, this had fallen to 14.2% for Northern Ireland and only 5.1% for the UK. Coal's share of electricity generation in Scotland was 20.3% in 2013 but this fell to zero for both 2017 and 2018.

As well as renewables taking an increasing share of electricity generation in recent years, gas generation has also helped to replace coal in the electricity generation mix (increasing from about 27% of generation for the UK in 2013 to around 40% in 2017 and 2018). Nuclear generation accounted for about one fifth of total electricity generation for the UK (and also in England) and roughly one third of total electricity generation for Scotland in each of the three years shown.

### Renewable Electricity Generation by Country – Comparable Basis

In the UK, the share of renewables in electricity generation or sales can be measured in different ways<sup>116</sup>. Table 4.8 shows the 'headline' overall measure for 2008 to 2018 which is the percentage of electricity generation accounted for by all renewable generation. Whilst the proportions shown in the table below for Northern Ireland are different from those presented earlier (in Chart 4.1) the regional percentages below are calculated on the same basis and are therefore directly comparable.

**Table 4.8 Comparable Renewables Percentages for the UK and UK Countries, 2008 to 2018**

	UK	Scotland	Wales	Northern Ireland	England
<b>2008</b>	5.6%	18.1%	4.5%	<b>6.3%</b>	3.6%
<b>2009</b>	6.7%	20.8%	5.5%	<b>10.2%</b>	4.2%
<b>2010</b>	6.9%	19.2%	5.3%	<b>10.2%</b>	4.8%
<b>2011</b>	9.6%	27.3%	7.7%	<b>13.8%</b>	6.4%
<b>2012</b>	11.3%	29.1%	6.9%	<b>16.0%</b>	8.5%
<b>2013</b>	14.9%	32.0%	6.7%	<b>19.5%</b>	12.4%
<b>2014</b>	19.1%	38.1%	9.6%	<b>21.6%</b>	16.5%
<b>2015</b>	24.6%	42.4%	13.7%	<b>25.5%</b>	22.5%
<b>2016</b>	24.5%	42.8%	12.3%	<b>25.3%</b>	23.1%
<b>2017</b>	29.2%	51.5%	19.7%	<b>33.7%</b>	26.0%
<b>2018</b>	33.0%	54.9%	22.1%	<b>42.3%</b>	29.8%

Source: BEIS (<https://www.gov.uk/government/statistics/energy-trends-december-2019-special-feature-article-electricity-generation-and-supply-figures-for-scotland-wales-northern-ireland-and-england-2>)

The table shows that Scotland had the highest renewable percentage of the four UK countries with more than half (54.9%) of electricity generation in 2018 accounted for by renewable generation. Northern Ireland had the second highest proportion in each of the years shown. Renewable generation in Northern Ireland accounted for over two fifths (42.3%) of all electricity generation in Northern Ireland in 2018 using this headline measure. It should be noted that the amount of electricity from renewable sources transferred from Scotland or Wales to England, or from Scotland to Northern Ireland (or vice versa), is not known.

116 A second measure is based on the Renewables Obligation (RO) which shows the percentage of electricity sales accounted for by renewables eligible under these obligations. However, on a RO basis the percentage measure for the UK (22.8% in 2016, 26.0% in 2017 and 27.4% in 2018) is not meaningful at sub-national level as electricity generated in one part of the UK can be sold in a different part of the UK. There is also a third method used by the EU – a Renewables Directive basis – see Chapter 6 of the Digest of UK Energy Statistics 2019, pages 119-120 and Table 6D at <https://www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2019>.



The large increase in the share of generation from renewable sources over time for the UK and all UK countries is evident from the table above. In 2008, only 6.3% of all electricity generated in Northern Ireland was from renewable sources but by 2018 the proportion was almost seven times higher at over 42%. A higher increase was seen in England (an over 8 times increase) while the renewables proportion for Scotland trebled and Wales was almost five times more over the ten year period with an almost six times increase for the UK as a whole.

The renewable electricity percentages produced by BEIS in Table 4.8 above and the underpinning methodology do not match with the annual percentages published by DfE (and sourced from NIE Networks and SONI) as shown in Chart 4.1 earlier. Annex 4.3 shows a comparison of the two sources and seeks to explain any differences.

### Renewable Energy Planning Data

Table 4.9 below shows the number of planning applications received by the Department for Infrastructure for each year 2004/05 to 2018/19, split by type of renewable energy installation. The table shows that there was a large increase in applications between 2009/10 and 2010/11; applications peaked in 2011/12 and were relatively high up to 2014/15, but by 2016/17 and up to the latest year available (2018/19) had fallen back to levels seen in 2004/05. Over two thirds (68%) of all planning applications received for renewable energy installations over the 15 year period shown were received in the five year period 2010/11 to 2014/15.

Of all planning applications received in relation to renewable energy over the period 2004/05 to 2018/19, almost 8 out of every 10 were for single wind turbines. Note, however, that planning permission is required for all wind turbines (including those for domestic purposes, hospitals, factories, farms, schools etc.) whilst solar panels on domestic properties can be installed without the need to apply for planning permission provided certain conditions are met. The large fall seen in applications in 2016/17 is likely due to the closure of the Northern Ireland Renewable Obligation (NIRO) scheme: it closed to new large scale onshore wind on 31 March 2016, to new small scale onshore wind on 30 June 2016 and to all other technologies on 31 March 2017, with exceptions to those projects that met the criteria for grace periods. These grace periods have now passed and the NIRO scheme is completely closed<sup>117</sup>.

117 See <https://www.economy-ni.gov.uk/articles/northern-ireland-renewables-obligation> for more information.



**Table 4.9: Applications Received by Renewable Energy Type, 2004/05 to 2018/19**

	2004/ 05	2005/ 06	2006/ 07	2007/ 08	2008/ 09	2009/ 10	2010/ 11	2011/ 12	2012/ 13	2013/ 14	2014/ 15	2015/ 16	2016/ 17	2017/ 18	2018/ 19	Total
<b>Single wind turbine<sup>118</sup></b>	47	87	136	172	226	159	629	674	614	547	421	245	35	30	50	4,072
<b>Wind farm</b>	21	13	18	19	15	16	17	12	6	21	13	14	1	6	4	196
<b>Hydroelectricity</b>	0	3	6	1	2	10	16	30	23	20	17	7	4	3	2	144
<b>Solar panels<sup>119</sup></b>	3	31	19	40	22	11	5	36	124	69	61	43	18	5	2	489
<b>Biomass/ Anaerobic digester</b>	2	3	3	5	6	4	31	68	31	16	20	17	22	10	14	252
<b>Other</b>	0	0	0	5	3	3	6	0	3	5	4	3	1	4	6	43
<b>Total</b>	73	137	182	242	274	203	704	820	801	678	536	329	81	58	78	5,196

Source: Department for Infrastructure (<https://www.infrastructure-ni.gov.uk/articles/planning-activity-statistics>)

Table Notes:

1. All applications received in the period may not have had a decision issued within the same time period. Applications received may also include some applications that are subsequently withdrawn.
2. As at end May 2020, data for 2018/19 was the latest renewable energy information available. Data for 2018/19 is provisional.
3. Other includes, Landfill Gases, Waste Incineration and Heat Pumps.

118 Planning permission is required for all wind turbines. This includes turbines for: domestic purposes, hospitals, factories, farms, schools etc. (see [https://www.planningni.gov.uk/index/advice/advice\\_apply/advice\\_renewable\\_energy/renewable\\_wind\\_turbines.htm](https://www.planningni.gov.uk/index/advice/advice_apply/advice_renewable_energy/renewable_wind_turbines.htm) for further details).

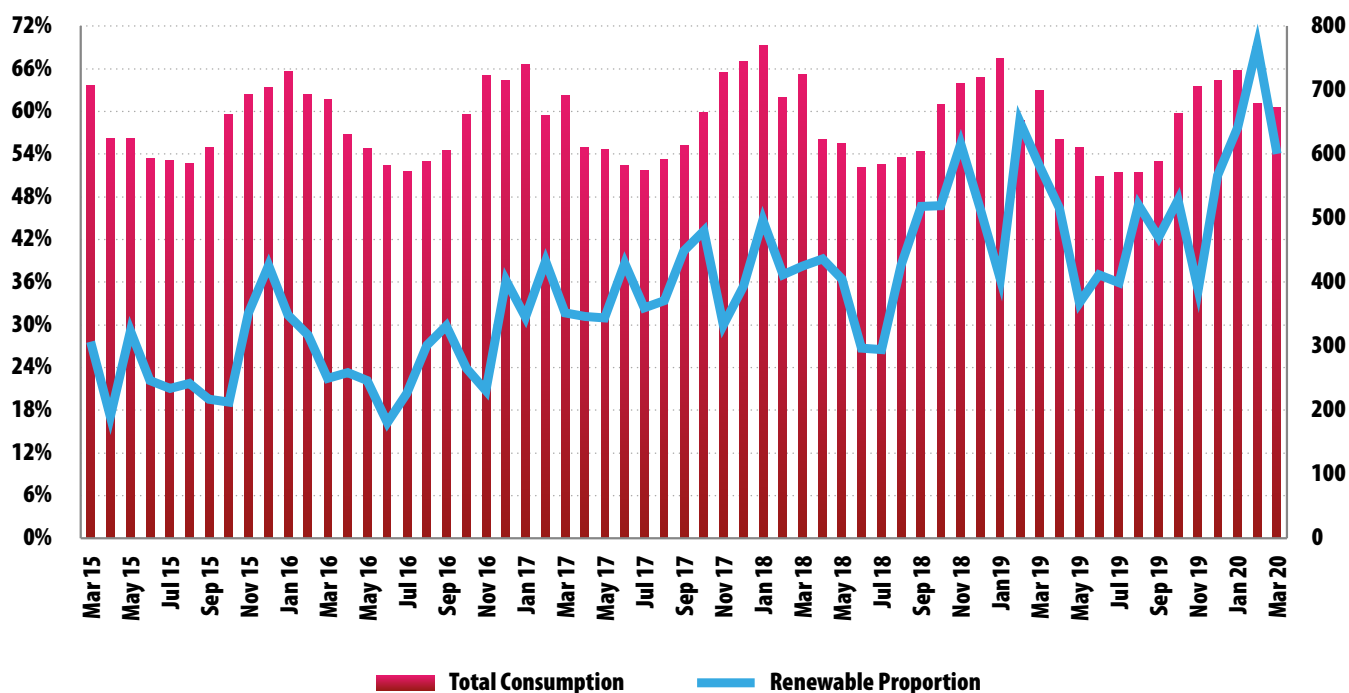
119 Solar panels on domestic properties can be installed without the need to apply for planning permission provided a number of limitations and conditions are met (see [https://www.planningni.gov.uk/index/advice/advice\\_apply/advice\\_apply\\_homes/advice\\_home\\_work2/advice\\_home\\_solar.htm](https://www.planningni.gov.uk/index/advice/advice_apply/advice_apply_homes/advice_home_work2/advice_home_solar.htm) for further details).



### Annex 4.1 Renewable Proportion and Total Consumption Volume by Month

The chart below highlights the seasonal nature of electricity consumption (i.e. higher in winter months and lower in summer months). Whilst a change in total consumption does have some effect on the renewable proportion, it is renewable generation that has a much more significant impact on the proportion as shown in Chart 4.2 earlier.

**Chart 4.7 Percentage of Electricity Consumption from Renewable Sources and Total Consumption Volume by Month (GWh), March 2015 to March 2020**



Source: DfE (<https://www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables>)

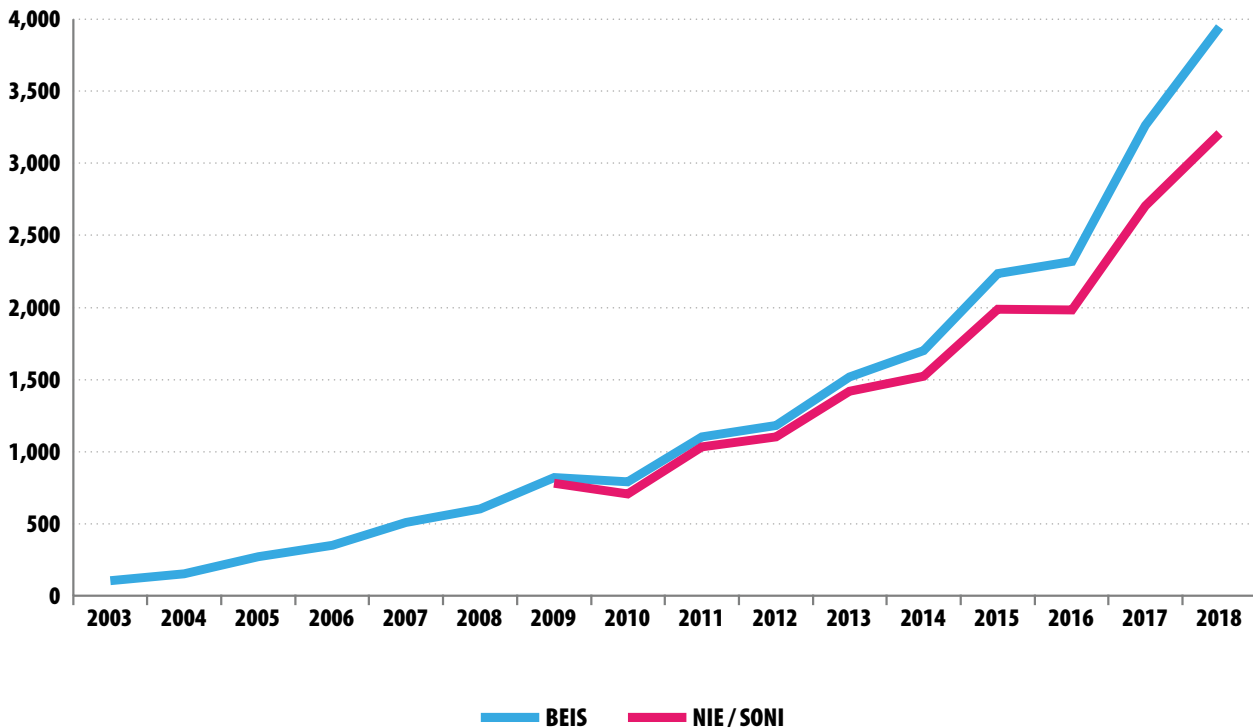




## Annex 4.2 Comparisons of Annual Renewable Generation Volume Data

BEIS have published a consistent series on annual renewable generation volumes from 2003 onwards<sup>120</sup> and the most recent data from this series was presented in Table 4.5 earlier. NIE Networks Ltd provide data to DfE on a monthly basis to allow the compilation of the Electricity Consumption and Renewable Generation in Northern Ireland publication, as shown in Chart 4.5 earlier. Annual data from this source is available from 2009 onwards. The chart below compares these two sources.

**Chart 4.8 Annual Volume of Renewable Electricity Generated from BEIS and NIE Networks/SONI sources (GWh), 2003 to 2018**



Source: BEIS (<https://www.gov.uk/government/statistics/regional-renewable-statistics>); NIE Networks and SONI data provided to DfE (<https://www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables>)

The chart shows that the general trend in each series is very similar. For example, data from both sources show a small fall in renewable electricity generation between 2009 & 2010 and little or no change between 2015 & 2016. In both series large annual increases in generation of the same order are evident between 2010 & 2011 and 2016 & 2017 (around 40%) and also between 2012 & 2013 and 2014 & 2015 (around 30%). Again, for the most recent years where data is available for both sources (2017 & 2018) the annual increase was very similar at around 20%. So, whilst the volumes might be different between sources the annual changes are very alike.

In general, BEIS estimates were around 7% higher than those from SONI/NIE Networks between 2009 and 2013 (except for 2010 when they were 12% higher). The difference increased to around 12% in 2014 and 2015, increased again to 17% in 2016 and was over 20% in both 2017 (21%) and 2018 (23%).

<sup>120</sup> Available at <https://www.gov.uk/government/statistics/regional-renewable-statistics>



The renewable electricity generation data published by DfE is derived by aggregating output from renewable electricity generators who are directly connected to the transmission and distribution network using a combination of data held by NIE Networks and SONI. Microgenerators and any other ‘off-grid’ generators would not be included as they are not directly connected to the transmission and distribution network and thus SONI/NIE Networks would have no sight of their generation.

The BEIS data is derived from a combination of sources: a survey of electricity generators (which may include some generators who are not directly connected to the transmission and distribution network) and ROCs data which covers smaller sites and includes microgeneration. In addition, the BEIS methodology booklet<sup>121</sup> notes that ‘where generation data are not directly available, an estimate is derived using the capacity and applying typical monthly load factors (by region if possible) from similar installations’. So this also may have had some impact on the differences between the two sources.

Overall, the inclusion of microgeneration data by BEIS and possibly generation from other generators not directly connected to the grid plus some estimation may account for the observed differences. However without access to site level data from each source, it is difficult to fully quantify where the differences lie but it is reassuring that the annual changes in generation from each source are so similar.

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121 Further detail is available at <https://www.gov.uk/government/publications/renewable-energy-statistics-data-sources-and-methodologies>



### Annex 4.3 Comparisons of Annual Renewable Percentages

The table below shows the renewable percentages for Northern Ireland for the period 2010-2018 as produced by DfE and BEIS. In general, the proportion published by BEIS were around 2 percentage points higher than the corresponding figure published by DfE between 2010 and 2014, while for 2015 and 2016 the proportions were almost identical. In 2017 the DfE proportion was slightly higher (NI was a net exporter of electricity in 2017) before returning to being lower (by 1.6 percentage points) in 2018 (when NI was again a net importer of electricity).

**Table 4.10: Comparison of BEIS and DfE Renewable Electricity Generation Proportions, 2010 to 2018**

	DfE	BEIS	Percentage Point Difference (BEIS minus DfE)	Net transfers from Scotland (transfers in minus transfers out) GWh	Net imports from Republic of Ireland (imports minus exports) GWh	Total net transfers /imports for Northern Ireland GWh
<b>2010</b>	8.4%	10.2%	1.8	2,297	-234	2,064
<b>2011</b>	12.5%	13.8%	1.3	1,769	-245	1,524
<b>2012</b>	13.6%	16.0%	2.4	2,162	-160	2,002
<b>2013</b>	17.3%	19.5%	2.2	1,541	-45	1,495
<b>2014</b>	19.0%	21.6%	2.6	1,044	121	1,165
<b>2015</b>	25.4%	25.5%	0.1	191	334	526
<b>2016</b>	25.4%	25.3%	-0.1	-252	399	147
<b>2017</b>	34.7%	33.7%	-1.0	-145	-110	-255
<b>2018</b>	40.7%	42.3%	1.6	707	-471	236

Source: DfE (<https://www.economy-ni.gov.uk/articles/electricity-consumption-and-renewable-generation-statistics>) and BEIS (<https://www.gov.uk/government/statistics/energy-trends-december-2019-special-feature-article-electricity-generation-and-supply-figures-for-scotland-wales-northern-ireland-and-england-2> and <https://www.gov.uk/government/statistics/electricity-section-5-energy-trends>)

BEIS proportions are based on indigenous generation only – that is, indigenous renewable electricity generation divided by all indigenous electricity generation. The percentages published by DfE, to report against the PfG target, are indigenous renewable generation divided by total electricity consumption, which will include net imports/transfers of electricity into Northern Ireland. Therefore, when net imports/transfers of electricity into Northern Ireland are high, this will cause a divergence between the BEIS and DfE figures (the BEIS reported percentage will tend to be higher).

The figures in the last three columns of Table 4.10 above are derived from Table 3.3 in Chapter 3 and show that Northern Ireland had significant net transfers via the Moyle Interconnector between 2010 and 2014 (Northern Ireland was a net exporter to the Republic of Ireland during these years but the volumes were much lower than net transfers from Scotland). So while the numerators are similar under both the BEIS and DfE measures (though calculated from different sources), the denominators are different. The DfE denominator will be larger (because for those years Northern Ireland consumed more electricity than it generated) which has the effect of making its reported renewable percentage smaller compared to the ‘headline’ figure reported by BEIS. For 2015 to 2018, however, net transfers from Scotland in particular were much lower (and overall net transfers/imports lower) meaning the denominator under both measures would have been much the same and the overall proportions from both measures therefore similar.

In order to compare proportions between Northern Ireland and other countries we must compare proportions that have been calculated on the same basis, therefore the BEIS data presented in Table 4.8 should be used to compare Northern Ireland with other UK countries.



## Annex 4.4 Mapping Old Council Areas to New Super Council Areas

Table 4.6 presented data for the current 11 council areas in Northern Ireland. However, data is currently available from BEIS for the previous 26 district council areas only. In order to provide data for the 11 new council areas, the data for the old 26 district councils published by BEIS has been aggregated as detailed in the table below. Please note that this is a ‘best fit’ of old council areas to new council areas and, as some of the new council areas include parts of old council areas, it is therefore an approximation of site numbers, capacity and generation for the new council areas.

<b>New Council Areas:</b>	<b>Old Council Areas included in aggregation for Table 4.6:</b>
Antrim & Newtownabbey	Antrim and Newtownabbey
Ards & North Down	Ards and North Down
Armagh City, Banbridge & Craigavon	Armagh, Banbridge and Craigavon
Belfast	Belfast
Causeway Coast & Glens	Ballymoney, Coleraine, Limavady and Moyle
Derry City & Strabane	Derry and Strabane
Fermanagh & Omagh	Fermanagh and Omagh
Mid and East Antrim	Ballymena, Carrickfergus and Larne
Mid Ulster	Cookstown, Dungannon and Magherafelt
Newry, Mourne & Down	Down and Newry & Mourne
Lisburn & Castlereagh	Castlereagh and Lisburn

Data as published by BEIS for the old 26 district council areas is available below.



## Sub-National Renewable Electricity Data for the 'Old' 26 District Council Areas, 2018

District Council	Number of sites	Capacity (MW)	Generation (MWh)
Antrim	59	38	58,196
Ards	36	14	31,013
Armagh	53	13	43,607
Ballymena	69	132	245,496
Ballymoney	55	179	342,022
Banbridge	53	10	29,982
Belfast	19	14	37,154
Carrickfergus	10	2	4,143
Castlereagh	13	3	9,464
Coleraine	65	64	156,704
Cookstown	54	18	41,256
Craigavon	22	15	35,755
Derry	38	94	326,436
Down	53	9	21,346
Dungannon	67	72	181,533
Fermanagh	80	202	492,879
Larne	47	8	21,648
Limavady	32	121	301,514
Lisburn	58	96	139,579
Magherafelt	51	30	95,624
Moyle	17	3	7,224
Newry & Mourne	48	9	25,947
Newtownabbey	20	35	75,946
North Down	6	1	4,203
Omagh	101	299	572,917
Strabane	90	238	486,363
Unallocated	24,200	127	-
<b>Total</b>	<b>25,416</b>	<b>1,845</b>	<b>3,787,949</b>
<b>Unallocated (%)</b>	95%	7%	0% <sup>122</sup>

Source: BEIS (<https://www.gov.uk/government/statistics/regional-renewable-statistics>)

The table above shows that renewable generation and capacity is not shared equally among the 'old' District Council Areas. Indeed over two fifths (41%) of generation is accounted for by only three of the previous 26 council areas: Omagh (15%), Fermanagh (13%) and Strabane (13%). This is perhaps unsurprising given the number of large onshore wind turbines located in these council areas<sup>123</sup>.

122 Whilst unallocated information in the table above is taken directly from BEIS published data, generation data from BEIS for Northern Ireland (as shown in Table 4.5) was 3,946.2 GWh for 2018 compared to 3,787.9 GWh for 2018 in the district council breakdown above published by BEIS, a difference of 158.2 GWh or 4% which could be considered to be unallocated data.

123 See <https://iwea.com/about-wind/interactive-map> for a map of wind farm locations in Northern Ireland.

Chapter 5

**Total Energy Consumption**



## Chapter 5: Total Energy Consumption

### Summary of Key Points

- From sources other than electricity and gas, some 33,286 GWh of energy was consumed in Northern Ireland in 2017. Consumption of these energy products in 2017 was some 14% lower than the peak in 2006.
- Excluding electricity and gas, the largest contributor to these other sources of consumed energy is petroleum products, which accounted for around 88-90% of such consumption in each year 2005-2009, around 86% in each year 2010-2012 with the proportion falling to a low of 83% in 2013. However, the proportion has grown in each year since and was standing at 87.5% for 2017.
- Of the 29,118 GWh of petroleum products consumed in Northern Ireland in 2017, about half (47%) was in Road Transport; some 25% was due to domestic consumption and 21% was consumption by industry.
- Coal accounted for around 6-8% of consumption of total energy other than electricity and gas in each year 2005-2011 with the proportion increasing up to a high of 11% in 2013. The proportion has dropped each year and was 5% for 2015 with industry and commerce accounting for almost three quarters of total coal consumption in 2017.
- The total number of gas connections in Northern Ireland continues to rise each year, although rises were not seen across all market segments. Over the five year period 2014 to 2019 the total number of gas connections in Northern Ireland rose substantially, by almost 70,000 or 34%, with gas consumption rising by around 28% over the same period.
- In total, some 47,039 GWh of energy was consumed in Northern Ireland in 2017 (13,754 GWh from electricity and gas and 33,286 GWh from other fuels). This was equivalent to 3.3% of the total energy consumption in GB for the same year.
- In terms of the purpose for using energy, of the 47,039 GWh of energy consumed 50% was for Heat, 33% was for Transport and the remaining 17% was for Power.
- The combined total of diesel and petrol consumed in Northern Ireland in 2017 due to road transport was the lowest annual volume on record at under 1.17 million tonnes of oil equivalent. Consumption by diesel cars in Northern Ireland rose by 11% whilst consumption by petrol cars and motorcycles fell by over one quarter (26%) over the period 2009-2017.
- In 2017, around three quarters of all diesel and petrol road transport consumption was due to personal use (i.e. consumption by buses, cars and motorcycles) while the remaining quarter was due to freight transport consumption (i.e. consumption by HGVs and LGVs).



## Introduction

This chapter provides some focus on areas of energy other than electricity. It begins by looking at sub-national final energy consumption data produced by BEIS which is available as a historic series at Northern Ireland and sub-Northern Ireland level. It then looks at other sources of information on gas and coal and also in further detail on BEIS road transport (petrol and diesel) consumption statistics for Northern Ireland. Also included is an estimate of total energy consumption for Northern Ireland calculated using an amalgamation of sources on energy consumption.

## BEIS Total Final Energy Consumption Data

While the total final energy consumption datasets published by BEIS cover each region of the United Kingdom, there are no gas or electricity data included for Northern Ireland. This, according to BEIS, is due to the differences in market structure<sup>124</sup>. In addition, the datasets also exclude some sectors and fuels. It was recognised that it would not be meaningful to allocate energy consumption locally or regionally for some energy uses, in particular aviation (air transport) and shipping (national navigation). It was also not possible to model non-energy use of petroleum products and natural gas. Together these excluded fuels account for around a 15% share of total final energy consumption in the UK<sup>125</sup>.

As shown in Table 5.1 below, for sources other than electricity and gas, some 33,286 GWh of energy was consumed in Northern Ireland in 2017. Overall consumption of these energy products has decreased by 14% from the peak in 2006 and consumption in 2017 was the lowest level in the 13 year period shown. By way of comparison, Chart 3.2 in Chapter 3 showed that total annual electricity consumption in NI was around 7,800 GWh in 2017, so consumption of other fuels detailed in Table 5.1, at over 4 times this amount, is significant and worthy of separate consideration.

By far the largest contributor to these other sources of consumed energy is petroleum products<sup>126</sup>: these accounted for 88-90% of consumption in each year 2005-2009 and around 86-87% in each year 2010-2012. The proportion was below 85% in each year 2013-2015 but the proportion has increased slightly each year since then and stood at 87.5% for 2017. The consumption of bio energy and waste products has seen its share increase from around 2-3% in the period 2005-2008, to 4-5% in the period 2009-2015 to about 6% for 2016 and 2017.

Of the 29,118 GWh of petroleum products consumed in Northern Ireland in 2017, just under half (47%) was in Road Transport; a further 25% was due to domestic consumption and around 21% was consumption by industry.

Coal accounted for around 6-8% of final energy consumption in each year 2005-2011 but the proportion then increased in 2012 and again in 2013 when coal accounted for around 11% of total consumption of these fuel types. In 2017, total coal consumption was at its lowest level for the 13 year period shown, equivalent to 1,744 GWh (or 5% of total consumption of these fuel types) and, of this, industry and commerce accounted for around 74% of total coal consumption with domestic sector consumption accounting for the other 26%.

124 See Sub-national Consumption Statistics Guidance Booklet [here](#) for further details.

125 See page 50 of the Sub-national Consumption Statistics Guidance Booklet [here](#) for further details.

126 Petroleum products include petrol, diesel and home heating oil.





**Table 5.1 Northern Ireland Final Energy Consumption Excluding Electricity and Gas (GWh), 2005-2017**

Year	Coal <sup>(1)</sup>			Manufactured fuels <sup>(2)</sup>			Petroleum products <sup>(4)</sup>							Bio energy & wastes	All fuels	Consuming Sector <sup>(3)</sup>		
	Indust/Comm	Domestic	Total	Indust/Comm	Domestic	Total	Indust/Comm	Domestic	Road transport	Rail	Public Sector	Agriculture	Total	Total	Total	Ind/Comm	Domestic	Transport
<b>2005</b>	1,833	550	2,383	271	356	628	9,529	8,490	14,268	118	349	1,837	34,591	924	<b>38,525</b>	13,819	9,397	14,386
<b>2006</b>	2,112	496	2,607	215	341	555	8,554	9,213	14,750	117	268	1,748	34,650	784	<b>38,596</b>	12,896	10,050	14,867
<b>2007</b>	2,026	568	2,594	156	311	466	8,470	8,437	15,258	137	222	1,652	34,176	794	<b>38,031</b>	12,525	9,317	15,395
<b>2008</b>	2,179	601	2,780	49	370	418	6,968	8,753	15,042	140	154	1,613	32,669	1,061	<b>36,928</b>	10,962	9,724	15,182
<b>2009</b>	1,992	602	2,594	65	270	335	6,187	8,990	14,934	140	96	1,635	31,983	1,573	<b>36,485</b>	9,976	9,862	15,075
<b>2010</b>	2,401	628	3,029	44	302	346	6,662	10,243	14,471	140	75	1,649	33,240	1,916	<b>38,531</b>	10,831	11,174	14,611
<b>2011</b>	2,248	620	2,868	39	277	315	6,106	7,994	14,318	139	137	1,675	30,369	1,510	<b>35,062</b>	10,205	8,892	14,456
<b>2012</b>	2,459	593	3,051	41	279	320	5,210	8,046	13,877	139	78	1,723	29,074	1,487	<b>33,932</b>	9,511	8,918	14,017
<b>2013</b>	3,168	568	3,736	51	312	363	4,890	8,683	13,828	142	58	1,704	29,305	1,766	<b>35,170</b>	9,871	9,563	13,970
<b>2014</b>	3,114	485	3,599	94	284	377	5,462	7,446	13,887	146	65	1,719	28,725	1,683	<b>34,384</b>	10,454	8,214	14,033
<b>2015</b>	2,592	488	3,081	51	274	325	6,030	7,495	13,657	146	75	1,791	29,194	1,840	<b>34,440</b>	10,540	8,257	13,803
<b>2016</b>	1,970	472	2,443	30	271	300	6,302	7,574	13,624	146	72	1,795	29,514	2,014	<b>34,271</b>	10,169	8,317	13,770
<b>2017</b>	1,286	458	1,744	25	292	317	6,207	7,335	13,561	146	66	1,803	29,118	2,106	<b>33,286</b>	9,387	8,085	13,707

Source: BEIS (<https://www.gov.uk/government/statistical-data-sets/total-final-energy-consumption-at-regional-and-local-authority-level>)

Notes:

1. Includes coal/petroleum (as appropriate) consumed in all the following sectors: Heat Generation, Energy Industry use, Industry, Public administration, Commercial, Agriculture, Miscellaneous. Excludes coal used for electricity generation (or other transformation purposes).
2. Includes only manufactured solid fuels and not derived gases.
3. Excludes bioenergy & waste.



## Sub-Northern Ireland Final Energy Consumption Estimates Excluding Electricity and Gas

Final energy consumption data (excluding electricity and gas) are also published by BEIS at District Council Area level: the latest available data is for 2017 and the figures relate to the 11 council areas.

Table 5.2 below shows that the Mid Ulster council area was responsible for the highest volume of consumption of these fuel types – it accounted for 4,864 GWh of consumption or 15% of the Northern Ireland total.

### Petroleum Products

The Mid Ulster council area was the district council responsible for the largest share of Northern Ireland consumption of petroleum products (at 3,894 GWh or 13.4% of total NI consumption), closely followed by Armagh City, Banbridge & Craigavon council area (at 3,646 GWh or 12.5% of the total) and both these council areas had more than double the petroleum products consumption than the council area with the lowest consumption of petroleum products in 2017 (i.e. Ards & North Down which had 1,441 GWh of consumption or 4.9% of the total). Looking at the share of petroleum consumption by sector highlights some differences. In 2017 over two fifths (40.2%) of petroleum product consumption in Ards & North Down council area was domestic consumption which is more than twice the proportion in the Mid Ulster (17%) and Fermanagh & Omagh (18%) council areas. Road transport's share of petroleum consumption is significant in each council area, ranging from around 38% in Mid Ulster to 56% in Lisburn & Castlereagh, with just under half (47%) being the Northern Ireland average. Industry's share of petroleum consumption was significant in the Mid Ulster (38%) and Fermanagh & Omagh (29%) council areas, with much lower proportions in Ards & North Down (6.6%) and Belfast (9.1%) council areas.

Agriculture was responsible for 6.2% of consumption of petroleum products in Northern Ireland. At individual council area level, Fermanagh & Omagh had the largest proportion of consumption of petroleum products from agriculture at 11.1% with more urban areas such as Belfast (1.4%) and Lisburn & Castlereagh (2.2%) having much lower shares.

### Coal

While coal represents a much smaller proportion of consumption in overall volume terms, there are also some interesting results to note at a district council level. Firstly, one council area (Mid Ulster) accounts for almost one-third (32.1%) of all coal consumption in Northern Ireland.

Overall, about three-quarters (74%) of coal consumption in Northern Ireland is by the industrial & commercial sector; however there was some variation at district council level. For example, almost all coal consumed in Mid Ulster (92%) was by the industrial & commercial sector whilst in Belfast only 1% of coal consumption was due to the industrial & commercial sector (although it is worth noting that the overall volume of coal consumed in Belfast council area was the lowest of all council areas at about 43 GWh, or only 2.5% of the Northern Ireland total).



**Table 5.2 Northern Ireland Final Energy Consumption Excluding Electricity and Gas by District Council Area (GWh), 2017**

Area	Coal <sup>(1)</sup>			Manufactured Fuels <sup>(2)</sup>			Petroleum products <sup>(1)</sup>							Bio energy	All fuels	Consuming Sector <sup>(3)</sup>			All fuels as a % of NI total
	Industrial	Domestic	Total	Industrial	Domestic	Total	Industrial	Domestic	Road transport	Rail	Public Sector	Agriculture	Total	Total	Total	Industrial	Domestic	Transport	
<b>Antrim &amp; Newtownabbey</b>	88	25	113	3	18	21	456	549	1,180	14	4	87	2,291	138	<b>2,563</b>	638	592	1,195	8%
<b>Ards &amp; North Down</b>	15	33	48	1	22	23	96	579	689	16	1	60	1,441	152	<b>1,664</b>	172	634	705	5%
<b>Armagh City, Banbridge &amp; Craigavon</b>	136	57	193	1	36	37	546	947	1,858	21	34	240	3,646	210	<b>4,086</b>	957	1,040	1,879	12%
<b>Belfast</b>	1	42	43	0	33	33	205	841	1,145	34	2	32	2,258	344	<b>2,678</b>	239	916	1,179	8%
<b>Causeway Coast &amp; Glens</b>	47	50	97	1	30	31	385	685	1,297	18	5	212	2,603	145	<b>2,876</b>	651	764	1,316	9%
<b>Derry City &amp; Strabane</b>	109	43	152	3	26	29	438	638	906	3	4	145	2,133	149	<b>2,462</b>	698	706	908	7%
<b>Fermanagh &amp; Omagh</b>	140	45	185	1	26	27	945	569	1,334	-	6	355	3,209	145	<b>3,566</b>	1,447	641	1,334	11%
<b>Lisburn &amp; Castlereagh</b>	64	26	90	0	18	18	330	483	1,096	10	2	43	1,964	135	<b>2,207</b>	440	527	1,106	7%
<b>Mid and East Antrim</b>	74	38	112	0	24	24	473	590	974	21	1	137	2,195	149	<b>2,480</b>	684	652	995	7%
<b>Mid Ulster</b>	513	47	561	15	28	43	1,486	653	1,474	-	5	276	3,894	367	<b>4,864</b>	2,295	728	1,474	15%
<b>Newry, Mourne &amp; Down</b>	99	52	150	1	32	32	848	802	1,608	9	4	216	3,486	172	<b>3,840</b>	1,167	885	1,616	12%
<b>Northern Ireland</b>	1,286	458	1,744	25	292	317	6,207	7,335	13,561	146	66	1,803	29,118	2,106	<b>33,286</b>	9,387	8,085	13,707	100%

Source: BEIS (<https://www.gov.uk/government/statistical-data-sets/total-final-energy-consumption-at-regional-and-local-authority-level>)

Notes to table: (1) Includes coal/petroleum (as appropriate) consumed in all the following sectors: Heat Generation, Energy Industry use, Industry, Public administration, Commercial, Agriculture, Miscellaneous. Excludes coal used for electricity generation (or other transformation purposes). (2) Includes only manufactured solid fuels and not derived gases. (3) Excludes bioenergy & waste.



## Gas

The Utility Regulator is responsible for regulating Northern Ireland's natural gas industry. Similar to the electricity system shown in chapter 3 earlier, the gas system can be divided into three main areas: transmission, distribution and supply<sup>127</sup>.

### Transmission

Gas transmission deals with the large high pressure pipelines that convey gas to the distribution systems. There are four transmission pipelines in Northern Ireland:

1. Scotland to Northern Ireland Pipeline (SNIP) is 135 kilometres long and runs from Twynholm in Scotland to Ballylumford. The SNIP is owned by Premier Transmission Limited which is part of the Mutual Energy Ltd group of companies.
2. Belfast Gas Transmission Pipeline (BGTP) is 26 kilometres long and is connected to the SNIP and to the North West Pipeline. It also supplies gas to the Belfast distribution network. The BGTP is owned by Belfast Gas Transmission Limited (BGTL) which is part of the Mutual Energy Ltd group of companies.
3. North West Pipeline (NWP) is 112 kilometres long and runs from Carrickfergus to Coolkeeragh power station. It is owned by BGE Northern Ireland (BGE NI).
4. South North Pipeline (SNP) is 156 kilometres long and runs from County Antrim to Gormanstown in County Meath, Ireland where it links into the NWP. It is owned by BGE Northern Ireland (BGE NI).

A map of these current main transmission gas pipelines is shown in Annex 5.1.

### Distribution

Gas distribution deals with the medium and low pressure gas mains that convey gas to licensed areas within Northern Ireland and there are currently three distribution areas: Phoenix Natural Gas Limited (PNGL) operates the network in the Greater Belfast and Larne distribution licensed area<sup>128</sup>, firmus energy (Distribution) Limited (feDL) operates the network in the 'Ten Towns' distribution licensed area<sup>129</sup> and SGN Natural Gas Limited (SGN) operates the network in the West distribution licensed area<sup>130</sup>.

### Supply<sup>131</sup>

Gas supply companies supply customers with gas into their homes/businesses. In the Greater Belfast market, two suppliers are active in supplying gas to domestic and industrial & commercial customers (% market share by connections in Quarter 3 2019 is shown in brackets): SSE Airtricity (75.9%) and firmus energy (22.9%) and another four suppliers are active in supplying gas only to industrial & commercial customers: Flogas (0.7%), Go Power (0.5%), Naturgy (0.01%) and Electric Ireland (0.004%).

127 The information on transmission, distribution and supply was sourced from the Utility Regulator (see <http://www.uregni.gov.uk/gas/>) and also <https://www.northernireland.gov.uk/topics/energy/gas> and <https://www.economy-ni.gov.uk/topics/energy/gas>

128 The Greater Belfast and Larne area includes Holywood, Bangor, Newtownards, Belfast, Newtownabbey, Carrickfergus and Lisburn. An extension to the Phoenix Natural Gas licence provided new gas infrastructure to towns and villages in East Down, including Annahilt, Ballygowan, Ballynahinch, Castlewella, Crossgar, Downpatrick, Dromore, Drumaness, Dundrum, Hillsborough, Newcastle, Saintfield and The Spa.

129 These ten towns being: Londonderry, Limavady, Ballymena, Ballymoney, Coleraine, Newry, Craigavon, Antrim, Banbridge and Armagh. firmus has taken natural gas to some 20 additional urban areas, such as Tandragee, Warrenpoint, Moy and Bushmills.

130 SGN Natural Gas is responsible for providing gas to main towns in the west including Dungannon, Cookstown, Magherafelt, Coalisland, Omagh, Strabane, and Enniskillen/Derrylin.

131 Information in this section is from [Utility Regulator's Q3 2019 Quarterly Transparency Report](#) published 29<sup>th</sup> Nov 2019



In the Ten Towns market, there is currently one supplier active in supplying gas to domestic and industrial & commercial customers (% of market share by connections in Q3 2019 shown in brackets): firmus energy (97.8%) and another five suppliers are active in supplying gas only to industrial & commercial customers: Flogas (1.2%), Go Power (0.4%), SSE Airtricity (0.6%), Electric Ireland (0.01%) and Naturgy (0.002%).

There are now four active suppliers in the West area, namely SSE Airtricity as the commissioning domestic supplier, with Electric Ireland, firmus energy and Flogas active in the industrial & commercial market. Information on connections by supplier in this distribution area are not available: connection numbers are relatively small.

### **Gas Connections**

The next table shows the number of connections in each of the three distribution networks split by domestic and Industrial & Commercial (I&C) sectors where available<sup>132</sup>.

Table 5.3 shows that in 2019 in the Greater Belfast network (operated by Phoenix Natural Gas), over 98% of connections were in the domestic and small I&C sector while the corresponding percentage in the Ten Towns area (operated by firmus energy) and the West area (operated by SGN), was similar at around 97% at the end of 2019.

Of the over 272,000 total connections to the gas network in 2019, some 81.8% are in the Greater Belfast area, 18.0% in the Ten Towns area and the remaining 0.2% in the West area. The share in overall connections has been changing over time with the Ten towns area taking a larger percentage share of connections each year (up from 12.6% in 2014 to 18.0% in 2019). Those I&C customers with 73,200 kWh or more of consumption and connected to any of the three networks made up only 1.4% of total connections in Northern Ireland in 2019. However, as Table 5.4 shows below, these customers are responsible for 55% of total Northern Ireland gas consumption.

Summary data for 2014 has been included in Table 5.3 to highlight the significant increase in gas connections in recent years. Over the five year period 2014 to 2019 the total number of gas connections in Northern Ireland rose substantially, by around 70,000 or 34%. Over the same period, the rise in the number of connections in the Greater Belfast area was over 45,000 (26%) whilst connections in the Ten towns area almost doubled (a rise of over 23,600 or 93%).

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<sup>132</sup> Connections and consumption for domestic and small I&C customers are grouped together (relating to those customers consuming <73,200 kWh/annum). Information for the West area are only available for 2018 onwards.



**Table 5.3 Number of Gas Connections in Northern Ireland by Distribution Licensed Area, 2014 and 2017 to 2019**

Market Segment	Connections at end of					As a % of total connections in 2019
	2014	...	2017	2018	2019	
<b>Greater Belfast</b>	<b>177,109</b>		<b>204,287</b>	<b>213,153</b>	<b>222,502</b>	81.8%
Domestic & Small I&C <sup>133</sup>	-		201,099	209,922	219,277	80.6%
I&C 73,200 - 732,000 kWh	-		2,789	2,820	2,829	1.0%
I&C > 732,000 - 2,196,000 kWh	-		299	297	279	0.1%
I&C > 2,196,000 kWh	-		100	114	117	0.0%
<b>Ten Towns</b>	<b>25,429</b>		<b>37,293</b>	<b>42,636</b>	<b>49,062</b>	18.0%
Domestic & Small I&C	-		36,100	41,416	47,806	17.6%
I&C 73,200 - 732,000 kWh	-		952	961	1,010	0.4%
I&C > 732,000 - 2,196,000 kWh	-		153	169	160	0.1%
I&C > 2,196,000 kWh	-		88	90	86	0.0%
<b>West</b>	-		-	<b>331</b>	<b>568</b>	0.2%
Domestic & Small I&C	-		-	323	550	0.2%
I&C 73,200 - 732,000 kWh	-		-	4	7	0.0%
I&C > 732,000 - 2,196,000 kWh	-		-	0	2	0.0%
I&C > 2,196,000 kWh	-		-	4	9	0.0%
<b>Total</b>	<b>202,538</b>		<b>241,580</b>	<b>256,120</b>	<b>272,132</b>	100.0%
Domestic & Small I&C	-		237,199	251,661	267,633	98.3%
I&C 73,200 - 732,000 kWh	-		3,741	3,785	3,846	1.4%
I&C > 732,000 - 2,196,000 kWh	-		452	466	441	0.2%
I&C > 2,196,000 kWh	-		188	208	212	0.1%

Source: Utility Regulator (<https://www.uregni.gov.uk/transparency-reports>)

Table 5.3 above clearly shows that the total number of gas connections in Northern Ireland continues to rise each year (although, for the I&C > 732,000 - 2,196,000 kWh group, there was a small decline in connections between 2018 and 2019).

The connection numbers shown in the table for the West distribution area are relatively low. However, natural gas is now available to properties in Artigarvan, Coalisland, Cookstown, Derrylin, Dungannon, Enniskillen, Magherafelt, Omagh and Strabane after the final section of the new network was commissioned in December 2019. This will eventually provide some 40,000 business and domestic consumers with additional fuel choice<sup>134</sup>. The connection numbers in the West distribution area are therefore expected to grow in future years.

133 The domestic and small I&C sector relates to any customers using less than 73,200 kWh per annum.

134 See <https://www.sgn.co.uk/news/eight-northern-ireland-towns-can-connect-natural-gas-following-network-launch>



## Gas Consumption

**Table 5.4 Annual Gas Consumption (GWh) in Northern Ireland by Distribution Licensed Area, 2014 and 2017 to 2019**

Market Segment	Consumption (GWh) during					As a % of total consumption in 2019
	2014	...	2017	2018	2019	
<b>Greater Belfast</b>	<b>3,805</b>		<b>4,248</b>	<b>4,625</b>	<b>4,624</b>	<b>68%</b>
Domestic & Small I&C	1,776		2,319	2,566	2,604	39%
I&C 73,200 - 732,000 kWh	571		607	630	626	9%
I&C > 732,000 - 2,196,000 kWh	352		307	363	324	5%
I&C > 2,196,000 kWh	1,106		1,015	1,066	1,070	16%
<b>Ten Towns</b>	<b>1,467</b>		<b>1,700</b>	<b>1,796</b>	<b>1,806</b>	<b>27%</b>
Domestic & Small I&C	123		330	403	464	7%
I&C 73,200 - 732,000 kWh	141		235	260	238	4%
I&C > 732,000 - 2,196,000 kWh	151		180	192	217	3%
I&C > 2,196,000 kWh	1,052		956	941	887	13%
<b>West</b>	-		-	<b>93</b>	<b>323</b>	<b>5%</b>
Domestic & Small I&C	-		-	1	4	0%
I&C 73,200 - 732,000 kWh	-		-	0	1	0%
I&C > 732,000 - 2,196,000 kWh	-		-	0	1	0%
I&C > 2,196,000 kWh	-		-	92	318	5%
<b>Total</b>	<b>5,272</b>		<b>5,948</b>	<b>6,514</b>	<b>6,754</b>	<b>100%</b>
Domestic & Small I&C	1,899		2,649	2,969	3,071	45%
I&C 73,200 - 732,000 kWh	712		842	890	866	13%
I&C > 732,000 - 2,196,000 kWh	503		487	555	542	8%
I&C > 2,196,000 kWh	2,158		1,971	2,100	2,275	34%

Source: Utility Regulator (<https://www.uregni.gov.uk/transparency-reports>)<sup>135</sup>

<sup>135</sup> Data for this table is derived from Annual and Quarterly Utility Regulator's Transparency Reports (see [here](#)). 2014 data has been converted from therms to GWh using the conversion factor 1 therm = 0.0000293071 GWh. 2019 data is calculated from the four Quarterly Transparency Reports for 2019.



As shown above total gas consumption in the domestic and I&C sectors in Northern Ireland was 6,754 GWh in 2019. Some 68% of total consumption in 2019 was in the Greater Belfast network area with about 27% in the Ten towns licensed area and the remaining 5% in the West network area. Over the period 2017-2019, there was a 14% rise in total consumption (an increase of over 806 GWh).

Consumption was flat in both the Greater Belfast and Ten Towns areas over the period 2018-2019 even though, as shown in Table 5.3 earlier, there was an increase of around 16,000 in the number of connections over the period in these areas. However, virtually all of the new connections were in the Domestic & Small I&C sector and consumption for that sector increased over the period 2018-2019 (an increase of about 100 GWh). Connections and consumption in the West network area rose significantly though this is perhaps expected as the network in that area is new and continues to be rolled out. Indeed, virtually all of the rise in total gas consumption in Northern Ireland over the period 2018-2019 (+240 GWh) was due to the rise in consumption in the West network area (+230GWh), again highlighting that consumption in the Greater Belfast and Ten Towns areas was flat over this period.

Over the 5 year period 2014-2019, there were large and similar rises in gas consumption in the Greater Belfast area (+22%) and Ten Towns area (+23%). However, the changes for each market segment were quite different.

In the Greater Belfast area, consumption in the domestic and small I&C sector rose by 47% whilst consumption in the same sector in the Ten Towns area was about four times higher in 2019 compared to 2014. Altogether, gas consumption in the domestic and small I&C sector increased from 1,899 GWh in 2014 to 3,071 GWh in 2019, a 62% increase. Such increases are perhaps expected given the gas network rollout over the period alongside the general shift towards gas rather than oil central heating<sup>136</sup>.

In contrast, in the largest consuming group (I&C > 2,196,000 kWh) there was a 3% fall in consumption in the Greater Belfast area and a 16% fall in the Ten Towns area over the 5 year period 2014 to 2019. Table 5.3 earlier showed there were only 212 such companies in 2019, which represents less than 0.1% of all connections. In volume terms, consumption in the largest consuming group in the Greater Belfast and Ten Towns areas fell by just over 200 GWh between 2014 and 2019. This fall is reflected in the share of overall consumption that the biggest industrial and commercial customers (I&C > 2,196,000 kWh) account for. In 2014 they accounted for over two-fifths (41%) of total gas consumption and this had fallen to around one-third of consumption for each year 2017-2019.

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<sup>136</sup> There is evidence, as shown in Chapter 6, that the proportion of households in Northern Ireland using gas for central heating has increased substantially in recent years.

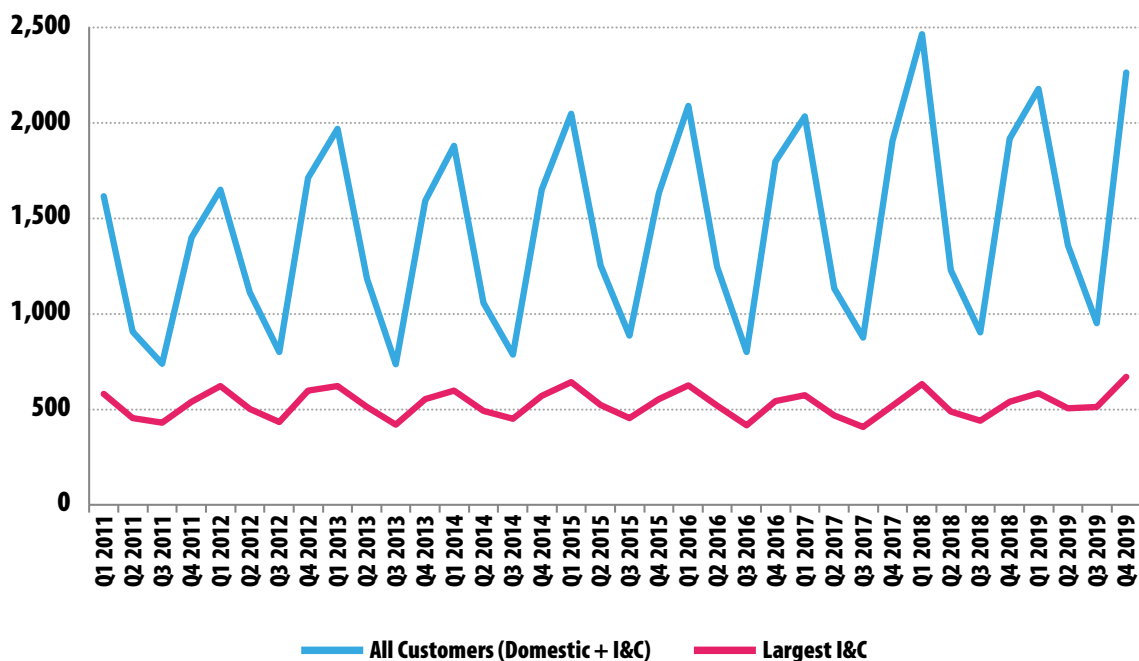




## Quarterly Data

Like electricity consumption (shown in Chart 3.1 earlier), gas consumption is seasonal and varies considerably over the year as shown in Chart 5.1 below.

**Chart 5.1 Quarterly Total Gas Consumption in Northern Ireland (GWh), Q1 2011 to Q4 2019**



Source: Utility Regulator (<https://www.uregni.gov.uk/market-information>)

Overall consumption (domestic plus Industrial & Commercial (I&C) customers) is considerably lower over the second and third quarters of the year (i.e. during the spring and summer months), and peaks during the winter months (i.e. in Q1 and Q4). Such trends are to be expected given that gas will be used by customers as the main fuel for heating purposes.

The chart also shows consumption for the largest Industrial & Commercial (I&C) customers – i.e. the approximately 200 largest consuming I&C customers (who consume >2,196,000 kWh per year). This shows that, whilst there is indeed some seasonal change in consumption among this group, it is less marked than the quarterly changes for all customers (both domestic and I&C).

For example, the average change from Q3 to Q4 for the largest I&C group over the period shown was an increase of around 28%, whereas for all customers the average increase from Q3 to Q4 was over 100% (i.e. on average gas consumption for all customers in Q4 is more than twice consumption in Q3). This would suggest that gas consumption for the largest I&C customers is not as dependent on weather conditions but rather that gas consumption for these customers is based on their requirements for gas for industrial processing.

Some new data showing the number of meters and gas consumption at a District Council level was first published by BEIS in October 2019 and this is shown below.



**Table 5.5 Northern Ireland Gas Consumption, Number of Meters and Average Consumption by District Council Area, 2017 Gas Year**

Area	Number of meters			Consumption (GWh)			Average Consumption (kWh)		
	Domestic	Non-domestic	Total	Domestic	Non-domestic	Total	Domestic	Non-domestic	Total
<b>Antrim &amp; Newtownabbey</b>	21,652	1,076	22,728	266.5	286.3	552.8	12,309	266,062	24,322
<b>Ards &amp; North Down</b>	32,897	1,467	34,364	451.1	247.5	698.6	13,712	168,737	20,330
<b>Armagh City, Banbridge &amp; Craigavon</b>	9,828	692	10,520	94.7	526.0	620.7	9,637	760,149	59,006
<b>Belfast</b>	113,879	6,637	120,516	1,332.9	1,212.8	2,545.6	11,704	182,728	21,123
<b>Causeway Coast &amp; Glens</b>	5,611	419	6,030	53.6	199.4	253.0	9,554	475,864	41,956
<b>Derry City &amp; Strabane</b>	11,580	772	12,352	111.1	341.8	452.9	9,596	442,717	36,666
<b>Fermanagh &amp; Omagh</b>	..	..	..	..	..	..	..	..	..
<b>Lisburn &amp; Castlereagh</b>	23,725	1,460	25,185	302.1	467.1	769.2	12,733	319,960	30,543
<b>Mid and East Antrim</b>	17,092	1,100	18,192	190.6	327.9	518.6	11,154	298,095	28,504
<b>Mid Ulster</b>	29	0	29	0.3	0	0.3	11,262	0	11,262
<b>Newry, Mourne &amp; Down</b>	3,267	275	3,542	30.3	120.2	150.5	9,268	436,993	42,477
<b>Northern Ireland</b>	239,560	13,898	253,458	2,833.3	3,729.0	6,562.2	11,827	268,312	25,891

Source: BEIS (<https://www.gov.uk/government/statistics/sub-national-gas-consumption-statistics-in-northern-ireland-2019-2017-data>)

Note: the data in the table above covers the 2017 gas year which is the period 15<sup>th</sup> June 2017 to 15<sup>th</sup> June 2018. This will therefore differ to data in Tables 5.3 and 5.4 earlier which relate to the calendar year 2017. In addition, the table above splits consumption and number of meters by domestic or non-domestic whereas in Tables 5.3 and 5.4 Domestic and small Industrial & Commercial are grouped together.

### Gas Consumption – District Council Level

Table 5.5 shows that there was some level of gas consumption in all but one District Council area in Northern Ireland. Only Fermanagh & Omagh had no gas consumption but this will change for future years as the gas network has been extended to this council area after the period covered in the table. Unsurprisingly, the majority of gas consumption is in urban council areas and where the gas network has been well established. Belfast District Council area accounted for 39% of all Northern Ireland gas consumption, followed by Lisburn and Castlereagh (12%) and Ards & North Down (11%). Together homes and businesses located in these three council areas were responsible for over two thirds (61%) of all gas consumption in Northern Ireland.



### Number of Meters – District Council Level

Understandably, the majority of meters are located in council areas that have the highest consumption values. Almost half (48%) of all meters were in Belfast District Council area, 14% of all meters were in Ards & North Down followed by Lisburn and Castlereagh (10%). These three council areas accounted for some 70% of all domestic and non-domestic meters.

There is a strong relationship between the number of gas meters and gas consumption in the domestic sector. For example, Belfast has 48% of all domestic gas meters and 47% of domestic gas consumption, Ards & North Down has 15% of meters and 16% of consumption and Lisburn & Castlereagh has 10% of meters and 11% of consumption. However, even small differences in these proportions can lead to some notable differences in consumption per meter as shown below.

### Consumption per Meter - District Council Level

Table 5.5 shows consumption per meter and there is some variation in average domestic consumption across the council areas (although all average consumption values for councils are within about 20% of the NI average value). Four council areas had average domestic consumption values for 2017 below 10,000 kWh (Armagh City, Banbridge & Craigavon, Causeway Coast & Glens, Derry City & Strabane and Newry, Mourne & Down) and three areas had average domestic consumption values for 2017 above 12,000 kWh (Antrim & Newtownabbey, Ards & North Down and Lisburn and Castlereagh). Indeed, average domestic consumption values for 2017 in Ards & North Down at 13,712 kWh were some 50% above the council area with the lowest average domestic consumption (Newry, Mourne & Down at 9,268 kWh).

Ofgem produce Typical Domestic Consumption Values (TDCVs)<sup>137</sup> which are industry standard values for the annual gas usage of a typical domestic consumer. Current TDCVs annual consumption of 8,000 kWh per year would be considered 'low' usage; consumption of 12,000 kWh per year would be considered medium (or average) usage and 17,000 kWh per annum would be deemed 'high' usage. The Northern Ireland average for domestic customers for 2017 was 11,827 kWh, so this appears to be typical consumption. Gas consumption in individual households can be affected by a number of factors such as cost of gas, how well insulated the house is, the type and size of house, number of occupants etc. In particular, floor area is an important determinant of gas demand, with the largest floor area category (over 200 square metres), consuming over four times as much gas as the smallest category (50 square metres or less)<sup>138</sup>. This may be one of the factors that accounts for some of the differences evident in gas consumption across District Council areas in Northern Ireland.

137 See <https://www.ofgem.gov.uk/gas/retail-market/monitoring-data-and-statistics/typical-domestic-consumption-values>

138 See page 16 from 'National Energy Efficiency Data – Framework' published by BEIS [here](#)



**Table 5.6 Northern Ireland Gas Consumption and Number of Meters by District Council Area, 2015, 2016 and 2017 Gas Years<sup>139</sup>**

Council Area	Total Number of Meters			Total Consumption (GWh)		
	2015	2016	2017	2015	2016	2017
<b>Antrim &amp; Newtownabbey</b>	18,776	21,434	22,728	498.6	502.3	552.8
<b>Ards &amp; North Down</b>	28,457	32,265	34,364	633.4	625.6	698.6
<b>Armagh City, Banbridge &amp; Craigavon</b>	6,394	9,158	10,520	603.0	567.7	620.7
<b>Belfast</b>	108,167	116,450	120,516	2,287.1	2,256.2	2,545.6
<b>Causeway Coast &amp; Glens</b>	3,796	5,399	6,030	221.3	243.1	253.0
<b>Derry City &amp; Strabane</b>	8,132	10,869	12,352	299.2	360.2	452.9
<b>Fermanagh &amp; Omagh</b>	..	..	..	..	..	..
<b>Lisburn &amp; Castlereagh</b>	19,986	23,250	25,185	681.0	656.3	769.2
<b>Mid and East Antrim</b>	14,609	16,791	18,192	573.7	475.2	518.6
<b>Mid Ulster</b>	..	21	29	..	0.2	0.3
<b>Newry, Mourne &amp; Down</b>	2,086	2,941	3,542	127.0	139.8	150.5
<b>Northern Ireland</b>	210,403	238,578	253,458	5,924.3	5,826.6	6,562.2

Source: BEIS (<https://www.gov.uk/government/statistics/sub-national-gas-consumption-statistics-in-northern-ireland-2019-2017-data>)

Table 5.6 shows total data by District Council for the three years for which data is available. Overall, there was a 20% increase in the number of gas meters in Northern Ireland over the 2015 to 2017 gas years. Over this period, the percentage increase in the number of meters was lower in council areas where the gas network has been long established - e.g. Belfast (11%), Antrim & Newtownabbey and Ards & North Down (both 21%) - with higher percentage rises in areas where the gas network continued to be expanded over the period shown in the table - e.g. Newry, Mourne & Down (70%), Armagh City, Banbridge & Craigavon (65%) and Derry City & Strabane (52%). There were year on year increases in the number of meters for all council areas.

In terms of gas consumption, there were not year on year increases for all council areas and indeed one council area (Mid & East Antrim) had a fall in consumption over the 2015 to 2017 gas year period. Over the 2015 to 2017 gas years, gas consumption in Northern Ireland increased by 11% with the highest increase in Derry City & Strabane (51%). Further analysis shows that the fall in Mid & East Antrim was due to decreases in the non-domestic sector and the downturn/closure of some large businesses in that area over the period which also perhaps explains the fall. It is worth noting the periods covered by gas years in the table above with the 2015 gas year starting on the 1<sup>st</sup> October 2014 and the 2017 gas year ending in 15<sup>th</sup> June 2018, so the data in the table above actually spans an almost 4 year period.

<sup>139</sup> 2015 Gas year is 1st October 2014 to 30th September 2015; 2016 Gas year is 15th July 2016 to 15th July 2017; and 2017 Gas year is 15th June 2017 to 15th June 2018.



## Total Energy Consumption for Northern Ireland – Amalgamation of Sources

The following table provides information on total energy consumption<sup>140</sup> in Northern Ireland using an amalgamation of sources already presented in this report, namely: BEIS total final energy consumption data (which excludes electricity and gas for NI), electricity consumption data (published by DfE and sourced from NIE Networks) and gas consumption data (sourced from the Utility Regulator).

**Table 5.7 Total Energy Consumption in Northern Ireland (GWh), 2012 to 2017**

	2012	2013	2014	2015	2016	2017
Electricity	8,095	8,181	8,022	7,819	7,794	7,806
Gas	5,274	5,484	5,374	5,817	5,935	5,948
<b>[A] Total Electricity &amp; Gas</b>	<b>13,369</b>	<b>13,665</b>	<b>13,397</b>	<b>13,636</b>	<b>13,729</b>	<b>13,754</b>
Coal	3,051	3,736	3,599	3,081	2,443	1,744
Manufactured Fuels	320	363	377	325	300	317
Petroleum Products	29,074	29,305	28,725	29,194	29,514	29,118
Bio-energy & Wastes	1,487	1,766	1,683	1,840	2,014	2,106
<b>[B] Plus BEIS final energy consumption (excluding electricity and gas)</b>	<b>33,932</b>	<b>35,170</b>	<b>34,384</b>	<b>34,440</b>	<b>34,271</b>	<b>33,286</b>
<b>[A]+[B] Equals Total Energy Consumption in Northern Ireland</b>	<b>47,301</b>	<b>48,835</b>	<b>47,780</b>	<b>48,076</b>	<b>47,999</b>	<b>47,039</b>
Total Energy Consumption in GB <sup>141</sup>	1,465,230	1,449,183	1,446,667	1,440,994	1,423,947	1,440,321
NI as a % of GB	3.2%	3.4%	3.3%	3.3%	3.4%	3.3%

Source: DfE/NIE Networks<sup>142</sup>, Utility Regulator<sup>143</sup>, BEIS<sup>144</sup>

Table 5.7 shows that some 47,039 GWh of energy was consumed in Northern Ireland in 2017 (13,754 GWh from electricity and gas and 34,286 GWh from other fuels). This was equivalent to 3.3% of the total energy consumption in GB for the same year.

Over the five year period shown, total energy consumption was highest in 2013 in Northern Ireland though overall consumption has been fairly steady over the period and annual changes were about 3% or less over the period shown. Total consumption in GB has also been fairly stable and annual changes were 1% or less over the period shown. Northern Ireland energy consumption as a proportion of GB consumption has been fairly steady (at just over 3%) in each year 2012 to 2017.

140 This excludes any gas or coal consumption by power stations in Northern Ireland as this fuel is used to generate electricity which is then included in the electricity consumption figures here. Also, as noted earlier, energy consumption by aviation (air transport) and shipping (national navigation) are excluded from the BEIS total final energy consumption data.

141 See <https://www.gov.uk/government/statistical-data-sets/total-final-energy-consumption-at-regional-and-local-authority-level> for full spreadsheets. GB total includes a small amount of unallocated consumption (i.e. consumption that could not be allocated to any particular UK region).

142 See Chart 3.2 in Chapter 3 of this report. Full data available [here](#)

143 Data sourced from Utility Regulator's Transparency Reports available [here](#)

144 As presented in Table 5.1 earlier, rounded to nearest GWh. Full tables available [here](#)



The table above also shows that gas consumption has increased by 13% over the period shown, more than offsetting the 4% fall in electricity consumption over the period. The overall 2% fall in total energy consumption in Northern Ireland between 2016 and 2017 was entirely due to falls in consumption of other fuels (-3%) with both electricity and gas consumption virtually unchanged over the year.

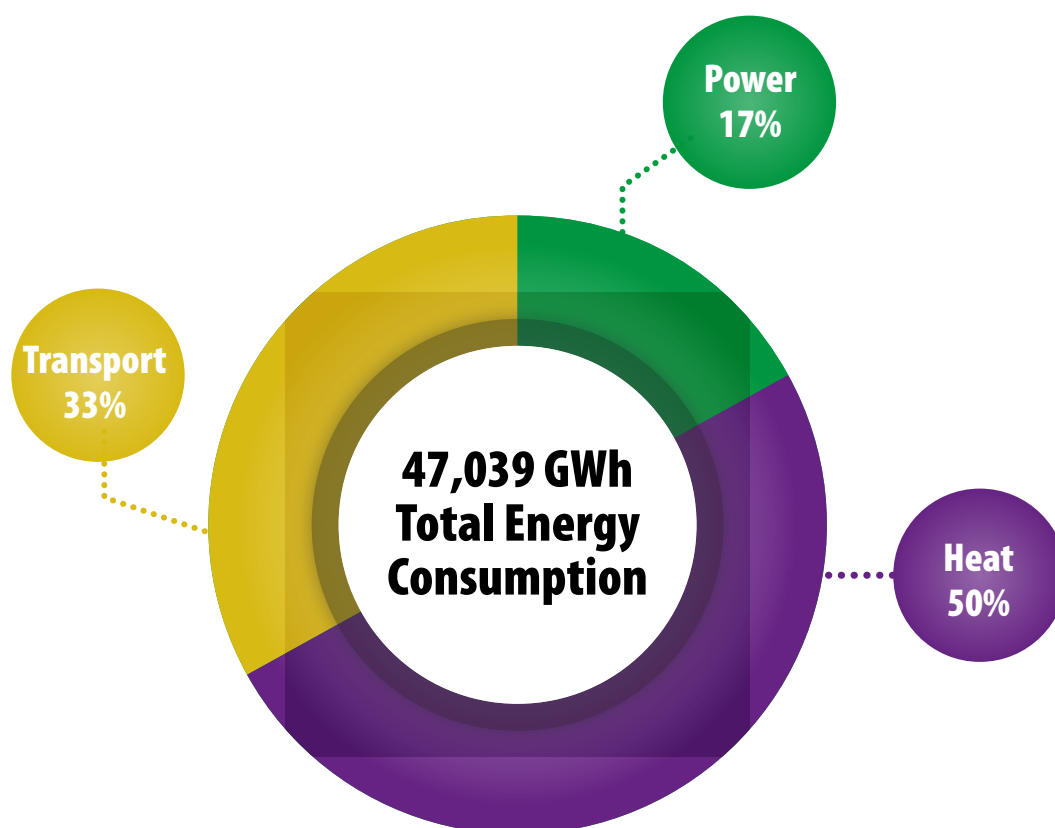
### Total Energy Consumption by Purpose for Northern Ireland

The following chart is an attempt to present the final energy consumption data in Table 5.7 above split by the main purpose for/sector consuming the energy: i.e. into Transport, Power and Heat sectors.

Splitting the data into these purposes/sectors is not straightforward and the chart below is an approximation. As an example, while it is reasonable to assume that all petroleum product use for ‘road transport’ or ‘rail’ can be assigned to the ‘Transport’ sector it is less clear for assigning other volumes. Electricity consumption in the ‘domestic’ sector, for example, could probably mostly be categorised as ‘Power’: however some domestic electricity consumption will be consumed as ‘Heat’ (e.g. Economy 7 heating) and indeed some for ‘Transport’ (charging electric vehicles). This would be the same for Industrial & Commercial electricity consumption.

As the exact split for each type of energy consumed by purpose/sector is not known, they have been assigned to one sector based on where it is assumed the majority of consumption takes place. The table in Annex 5.2 details how each component of energy consumption has been assigned to one of the three purposes/sectors: Transport, Heat or Power.

**Chart 5.2 Total Final Energy Consumption by Purpose in Northern Ireland, 2017**



Source: DfE/NIE Networks<sup>145</sup>, Utility Regulator<sup>146</sup>, BEIS<sup>147</sup>

145 See <https://www.economy-ni.gov.uk/publications/northern-ireland-renewable-energy-data-tables>

146 See <https://www.uregni.gov.uk/market-information>

147 See <https://www.gov.uk/government/collections/total-final-energy-consumption-at-sub-national-level>



As the chart above shows, of all energy consumption in Northern Ireland in 2017 half (or about 23,700 GWh) was for the purposes of Heat (this includes consumption of kerosene for domestic and non-domestic heating plus all natural gas consumption and all coal consumption by domestic and non-domestic). Another third (or some 15,500 GWh) of all energy consumed was for Transport purposes (i.e. petrol and diesel consumption for road and rail) and the remaining 17% (or around 7,800 GWh) was accounted for by electricity consumption (i.e. Power).

## Coal

NISRA produce data on coal imports into Northern Ireland, which includes information on the amount of coal imported for use by power plants in the generation of electricity. The figures in Table 5.8 below are inclusive of all sources of coal shipped (bulk cargo and containerised) to Northern Ireland including cross channel and foreign imports.

**Table 5.8 Shipments of Coal and Other Solid Fuels<sup>148</sup> into Northern Ireland by type of use<sup>149</sup> (Thousand Tonnes), 2009 to 2019**

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>Domestic Use</b>	358	402	432	346	674	502					
<b>Industrial Use</b>	190	172	299	348	360	506	811	744	873	1,100	1,241
<b>Generation of Electricity</b>	508	778	588	1,021	1,047	937	836	926	609	561	460
<b>All Shipments</b>	1,055	1,351	1,320	1,716	2,081	1,946	1,647	1,670	1,483	1,661	1,700
<b>% of imports used for Electricity Generation</b>	48%	58%	45%	59%	50%	48%	51%	55%	41%	34%	27%

Source: Annual Coal Inquiry, NISRA (<https://www.nisra.gov.uk/publications/ni-annual-coal-inquiry>)

Around one quarter (27%) of coal imported into Northern Ireland in 2019 was for generation of electricity (as noted in Chapter 3, Kilroot power station near Carrickfergus is mainly coal fuelled). This proportion has fallen significantly in recent years: between 2009 and 2016 the proportion averaged over 50% but has fallen notably in each year since then.

Coal imports for the purpose of generating electricity in 2019 (at some 460 thousand tonnes) were at their lowest level since 1988<sup>150</sup> and were less than half the volume of coal imported for the same purpose only three years earlier (at 926 thousand tonnes in 2016).

Coal imported for domestic use typically accounted for between one quarter and one third of all imports between 2009 and 2014. Unfortunately, the split between domestic and industrial use is not available after 2014 so more recent trends in this respect cannot be determined.

One interesting trend in the data is the rise in coal imports for use by the domestic/industrial sector. In 2009-10 around 550-570 thousand tonnes of coal were imported for domestic or industrial use. However, in 2018 and 2019 around twice this volume was imported for domestic or industrial use. Indeed, this is the highest level of coal imports for these combined sectors since 1994<sup>151</sup>.

148 Covers all types of solid fuels including coal, anthracite, lignite, coke and manufactured smokeless fuels.

149 Separate totals for 'Domestic Use' and 'Industrial Use' are not available beyond 2014.

150 See the full data series available at <https://www.nisra.gov.uk/publications/ni-annual-coal-inquiry>

151 See the full data series available at <https://www.nisra.gov.uk/publications/ni-annual-coal-inquiry>



## Road Transport Energy Consumption

BEIS produce a range of data on road transport energy consumption at Northern Ireland level and also at District Council level. These detail the amount of petrol and diesel used and data are available split by vehicle type (buses, cars, HGV etc.) and by use (personal or freight)<sup>152</sup>.

As Table 5.9 below shows, between 2009 and 2017 the amount of diesel and petrol consumed in Northern Ireland due to road transport fell by 9% (a fall of over 118,000 tonnes of oil equivalent) to about 1.17 million tonnes of oil equivalent (and the lowest annual volume on record<sup>153</sup>). Of this fall around 94,000 tonnes was due to falls in personal consumption (i.e. buses, cars and motorcycles) and around 24,000 tonnes due to falls in freight transport consumption (i.e. HGV and LGV).

There has been a marked rise in consumption by diesel cars in Northern Ireland (by around 44,500 tonnes of oil equivalent or 11%) over the period 2009-2017 whilst consumption by petrol cars has fallen by over a quarter over the same period (a fall of around 142,000 tonnes of oil equivalent or 26%). In 2009 consumption by diesel cars was over 12% lower than the volume of petrol car consumption (with a difference of around 64,000 tonnes) but this difference then decreased year on year and, by 2012, consumption by diesel cars was higher than consumption by petrol cars. Indeed, in 2017, diesel car consumption was almost a third (32%) higher than petrol car consumption (some 122,000 tonnes of oil equivalent more diesel than petrol was consumed by cars in 2017).

Overall, in each year about three quarters of all diesel and petrol road transport consumption is due to personal use (i.e. consumption by buses, cars and motorcycles) while the remaining quarter is due to freight transport consumption (i.e. consumption by HGVs and LGVs).

## Comparisons with Great Britain

Table 5.9 also shows some key GB proportions for comparison and there are some significant differences. Except for buses, in GB a higher proportion of consumption takes place on motorways and a lower proportion of consumption is due to transport on minor roads. This is perhaps to be expected given that the proportion of the road network in GB that is motorway is more than twice that of Northern Ireland (around 0.94%<sup>154</sup> in 2019 compared to 0.45%<sup>155</sup> in 2019 in Northern Ireland).

Only about 8% of diesel and petrol car consumption in Northern Ireland in 2017 was due to the use of such vehicles on motorways, while in GB the proportions are 23% and 16% respectively. The use of diesel cars on A-roads is similar in GB and NI (43% and 47% respectively) but use of diesel cars on minor roads in NI accounts for close to half of consumption (45%) for these vehicles whereas in GB it is just over one third (34%). In the freight sector this tendency is also apparent, with some differences even more marked. In 2017, only 12% of fuel consumption by HGVs and 8% of fuel consumption by LGVs in NI was due to driving by such vehicles on motorways compared to 47% and 23% in GB respectively. This means the proportion of consumption by HGVs and LGVs on A roads and minor roads is higher in Northern Ireland. This is particularly the case for HGVs on minor roads (26% in NI) compared to just 6% in GB.

152 See pages 39-42 of the BEIS methodology booklet for more details on these datasets ([here](#)).

153 Data is available on a comparable basis from 2005 onwards.

154 Taken from Road Lengths in Great Britain: 2019 ([here](#)).

155 Taken from Table 1.1 of Northern Ireland Transport Statistics 2018-19 ([here](#)).





**Table 5.9 Northern Ireland Road Transport Energy Consumption (Tonnes of Oil Equivalent), 2009 to 2017**

	Personal												Freight							
	Buses				Diesel Cars				Petrol Cars & Motorcycles <sup>156</sup>				HGV				Diesel and Petrol LGV <sup>157</sup>			
	Motorways	A roads	Minor roads	Total	Motorways	A roads	Minor roads	Total	Motorways	A roads	Minor roads	Total	Motorways	A roads	Minor roads	Total	Motorways	A roads	Minor roads	Total
<b>2009</b>	2,072	7,056	2,869	11,997	35,143	206,439	218,449	460,031	40,563	247,150	236,576	524,289	20,655	119,930	67,448	208,033	5,505	39,916	34,356	79,777
<b>2010</b>	1,951	6,404	1,883	10,237	35,683	208,522	216,344	460,549	38,642	234,087	225,419	498,148	20,440	117,220	64,861	202,520	5,400	36,898	30,545	72,843
<b>2011</b>	1,954	6,324	4,039	12,317	36,989	215,757	214,977	467,723	37,975	229,490	215,788	483,253	20,871	118,675	52,377	191,922	5,724	39,321	30,835	75,880
<b>2012</b>	2,072	6,745	3,461	12,278	37,337	219,430	210,118	466,886	36,099	219,495	209,311	464,905	21,031	109,056	47,433	177,521	5,477	35,999	30,165	71,641
<b>2013</b>	2,110	8,075	3,586	13,772	36,963	214,276	209,979	461,219	35,918	215,316	207,816	459,049	20,779	109,950	50,285	181,013	5,406	36,655	31,837	73,898
<b>2014</b>	2,228	8,229	3,601	14,058	37,947	222,094	221,865	481,906	33,705	203,826	193,516	431,047	22,689	109,547	56,500	188,736	6,226	39,496	32,589	78,311
<b>2015</b>	2,173	8,357	3,588	14,118	40,205	229,295	217,901	487,401	33,527	198,309	182,925	414,761	22,591	114,732	48,397	185,720	5,591	41,804	24,900	72,295
<b>2016</b>	2,292	8,622	3,504	14,419	40,843	228,169	225,178	494,191	32,487	188,554	174,185	395,226	22,395	113,219	59,773	195,387	5,426	40,911	25,916	72,253
<b>2017</b>	2,298	9,548	3,562	15,408	41,009	232,732	230,750	504,491	31,291	184,500	166,473	382,264	22,501	116,559	51,659	190,719	5,325	42,445	25,401	73,170
<b>NI % 2017</b>	15%	59%	25%	100%	8%	47%	45%	100%	8%	48%	44%	100%	12%	62%	26%	100%	8%	58%	34%	100%
<b>GB % 2017</b>	7%	46%	47%	100%	23%	43%	34%	100%	16%	47%	38%	100%	47%	47%	6%	100%	23%	44%	33%	100%

	Total			% of Total		
	Personal	Freight	Total	Personal	Freight	Total
<b>2009</b>	996,318	287,810	1,284,128	78%	22%	100%
<b>2010</b>	968,934	275,363	1,244,298	78%	22%	100%
<b>2011</b>	963,294	267,803	1,231,097	78%	22%	100%
<b>2012</b>	944,070	249,162	1,193,231	79%	21%	100%
<b>2013</b>	934,040	254,911	1,188,951	79%	21%	100%
<b>2014</b>	927,011	267,047	1,194,058	78%	22%	100%
<b>2015</b>	916,280	258,015	1,174,295	78%	22%	100%
<b>2016</b>	903,836	267,640	1,171,476	77%	23%	100%
<b>2017</b>	902,163	263,889	1,166,053	77%	23%	100%
<b>GB 2017</b>	23,591,267	12,865,536	36,456,803	65%	35%	100%

Source: BEIS (<https://www.gov.uk/government/statistical-data-sets/road-transport-energy-consumption-at-regional-and-local-authority-level>)

156 Petrol cars account for over 99% of consumption in this category.

157 Diesel LGV accounts for almost 99% of consumption in this category. LGVs can be used for a number of tasks (carrying freight, transport or for private use) so not all LGV traffic is related to freight transport.



## Sub-National Road Transport Energy Consumption

BEIS also publish road transport consumption data at a District Council level for the new 11 council areas and data for the most recent year (2017) is shown in Table 5.10 below.

The council area with the highest total consumption (and also for both personal and freight consumption) is Armagh City, Banbridge & Craigavon with consumption at about 160,000 tonnes or 14% of the total. The three biggest consuming District Councils (Armagh City, Banbridge & Craigavon, Mid Ulster and Newry, Mourne & Down) together accounted for over one third (36%) of total Northern Ireland petrol and diesel consumption for road transport use in 2017.

### Buses

Consumption of diesel<sup>158</sup> by buses was highest in Armagh City, Banbridge & Craigavon council area with slightly lower shares accounted for in three other council areas: Belfast, Newry, Mourne & Down and Antrim & Newtownabbey. Together, these four council areas accounted for over half (54%) of diesel consumption by buses in Northern Ireland in 2017, with Armagh City, Banbridge & Craigavon on its own accounting for almost 15% of such consumption.

### Cars

Armagh City, Banbridge & Craigavon District Council was the top consuming council in terms of petrol and diesel use by cars, accounting for about 13% of total Northern Ireland consumption in 2017. In addition, it is other council areas outside the Greater Belfast area that then make up the other highest consuming council areas, namely Newry, Mourne & Down (12%), Mid Ulster (10%), Fermanagh & Omagh (10%) and Causeway Coast & Glens (10%). Together these five council areas account for over half (56%) of all petrol and diesel use by cars.

### HGV

In terms of diesel use by Heavy Goods Vehicles (HGVs), again Armagh City, Banbridge & Craigavon District Council area had the largest share (at 14% or around 27,600 tonnes of oil equivalent), followed by Mid Ulster (13% or just over 25,000 tonnes of oil equivalent), with these two councils together accounting for over one quarter (28%) of HGV diesel use in Northern Ireland in 2017.

### Consumption by Use

Overall, some three quarters (77%) of all petrol and diesel fuel consumed for road transport purposes in Northern Ireland in 2017 was for personal use with about one quarter (23%) used by freight. At a council level there were similar splits between personal use and freight use across most council areas. However, some notable differences include Ards & North Down and Belfast council areas with proportions of personal use of 85% and 82% respectively, whilst in Mid Ulster council area the percentage of petrol and diesel used for personal use was lower than average, at around 73%. In most council areas though, the personal/freight consumption split was very close to the Northern Ireland average.

158 Petrol cars, motorcycles and petrol LGV are petrol consuming vehicles, while buses, diesel cars, HGV and diesel LGV are diesel consuming vehicles.



**Table 5.10 Road Transport Energy Consumption at District Council level (Tonnes of Oil Equivalent), 2017**

District Council Area	Personal				Freight			Personal	Freight	Total
	Buses	Diesel Cars	Petrol Cars	Motor-cycles	HGV	Diesel LGV	Petrol LGV			
<b>Antrim and Newtownabbey</b>	1,918	42,174	31,723	282	19,829	5,504	61	76,096	25,394	101,491
<b>Ards and North Down</b>	942	27,677	21,309	181	5,774	3,337	41	50,108	9,152	59,260
<b>Armagh City, Banbridge and Craigavon</b>	2,292	68,020	51,131	423	27,609	10,139	118	121,865	37,866	159,731
<b>Belfast</b>	2,102	43,387	34,442	432	13,842	4,218	56	80,363	18,117	98,480
<b>Causeway Coast and Glens</b>	1,011	50,204	37,062	243	16,470	6,499	75	88,521	23,043	111,564
<b>Derry City and Strabane</b>	872	34,632	25,954	222	12,065	4,073	49	61,680	16,188	77,868
<b>Fermanagh and Omagh</b>	1,116	51,117	37,565	251	18,117	6,423	76	90,048	24,615	114,664
<b>Lisburn and Castlereagh</b>	1,255	39,786	30,199	270	17,122	5,536	65	71,510	22,723	94,234
<b>Mid and East Antrim</b>	579	35,346	26,543	210	14,385	6,606	76	62,679	21,067	83,746
<b>Mid Ulster</b>	1,322	52,612	38,667	251	25,064	8,765	98	92,852	33,926	126,778
<b>Newry, Mourne and Down</b>	1,998	59,538	44,601	304	20,442	11,227	130	106,441	31,798	138,239
<b>Northern Ireland</b>	15,408	504,491	379,196	3,069	190,719	72,327	844	902,163	263,889	1,166,053

Source: BEIS (<https://www.gov.uk/government/statistical-data-sets/road-transport-energy-consumption-at-regional-and-local-authority-level>)

[Note that LGVs can be used for a number of tasks such as carrying freight, providing transport, carrying equipment or for private use, meaning that not all LGV traffic is related to freight transportation.]



### Annex 5.1 Map of Transmission Gas Pipelines



Source: GMO (<http://gmo-ni.com/assets/documents/Transparency/Ni-Gas-Capacity-Statement/Northern-Ireland-Gas-Capacity-Statement-2019-20-to-2028-29.pdf>)



## Annex 5.2 Assignment of Energy Consumption to Power, Heat or Transport Purpose/Sector

	2017 Consumption (GWh)	Power, Heat or Transport
<b>Coal</b>		
Industrial & Commercial	1,286	Heat
Domestic	458	Heat
Rail	0.1	Transport
<b>Total Coal</b>	<b>1,744</b>	<b>&gt;99% Heat</b>
<b>Manufactured fuels</b>		
Industrial	25	Heat
Domestic	292	Heat
<b>Total Manufactured Fuels</b>	<b>317</b>	<b>100% Heat</b>
<b>Petroleum products</b>		
Industrial & Commercial	6,207	Heat
Domestic	7,335	Heat
Road transport	13,561	Transport
Rail	146	Transport
Public Sector	66	Heat
Agriculture	1,803	Transport
<b>Total Petroleum Products</b>	<b>29,118</b>	<b>47% Heat, 53% Transport</b>
<b>Gas</b>		
Industrial & Commercial	3,299	Heat
Domestic	2,649	Heat
<b>Total Gas</b>	<b>5,948</b>	<b>100 % Heat</b>
<b>Electricity</b>		
Industrial & Commercial	4,947	Power
Domestic	2,859	Power
<b>Total Electricity</b>	<b>7,806</b>	<b>100% Power</b>
<b>Bioenergy &amp; wastes</b>		
Total	2,106	100% Heat
<b>ALL FUELS</b>		
<b>TOTAL</b>	<b>47,039</b>	<b>50% HEAT, 33% TRANSPORT, 17% POWER</b>

Chapter 6

**Energy and the Consumer**



## Chapter 6: Energy and the Consumer

### Summary of Key Points

#### Household Expenditure on Energy

- Northern Ireland had the highest weekly household expenditure on energy of any UK region; it was some 14.7% higher in the period 2016-2019 than the UK average. However, the gap has narrowed considerably in recent years (from 36% in the period 2012-2014).
- Weekly household expenditure on electricity was highest in Northern Ireland in the period 2016-2019, 7% higher than the UK average and 20% above the UK region with the lowest expenditure.
- Weekly expenditure on gas in Northern Ireland was around one third of the UK average expenditure but households in Northern Ireland spent over seven times as much per week on other fuels (e.g. home heating oil) compared to the UK as a whole in the period 2016-2019.
- In 2019, for domestic electricity customers, Northern Ireland had the lowest unit cost of all UK regions with these being some 12% below the UK average.
- Domestic electricity prices for Northern Ireland in January-June 2019 were 9% below the EU 15 average (median) figure and lower than 11 of the 15 EU countries.
- In the period January-June 2019, domestic gas prices in Northern Ireland were some 22% lower than the EU15 median price and only two EU15 countries (Luxembourg and the UK) had lower tariffs.

#### Non-Domestic Expenditure on Energy

- In the period January-June 2019, Northern Ireland non-domestic electricity prices were around 2% higher than the UK in the very small category and 4% lower in the small category; they were the same in the small/medium category, but 7% lower in the medium category and around 17% lower than the UK in the large/very large category.
- Northern Ireland non-domestic electricity prices were above the EU median price in all categories. In the very small category NI prices were slightly above (3%) the EU median. However, Northern Ireland prices were substantially above the EU median price in the small category (15% higher), small/medium category (41% higher), the medium category (37% higher) and in the large/very large category (40% higher) over the period January-June 2019.

#### Road Fuel Prices

- Diesel and petrol prices in Northern Ireland were the lowest of any UK region in April 2020 and both diesel and petrol prices in Northern Ireland have remained below the UK average since the start of 2016.



## Introduction

This chapter looks at energy from the consumer perspective including household expenditure on energy, electricity prices and road fuel prices. Comparisons with other regions are provided where possible. It is important to note that consumer expenditure on goods and services is related to, but different from, the prices of consumer goods and services. For example, with a fixed price for a good/service, expenditure will differ between consumers depending on how much of the good/service they purchase. Whilst pricing of a good/service, for example, could be constant on a National basis, regional variation in demand for goods/services will be one of the main factors underpinning regional variations in expenditure. This distinction between prices and expenditure becomes more complicated when there are regional differences in both prices for goods and services and regional differences in consumer demand. This complexity applies to statistics and information on energy consumption, prices and expenditure.

## Household Expenditure on Energy

The Living Costs and Food Survey published by the Office for National Statistics provides data on the amount of weekly household expenditure on electricity, gas and other fuels. This is presented in Table 6.1 below.

**Table 6.1 Weekly Household Expenditure by UK Countries and Regions (£), 2016-2019<sup>159</sup>**

Region	Electricity	Gas	Other fuels	Total weekly expenditure on energy	Total weekly expenditure (on all commodities and services)	Expenditure on energy as a % of total weekly expenditure
North East	10.30	10.70	0.90	21.90	499.70	4.4%
North West	11.70	11.40	0.40	23.50	521.10	4.5%
Yorkshire & the Humber	10.50	10.00	0.60	21.20	530.20	4.0%
East Midlands	11.50	10.00	1.40	22.90	553.30	4.1%
West Midlands	11.20	10.70	0.90	22.90	500.80	4.6%
East	11.60	9.30	2.10	23.10	576.70	4.0%
London	11.50	11.10	0.10	22.70	686.00	3.3%
South East	11.70	10.90	1.20	23.80	682.20	3.5%
South West	12.30	8.10	2.70	23.00	595.50	3.9%
England	11.50	10.30	1.10	22.90	585.60	3.9%
Wales	11.80	9.90	1.60	23.40	497.70	4.7%
Scotland	12.40	10.10	1.80	24.40	508.20	4.8%
<b>Northern Ireland</b>	<b>12.40</b>	<b>3.70</b>	<b>10.40</b>	<b>26.50</b>	<b>487.80</b>	<b>5.4%</b>
United Kingdom	11.60	10.10	1.40	23.10	571.80	4.0%

Source: Office for National Statistics (ONS) Living Costs and Food Survey ([www.ons.gov.uk/people-populationandcommunity/personalandhouseholdfinances/expenditure/datasets/familyspendingworkbook3expenditurebyregion](http://www.ons.gov.uk/people-populationandcommunity/personalandhouseholdfinances/expenditure/datasets/familyspendingworkbook3expenditurebyregion))

<sup>159</sup> Figures cover the period financial year ending 2017 to financial year ending 2019. Figures may not sum due to rounding.





The table above highlights a number of differences in expenditure on energy in Northern Ireland compared to other UK regions. Firstly, Northern Ireland had the highest weekly expenditure on energy of any UK region. Weekly household expenditure on energy in Northern Ireland was some 14.7% higher (at £26.50 per week in the period 2016-2019) compared to the UK average of £23.10. This difference is likely to be driven by a combination of factors including: energy mix and the dependence on home heating oil in Northern Ireland; geographic and weather conditions with Northern Ireland being one of the windier parts of the UK; energy pricing; and lower household income levels. In particular, it is worth noting that the total weekly expenditure in Northern Ireland on all commodities and services is the lowest regionally, reflecting lower household incomes and earnings. On that basis alone, household expenditure on energy (an essential) as a proportion of all weekly expenditure in Northern Ireland, will be pushed higher.

Weekly household expenditure on electricity was highest in Northern Ireland (at £12.40), 7% higher than the UK average and 20% more than the UK region with the lowest expenditure on electricity (North East). Compared to 2014-17, as shown in the previous Energy in Northern Ireland report<sup>160</sup>, most regions were spending less on energy in the period 2016-19 (only two regions in England, East and the South West, showed a rise). One of the largest proportional falls was seen in Northern Ireland where weekly household expenditure on energy fell by around £1.30 or 5%. Whilst weekly expenditure on energy in Northern Ireland was 5.4% of total weekly expenditure in the period 2016-2019 and the highest proportion of any region, this proportion has fallen considerably since 2012-2015 where it stood at 7.0%<sup>161</sup>. For comparison, the UK proportion was 4.9% in 2012-2015 and, as Table 6.1 shows, this has fallen to 4.0% for 2016-2019.

Expenditure on Gas and 'Other fuels' in Northern Ireland is very different from any other region of the UK. For example, in 2016-2019, weekly spending on gas in NI (£3.70) was around one third (36.6%) of the UK average weekly expenditure (£10.10) while households in Northern Ireland spent over 7 times as much per week on other fuels (£10.40) compared to the UK as a whole (£1.40).

The main reasons for such differences are the availability of mains gas and, consequently, the propensity for oil use for home heating purposes. Unlike Northern Ireland, mains gas is widely available throughout GB and this means it is the main type of central heating at the UK level. The Department for Business, Energy & Industrial Strategy (BEIS) undertake a quarterly survey (Public Attitudes Tracker<sup>162</sup>) which shows that some 87% of UK households surveyed in December 2019 reported that gas central heating was the main way they heated their property during winter with only 3% reporting oil central heating as the main way. The BEIS survey also provides some regional breakdowns and, for Northern Ireland, some 46% of households surveyed in December 2019 reported that gas central heating was the main way they heated their property during winter with 53% reporting oil central heating as the main way. These results are based on a fairly small number of NI households on the survey (around 125) but very much highlight the differences in central heating sources between regions.

160 See page 91 of <https://www.economy-ni.gov.uk/publications/energy-northern-ireland-2018>

161 Taken from data available at <https://www.ons.gov.uk>

162 Data from Wave 32 undertaken in December 2019 available at: <https://www.gov.uk/government/statistics/beis-public-attitudes-tracker-wave-32>



Information from the Northern Ireland Housing Executive's House Conditions Survey<sup>163</sup> (which covered some 3,000 NI dwellings) showed that, for 2016, around 24% of dwellings with central heating in Northern Ireland used gas as their primary central heating fuel and some 68% of households relied on oil for domestic central heating purposes. It is worth noting that the proportion of dwellings in Northern Ireland with gas central heating was 4% in 2001 and 17% in 2011, so the proportion has been rising. The Belfast Metropolitan Area (BMA) accounted for almost half of all dwellings that use gas for central heating in Northern Ireland. Also, over three-fifths (around 89,500 or 62%) of all dwellings in the BMA had gas central heating. The vast majority (98%) of all gas-heated dwellings in 2016 were located in urban areas reflecting the extent of the gas network then.

Household expenditure data for the Republic of Ireland shows a spending profile on energy that is more closely aligned with that in Northern Ireland although gas central heating is more prevalent in the Republic of Ireland than in Northern Ireland (around 35% of households in the Republic of Ireland in 2016 had gas<sup>164</sup> central heating and 41% used oil fired central heating). Similar to NI, a much higher than average proportion of households in the main urban areas in the Republic of Ireland are gas-heated dwellings: 52% of households in town areas have gas central heating compared to only 3% in rural areas. Oil use in rural areas in the Republic of Ireland, at 66%, is similar to the overall proportion for Northern Ireland.

**Table 6.2 Comparison of Energy Expenditure and Central Heating Type by Country – NI, UK, RoI**

Region	Proportion of weekly energy expenditure that is spent on <sup>165</sup> :			Proportion of households with central heating that is <sup>166</sup> :		
	Electricity	Gas	Other fuels	Oil	Gas	Other
<b>Northern Ireland</b>	<b>47%</b>	<b>14%</b>	<b>39%</b>	<b>68%</b>	<b>24%</b>	<b>8%</b>
UK	50%	44%	6%	4%	85%	11%
Republic of Ireland	47%	19%	34%	41%	35%	24%

Sources: ONS<sup>167</sup>, CSO<sup>168 169</sup>, NIHE<sup>170</sup>, BEIS<sup>171</sup>

In terms of weekly expenditure, Table 6.2 above shows that only 14% of weekly energy expenditure in Northern Ireland was on gas, compared to some 44% for the UK as a whole. Some two-fifths (39%) of all weekly energy expenditure in Northern Ireland was on 'other fuels' such as home heating oil, coal etc., compared to only 6% for the UK as a whole. In the Republic of Ireland, one third (34%) of all weekly energy expenditure was on 'other fuels', lower than the equivalent proportion for Northern Ireland but almost six times that for the UK as a whole. Similarly, expenditure on gas accounted for 19% of all weekly energy spend in the Republic of Ireland, higher than the proportion for Northern Ireland (14%) but less than half the proportion for the UK.

163 See Table 7.4 of Main Data Tables at: <https://www.nihe.gov.uk/Working-With-Us/Research/House-Condition-Survey>

164 This includes natural gas and LPG gas.

165 The most recent data on average weekly household expenditure for the Republic of Ireland refers to 2015-16. The most recent data for NI and UK refers to the period 2016-2019.

166 This data refers to 2016 for all countries.

167 NI and UK weekly energy expenditure data is from the Office for National Statistics' Living Costs and Food Survey available at [www.ons.gov.uk](http://www.ons.gov.uk)

168 Republic of Ireland weekly energy expenditure data is from Central Statistics Office's Household Budget Survey available at [www.statbank.ie](http://www.statbank.ie)

169 Proportion of households with central heating data for the Republic of Ireland is taken from the 2016 Census, available on the Central Statistics Office's website - see report [www.cso.ie/en/census/](http://www.cso.ie/en/census/) and data tables [www.cso.ie](http://www.cso.ie).

170 Proportion of households with central heating data for Northern Ireland is taken from the Northern Ireland Housing Executive's House Condition Survey - see Table 7.4 of Main Data Tables at: [www.nihe.gov.uk/Working-With-Us/Research/House-Condition-Survey](http://www.nihe.gov.uk/Working-With-Us/Research/House-Condition-Survey)

171 Proportion of households with central heating data for the UK is taken from the Department for Business, Energy & Industrial Strategy's Public Attitudes Tracker Survey Wave 18 undertaken in June 2016 – data is available from summary tables spreadsheet [here](#)



## Electricity Prices – Domestic Customers

The electricity markets across the UK and the Devolved Regions within the UK are complex and fluid and arriving at comparable price and billing estimates represents a challenging exercise. BEIS produce a standardised measure of regional electricity bills based on the average unit costs of suppliers across a range of payment methods. Importantly, the estimated bill is based on a standardised domestic consumption figure of 3,800kWh/year. We know that average domestic electricity consumption within Northern Ireland varies by District Council area from 3,000 kWh in Belfast to 4,200 kWh in Mid Ulster (Table 3.1 Chapter 3) which indicates the extent to which an average consumption figure of 3,800 kWh may differ from actual consumption at different geographies. On that basis, whilst the regional unit cost of electricity may provide an indication of price differentials across the UK, the estimated average bill, based on a standardised domestic consumption figure of 3,800 kWh, is unlikely to entirely reflect regional variation in electricity consumption.

The table below shows that in 2019, for domestic customers, Northern Ireland had the lowest average unit cost and, consequently (based on calculating annual bills on an annual consumption figure of 3,800kWh/year), the lowest average annual electricity bill of all 15 UK regions for Credit, and Direct Debit customers, the second lowest for Prepayment customers and the lowest overall unit costs of any UK region. This is a significant change from previous years: in 2014, for example, Northern Ireland had the highest unit costs for Credit and Direct Debit customers, the second highest unit costs for Prepayment customers and the highest overall unit costs of any UK region<sup>172</sup>.

**Table 6.3: Average Annual Domestic Electricity Costs for UK Regions based on Consumption of 3,800kWh/year: Unit cost (Pence per kWh), Bill (£) and Rank, 2019**

Payment type	Credit			Direct debit			Prepayment			Overall		
	Region	Unit cost	Bill	Rank	Unit cost	Bill	Rank	Unit cost	Bill	Rank	Unit cost	Bill
East Midlands	19.95	758	13	18.23	693	14	17.09	649	12	18.39	699	14
Eastern	20.59	783	8	18.67	709	6	17.46	664	8	18.91	719	6
London	19.88	756	14	18.45	701	12	16.76	637	15	18.52	704	12
Merseyside & North Wales	21.44	815	1	19.34	735	3	17.88	679	4	19.52	742	3
North East	20.73	788	6	18.58	706	8	17.36	660	9	18.71	711	9
North Scotland	21.21	806	3	19.68	748	1	18.71	711	1	19.82	753	1
North West	20.45	777	11	18.50	703	11	17.23	655	10	18.60	707	11
<b>Northern Ireland</b>	<b>17.14</b>	<b>651</b>	<b>15</b>	<b>16.06</b>	<b>610</b>	<b>15</b>	<b>16.78</b>	<b>637</b>	<b>14</b>	<b>16.50</b>	<b>627</b>	<b>15</b>
South East	20.85	792	5	18.97	721	5	17.73	674	5	19.17	728	4
South Scotland	20.73	788	7	18.64	708	7	17.16	652	11	18.69	710	10
South Wales	20.57	782	9	19.05	724	4	18.23	693	3	19.17	728	5
South West	21.24	807	2	19.45	739	2	18.47	702	2	19.62	746	2
Southern	20.45	777	12	18.57	706	10	17.64	670	6	18.79	714	8
West Midlands	20.88	794	4	18.57	706	9	17.57	668	7	18.82	715	7
Yorkshire	20.52	780	10	18.29	695	13	17.09	649	13	18.48	702	13
UK	20.41	776	-	18.60	707	-	17.38	660	-	18.75	713	-

Source: BEIS ([www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics](http://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics))<sup>173</sup>

172 See data at [www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics](http://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics)

173 See Annex 6.1 for notes to this table.



Overall (i.e. taking into account all three payment methods) Northern Ireland had the lowest unit cost and annual bill, with these being some 12% below the UK average and some 17% below the region with the highest unit cost and annual bill (i.e. North Scotland). The overall annual average bill, based on consumption of 3,800kWh/year, for domestic customers in Northern Ireland is around £126 lower than in the most expensive UK region and some £85 below the UK average.

In the past, electricity prices in Northern Ireland were consistently higher than in GB. Indeed, Northern Ireland had the highest overall unit electricity cost of all UK regions each year from 2008 to 2014 except for 2013 (second highest unit cost). In 2015 NI had the third highest unit cost. This was considered to be due to various factors including higher energy transport costs, small size of the market that reduces chances of economies of scale and difference in fuel mix<sup>174</sup>. However in 2016, and for the first time, overall annual unit costs in Northern Ireland fell below the UK average<sup>175</sup> and indeed were the lowest of any UK region. This trend has continued each year to 2019 where, as noted above, unit costs and average annual bills for Northern Ireland domestic customers were significantly below UK average rates.

Table 6.1 earlier showed that Northern Ireland had the highest weekly expenditure on electricity of all UK regions over the period 2016-19, while Table 6.3 showed that unit costs for electricity in 2019 for domestic customers in Northern Ireland were the lowest of all UK regions. These data, whilst from different sources, appear contradictory. If average annual domestic electricity consumption is higher in Northern Ireland than in other regions then this could explain why reported expenditure on electricity is higher even though the unit cost is lower. Whilst there may be issues with direct comparisons of average annual domestic electricity consumption between GB and NI the data show that average consumption in GB in 2016 and 2017 was over 3,700 kWh which was slightly higher than the consumption per meter value as for Northern Ireland in 2016-17 as shown in Table 3.1 earlier (i.e. 3,600 kWh).

As discussed above, whilst the regional unit cost of electricity may provide an indication of price differentials across the UK, the estimated average regional bills produced by BEIS, based on a standardised domestic consumption figure of 3,800 kWh, is unlikely to entirely reflect regional variation in electricity consumption and may instead be driven more by regional differences in unit cost. It is also worth bearing in mind that the Living Costs and Food Survey estimates of regional household weekly expenditure is from a survey sample of households and not a census of the whole population and therefore estimates are subject to sampling variability.

Attempts at understanding and reconciling the messages from these two sources of data is ongoing although the challenges are considerable. A recent exploration<sup>176</sup> of the underpinning issues proved useful in rehearsing and testing the various factors that potentially impact however, ultimately, it did not fully account for the differences between the two sources.

Both sources of data on expenditure and price respectively are inherently different metrics and, ultimately, what may be of more value when considering, is not the inherent differences between them, but rather the trends in each over time.

174 See page 17 of <https://www.uregni.gov.uk/sites/uregni/files/media-files/February%202015.pdf>

175 As per information on annual domestic electricity bills from BEIS (see [www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics](http://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics)).

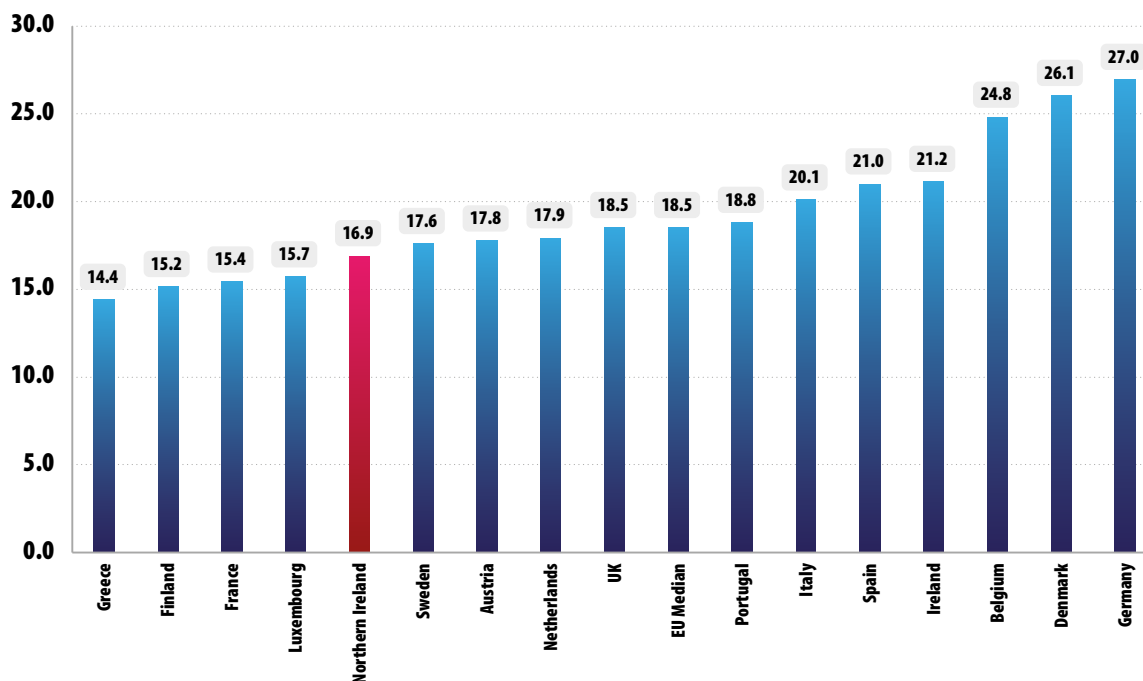
176 See <https://www.mcceconomics.co.uk/publications>



## Comparison with EU

Electricity prices for domestic customers in Northern Ireland can also be compared with other EU countries. The chart below compares the Northern Ireland price with prices for other EU countries in 2019.

**Chart 6.1 Domestic Electricity Prices in the EU for Medium<sup>177</sup> Consumers (p/kWh), January-June 2019**



Source: BEIS<sup>178</sup> and Utility Regulator for NI<sup>179</sup>

For domestic customers, the Northern Ireland calculated price for the period January to June 2019 was 16.9 pence per kilowatt hour (p/kWh) including taxes<sup>180</sup> which was 9% below both the UK figure and EU15 average (median) figure of 18.5 p/kWh, 20% below the Republic of Ireland price and lower than 11 of the 15 EU countries. This shows a significant change since 2015 when the Northern Ireland tariff was 16% above both the UK and EU median figure and higher than 13 of the 15 EU countries<sup>181</sup>.

## Electricity Prices – Non-Domestic Customers

The Utility Regulator regularly publishes data on electricity prices for the non-domestic sector<sup>182</sup>. These figures are presented in the charts and tables below.

At present, all business users who consume more than 50 MWh per year can obtain an individual quotation from active electricity suppliers in the Northern Ireland market. Many of these customers, especially the larger customers, follow a tender exercise and subsequently agree individual contracts with their supplier, often with unique terms and conditions (including price). Due to the bilateral nature of such agreements, non-domestic electricity prices for Northern Ireland are not published by suppliers and such information has historically not been available from any other source.

177 Medium consumers are those consuming 2,500 - 4,999 kWh per annum. Prices include all taxes.

178 See Table 5.6.2: Medium consumers (2,500-4,999 kWh) including taxes at [www.gov.uk](http://www.gov.uk)

179 See page 18 of Quarterly Transparency Report at [www.uregni.gov.uk](http://www.uregni.gov.uk)

180 See page 17 at [www.uregni.gov.uk](http://www.uregni.gov.uk) on how the NI price is calculated.

181 See pages 92-93 of [www.economy-ni.gov.uk/publications/energy-northern-ireland-2016](http://www.economy-ni.gov.uk/publications/energy-northern-ireland-2016)

182 See Transparency Reports at [www.uregni.gov.uk/transparency-reports](http://www.uregni.gov.uk/transparency-reports)



Due to this data gap, the Utility Regulator developed average electricity non-domestic prices per consumption band and since 2013 has reported these for Northern Ireland. The Utility Regulator follow BEIS's format and methodology<sup>183</sup> which means Northern Ireland prices can then be compared to those collected and published by BEIS and Eurostat for the EU Member States.

### Non-Domestic Market Breakdown

The information from the Utility Regulator on non-domestic electricity prices is broken down into different user groups depending on their annual consumption. As Table 6.4 shows, the largest proportion of non-domestic customers in Northern Ireland is in the smallest consumption size band. These 'very small' consumers accounted for two thirds (67.7%) of total Industrial & Commercial (I&C) customers at the end of Quarter 2 2019 but only 6.5% of consumption.

**Table 6.4: Northern Ireland Non-domestic Market Breakdown, End of Q2 2019**

Size of consumer	Annual Consumption (MWh)	% of I&C customers	% of I&C consumption
<b>Very small</b>	< 20	67.7%	6.5%
<b>Small</b>	20 - 499	30.8%	33.8%
<b>Small/Medium</b>	500 - 1,999	1.1%	16.7%
<b>Medium</b>	2,000 - 19,999	0.4%	27.7%
<b>Large/Very Large</b>	> 20,000	0.03%	15.3%

Source: Utility Regulator ([www.uregni.gov.uk/QTR\\_Q2\\_2019](http://www.uregni.gov.uk/QTR_Q2_2019))

The majority of consumption is accounted for by a much smaller number of users, namely the 'small/medium', 'medium' and 'large/very large' groups. Together these three groups accounted for only 1.5% of all I&C customers but they were responsible for almost 60% of non-domestic electricity consumption in Q2 2019. These findings are in line with the data presented in Table 3.2 earlier – i.e. that a small number of large industrial and commercial users consume a disproportionate amount of electricity.

It should be noted that few, if any, of our largest energy users would be considered 'energy intensive' by international, EU or UK standards. Most businesses therefore consume relatively little electricity, but a very small number are heavily reliant on it.<sup>184</sup>

### Non-Domestic Electricity Prices

The charts below show industrial and commercial (or non-domestic) electricity prices in the 15 EU countries and in Northern Ireland by consumption size band for January-June 2019. The charts show non-domestic average unit prices, including Climate Change Levy (CCL)<sup>185</sup> but excluding VAT. As VAT is a refundable expense for many businesses, excluding VAT means that the values are more representative of the actual energy costs for businesses. Smaller electricity users typically have to sign up to available tariffs from providers (similar to domestic customers), whereas larger users have more scope to negotiate tailored deals, often with unique terms and conditions (including price), based on their much higher consumption. Indeed, as the charts show, the price per kilowatt hour falls as consumption increases for all countries shown.

183 For further details on the methodology used see page 20 of [www.uregni.gov.uk/sites/uregni/files/media-files/November%202015.pdf](http://www.uregni.gov.uk/sites/uregni/files/media-files/November%202015.pdf)

184 Source: The Cost of Doing Business in Northern Ireland ([www.economy-ni.gov.uk/publications/cost-doing-business](http://www.economy-ni.gov.uk/publications/cost-doing-business))

185 The Climate Change Levy (CCL), is a tax on electricity, gas and solid fuels delivered to non-domestic consumers. The rate changes every year. From 1 April 2019, it was 0.847p/kWh for electricity.



## Comparisons with Other Regions

### UK

Chart 6.2 shows that Northern Ireland prices in the period January-June 2019 were equal to or below the UK in all but one category (the very small sector). Prices in Northern Ireland were 2% higher in the very small category, 4% lower in the small category and the same in the small/medium category. Northern Ireland prices were significantly lower than the UK for the largest industrial and commercial electricity consumers: in the medium category they were around 7% lower and were 17% lower in the large/very large category.

### EU

Northern Ireland prices in the period January-June 2019 were above the EU median price in all categories. Northern Ireland prices were substantially above the EU median price for the largest consuming sectors: in the small/medium category (41% higher), the medium category (37% higher) and in the large/very large category of non-domestic electricity consumers (40% higher). The price differential between NI and the EU average has worsened over the last two years. The previous Energy in Northern Ireland report<sup>186</sup> showed that, for 2017, NI prices were below the EU average for the very small category and the percentage price differences for all other categories was lower.

### Republic of Ireland

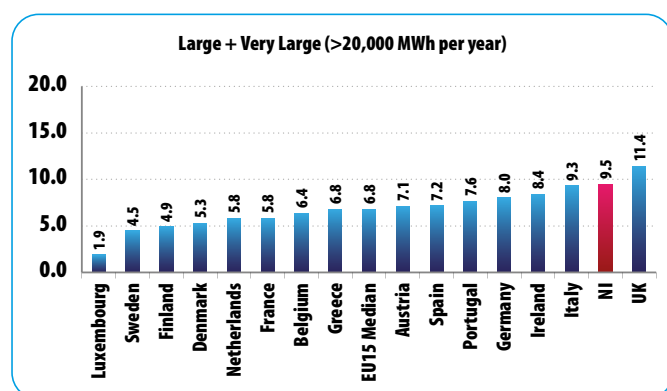
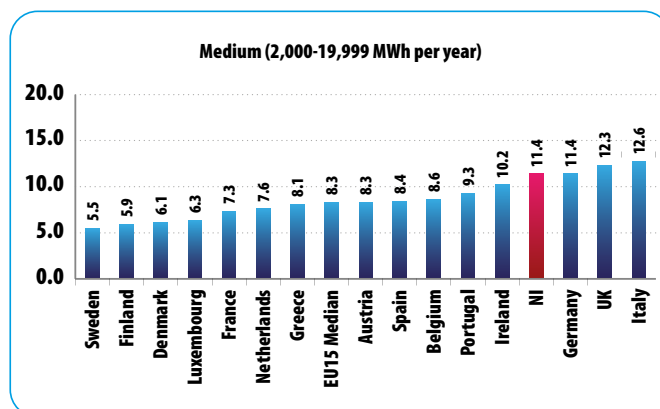
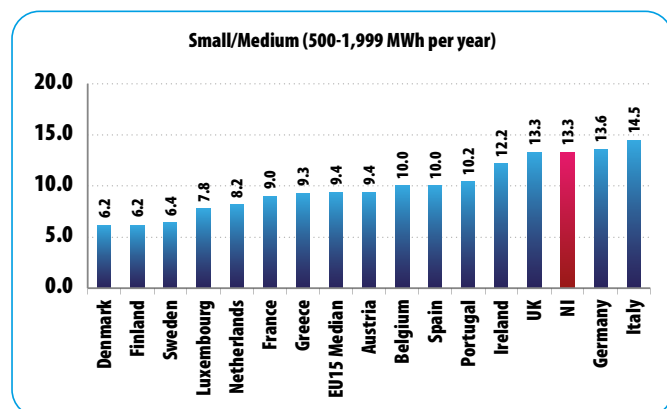
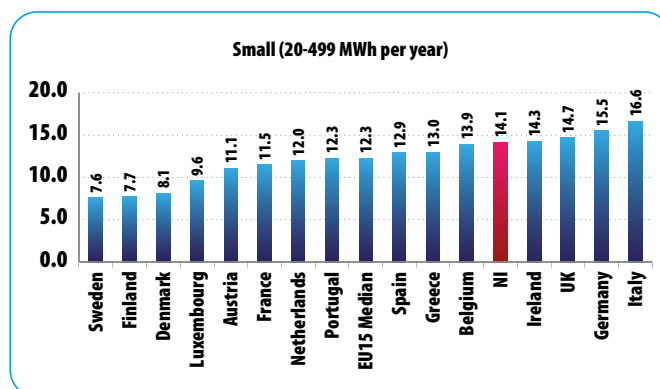
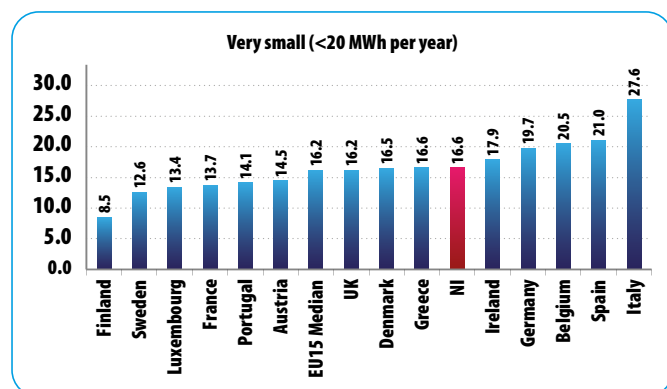
Northern Ireland industrial and commercial prices were lower in the period January-June 2019 for the smaller groups (very small and small) and higher in the larger categories compared to Republic of Ireland prices. NI prices were lower (-7%) than Republic of Ireland prices in the very small category (Table 6.4 showed that two thirds of I&C customers are in this category) and were 1% lower in the small category (which accounts for another 31% of Northern Ireland I&C customers). However, Northern Ireland industrial and commercial prices were above Republic of Ireland prices in the small/medium (+9%), medium (+12%) and large/very large (+13%) groups. Again, similar to that noted above in relation to the EU average, the comparative percentage price differences between NI and the Republic of Ireland has worsened in all categories since 2017<sup>187</sup>.

186 See page 99 of <https://www.economy-ni.gov.uk/publications/energy-northern-ireland-2018>

187 See page 98 of <https://www.economy-ni.gov.uk/publications/energy-northern-ireland-2018>



Chart 6.2 Non-Domestic Electricity Prices by Consumption Size Band (p/kWh)<sup>188</sup>, January-June 2019



**Price Differentials**

	NI - UK	NI - EU Median
<b>Very small</b>	+2%	+3%
<b>Small</b>	-4%	+15%
<b>Small / Medium</b>	0	+41%
<b>Medium</b>	-7%	+37%
<b>Large + Very Large</b>	-17%	+40%

Source: Utility Regulator (<https://www.uregni.gov.uk/publications/transparency-reports-2020>)

188 All prices are pence per kilowatt hour (p/kWh). Prices exclude VAT but include other taxes

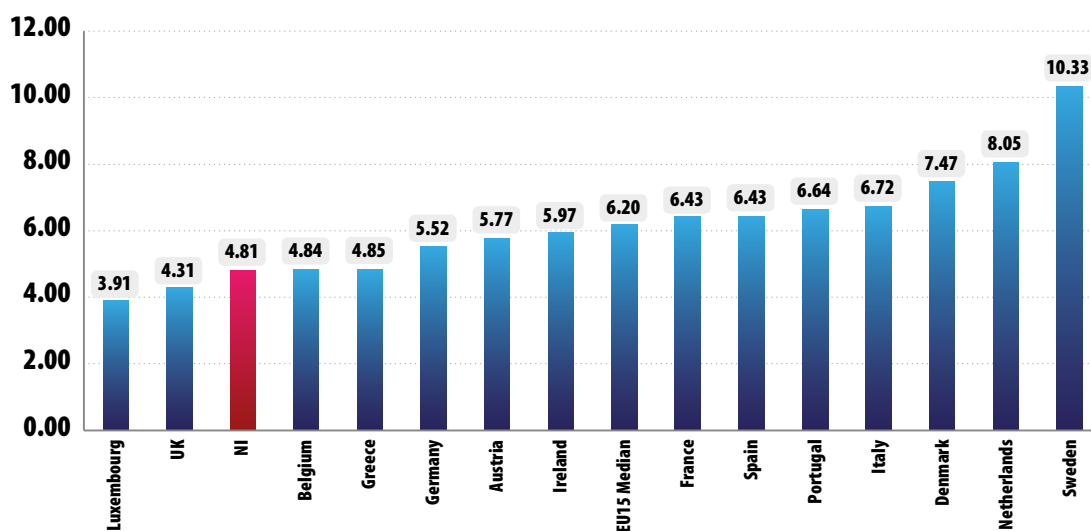




## Gas Prices

There is limited information available on gas prices in Northern Ireland. Indeed, BEIS do not publish any gas price data (either domestic or non-domestic) relating to Northern Ireland. However, the Utility Regulator does publish some information on domestic gas prices in Northern Ireland and compares these against other EU countries<sup>189</sup>. This data is replicated in the chart below.

**Chart 6.3 Domestic Gas Prices Including Taxes in the EU15 for Medium Consumers (p/kWh), January-June 2019**



Source: Utility Regulator ([www.uregni.gov.uk/publications/transparency-reports-2020](http://www.uregni.gov.uk/publications/transparency-reports-2020))

The NI price shown is the average pence per kWh for medium customers<sup>190</sup> for the Greater Belfast, Ten Towns and West network areas. Chart 6.3 shows that Northern Ireland domestic gas prices were amongst the lowest in the EU (only Luxembourg and the UK had lower tariffs). In the first six months of 2019, average domestic gas prices in Northern Ireland were around 22% or 1.39p/kWh lower than the EU15 median price, 19% or 1.16p/kWh lower than the Republic of Ireland but some 12% or 0.50p/kWh higher than the UK.

It should be noted that the tariffs shown for all countries in Chart 6.3 are subject to change as price increases or decreases can be announced by gas providers on a regular basis.

## Road Fuel Prices

As shown in Chapter 5 earlier, some 29,118 GWh of petroleum products were consumed in Northern Ireland in 2017 (as a comparison and as shown in Chapter 3, total electricity consumption was around 7,800 GWh in Northern Ireland in the same year). Therefore consumption of such products are significant and the price paid by consumers for these fuels is worthy of separate consideration.

The AA produces regular reports<sup>191</sup> on road fuel prices (i.e. petrol and diesel) by UK region. Information from the most recent report is shown in Table 6.5 below. All prices shown are pence per litre (ppl).

189 See Quarterly Transparency Reports at <https://www.uregni.gov.uk/transparency-reports>

190 Medium consumers are those with annual consumption between 5,557 -55,557 kWh. This consumption category reflects the majority of domestic customers in NI.

191 See [http://www.theaa.com/motoring\\_advice/fuel/](http://www.theaa.com/motoring_advice/fuel/). BEIS also produce data on road fuel prices (see [www.gov.uk/government/collections/road-fuel-and-other-petroleum-product-prices](http://www.gov.uk/government/collections/road-fuel-and-other-petroleum-product-prices)) but these are only available at UK level. However, analysis of the AA and BEIS data at UK level shows a strong correlation with differences typically about 1% or less. The AA data is used in this compendium to allow for Northern Ireland data to be shown and also to allow for regional comparison.



**Table 6.5 Road Fuel Prices by UK Region - Average of Mid-Month Prices (Pence per Litre), April 2020**

Garages and Supermarkets	Unleaded Petrol (Pence per Litre)	Diesel (Pence per Litre)
<b>Northern Ireland</b>	<b>105.5</b>	<b>111.9</b>
Scotland	108.6	114.9
Wales	107.7	114.7
North East	109.1	114.0
North West	109.2	115.1
Yorkshire & Humberside	109.5	115.2
West Midlands	110.5	115.8
East Midlands	110.3	116.4
East Anglia	111.6	116.5
London	112.6	116.7
South East	112.0	116.8
South West	109.7	115.8
UK Average	110.4	115.6

Supermarkets	Unleaded Petrol (Pence per Litre)	Diesel (Pence per Litre)
<b>UK Average</b>	<b>104.8</b>	<b>110.8</b>

Source: The AA ([www.theaa.com/driving-advice/driving-costs/fuel-prices](http://www.theaa.com/driving-advice/driving-costs/fuel-prices))<sup>192</sup>

In April 2020, the average price for unleaded petrol in Northern Ireland was 4.9 ppl lower than the UK average price, the lowest of all UK regions and stood at 105.5 pence per litre. London recorded the highest price for petrol at 112.6 ppl, some 7.1 ppl above the Northern Ireland price.

The South East recorded the highest diesel price at 116.8 ppl in April 2020 whilst Northern Ireland had the lowest average diesel price at 111.9 ppl, some 4.9 ppl below the highest UK region and 3.7 ppl below the UK average.

It is also worth noting that the UK average fuel price for both petrol and diesel in supermarket forecourts were around five pence per litre cheaper than the average UK price for all retailers (i.e. supermarkets and garages) and it is probable that a similar situation exists in Northern Ireland.

### Price History

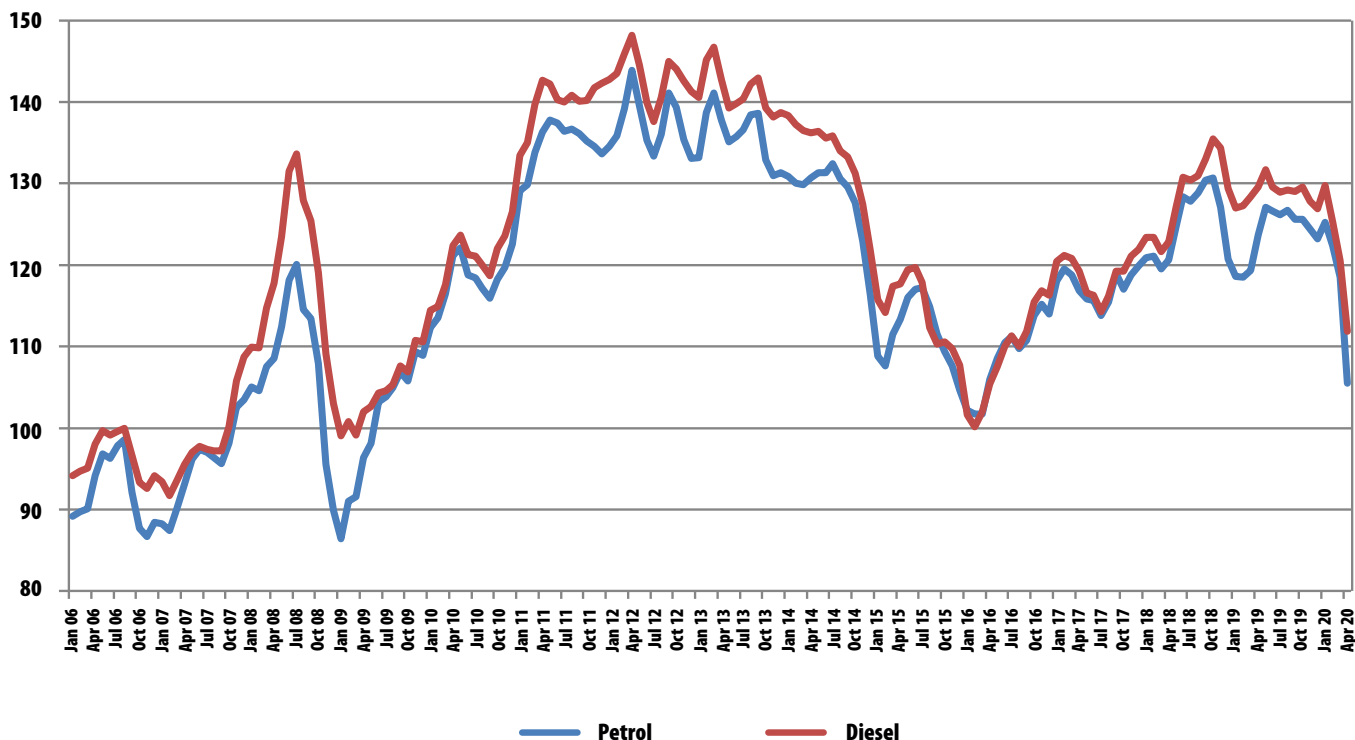
The most recent prices for Northern Ireland show that diesel was on average 6.4 pence per litre higher than petrol in April 2020, though this has not always been the case as the chart below shows.

Chart 6.4 details the history of prices for petrol and diesel in Northern Ireland over last 14 years. Over the 12 month period April 2008-March 2009, for example, diesel was on average some 11.7 ppl higher than petrol, with a maximum difference of 13.6 ppl in November 2008. Indeed, over the 14 year period shown, diesel prices were on average over 4 ppl higher than petrol. Over the period shown, diesel prices per litre first dipped below petrol prices in August and September 2015 and again in five of the six months between January and June 2016 but these were the only months when this occurred during the more than fourteen year period shown.

<sup>192</sup> The AA Fuel Price Report uses data sourced from Experian Catalyst ([www.catalist.com](http://www.catalist.com))



**Chart 6.4 Price History of Petrol and Diesel in Northern Ireland (Pence per Litre), January 2006 to April 2020**



Source: The AA ([www.theaa.com/driving-advice/driving-costs/fuel-prices](http://www.theaa.com/driving-advice/driving-costs/fuel-prices))

Diesel and petrol prices at the end of 2015/start of 2016 were at their lowest level since 2009 (at around one pound per litre). However, after a steady rise in prices to end of 2017/start of 2018, average diesel prices were about 128 ppl and average petrol prices around 124 ppl between the end of 2017 and the start of 2020. However, there was a sharp fall in prices between March and April 2020: diesel fell by 8.6 ppl (the second largest monthly fall over the period shown) and petrol fell by 13 ppl (the largest monthly fall over the period shown).

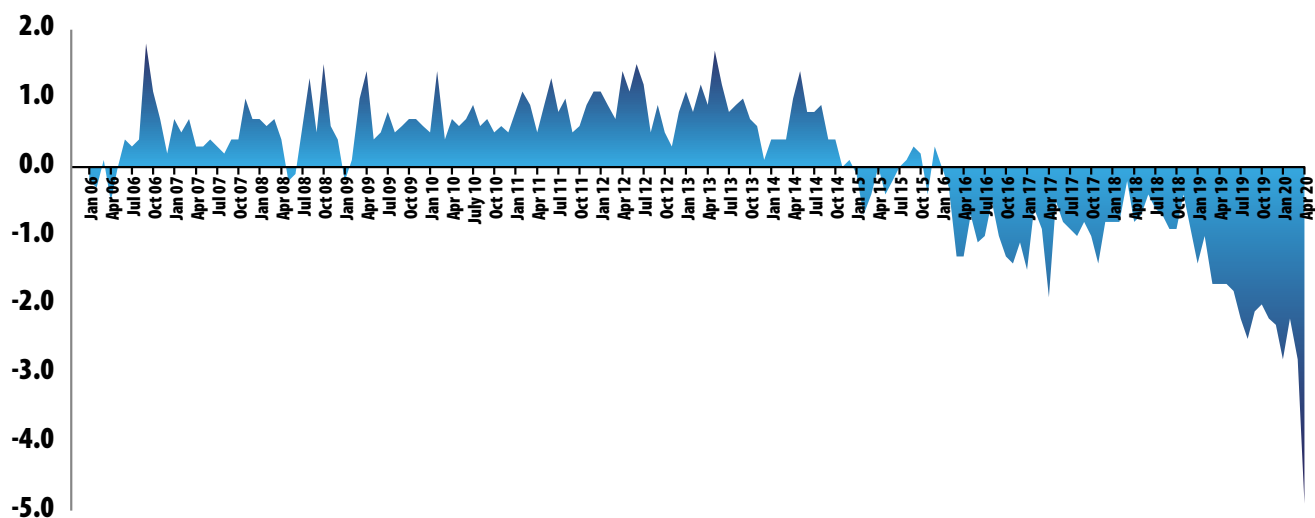
Diesel and petrol prices for Northern Ireland in April 2020 were at a level last seen in 2016 and are over 36 ppl and 38 ppl respectively below the peak prices over the period shown (i.e. April 2012).

### Historic Comparison NI v UK

The charts below show the price differential in pence per litre between the Northern Ireland average and UK average prices for petrol and diesel. The charts show that, in general, petrol and diesel prices in Northern Ireland were higher than the UK average for each fuel type up to the end of 2014. However, during 2015 this trend reversed and since the start of 2016 average prices in Northern Ireland have been below the UK average price for both petrol and diesel. Indeed, the petrol and diesel price in Northern Ireland since January 2016 has been on average 1.2 pence and 1.7 pence per litre respectively below the UK average. In April 2020, petrol and diesel prices in Northern Ireland were the lowest of any UK region and 4.9 ppl and 3.7 ppl lower than the UK average, the largest differential for both fuels over the period shown.

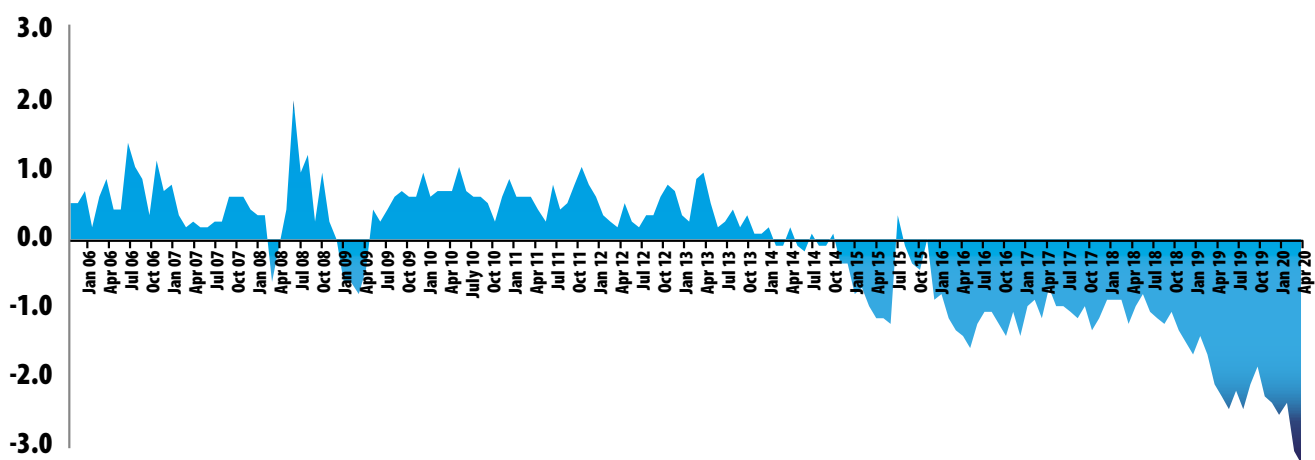


**Chart 6.5 Differential in Petrol Prices between NI and UK (Pence per Litre), January 2006 to April 2020**



Source: The AA ([www.theaa.com/driving-advice/driving-costs/fuel-prices](http://www.theaa.com/driving-advice/driving-costs/fuel-prices))

**Chart 6.6 Differential in Diesel Prices between NI and UK (Pence per Litre), January 2006 to April 2020**



Source: The AA ([www.theaa.com/driving-advice/driving-costs/fuel-prices](http://www.theaa.com/driving-advice/driving-costs/fuel-prices))



### **Annex 6.1 Notes to Table 6.3**

Data for 2019 are provisional.

All bills are calculated assuming an annual consumption of 3,800 kWh. Bills and unit costs reflect the prices of all suppliers and include standing charges. Figures are inclusive of VAT. Bills relate to calendar year, i.e. covering consumption from Q1 to Q4 of the named year. Unit costs are calculated by dividing the bills shown by the relevant consumption levels.

Data on electricity tariffs is received directly from all the main energy companies that supply electricity across the UK via a quarterly survey. The suppliers provide figures for each tariff (unit costs, standing charges, split levels, discounts, dates of tariff changes and number of customers), splitting the tariff information by payment type and region.

Further information is available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/323447/Energy\\_price\\_variation\\_in\\_the\\_domestic\\_energy\\_market.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/323447/Energy_price_variation_in_the_domestic_energy_market.pdf)