



Fuel Mix Disclosure & CO₂ Emissions 2020

October 2021



About the Utility Regulator

The Utility Regulator is the independent non-ministerial government department responsible for regulating Northern Ireland's electricity, gas, water and sewerage industries, to promote the short and long-term interests of consumers.

We are not a policy-making department of government, but we make sure that the energy and water utility industries in Northern Ireland are regulated and developed within ministerial policy as set out in our statutory duties.

We are governed by a Board of Directors and are accountable to the Northern Ireland Assembly through financial and annual reporting obligations.

We are based at Queens House in the centre of Belfast. The Chief Executive leads a management team of directors representing each of the key functional areas in the organisation: Corporate Affairs, Markets and Networks. The staff team includes economists, engineers, accountants, utility specialists, legal advisors and administration professionals.



Our mission

To protect the short- and long-term interests of consumers of electricity, gas and water.



Our vision

To ensure value and sustainability in energy and water.



Our values

- Be a best practice regulator: transparent, consistent, proportionate, accountable and targeted.
- Be professional – listening, explaining and acting with integrity.
- Be a collaborative, co-operative and learning team.
- Be motivated and empowered to make a difference.



Abstract

The purpose of this paper is to set out the 2020 calendar year fuel-mix and CO₂ emissions figures for Northern Ireland suppliers operating in the SEM. The disclosures are based on 2020 calendar year data and must be published on bills no later than two months from the publication of this paper.

Audience

Electricity Suppliers, Generators & Consumers

Consumer impact

The Utility Regulator is required under legislation to ensure that all suppliers provide (on bills and promotional materials) reliable information regarding the contribution of each energy source to their overall fuel mix and related environmental impact information over the preceding year. The information in this report is used by suppliers to provide information on their websites and on customer bills regarding this fuel mix and environmental impact.

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Executive Summary

Under Article 3(9) of the Electricity Directive (2009/72/EC), the Utility Regulator was required to ensure that all suppliers provide reliable information on bills and promotional materials sent to customers regarding the contribution of each energy source to the overall fuel mix of the supplier concerned and the associated environmental impacts in the preceding year. This Directive has now been repealed following Brexit, but Fuel Mix Disclosure is a SEM matter and thus there is still a requirement on suppliers to provide this information through Condition 41 of their supply licence.

This document sets out the 2020 fuel mixes and CO₂ emissions factors for suppliers licensed in Northern Ireland and operating in the Single Electricity Market (SEM). The figures are calculated in accordance with SEM-11-095 Fuel Mix Disclosure in the Single Electricity Market: Calculation Methodology Decision Paper. The disclosures are based on the 2020 calendar year data and must be published on bills no later than two months from publication of this paper. Suppliers must make a submission to SEMO; any supplier who chooses not to make a declaration is allocated the residual mix.

[FMD Decision Paper](#)

Related Documents:

- The SEM All-Island Fuel Mix Disclosure for previous periods can be found [here](#).
- [SEM-09-081](#) Interim Arrangements: Fuel Mix Disclosure in the SEM. Decision paper on the methodology and principals for the calculation of fuel mix disclosure in the SEM.
- [SEM-11-095](#) Fuel Mix Disclosure in the Single Electricity Market: Calculation Methodology Decision Paper

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1. INTRODUCTION

The purpose of this paper is to set out the 2020 fuel mix and CO₂ emissions figures for electricity suppliers operating in Northern Ireland. The fuel mix and CO₂ emissions disclosures are taken from data provided to the Regulatory Authorities by the Single Electricity Market Operator ([SEMO](#)). The disclosures must be published on bills from suppliers to electricity customers in Northern Ireland no later than two months from the publication of this paper.

The fuel mix and CO₂ emissions disclosures for 2020 allow consumers to understand the recent environmental impact of the electricity that they buy, compared to the all-island average. It should be noted that the fuel mix of each supplier outlined in this paper does not necessarily represent metered generation in Northern Ireland, as suppliers on the island of Ireland may claim the attributes of renewable electricity generated outside of the SEM through electronic certificates known as Guarantees of Origin (GOs), imported from EEA Member States¹, which do not need to follow the physical flow of electricity.

The publication of the fuel mix of suppliers and the provision of information regarding the environmental impact of electricity produced from that fuel mix was required by Article 3(9) of [Directive 2009/72/EC](#). This Directive has now been repealed following Brexit, but Fuel Mix Disclosure is a SEM matter and thus there is still a requirement on Northern Ireland suppliers to provide this information through Condition 41 of their supply licence.

It is the role of SEMO to administer and calculate the fuel mix figures from the information provided by suppliers. The supplier fuel mix and associated environmental impact information (emissions) is calculated by SEMO in accordance with the SEM Committee's methodology. This methodology can be found in the SEM Committee Decision Paper *Fuel Mix Disclosure in the Single Electricity Market: Calculation Methodology Decision Paper* ([SEM-11-095](#)).

At a high level, and in accordance with [SEM-11-095](#), the fuel mix figure for a supplier consists of non-renewable generation attributes, GOs and renewable generation attributes assigned to a supplier that are not included in the GO scheme and the Residual Mix² or EU Residual Mix. GOs are electronic certificates issued for energy generated from renewable sources in EEA Member States and are issued to renewable generators that are not in support schemes.

¹ The European Economic Area (EEA) is made up of the member states in the EU and additionally Norway, Lichtenstein and Iceland.

² The Residual Mix is the mix of all unclaimed electricity in the system. It is calculated as the sum of: Any generation attributes (including exported certificates) not assigned to, and submitted by, a supplier; Surplus GOs declared by suppliers; and Unused certificates which were expired in the relevant Disclosure Period.

These are tradeable instruments at European level and do not need to follow the physical flow of energy.

Attention is drawn to the following when considering the fuel mixes and emission intensities set out in this document:

- Firstly, the all-island and Northern Ireland fuel mixes - resulting from the application of trading in GOs - have the potential to vary significantly from the actual renewable generation produced. This depends on the quantity of GOs imported or exported to or from Northern Ireland in respect of the 12 month period for which the calculated fuel mix applies. The sole function of the GO is to prove that a given share of quantity of energy was produced from a renewable source in the EEA. A single GO is issued per MWh of electricity generated and this one GO can only be used once for the purposes of the fuel mix disclosure. Hence there is no double-counting of the same unit of European renewable electricity generation in the fuel mix disclosure.
- Secondly, in the event that there is a deficit of generation attributes to meet overall All-Island demand, the European Residual Mix will be used to meet the deficit. This also – but to a lesser extent - has the ability to lead to a fuel mix that differs from actual metered generation.

Therefore, for these reasons the fuel mix disclosure figures for a given disclosure period may not necessarily be representative of the actual all-island Production Fuel Mix for a given calendar year.

The fuel mix information should be presented on electricity bills in accordance with SEM-11-095. A template for this purpose is reproduced in the Appendix of this paper. In particular the Utility Regulator would like to remind suppliers of the following:

- Where fuel mix information is on the back of a bill, reference must be made to it on the front of the bill;
- While radioactive waste information was required by Directive 2009/72/EC, this figure is zero for all suppliers in 2020 and therefore need not be included with the 2020 fuel mix disclosure information on bills;
- To ensure consistency across suppliers, percentages should be rounded to one decimal place;
- CO₂ information should be given in the unit *grams of CO₂ per kWh* (gCO₂/kWh);
- Where separate products associated with a particular fuel mix are offered to certain customers, all the supplier's customers should receive information on request

regarding the fuel mix associated with their electricity (not simply the supplier's average fuel mix) in accordance with [SEM-11-095](#); and

- The 2019 fuel mix information must be on all bills within two months of the publication of this paper.

Due to Brexit, SEMO – in conjunction with the RAs - provided an update in November 2020 on Fuel Mix Disclosure 2020. This is summarised as follows:

For Suppliers licensed in Northern Ireland: Until the UK reviews the continuation of eligibility of EU GOs, they are accepted for import or cancellation in Northern Ireland. Ofgem has stated that *'[UK] Government has indicated its intention to review this in 2021 so that, longer term, domestic recognition of Guarantees of Origin issued in EU countries will take place only on a reciprocal basis'*.

For Suppliers licensed in Ireland: From 1 January 2021, UK REGOs are not accepted for import or cancellation for FMD in Ireland.

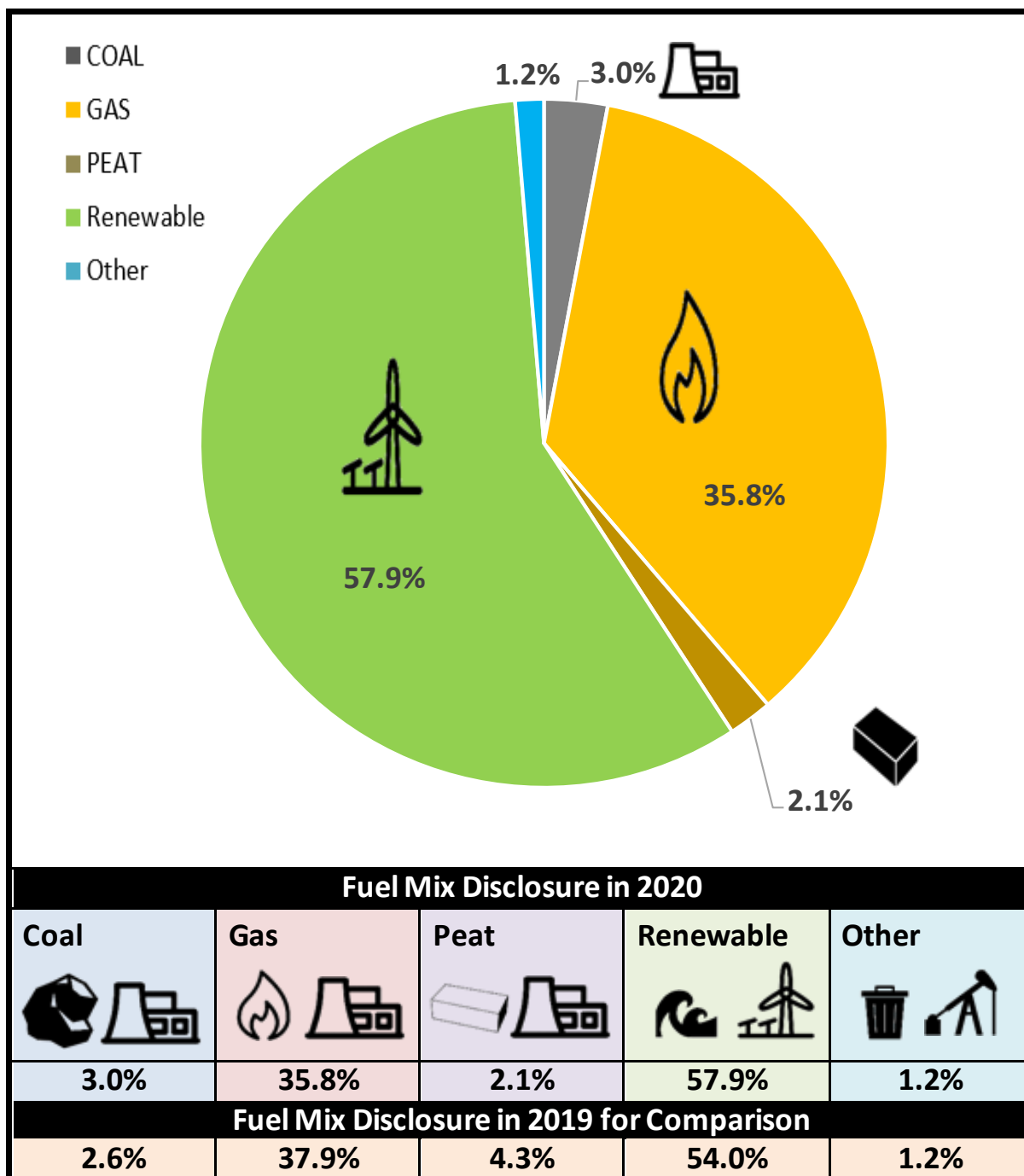
Please note that these positions are based on the information available in Q4 2020 and are valid as of the date of publication of this information paper.

Should subsequent communications or agreements from either the EU or UK authorities indicate a change in this position, the RAs – in conjunction with SEMO - will provide market participants with an updated understanding of the impact on FMD.

2. AVERAGE ALL-ISLAND FUEL MIX

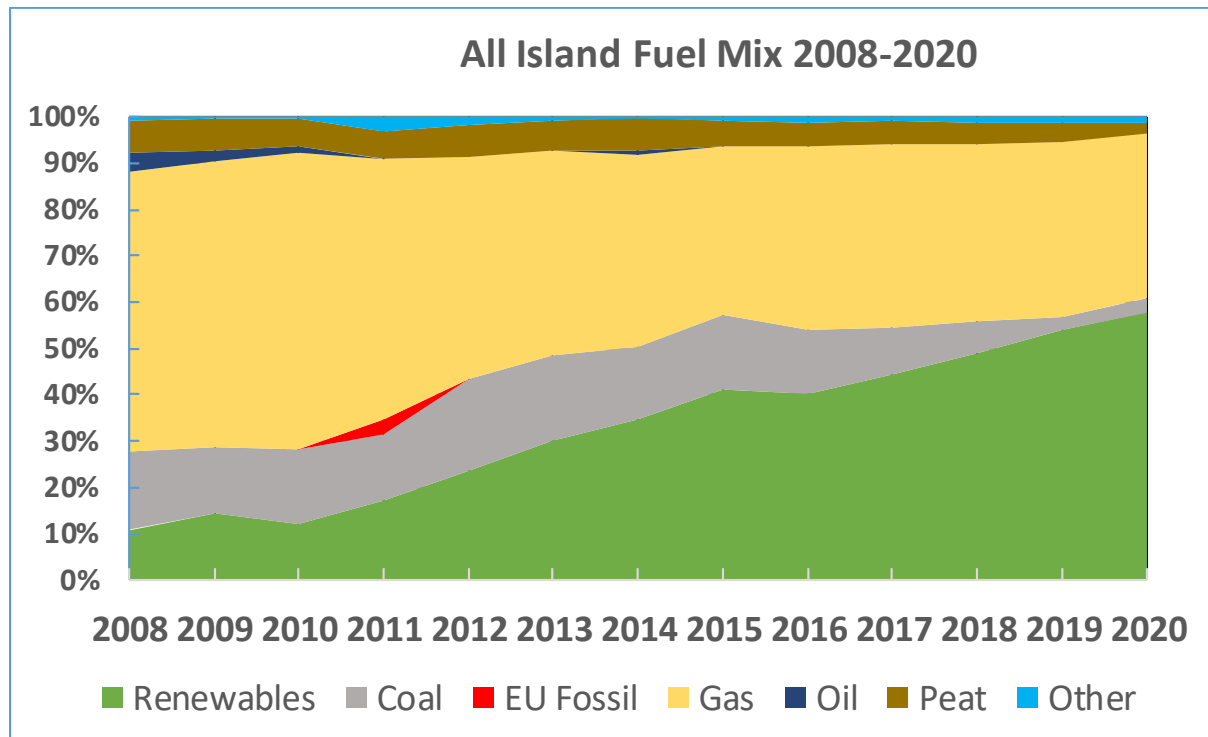
This section sets out the 2020 and year-on-year fuel mix for the all-island SEM, i.e. on average across the island.

Figure 1: All-Island Fuel Mix 2020



The SEM Committee decision paper [SEM-11-095](#) outlines the calculation methodology and assumptions that have been used to calculate the fuel mix and CO₂ emissions for 2020. Figure 1 above shows the average all-island 2020 fuel mix and percentage changes from 2019.

A longer-term trend is shown in the following graph, indicating that the overall use of fossil fuels as a fuel source for electricity suppliers in SEM has decreased on average from 89% in 2008 to 42.1% in 2020. Correspondingly, the overall share of renewable fuel sources has increased fivefold from 11% in 2008 to 57.9% in 2020. From 2019 to 2020, the share of renewables in the average All-Island Fuel Mix increased from 54% to 57.9%.



The increase in the renewable share to 57.9% in 2020 is because of the increased importation of GOs related to renewable sources and the increase in indigenous production of renewable electricity. For the year 2019, the importation of GO certificates amounted to 10.5 million. This increased by 29% to 13.5 million for 2020.

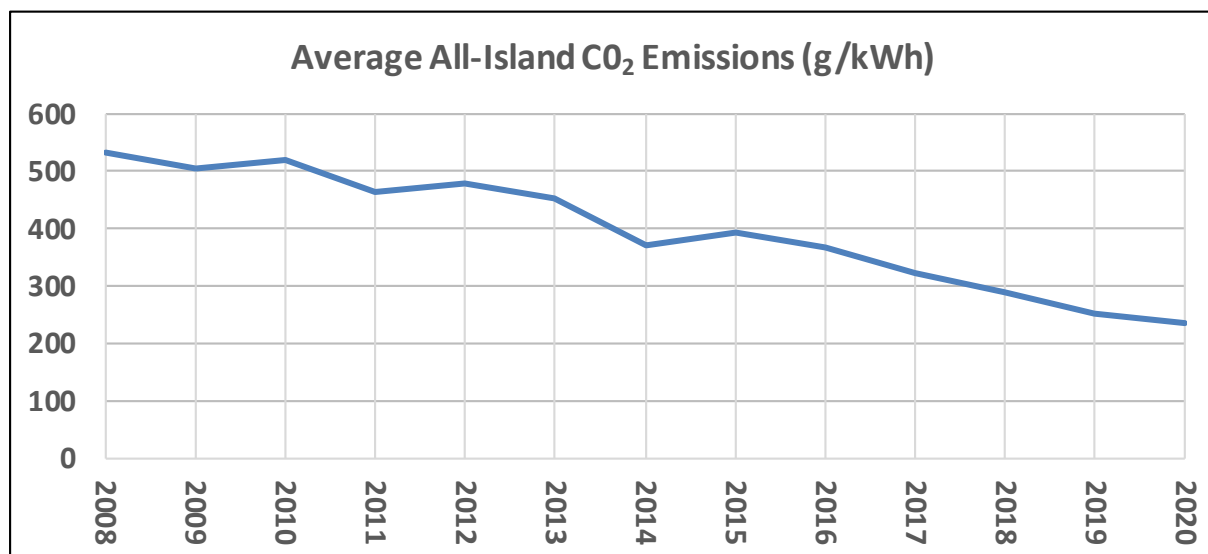
In accordance with SEM-11-095, the “Other” category consists of the aggregate of all fuels in a given year that individually represent less than 1% of the final overall generation. Oil (0.4%) contributes to the “other” figure, with Non-Biodegradable Waste (0.8%). The category labelled EU Fossil is the residual portion of demand drawn from the aggregation of all EU fossil fuel sources in the EU Residual Mix. It has not featured in the All-Island Fuel Mix since 2011. The reason for this is that 100% of the energy demand on the island of Ireland was accounted for in each of those years since 2011 via the aggregate of the generation attributes and GOs/REGOs and PSO-supported generation, as declared by suppliers. Under these circumstances, the European Residual Mix is not required to fill a deficit on the island of Ireland and therefore has no bearing on the All-Island Fuel Mix Disclosure. This applied also in 2020, which means that Nuclear and EU Fossil fuel contributions for the All-Island Fuel Mix in 2020 were zero.

3. AVERAGE ALL-ISLAND CO₂ EMISSIONS

Emissions data for each generator in the SEM is supplied annually to SEMO by the DAERA (Department of Agriculture, Environment and Rural Affairs) for Northern Ireland and the EPA (Environmental Protection Agency) for Ireland.

The emission figures are grouped according to fuel type and divided by metered generation to give specific emission factors for each fuel. These values can then be used to calculate the average all-island CO₂ Emissions Factor and each individual supplier's CO₂ Emissions Factor.

The average all-island CO₂ Emissions per kWh of electricity decreased by 7% between 2019 and 2020, from 254 g/kWh in 2019 to 236 g/kWh in 2020. This is in line with a longer-term downward trend in average CO₂ emissions, having fallen by 56% from 533 g/kWh in 2008, related to the increase in the share of renewable fuel sources, as shown in the graph below.



4. SUPPLIERS' FUEL MIX AND CO₂ EMISSIONS 2019

Following the presentation in section 2 and 3 of average fuel mix and CO₂ emissions across the island, this section sets out the fuel mix and CO₂ emissions for each electricity supplier.

The fuel mix calculation is carried out on an individual licence basis. Up to and including the 2020 year, where a supplier operates as a single company but holds separate licences (such as a supplier that operates in both jurisdictions) those licences that have excess generation attributes are distributed among the licences with excess demand: the generation attributes can be distributed to the excess demand within the single company prior to using the Residual Mix, if the company holds multiple licences.

Table 1 below show the individual fuel mixes and carbon dioxide emissions in grams per kWh of electricity for each supplier. The average all-island fuel mix (as per section 2) is also provided for reference.

Table 1: Suppliers' Fuel Mix by Fuel Type in 2020

Supplier	Jurisdiction	Coal	Gas	Peat	Renewable	Oil	Other	Emissions (gCO ₂ /kWh)
	All-Island	3.0%	35.8%	2.1%	57.9%	0.4%	0.8%	236
3T Power	NI	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0
Budget Energy	NI	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0
Click Energy	NI	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0
Electric Ireland	All-Island	0.5%	34.3%	0.6%	63.7%	0.6%	0.3%	179
	NI	0.0%	78.1%	0.0%	21.9%	0.0%	0.0%	404
Energia	NI	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0
Evermore t/a Bright Energy	NI	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0
GO Power	NI	4.1%	44.4%	5.2%	39.0%	5.0%	2.3%	414
Naturgy	All-Island	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0
	NI	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0
Power NI	NI	0.0%	45.7%	0.0%	54.3%	0.0%	0.0%	237
SSE Airtricity	NI	0.0%	44.5%	0.0%	55.5%	0.0%	0.0%	230

APPENDIX 1 PRESENTATION OF INFORMATION ON BILLS

Default Presentation of Information³

Supplier Z Disclosure Label		
Applicable Period: January 2020 to December 2020		
Electricity supplied has been sourced from the following fuels:	% of total	
	Electricity Supplied by Supplier Z	Average for All Island Market (for comparison)
Coal	X %	X %
Natural Gas	X %	X %
Nuclear	X %	X %
Renewable	X %	X %
Peat	X %	X %
Oil	X %	X %
EU Fossil	X %	X %
Other	X %	X %
Total	100 %	100 %
Environmental Impact		
CO ₂ Emissions	X g/kWh	X g/kWh
Your specific fuel mix may differ from the fuel mix shown because SUPPLIER Z offers green source products. For information on your fuel mix and on the environmental impact of your electricity supply visit www.SUPPLIER_Z.co.uk or, for further details call 00XXX X XXX XXXX		

³ Please refer to SEM-11-095 for further detail on presentation requirements. Note that the fuel categories used each year can vary.

APPENDIX 2 ALL-ISLAND FUEL MIX 2005-2019

Fuel Mix 2005-2020 (percentage share of total)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Coal	17.00	14.24	15.98	14.44	19.89	18.42	15.71	16.02	13.76	9.83	6.77	2.63	2.98
EU Fossil	0.00	0.00	0.00	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas	61.00	61.85	64.06	56.16	47.74	44.09	41.66	36.36	39.66	39.96	38.51	37.86	35.75
Oil	4.00	2.53	1.59	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00
Renewables	11.00	14.23	12.11	17.21	23.74	30.24	34.46	41.06	40.09	44.47	48.95	54.04	57.86
Peat	7.00	6.70	5.78	5.88	6.86	6.49	6.95	5.90	5.35	4.86	4.63	4.25	2.07
Other	1.00	0.45	0.48	3.18	1.77	0.75	0.17	0.65	1.14	0.88	1.15	1.22	1.34

Note:

- Figures for 2008, 2009 and 2010 relate to Northern Ireland and Ireland and are based on the Interim Arrangements Methodology ([SEM-09-081](#)).
- Figures for 2011 onwards relate to Northern Ireland and Ireland and are based on the SEM Committee Decision Paper Fuel Mix Disclosure in the Single Electricity Market: Calculation Methodology Decision Paper ([SEM-11-095](#)), referenced in the Related Documents section of this paper.
- The “Other” category consists of: Oil (for those years which it is below the 1% threshold); the Non-Biodegradable Fraction of Waste (NBDFW) and EU Fossil (only for 2011).