Fuel Mix Disclosure

& CO_2 Emissions 2014

July 2014



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; Electricity; Gas; Retail and Social; and Water. The staff team includes economists, engineers, accountants, utility specialists, legal advisors and administration professionals.

Our Mission	Value and sustainability in energy and water.
Our Vision	We will make a difference for consumers by listening, innovating and leading.

Our Values

Be a best practice regulator: transparent, consistent, proportional, accountable, and targeted.

Be a united team.

Be collaborative and co-operative.

Be professional.

Listen and explain.

Make a difference.

Act with integrity.

Abstract

The purpose of this paper is to set out the 2014 calendar year fuel-mix and CO_2 emissions figures for suppliers operating in the SEM. The disclosures are based on 2014 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

Consumers can make a more informed choice of Electricity Supplier, based on environmental impact.

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1 Introduction

1.1 Purpose

The purpose of this paper is to set out the updated fuel mix and CO_2 emissions figures for suppliers operating in the SEM. The fuel mix and CO_2 emissions data is taken from data provided to the Utility Regulator (UR) by SEMO. The disclosures are based on the 2014 calendar year data and must be published on bills no later than two months from the publication of this paper.

1.2 Background Information

The publication of fuel mix of suppliers and the provision of information regarding the environmental impact of electricity produced from that fuel mix is required by Article 3(9) of Directive 2009/72/EC. The methodology used to calculate the fuel mix disclosure figures for 2008, 2009 and 2010 can be found in the SEM Committee[1] Decision Paper *Interim Arrangements: Fuel Mix Disclosure in the SEM* (SEM-09-081). This methodology was superseded in 2011 and replaced by 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, guarantees of origin and renewable generation attributes assigned to a supplier that are not included in the guarantees of origin scheme and the Residual Mix or EU Residual Mix.

Attention is drawn to the following when considering the fuel mix and emissions set out in this document. Firstly, the guarantees of origin scheme permits transfer of Guarantees of Origin between EU Member States which, depending on the quantity of Guarantees of Origin imported or exported from Ireland in a given period, has the potential to vary significantly from the actual renewable generation produced within the jurisdiction[2]. Secondly in the event that there is a deficit of generation attributes to meet overall all-Island demand, the European Residual will be used to meet the deficit. This 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 may not necessarily be representative of the actual metered generation output on an all-island basis for a given disclosure period.

The disclosures in this paper are based on the 2014 calendar year data and must be published on bills no later than two months from the publication of this paper. The fuel mix information should be presented on bills in accordance with SEM/11/095. A template for this purpose is reproduced in the Appendix of this paper. In particular the UR would like to remind suppliers of the following:

[1] The SEM Committee is a Committee of the CER, the UR and an independent member which, on behalf of the Regulatory Authorities, takes decisions on SEM matters.

[2] There were 4,957,392 imported Guarantees of Origin declared by suppliers for disclosure in the 2014 fuel mix. One Guarantee of Origin represents 1MWh of electricity produced from a renewable source. The 4,957,392 imported contributed to approximately 39 % of the overall renewable figure of 12,680,391.92 MWh.

Where fuel mix information is on the back of bills reference must be made to it on the front of the bill.

- While radioactive waste information is required by the Directive, this figure is 0.000 t/MWh for all suppliers in 2014 and therefore need not be included with the 2014 fuel mix disclosure information on bills.
- To ensure consistency across suppliers, percentages should be rounded to one decimal place.
- CO_2 information should be given in the units tonnes of CO_2 per MWh (t/MWh).
- 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.
- The 2014 fuel mix information must be on all bills within two months of the publication of this paper.

2 Fuel Mix and CO2 Emissions Disclosure 2014

This section sets out the fuel mix and CO_2 emissions for the all island market as a whole. The SEM Committee decision paper SEM-11-095 outlines the calculation methodology which has been used to calculate the fuel mix and CO_2 emissions for 2014.

As can be seen from the following graphs, in 2014 gas made the largest contribution to the island's electricity supply at 42 % (down from 44 % in 2012), while renewable energy made up 34% of the total **[Figure 1]**.

Relative to 2012, renewables contributed more to the fuel mix in 2013 and 2014 **[Figure 2]**. There are a number of contributing factors to this increased figure. Firstly, and primarily, there was a significant amount of Guarantees of Origin certificates imported from Europe by suppliers for use in their fuel mix figures (circa 4.7 million in 2013 and ca 5 million in 2014). Secondly, there was an increase in installed capacity of wind in 2013 of 198.5 MW[3] and 367 MW[4] in 2014, and lastly, the wind capacity factor for 2013 was 30.6 % and 28.5 % for 2014, compared to 28.4 % for 2012[5].

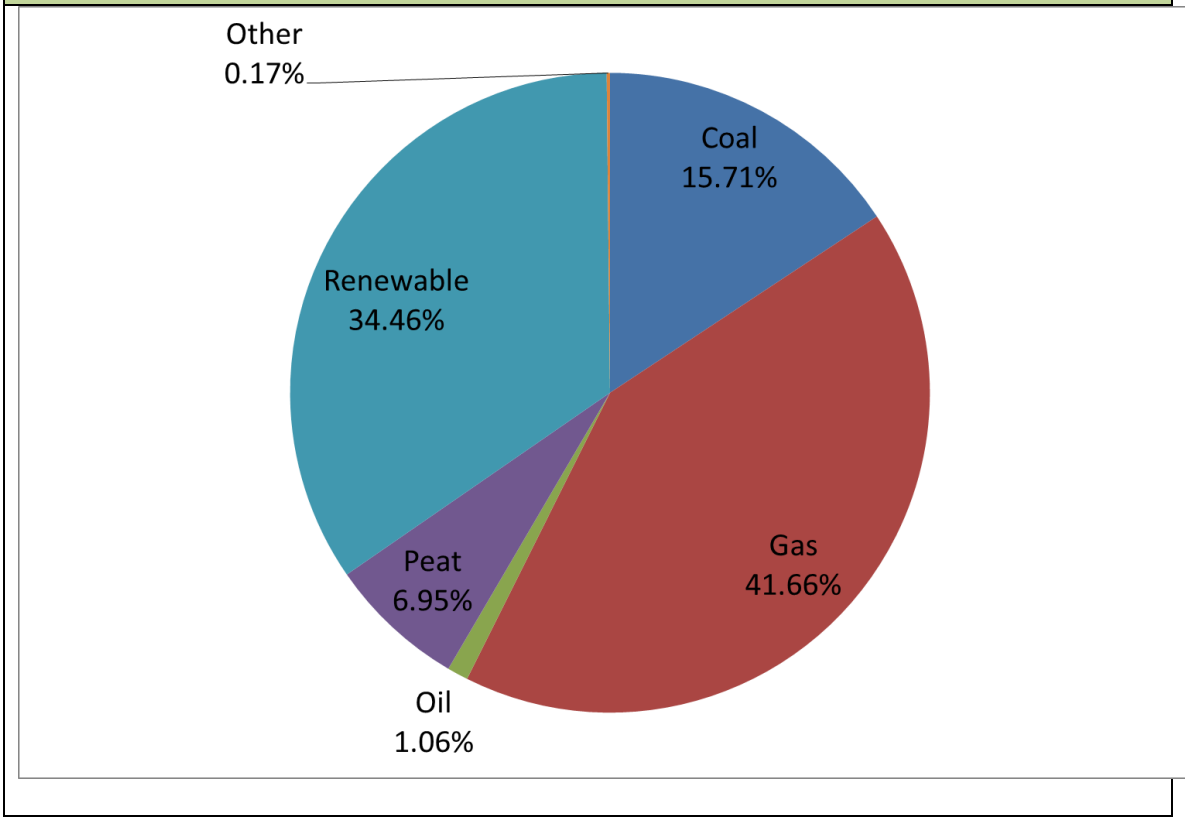
In accordance with SEM-11-095, the "other" category consists of all fuels, in a given year, that represent less than 1% of the final overall generation. The 'other' contribution for 2013 consisted of Oil and the Non-Biodegradable Fraction of Waste. In 2014 Oil increased beyond the 1 % threshold and only Non-Biodegradable waste contributes to the 'other' figure.

The average carbon dioxide emissions per MWh of electricity dropped approximately 6 % (0.029 t/MWh less) in 2013 to 0.452 t/MWh for the island **[Table 2]**. That 6 % reduction was linked mainly to an increase in the number of Guarantees of Origin imported to Ireland. In 2014 the carbon dioxide emissions per MWh of electricity dropped again and for 2014 stood at 0.370 t/MWh. This can be associated with a reduction in coal and an increase in renewables. To calculate these figrues, emissions data are supplied by the EPA and DOE annually to the SEMO for each conventional generator in the SEM. These emission data are totaled according to fuel type and divided by the metered generation to give specific emission factors of a given fuel. All emissions factors are then grouped together and each fuel's emissions factor is multiplied by the corresponding percentage in the All Island Mix. The resulting values are then summed to give a Final All Island emissions factor.

[3] http://www.eirgrid.com/media/All_Island_Renewable_Connection_Report_36_Month_Forecast__(Q4_2013).pdf
[4] http://www.eirgrid.com/media/All_Island_Wind_and_Fuel_Mix_Summary_2014.pdf
[5] http://www.eirgrid.com/operations/systemperformancedata/all-islandwindandfuelmixreport/

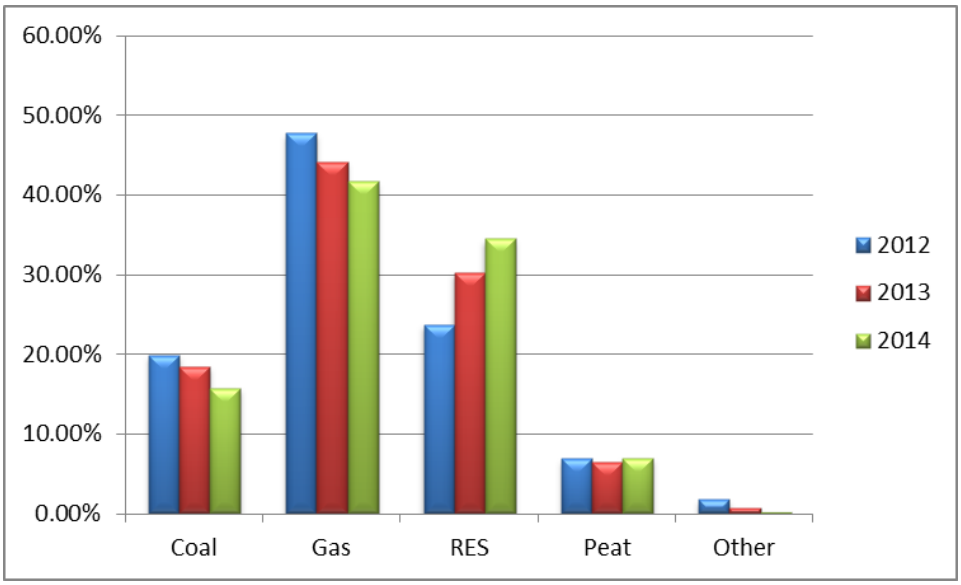
The figure below shows the all island fuel mix 2014.

Figure 1 All-Island Fuel Mix 2014



The figure below compares the all island fuel mix for the years 2012, 2013 and 2014.

Figure 2 Fuel Mix Comparison 2012, 2013 and 2014



The table below presents the all island fuel mix for each year from 2008 to 2014.

	Table 1 Fuel Mix 2008-2014						
	2008	2009	2010	2011	2012	2013	2014
Coal	17.00%	14.24%	15.98%	14.44%	19.89%	18.42%	15.71%
EU Fossil	0.00%	0.00%	0.00%	3.12%	0.00%	0.00%	0.00%
Gas	61.00%	61.85%	64.06%	56.16%	47.74%	44.09%	41.66%
Oil	4.00%	2.53%	1.59%	0.00%	0.00%	0.00%	1.06%
Renewables	11.00%	14.23%	12.11%	17.21%	23.74%	30.24%	34.46%
Peat	7.00%	6.70%	5.78%	5.88%	6.86%	6.49%	6.95%
Other	1.00%	0.45%	0.48%	3.18%	1.77%	0.75%	0.17%
Notes	Numbers may not sum to 100% due to rounding. Figures for 2008, 2009 and 2010 relate to Ireland and Northern Ireland and are based on the Interim Arrangements methodology referenced in this paper. Figures for 2011 onwards relate to Ireland and Northern 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 this paper. Note oil is showing up again in its own category as it has grown beyound the 1 % threshold. “Other” for 2007 relates to CHP. CHP is not counted as a fuel source from 2008 onward. The “Other” category consists of all fuels which represent less than 1% of the final overall generation in the calculation. For 2013 this consists of Oil and the Non-Biodegradable Fraction of Waste (NBDFW). In 2014 it consisted just of NBDFW.						

The figure below presents the data from Table 1 in graphical form and shows the all island fuel mix for each year from 2008 to 2014.

Figure 3 Fuel Mix 2008-2014

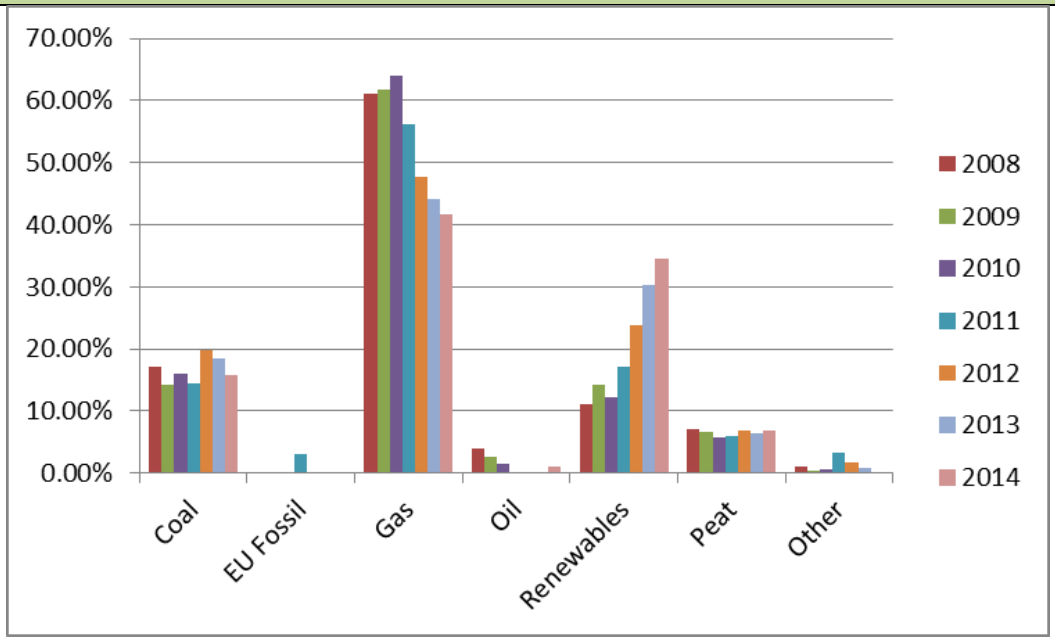


Table 2 shows the average carbon dioxide emissions per MWh of electricity from 2008 to 2014.

Table 2 All-Island Average CO2 Emissions (t/MWh)	
2008	0.533
2009	0.504
2010	0.519
2011	0.466
2012	0.481
2013	0.452
2014	0.370

3 Suppliers' Fuel Mix by Fuel Type in 2014

Following the presentation in section 2 of the fuel mix and CO_2 emissions data on an All Island basis, this section sets out the fuel mix and CO_2 emissions for each supplier. The fuel mix calculation for suppliers is carried out on an individual licence basis. When calculating the fuel mix, 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 within the single company prior to using the Residual Mix.

The table below shows the individual fuel mixes of each supplier and provides the all-island fuel mix for reference.

Figure 4 Fuel Mix per Supplier 2014

Supplier	Coal	Gas	Peat	Oil	Renewable	Other
All-island	**15.7 %**	**41.7 %**	**6.9 %**	**1.1 %**	**34.5 %**	**0.2 %**
Airtricity (Northern Ireland)	25.5 %	25.7 %	11.3 %	1.1 %	36 %	0.3 %
Airtricity (All-Island)	17.9 %	18 %	7.9 %	2.5 %	53.5 %	0.2 %
Bord Gáis (Northern Ireland)	36.1 %	36.4 %	16.0 %	1.6 %	9.5 %	0.4 %
Bord Gáis (All-Island)	12.5 %	66.5 %	5.5 %	0.6 %	14.8 %	0.1 %
Electric Ireland (Northern Ireland)	0.0 %	86.5 %	0.0 %	0.0 %	13.5 %	0.0 %
Electric Ireland (All-Island)	16.2 %	56.3 %	7.2 %	0.7 %	19.4 %	0.2 %
Energia (Northern Ireland)	0.0 %	100 %	0.0 %	0.0 %	0.0 %	0.0 %
Energia (All-Island)	0.0 %	19.2 %	0.0 %	0.0 %	80.8 %	0.0 %
LCC Power	28.3 %	28.5 %	12.5 %	1.3 %	29.2 %	0.3 %
Power NI (Northern Ireland)	18.3 %	65.1 %	8.1 %	0.8 %	7.5 %	0.2 %
Vayu (Northern Ireland)	6.3 %	6.3 %	2.8 %	0.3 %	84.3 %	0.1 %
Vayu (All-Island)	1.6 %	3.3 %	0.7 %	0.1 %	94.3 %	0.0 %

The table below shows the carbon dioxide emissions per MWh of electricity per supplier.

Table 3 CO_2 Emissions per Supplier 2014	
Supplier	**tCO_2/MWh**
All-island	**0.370**
Airtricity (Northern Ireland)	0.405
Airtricity (All-Island)	0.297
Bord Gais (Northern Ireland)	0.574
Bord Gais (All-Island)	0.445
Electric Ireland (Northern Ireland)	0.395
Electric Ireland (All-Ireland)	0.440
Energia (Northern Ireland)	0.457
Energia (All-Island)	0.088
LCC Power (Northern Ireland)	0.449
Power NI (Northern Ireland)	0.504
Vayu (Northern Ireland)	0.099
Vayu (All-Ireland)	0.033

Appendix: Bill Layout

Default Presentation of Information[6].

Supplier Z Disclosure Label **Applicable Period: January 2014 to December 2014**		
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 t/MWh	X t/MWh
For more information on the environmental impact of your electricity supply visit www.SupplierZ.ie or call 00XXX X XXX XXXX		

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