



SEM Committee Paper

2014 All-Island Fuel Mix Disclosure

Information Paper

SEM-15-049

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'The SEM Committee is established in Ireland and Northern Ireland by virtue of section 8A of the Electricity Regulation Act 1999 and Article 6 (1) of the Electricity (Single Wholesale Market) (Northern Ireland) Order 2007 respectively. The SEM Committee is a Committee of both CER and NIAUR (together the Regulatory Authorities) that, on behalf of the Regulatory Authorities, takes any decision as to the exercise of a relevant function of CER or NIAUR in relation to an SEM matter.'

1 INTRODUCTION

1.1.1 The purpose of this paper is to set out the updated fuel mix and CO₂ emissions figures for suppliers operating in the SEM. The fuel mix and CO₂ emissions data is taken from data provided to the CER 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

1.2.1 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 Committee¹ 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 This methodology was superseded in 2011 and replaced by SEM Committee Decision Paper *Fuel Mix Disclosure in the Single Electricity Market: Calculation Methodology Decision Paper*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](#)).

1.2.2 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.

1.2.3 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 jurisdiction². 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.

1.2.4 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 Regulatory Authorities 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.
- CO₂ information should be given in the units tonnes of CO₂ 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 ALL-ISLAND FUEL MIX AND CO₂ EMISSIONS 2014

- 2.1.1 This section sets out the fuel mix and CO₂ 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 CO₂ emissions for 2014.
- 2.1.2 As can be seen from the following graphs, in 2014 gas made the largest contribution to the island's electricity supply at 41.66 % (down from 48 % in 2012), while renewable energy made up 34.46% of the total **[Figure 1]**.
- 2.1.3 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 2015). Secondly, there was an increase in installed capacity of wind in 2013 of 198.5 MW³ and 367 MW⁴ in 2014, and lastly, the wind capacity factor for 2013 was 30.6 % and 28.5 % for 2014, compared to 28.4 % for 2012⁵.
- 2.1.4 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.

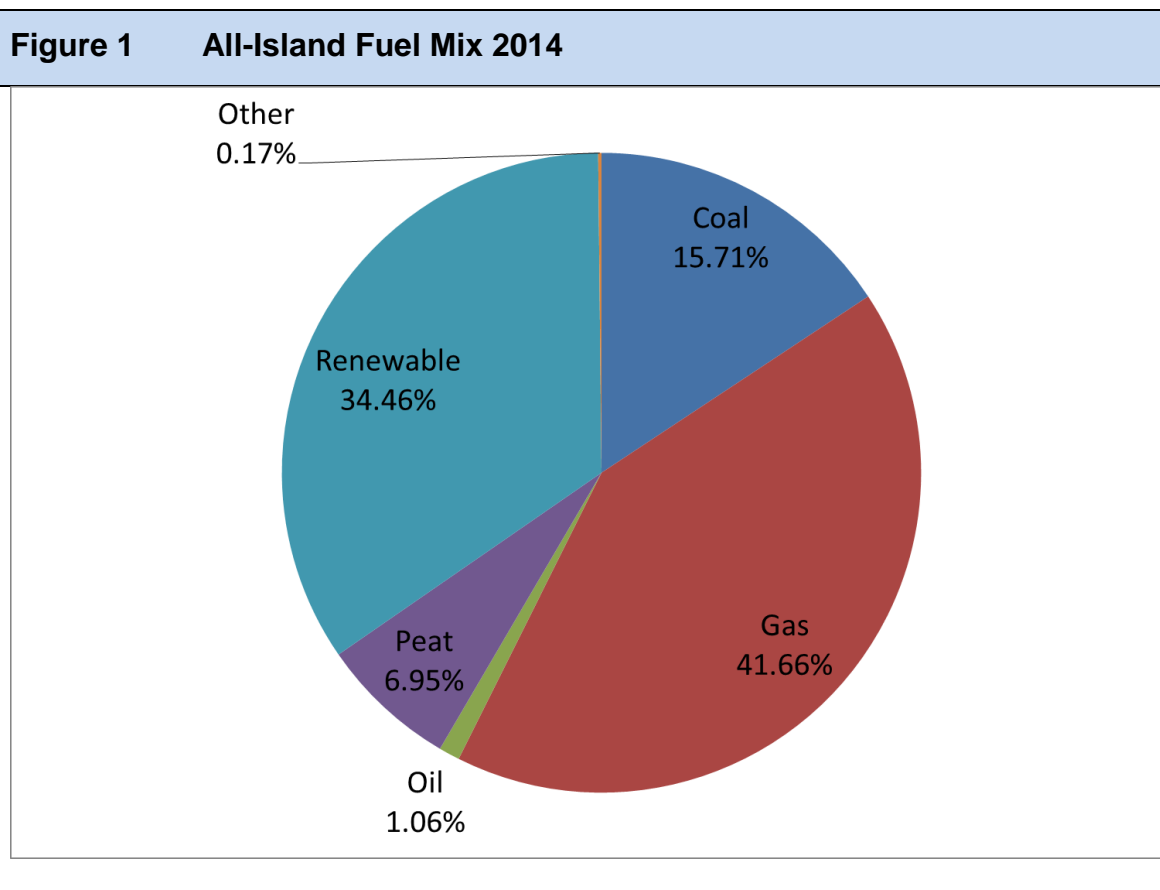
³[http://www.eirgrid.com/media/All_Island_Renewable_Connection_Report_36_Month_Forecast_\(Q4_2013\).pdf](http://www.eirgrid.com/media/All_Island_Renewable_Connection_Report_36_Month_Forecast_(Q4_2013).pdf)

⁴http://www.eirgrid.com/media/All_Island_Wind_and_Fuel_Mix_Summary_2014.pdf

⁵<http://www.eirgrid.com/operations/systemperformancedata/all-islandwindandfuelmixreport/>

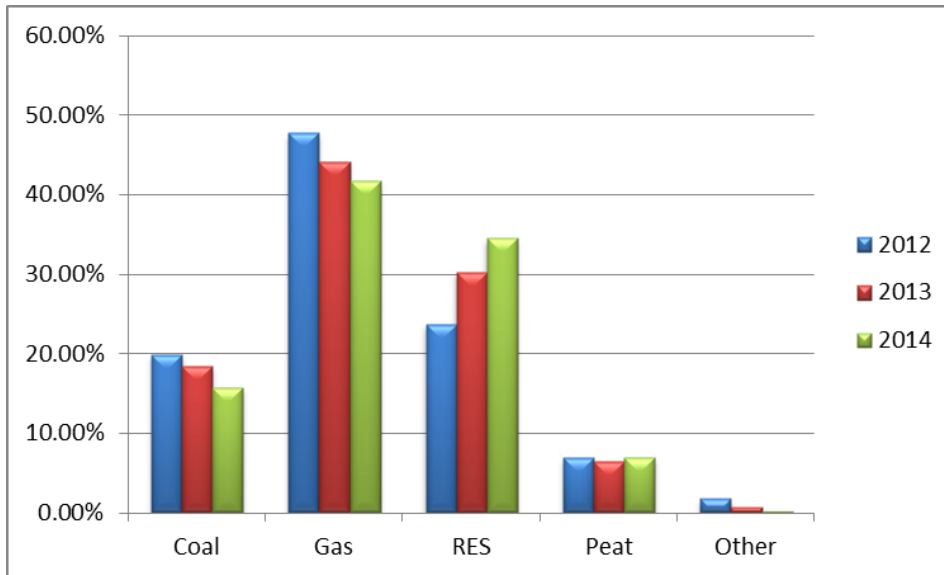
2.1.5 The average carbon dioxide emissions per MWh of electricity dropped approximately 6 % (0.029 t/MWh less) in 2013 to 0.452 t/MWh for the island [Table 2]. That 6 % reduction was linked mainly to an increase in the number of Guarantees of Origin imported to Ireland. In 2014 the carbon dioxide emissions 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 figures, 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.

2.1.6 The below Figure shows the all island fuel mix 2014.



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

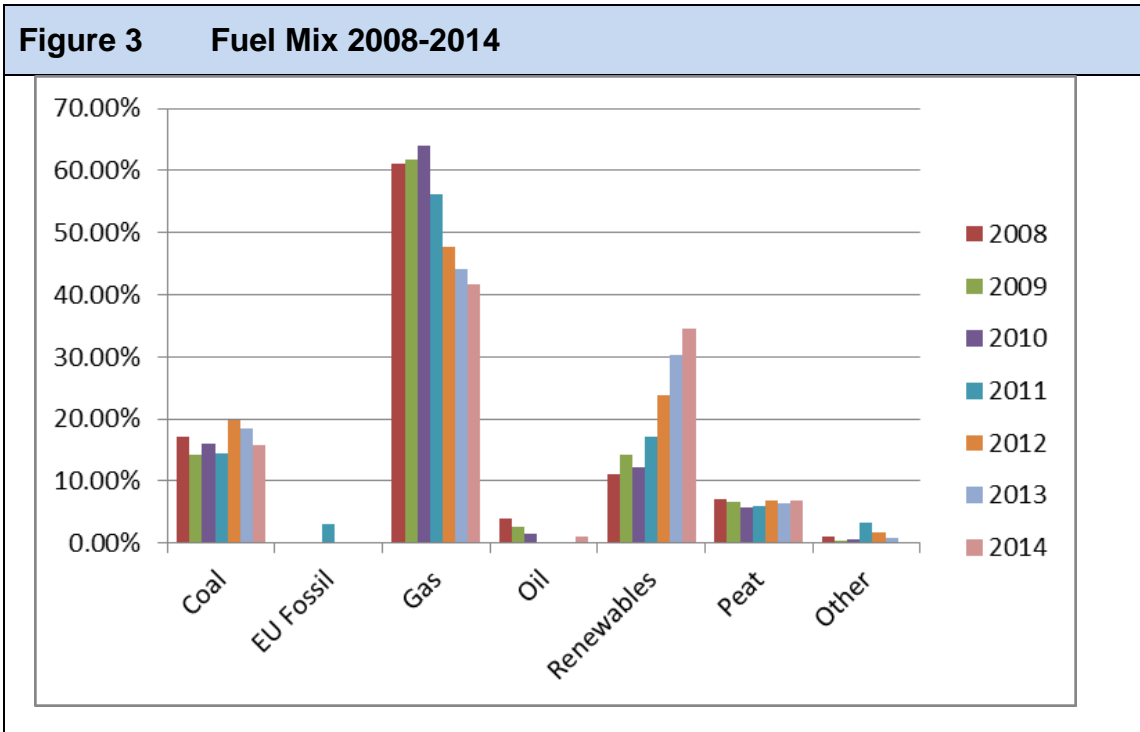
Figure 2 Fuel Mix Comparison 2012, 2013 and 2014



2.1.1 The below table 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	<p>Numbers may not sum to 100% due to rounding.</p> <p>Figures for 2008, 2009 and 2010 relate to Ireland and Northern Ireland and are based on the Interim Arrangements methodology referenced in this paper.</p> <p>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 beyond the 1 % threshold.</p> <p>“Other” for 2007 relates to CHP. CHP is not counted as a fuel source from 2008 onward.</p> <p>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.</p>						

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



2.1.1 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 AND CO₂ EMISSIONS 2014

3.1.1 Following the presentation in section 2 of the fuel mix and CO₂ emissions data on an All Island basis, this section sets out the fuel mix and CO₂ 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.

3.1.2 The below table 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 (Ireland)	14.8 %	14.9 %	6.5 %	3.1 %	60.6 %	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 (Ireland)	12.0 %	67.2 %	5.3 %	0.5 %	14.9 %	0.1 %
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 (Ireland)	17.7 %	53.5 %	7.8 %	0.8 %	19.9 %	0.2 %
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 (Ireland)	0.0 %	0.0 %	0.0 %	0.0 %	100.0 %	0.0 %
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 %
Vayu (Ireland)	1.5 %	3.1 %	0.7 %	0.1 %	94.6 %	0.0 %
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 %
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 %

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

Table 3 CO₂ Emissions per Supplier 2014	
Supplier	tCO₂/MWh
All-island	0.370
Airtricity (Ireland)	0.253
Airtricity (Northern Ireland)	0.405
Airtricity (All-Island)	0.297
Bord Gais (Ireland)	0.442
Bord Gais (Northern Ireland)	0.574
Bord Gais (All-Island)	0.445
Electric Ireland (Ireland)	0.445
Electric Ireland (Northern Ireland)	0.395
Electric Ireland (All-Ireland)	0.440
Energia (Ireland)	0.000
Energia (Northern Ireland)	0.457
Energia (All-Island)	0.088
LCC Power (Northern Ireland)	0.449
Power NI (Northern Ireland)	0.504
Vayu (Ireland)	0.031
Vayu (Northern Ireland)	0.099
Vayu (All-Ireland)	0.033

4 APPENDIX

4.1.1 Default Presentation of Information⁶.

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
<p>For more information on the environmental impact of your electricity supply visit www.SupplierZ.ie or call 00XXX X XXX XXXX</p>		

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