



Commission for Energy Regulation

An Coimisiún um Rialáil Fuinnimh

Fuel Mix Disclosure and CO₂ Emissions 2014

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QUERIES TO:	Seán Mac an Bhaird smacanbhaird@cer.ie



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*The Commission for Energy Regulation,
The Exchange,
Belgard Square North,
Tallaght,
Dublin 24.*

www.cer.ie

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Abstract:

Under Regulation 25 of S.I. No. 60 of 2005, which transposes Article 3(6) of the Electricity Directive (2003/54/EC), the CER is 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 document sets out the 2014 fuel mixes and CO₂ emissions factors for suppliers licensed in Ireland and operating in the Single Electricity Market (SEM) as calculated in accordance with [SEM-11-095](#) *Fuel Mix Disclosure in the Single Electricity Market: Calculation Methodology Decision Paper*

Target Audience:

Electricity generators, suppliers and electricity customers.

Related Documents:

- The SEM All-Island Fuel Mix Disclosure for previous periods can be found [here](#)
- The CER Fuel Mix and CO₂ Emission Factors 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*

For further information on this paper, please contact **Seán Mac an Bhaird** (smacanbhaird@cer.ie) at the CER.

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1 Introduction

1.1 Purpose of this Paper

The purpose of this paper is to set out the updated fuel mix and CO₂ emissions figures for individual electricity suppliers licensed in Ireland and operating in the SEM. 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 which transposes Article 3(9) of Directive 2009/72/EC – the provisions of which had already been transposed by S.I. No. 60 of 2005.

Fuel mix disclosure has been calculated in Ireland since 2005. However, the methodology used for the years 2005, 2006 and 2007 is no longer applicable since the introduction of the SEM in November 2007.

In the absence of the legislative framework required to implement the enduring methodology for fuel mix disclosure interim arrangements were put in place to calculate the 2008, 2009 and 2010 fuel mix disclosures, in the SEM context.

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](#)).

2 Fuel Mix & CO₂ Emissions Disclosure 2013

In section 2.3 each supplier's fuel mix figures are listed by fuel type for 2014. These figures derive from the methodology described in SEM-11-095. The all-island fuel mix is also indicated for comparison. In section 2.4, the tonnes of CO₂ per MWh of electricity supplied are given for each supplier as well as an overall figure representative of the all-island electricity market.

2.1 Presentation of Information

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 to this paper. In particular the CER would like to remind suppliers of the following:

- 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 S.I. No. 60 of 2005, 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.

2.2 All-Island Fuel Mix 2014

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 as set out in this paper. At a high level the fuel mix figure for a supplier consists of non-renewable generation attributes, guarantees of origin (GOs) 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 below. Firstly, the GO scheme permits transfer of GOs between EU Member States which, depending on the quantity of GOs imported or exported from Ireland in a given period, has the potential to vary significantly from the actual renewable generation produced within the jurisdiction¹. 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.

As can be seen from the following graphs, based on the methodology set out in SEM/11/095, 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]**.

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 GO 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 MW² and 367 MW in 2014, and lastly, the wind capacity factor for 2013 was 30.6% and 28.5 % for 2014, compared to 28.4% for 2012³.

The "other" category consists of all fuels, in a given year, that represent less than 1% of the final overall generation in the calculation as set out in SEM/11/095 decision paper. The 'other' contribution for 2013 consists 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 1]**. That 6% reduction was linked mainly to an increase in the number of GOs 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

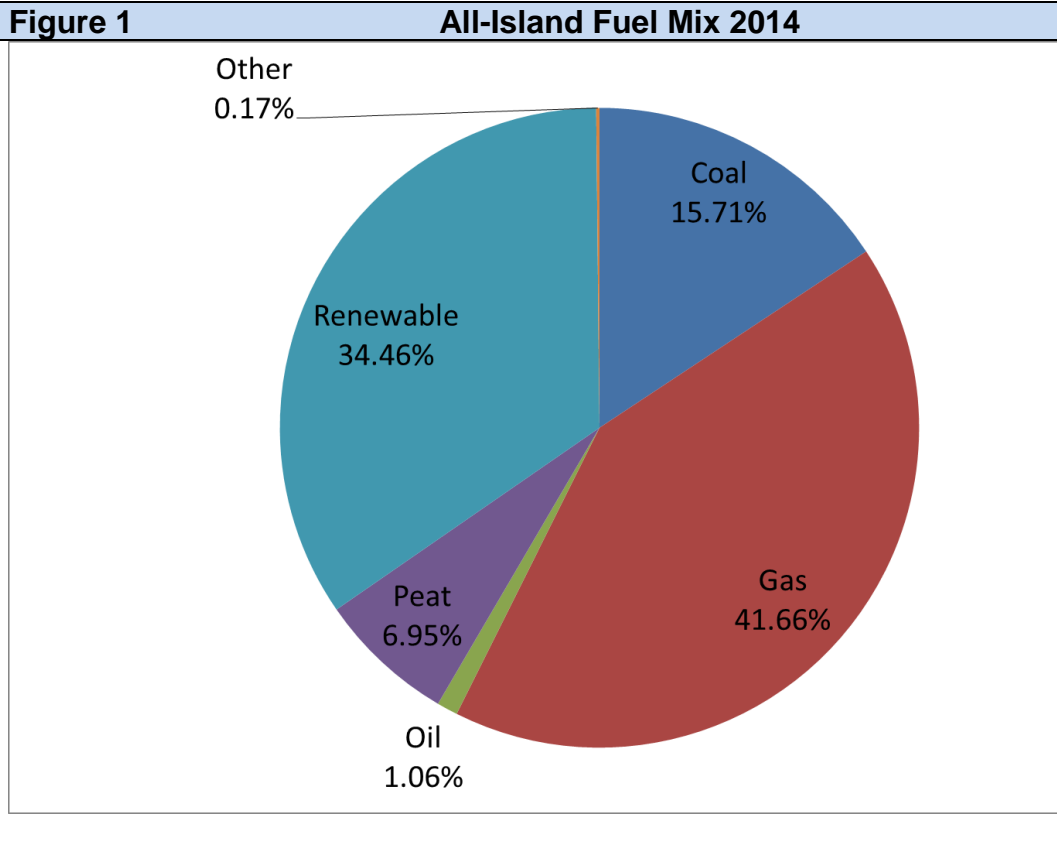
¹ There were 4,957,392 imported GOs declared by suppliers for disclosure in the 2014 fuel mix. One GO represents 1MWh of electricity produced from a renewable source. The 4,957,392 imported contributed to approximately 39 % of the overall renewable figure of 12,680,391.92 MWh.

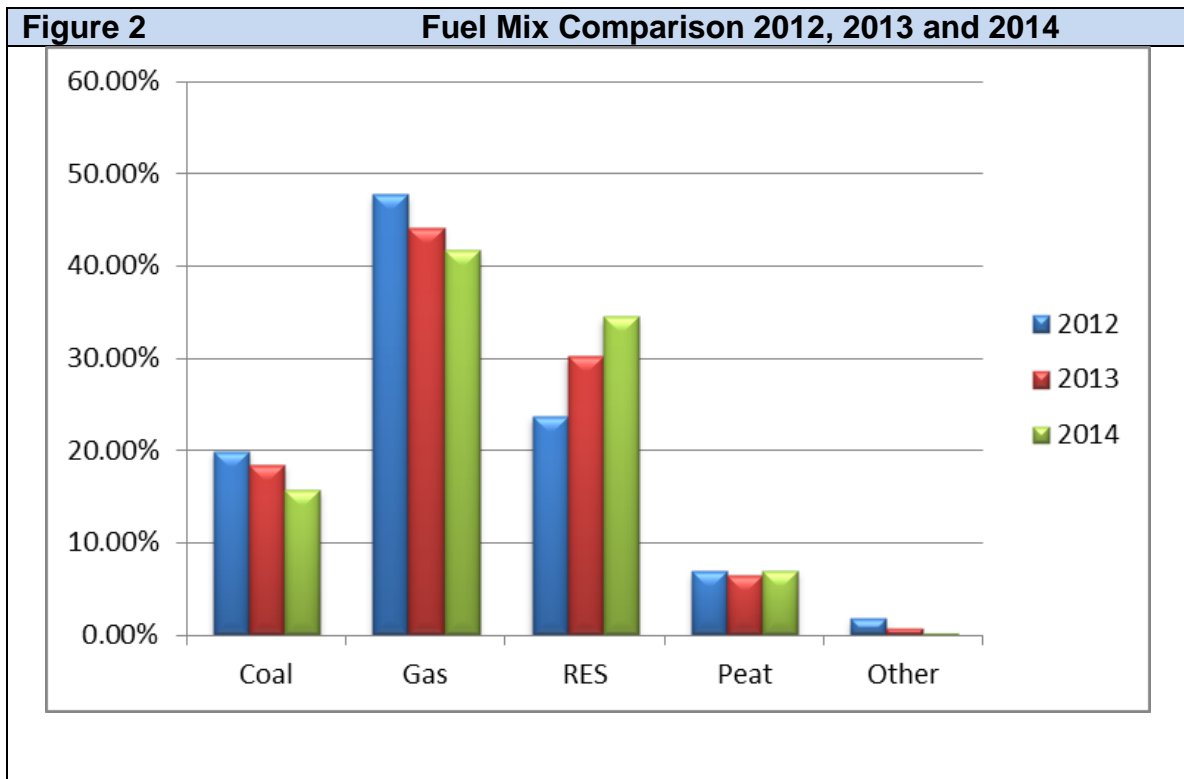
² [http://www.eirgrid.com/media/All_Island_Renewable_Connection_Report_36_Month_Forecast_\(Q4_2013\).pdf](http://www.eirgrid.com/media/All_Island_Renewable_Connection_Report_36_Month_Forecast_(Q4_2013).pdf)

³ <http://www.eirgrid.com/operations/systemperformancedata/all-islandwindandfuelmixreport/>

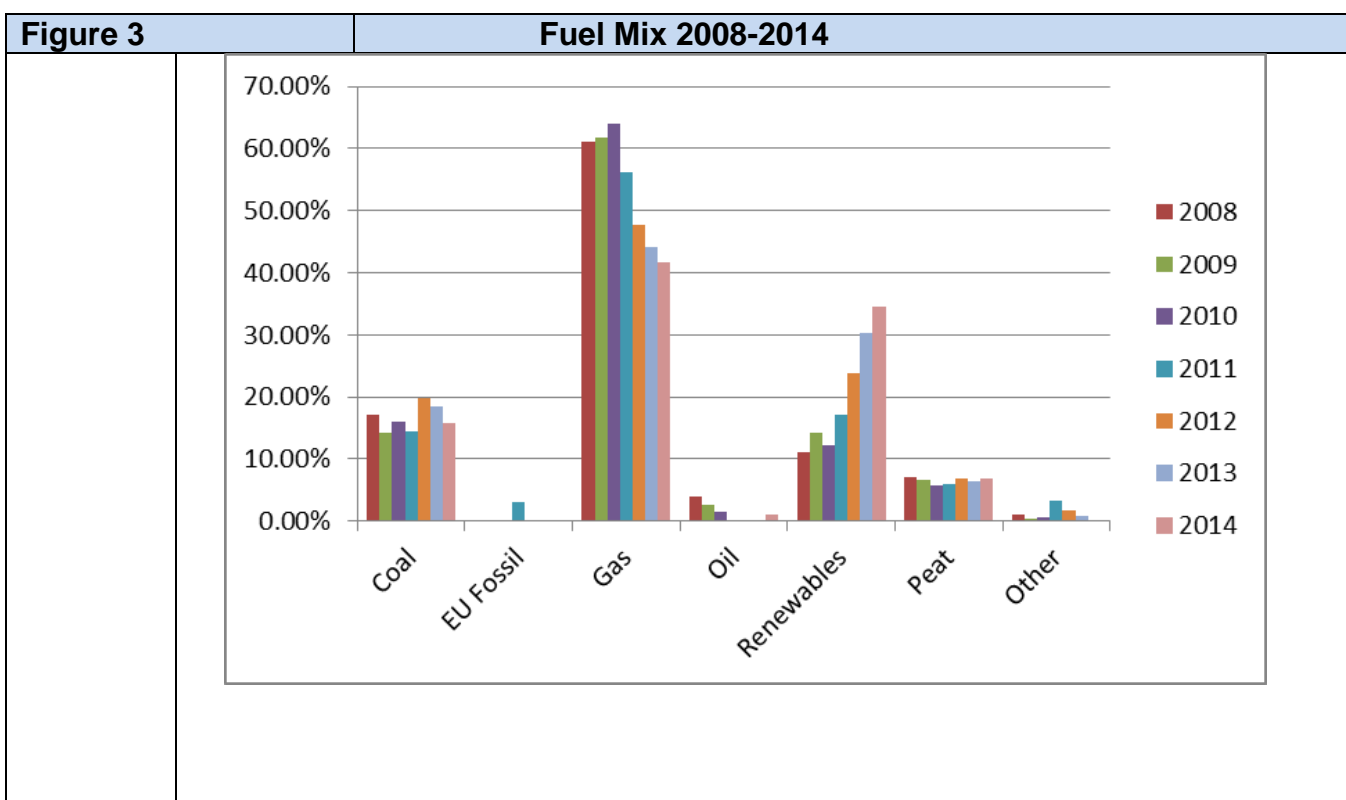
Disclosure of 2014 Fuel Mix and CO₂ Emissions

associated with a reduction in coal and an increase in renewables. To calculate, emissions figures are supplied by the EPA and DOE annually to the SEMO for each conventional generator in the SEM. These emission figures are totalled 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. This process is repeated for each Supplier, using their individual mix, to arrive at their individual Supplier emissions factor.





Disclosure of 2014 Fuel Mix and CO₂ Emissions



	2007	2008	2009	2010	2011	2012	2013	2014
Coal	18.00%	17.00%	14.24%	15.98%	14.44%	19.89%	18.42%	15.71%
EU Fossil	0.00%	0.00%	0.00%	0.00%	3.12%	0.00%	0.00%	0.00%
Gas	55.00%	61.00%	61.85%	64.06%	56.16%	47.74%	44.09%	41.66%
Oil	6.00%	4.00%	2.53%	1.59%	0.00%	0.00%	0.00%	1.06%
Renewables	11.00%	11.00%	14.23%	12.11%	17.21%	23.74%	30.24%	34.46%
Peat	6.00%	7.00%	6.70%	5.78%	5.88%	6.86%	6.49%	6.95%
Other	4.00%	1.00%	0.45%	0.48%	3.18%	1.77%	0.75%	0.17%

Numbers may not sum to 100% due to rounding.

Please note figures from 2007 relate to Ireland only and calculations are based on pre-SEM methodology.

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 beyond the 1 % threshold.

“Other” for 2007 relate 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 .

Disclosure of 2014 Fuel Mix and CO₂ Emissions

Table 1	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

2.3 Suppliers' Fuel Mix by Fuel Type in 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 (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 (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 (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 (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 (All-Island)	1.6 %	3.3 %	0.7 %	0.1 %	94.3 %	0.0 %

Note: The fuel mix calculation 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.

2.4 Suppliers' CO₂ Emissions for 2014

Supplier	tCO ₂ /MWh
All-island	0.370
Airtricity (Ireland)	0.253
Airtricity (All-Island)	0.297
Bord Gais (Ireland)	0.442
Bord Gais (All-Island)	0.445
Electric Ireland (Ireland)	0.445
Electric Ireland (All-Ireland)	0.440
Energia (Ireland)	0.000
Energia (All-Island)	0.088
Vayu (Ireland)	0.031
Vayu (All-Ireland)	0.033

Appendix: Bill Layout

Default Presentation of Information⁴

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		

⁴ Please refer to SEM-11-095 for further detail on presentation requirements. Note that the fuel categories used each year can vary.