

Fuel Mix Disclosure & CO₂ Emissions 2013

July 2013



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 2013 calendar year fuel-mix and CO₂ emissions figures for suppliers operating in the SEM. The disclosures are based on 2012 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 CO₂ emissions figures for suppliers licensed in Northern Ireland and operating in the SEM. The disclosures are based on the 2013 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 Committee¹ Decision Paper *Interim Arrangements: Fuel Mix Disclosure in the SEM* ([SEM-09-081](#)).

This methodology was superseded in 2011 and replaced by the SEM Committee Decision Paper *Fuel Mix Disclosure in the Single Electricity Market: Calculation Methodology Decision Paper* ([SEM-11-095](#)).

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

2 Fuel Mix and CO₂ Emissions Disclosure 2013

In section 2.3 below each supplier's fuel mix figures are listed by fuel type for 2013. 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 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 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 0.000t/MWh for all suppliers in 2013 and therefore need not be included with the 2013 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 2013 fuel mix information must be on all bills within two months of the publication of this paper.

2.2 All-Island Fuel Mix 2013

The SEMC decision paper SEM/11/095 outlines the calculation methodology which has been used to calculate the fuel mix and CO₂ emissions for 2013 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 guarantees of origin 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 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.

As can be seen from the graphs below, based on the methodology set out in SEM/11/095 in 2013, gas made the largest contribution to the island's electricity supply at 44% (down from 48% in 2012) while renewable energy made up 30% of the total **[Figure 1]**.

Relative to 2012, renewables contributed more to the fuel mix in 2013 **[Figure 2]**. There are a number of contributing factors to this increased figure. Firstly, and primarily, in 2013 there was a significant amount of GO certificates imported from Europe by suppliers for use in their fuel mix figures (circa 4.7 million). Secondly, there was an increase in installed capacity of wind in 2013 of 198.5 MW³, and lastly, the wind capacity factor for 2013 was 30.6% compared to 28.4% for 2012⁴.

The "other" category consists of all fuels which 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.

The average carbon dioxide emissions per MWh of electricity dropped approximately 6% (0.029t/MWh less) in 2013 to 0.452t/MWh for the island **[Table 1]**. This was mainly a result of the increase in the number of GOs imported to Ireland for the 2013 fuel mix disclosure. 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 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

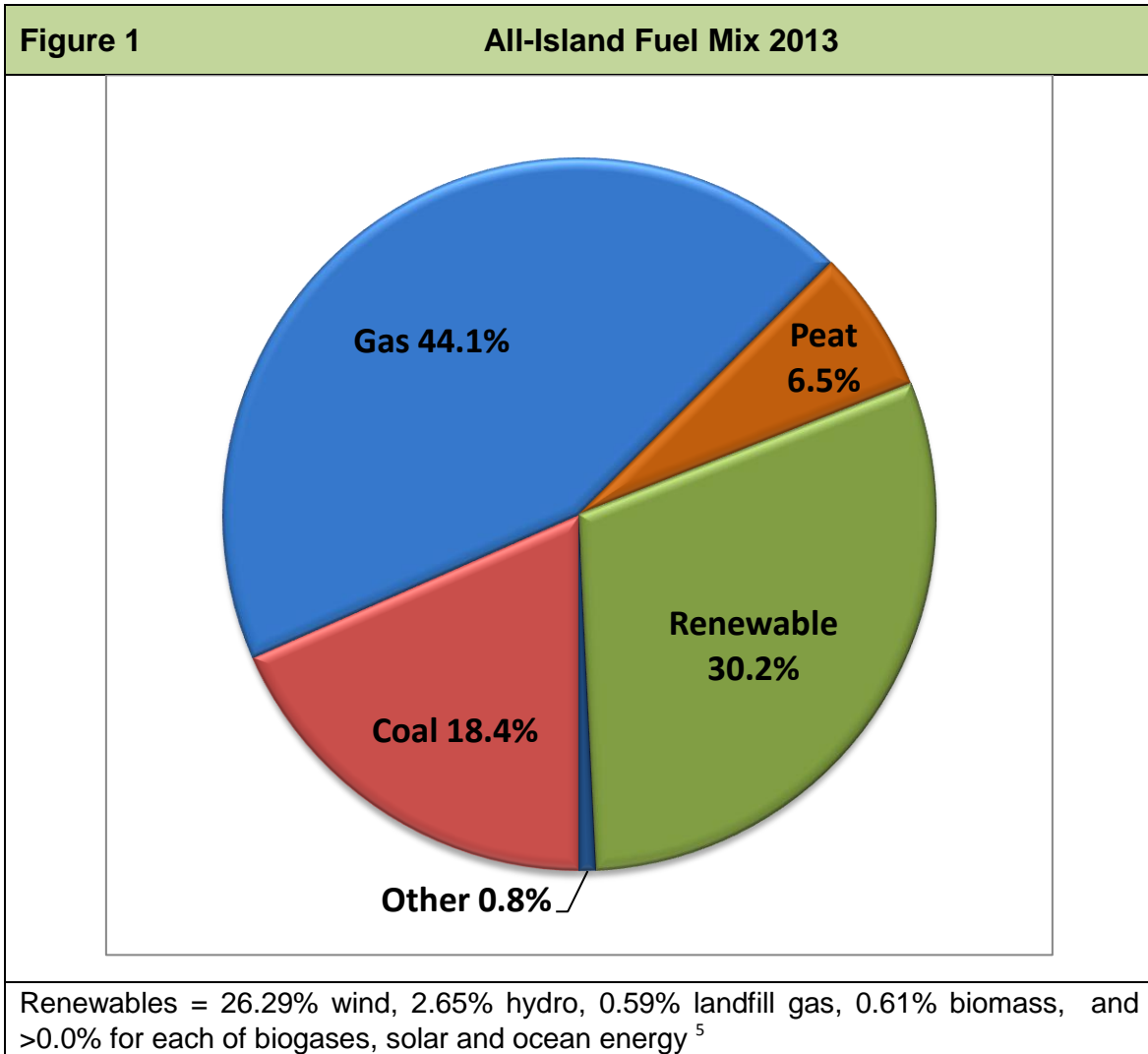
² There was 4,702,096 GOs imported declared by supplier for disclosure in the 2013 fuel mix compared to a total renewable contribution of 10,707,910.41 MWh. One GO represents 1MWh of electricity produced from a renewable source.

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)

⁴ <http://www.eirgrid.com/operations/systemperformancedata/all-islandwindandfuelmixreport/>

Disclosure of 2013 Fuel Mix and CO₂ 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.



⁵ The percentage breakdown of renewable generation is based on the all-island **production** mix (i.e. non-loss adjusted metered generation & before interconnection)

Figure 2

Fuel Mix Comparison 2012 and 2013

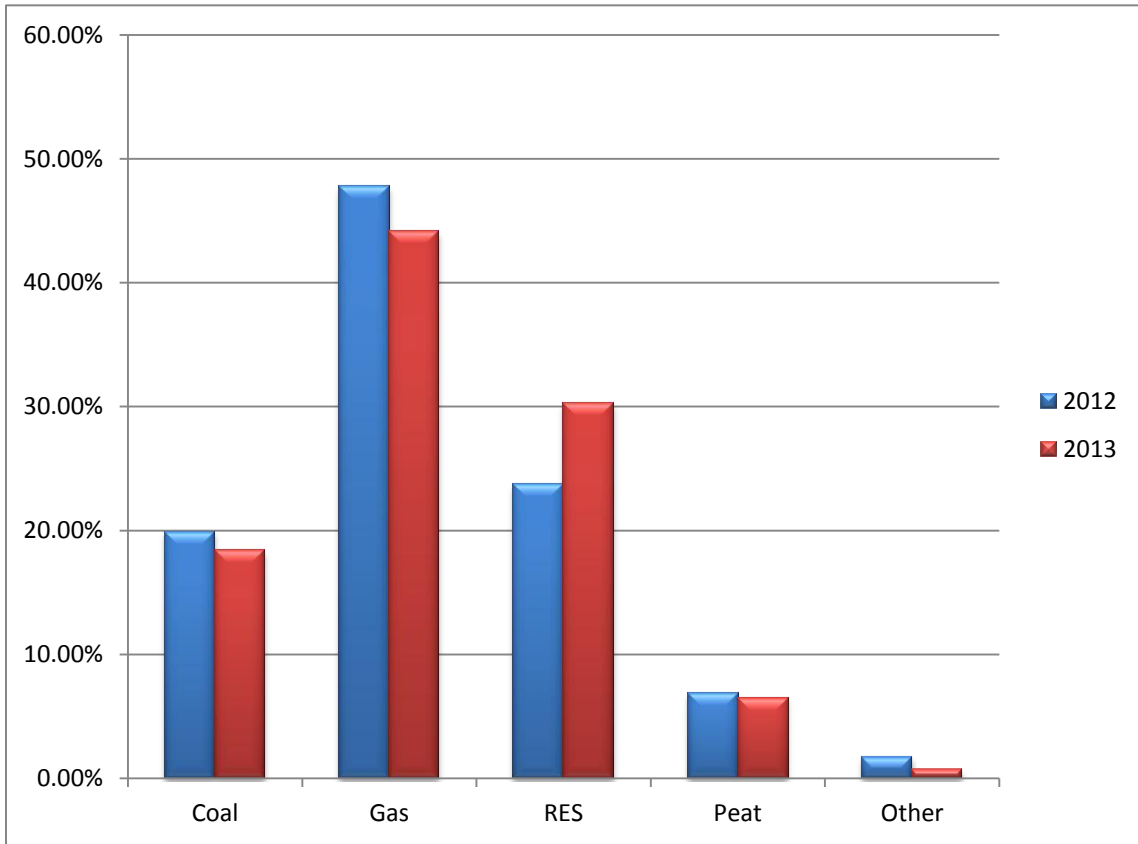
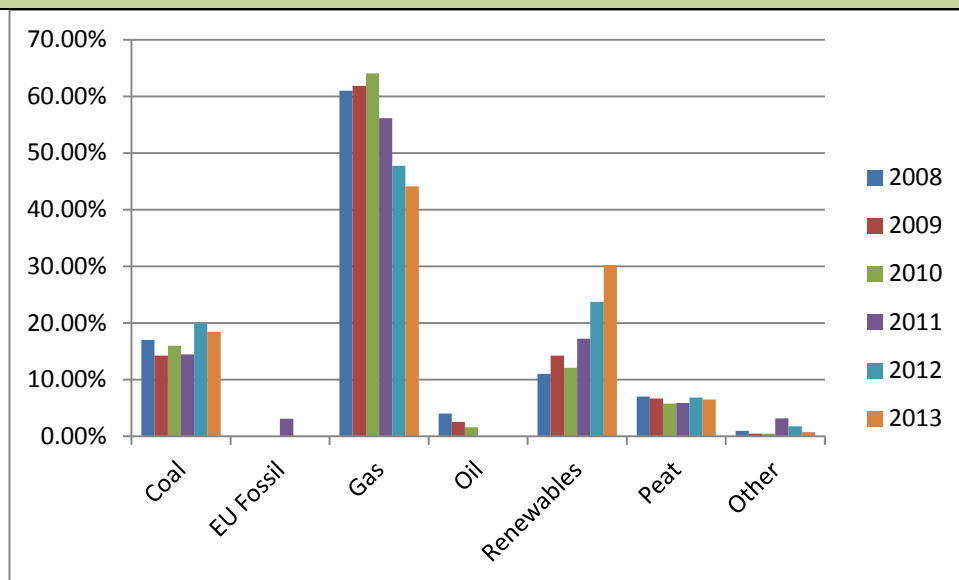


Figure 3 Fuel Mix 2008-2013



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

Numbers may not sum to 100% due to rounding.

Figures for 2008, 2009 and 2010 relate to Northern Ireland and Ireland and are based on the Interim Arrangements methodology referenced in this paper.

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 this paper.

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).

Disclosure of 2013 Fuel Mix and CO₂ Emissions

Table 1	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

2.3 Suppliers' Fuel Mix by Fuel Type in 2013

Supplier	Coal	Gas	Peat	Renewable	Other
All-island	18.4%	44.1%	6.5%	30.2%	0.8%
Airtricity (Northern Ireland)	37.2%	33.2%	13.1%	15.3%	1.2%
Airtricity (All-Island)	26.2%	23.3%	9.2%	40.1%	1.2%
Bord Gais (Northern Ireland)	43.9%	39.2%	15.4%	0.1%	1.4%
Bord Gais (All-Island)	8.3%	66.6%	2.9%	21.9%	0.3%
Electric Ireland (Northern Ireland)	0.0%	85.0%	0.0%	15.0%	0.0%
Electric Ireland (All-Ireland)	20.2%	57.5%	7.1%	14.6%	0.6%
Energia (Northern Ireland)	0.0%	100.0%	0.0%	0.0%	0.0%
Energia (All-Island)	0.0%	25.6%	0.0%	74.4%	0.0%
LCC Power	12.5%	11.2%	4.4%	71.5%	0.4%
Power NI (Northern Ireland)	27.3%	60.5%	9.6%	1.7%	0.9%
Vayu (Northern Ireland)	0.0%	0.0%	0.0%	100.0%	0.0%
Vayu (All-Ireland)	0.0%	0.0%	0.0%	100.0%	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 2013

Supplier	tCO ₂ /MWh
All-island	0.452
Airtricity (Northern Ireland)	0.659
Airtricity (All-Island)	0.467
Bord Gais (Northern Ireland)	0.777
Bord Gais (All-Island)	0.414
Electric Ireland (Northern Ireland)	0.383
Electric Ireland (All-Island)	0.535
Energia (Northern Ireland)	0.450
Energia (All-Island)	0.115
LCC Power (Northern Ireland)	0.222
Power NI (Northern Ireland)	0.646
Vayu (Northern Ireland)	0.000
Vayu (All-Island)	0.000

Appendix: Bill Layout

Default Presentation of Information⁶

Supplier Z Disclosure Label		
Applicable Period: January 2013 to December 2013		
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.