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1 Implementation of Tracking Systems

1.1 Electricity Disclosure

A disclosure scheme has been in place in Ireland since 2005 (Regulation 25 of S.I. 60 of 2005 which transposes Art. 3.6 (a) of the Directive 2003/54/EC). Since November 2007, the Single Electricity Market (SEM) that encompasses Ireland and Northern Ireland has been fully operational.

The fuel-mix disclosure has been calculated in Ireland since 2005. However with the introduction of the SEM in 2007 the methodology used for the years 2005 until 2007, was no longer applicable and thus it was revised. The Commission for Energy Regulations (CER) set out Interim Arrangements for Fuel Mix Disclosure in the SEM (SEM-09-095), with which it has transposed the requisites of the RES directive referent to disclosure. The proposed methodology seems quite advanced in terms of reliability and accuracy, including the introduction of a Residual Mix Calculation. This methodology has been used in the calculation of the 2011 disclosure figures.

In Ireland the attributes that have been disclosed are:

- Energy source in the fuel mix (share);
- Environmental information: CO₂ emissions (g/kWh) and radioactive waste;

In terms of energy sources, the following are distinguished within the disclosure statement:

- Coal;
- Natural Gas;
- Nuclear;
- Renewable (wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases);
- Peat,
- Oil; and
- Other (energy sources, including those listed which represent less than 2.5% of the total contribution to meeting the islands demand)

Disclosure of fuel mix information and associated environmental information is mandatory for:

- all island markets;
- supplier's company portfolio; and
- individual products (where a supplier offers a product(s) to specific customers on the basis of a particular fuel-mix or a given level of CO₂ emissions):

Disclosure is done annually for the calendar year period (starting 1st January and ending 31st December each year). Information must be disclosed six months after the end of the calendar year.

The suppliers' company portfolio is determined for both Ireland and Ireland plus Northern Ireland (called All-Island in the suppliers fuel mix disclosure figures presented below).

1.1.1 Disclosure Figures

Table 1 summarises all island fuel mix disclosure figures since 2005 until 2010 as well as the average CO₂ emissions for 2008, 2009 and 2010. Table 2 shows the suppliers' fuel mix by fuel type in 2010 as well as the CO₂ emissions for the same year.

Table 1: All Island Fuel Mix Disclosure Figures 2005-2010 (%) and Average CO₂ emissions 2008-2010 (tCO₂/MWh)

	2005	2006	2007	2008	2009	2010
Coal	24%	19%	18%	17%	14%	16%
Gas	46%	50%	55%	61%	62%	64%
Oil	12%	9%	6%	4%	3%	2%
Renewables	9%	11%	11%	11%	14%	12%
Peat	8%	7%	6%	7%	7%	6%
Other	1%	4%	4%	1%	0%	0%
Average CO₂ emissions (tCO₂/MWh)	N.A	N.A	N.A	0.533	0.504	0.519

Notes:

The figures for 2005, 2006 and 2007 relate to Ireland and calculations were based on the pre-SEM methodology (no longer applicable)

The figures for 2008, 2009 and 2010 relate to Ireland and Northern Ireland and are based on the Interim Arrangements methodology (SEM-09-081).

In 2005, 2006 and 2007 disclosure figures "Other" related to CHP. CHP is not counted as a fuel source from 2008 onwards.

Table 2: Suppliers' Fuel Mix by Fuel Type (%) and Suppliers' CO₂ emissions in 2010

Supplier*	Coal (%)	Oil (%)	Gas (%)	Peat (%)	Renewables (%)	Other (%)	CO ₂ emissions (tCO ₂ /MWh)
Airtricity (All-island)	11.0	1.1	44.1	4.0	39.5	0.3	0.357
Airtricity (Northern Ireland)	0.9	0.1	3.5	0.3	95.2	0.0	0.029
Bord Gáis Energy (All-Island)	15.9	1.6	64.3	5.7	12.0	0.5	0.519
Firmus Energy (Northern Ireland)	15.9	1.6	64.5	5.8	11.7	0.5	0.520
Viridan (All-Island)	16.1	1.6	64.5	5.8	11.5	0.5	0.523
Viridan (Northern Ireland)	15.4	1.5	61.4	5.6	15.7	0.4	0.498
ESB IE (All Island)	17.0	1.7	67.8	6.1	6.9	0.5	0.550
ESB IE (Northern Island)	17.0	1.7	67.8	6.1	6.9	0.5	0.551
NIE (Northern Ireland)	17.3	1.7	69.0	6.3	5.2	0.5	0.560
All Island	16.0	1.6	64.1	5.8	12.1	0.4	0.519

* Where suppliers operate on an all-island basis their combined Irish and Northern Irish fuel-mix is listed along with the fuel-mixes associated with their Northern Irish electricity supply licences.

1.1.2 Environmental Information

Environmental impact information is set up according to the Decision Paper SEM/11/095. This includes both information on CO₂ emissions and radioactive waste.

The Calculating Body (Ofgem) calculates the CO₂ emission factors for each fuel type, based on information received from the EPA and DETI and on metered data for the disclosure period. The calculated emission factors are then applied to the suppliers' fuel mixes to produce a figure for CO₂ emissions per kWh which is then published along side the fuel mix figures.

The publication of fuel-mix and environmental impact information on either the front or back of bills must be concluded within two months from the date on which the required information is made available to suppliers.

1.1.3 Suppliers Fuel-Mix Calculations

The Fuel Mix Disclosure in the Single Electricity Market: Calculation Methodology SEM/11/095) outlines the methodology used in Ireland for calculation of the suppliers fuel mix.

SEMO is the body responsible for calculating the fuel mix figures and to disclose them once a year.

The suppliers fuel-mix information for a given Disclosure Period (starting in the 1st of January and ending on the 31st of December of a given year) is calculated based on evidence of the source of energy according to the following procedure¹:

1. SEMO informs each supplier of their demand and the generation attributes assigned to them;
2. Each licensed supplier then provides to SEMO their disclosure submission, which includes all GOs they wish to use for the relevant disclosure period and confirmation that the generation attributes assigned to them are correct.
3. The total generation attributes as set out in the supplier's submission is used to meet the suppliers demand.
 - o Where the supplier has more generation attributes than demand the surplus will be put into the Residual Mix (renewable generation attributes will be assigned to the supplier first followed by thermal generation attributes in ascending order of emissions per MWh). The supplier is notified if its submission exceeds its demand.
 - o Where the supplier has more demand than contained in the submission the Residual Mix will be used to meet the remaining demand.

Thus the suppliers' fuel mix is made up of the total number of valid GOs and generator assignments plus a proportionate amount of the Residual Mix. The suppliers' fuel mix is calculated only once a year using all data considered in aggregate over the disclosure period time and not in smaller time intervals for the calculations of the fuel-mixes.

The Residual Mix is calculated by the following procedure:

1. any generation attributes not assigned to (including exported generation attributes), and submitted by a supplier;
2. surplus GOs declared by suppliers;
3. unused and expired certificates which were active in the relevant Disclosure Period; and
4. where the all-island demand is greater than the sum of all the suppliers' declarations plus the Residual Mix (based on the above inputs) the European Residual Mix is applied to the remaining demand and included in the Residual Mix. In the case that demand is less than the sum of all the suppliers' declarations the surplus is to be included in the European Residual Mix.

For these calculations, and to ensure harmonisation with other European countries, suppliers should submit their GOs three months after the end of the disclosure period (31st March each year). By the end of April all-island surplus or deficit will be calculated and applied to the European Residual Mix calculation. The publication of the All-island disclosure figures takes place eighteen working days from the date the Calculating body issues the indicative fuel mixes to suppliers.

¹ SEM/11/095, Fuel Mix Disclosure in the Single Electricity Market: Calculation Methodology SEM/11/095

The calculations use the most up-to-date meter available data at the time of the calculations sourced from meter data providers. Emission figures, which are expected to be available in May each year, will be sourced from the EPA in Ireland and from the DOE in Northern Ireland, except for those plants that do not require submitting information to the EPA or DOE. These figures are expected to be available each year in May.

As disclosure is done for all-island and Northern Ireland has different disclosure period (fiscal year instead of calendar year), there are administrative procedures in place in relation to the GOs for Northern Ireland: Northern Irish suppliers must “retire” their GOs before submitting them to the SEMO. Nineteen months after the month of the relevant generation Northern Irish GOs will be cancelled on Ofgem’s register at which point the GOs cannot be used for fuel mix disclosure. SEMO will check the Ofgem register on 31st March each year to verify the information on the register with the suppliers’ submissions. Only GOs retired on the Ofgem register prior to 31st March will be included in the fuel mix disclosure calculation.

Table 3 summarises the information that needs to be submitted to SEMO, for SEMO to calculate the suppliers fuel mix and all island fuel-mix.

Table 3: Information to be supplied to SEMO by party²

Party	Information to be supplied to SEMO
Single Electricity Market Operator	<ul style="list-style-type: none"> Total amount of electricity (MWh) sold into the SEM pool for the Disclosure Period by all generating stations (and Intermediaries). Total generation purchased from the SEM pool by each supplier (MWh) for the Disclosure Period. Total demand (MWh) by supplier for the Disclosure Period.
Meter Data Providers	<ul style="list-style-type: none"> Total amount of generation (MWh) associated with all out-of-market purchases for the Disclosure Period.
Suppliers	<ul style="list-style-type: none"> A list of all GOs suppliers wish to be used for the Disclosure Period. A list of all generation attributes assigned to the supplier that the supplier wishes to use for the Disclosure Period, including the relevant information outlined in this decision paper that is required relating to imported non-renewable generation. Any further information that may be required by the Calculating Body to verify the supplier’s claims in relation to their fuel mix disclosure.
All generators not restricted to report emissions for the purposes of the Emissions Trading Scheme (ETS)	<ul style="list-style-type: none"> A list of fuels used by the generator over the Disclosure Period. Where more than one fuel was used the total fuel usage, by fuel type. The meter data providers will assist the Calculating Body in collating this data.
Other	<ul style="list-style-type: none"> Emissions figures will be sourced from the EPA in Ireland and the DOE in Northern Ireland. The Regulatory Authorities will facilitate the provision of this information.

The losses are accounted only at the point of calculating the fuel mix not before and will not apply to any GO at the point of issue or at the point of export. SEM Committee has decided that a uniform factor is applied to demand used in the disclosure calculation that represents the difference between total metered generation (adjusted for net imports) and total metered demand occurring during the Disclosure Period. The Calculating Body informs the suppliers of this factor at the time it issues suppliers fuel mixes for their review.

² Information extracted from: Fuel Mix Disclosure in the Single Electricity Market: Calculation Methodology SEM/11/095

1.2 Guarantees of Origin for Electricity from Renewable Energy Sources and High-Efficient Cogeneration

For Ireland, legislation on the Supervision and Issuance of Guarantees of Origin (GOs) has been enacted by the SI N^o. 147 of 2011, European Communities (Renewable Energy) Regulations 2011, which transposes article 15 of the Renewables Directive. This regulation appoints SEMO (Single Electricity Market Operator) as the competent body to issue, register, transfer and cancel GOs for electricity from renewable energy sources and CER as the responsible body for establishing the supervisory framework for GOs.

At the time of writing of this country profile no CHP-GO was in place.

The issuing of GOs is carried out by SEMO in accordance with the European Communities (Renewable Energy) Regulations 2011 and with a supervisory framework that has been established by CER in the Decision Paper CER/11/824: Supervisory Framework for Administration of GOs for the purposes of fuel mix disclosure. This framework CER/11/824 establishes that:

- A GO is as an electronic document which has the sole function of providing proof to a final customer that a given share or quantity of energy was produced from renewable sources.
- Any eligible producer of renewable energy which is registered within the scheme may request to be issued with a GO which may be transferred and used in any Member State in Europe.
- The lifetime of a GO is 12 months, therefore, a GO must be used for a disclosure period that is within twelve months of the production of the associated energy.
- Each GO can only be used once and 1MWh can only be issued with one GO.

In terms of the procedures for issuing, transferring and cancelling GOs the framework establishes the following:

- a GO should be issued for each MWh of metered generations not previously issued with a GO. The GO will be valid from the date of production and will be expired within 12 months from the production date;
- The issuance of GOs will take place on a quarterly basis by the appointed competent body SEMO;
- Any market participant can request or transfer a GO in accordance with SEMO's timelines (at a minimum of once per quarter);
- GOs can be transferred and used after expiring (i.e. twelve calendar months after the date of production of the associated electricity);
- GOs are not issued to electricity that receives Public Service Obligation (PSO) support;
- SEMO may refuse to recognise a GO issued by another Member State where there are doubts about the accuracy, reliability or veracity of the GO in accordance with the Supervisory Framework and its processes and procedures;
- If a market participant wishes to include imported GOs in their fuel mix the participant should inform the SEMO of imported GO certificates in advance of the participant's relevant fuel mix declaration in accordance with timelines to be set out in the SEMO's procedures and processes as approved by the CER;
- Also participants in the Irish GO scheme must inform SEMO of the export of any GOs.

The scheme for GOs of electricity from renewable energy sources, is already established and running in Ireland. The first period of issuing GOs took place early in 2012 with respect to the period of 1st January 2011 to 31st December 2011. Thereafter, the quarterly cycle applied. SEMO published on their website the periods in which GOs are issues (<http://www.semo.com/Publications/Pages/GeneralPublications.aspx>).

1.2.1 EECS

In Ireland, two companies are members of EECS, and thus EECS is used for the creation, issuance, transfer and use of RECS Certificates by these companies. IRECS members are Airtricity and First Electric Limited. According to AIB statistics from November 2011, Ireland has only issued RECS in 2007

and 2008, transferred RECS (exported) in 2007. Thus RECS have been not issued transferred or cancelled since 2008.

1.2.2 RECs Statistics

The following table shows the EECs issued, transferred and cancelled for Ireland from 2007 onwards.

Table 4: RECs issued, transferred and cancelled in Ireland (AIB statistics Nov2011)

	Issued	Transferred			Cancelled
		Internal	Export	Import	
2007	11,163	-	10,001	-	-
2008	151,251	-	-	-	-
2009	-	-	-	-	-
2010	-	-	-	-	-
2011	-	-	-	-	-
Total	162,414	-	10,001	-	-

1.3 RES-E Support Schemes

Ireland has been supporting RES-E generation first through the Alternative Energy Requirement (AER) support programme and from May 2006 onwards through the Renewable Energy Feed in Tariff (REFIT). With the introduction of the REFIT the AER programme came to an end.

Under the previous “AER” support programme project developers bid prices at which they were willing to sell electricity from renewable energy powered electricity generating stations to the ESB for fifteen years. The lowest priced bids up to capacity limits announced in the competition notes received contracts with the ESB. The contracts obliged the ESB to purchase the electricity produced for 15 years at the bid prices. The associated revenue stream was sufficient to allow developers to secure bank debt to finance the capital costs³. The ESB was compensated for the net additional costs it incurred from a PSO levy funded by electricity consumers

Under REFIT, the purchase price is negotiated between the generator and supplier directly. The consumer interest is protected by imposing reference prices beyond which compensation to suppliers will not be paid. Contracting suppliers will be compensated for the net additional costs incurred (up to the price caps notified in the programme notes) from the PSO levy funded by electricity consumers. This type of support is associated with the “fixed feed in tariffs” which has proven successful in many EU states. The REFIT scheme, since it was established in 2006, has undergone through 3 applications:

REFIT 1 – The original REFIT scheme covered: small and large scale onshore wind, biomass landfill gas, other biomass and hydro (≤ 5 MW.). The original REFIT scheme announced in 2006 received state aid clearance in 2007. Under the terms of the state aid clearance, no new applications have been accepted since 31/12/2009. The balancing payment per megawatt hour in REFIT 1 in 2012 is €10.212.

REFIT 2 – The application for REFIT 2 scheme (onshore wind, small hydro and landfill gas) was opened in March 2012. The REFIT 2 scheme is intended to cover small and large scale onshore wind, biomass landfill gas and small hydro (≤ 5 MW.) To be eligible for REFIT 2, the various requirements that will be set out in the terms and conditions must be fulfilled including proof of planning permission and grid connection -plants must be new plants neither fully commissioned nor operational on 1/1/2010. The balancing payment per megawatt hour in REFIT 2 in 2012 is €9.90

REFIT 3 – The application for REFIT 3 for biomass technologies received state aid clearance from the European Commission in October 2011 and the scheme was open in February 2012. REFIT 3 is a scheme to cover 310MW of certain biomass related REFIT categories.

Both REFIT 2 and REFIT 3 schemes are for projects built and operational between 1/1/10 and 31/12/15.

³ typical debt is 75% of €1.1 million / MW built

The following table shows the price support caps from 2009 until 2011.

Table 5: Reference prices for 2009, 2010, 2011 and 2012⁴

RE Technology			2009	2010	2011	2012
Large category	Scale	Wind	€66.353	€66.353	€66.353	€68.078
Small category	Scale	Wind	€68.681	€68.681	€68.681	€70.467
Hydro			€83.814	€83.814	€83.814	€85.993
Biomass Landfill Gas			€81.486	€81.486	€81.486	€83.814
Other Biomass			€83.814	€83.814	€83.814	€85.993

2 Proposals for Improvement of the Tracking System

2.1 Proposals regarding general regulation on tracking systems

The tracking system in place in Ireland is in line with the RE-DISS BPR.

2.2 Proposals regarding Disclosure

In terms of disclosure, the GO system in place for Ireland is in line with the RE-DISS BPR. Although GOs in Ireland and Northern Ireland have different register holders as well as different lifetimes, a system has been put in place so that RE-GOs issued by Northern Ireland can be disclosed for all Ireland in the SEM, by SEMO.

Characteristics of the disclosure system in place for all Ireland:

- Disclosure if made based on calendar year;
- The current disclosure system is only based on GOs for renewable electricity. All products with claims regarding the origin of electricity should be based exclusively on cancelled GO.
- A full disclosure scheme that includes CO₂ emissions and radioactive waste is implemented (radioactive waste is zero in Ireland)
- There is a system in place which enables tracking of issuing, transfer, import and export and cancellation of GO;
- In terms of timing for disclosure:
 - The deadline for cancelling GO for purposes of disclosure of a given year is the 31st of March of the following year;
 - The timing for the calculation of Residual Mixes takes account for the current timelines for the provision of the EU Residual Mix under the RE-DISS project:
 - By 30 April X+1 Ireland will have determined its preliminary domestic residual mix and whether they have a surplus or deficit of attributes.
 - By 15 May X+1, the European Attribute Mix should be determined and will be used by SEMO for the calculation of the residual mix.
 - By 31 May X+1, the final domain residual mixes should be published.
 - As of 1 July X+1 the disclosure figures relating to year X will be published by SEMO.

⁴ DCEBR website, consulted in November 2011 at:
<http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/REFIT.htm>

- In terms of the residual mix calculations, the new SEM/11/095 decision paper state that the Regulatory Authorities and the Calculating Body (SEMO) shall participate in the calculation of the European Residual Mix and that the European Residual Mix shall be included in the calculation of the Residual Mix as appropriate. This calculation is in line with the RE-DISS BPR.

2.3 Proposals regarding RE-GO

The RE-GO system in place for Ireland is very much in line with the RE-DISS BPR recommendations..

To improve the RE-GO system in place for Ireland, the following recommendations are put forward:

1. RE-GO system should be based on EECS operated by AIB.. The implementation of a GO system based on EECS will help harmonise the system for European GO transfers, especially between EECS members; (BPR [7])

2.4 Proposals regarding CHP-GO

At the time being, there is no CHP-GO system in place in Ireland, and thus a CHP-GO system could be developed.

Thus the following RE-DISS BPR could be taken in the development of the CHP-GO system:

- Establish and implement a CHP-GO system in Ireland, fully operational and aligned with the disclosure system in place;
 - Keep track of CHP-GO in electronic registries;
 - Put a system in place that enables the tracking of issuing, transfer, import and export and cancellation of CHP-GO;
2. CHP-GO should have a 12 month lifetime. According to the Article 15 (3) of the Directive 2009/28/EC “Any use of a guarantee of origin shall take place within 12 months of production of the corresponding energy unit. A guarantee of origin shall be cancelled once it has been used”. Thus the production of an energy unit can only be accounted for over a period of time (metering period). Although some of the terms of the directive text can be interpreted in different forms and in order to have a GO system harmonised across Europe RE-DISS advises that the “use” term could be interpreted as the act of cancellation of a GO or as the utilisation of the GO information for disclosure. Thus for the application of the 12 month rule, the following is proposed :
 - Metering should be performed on a calendar month basis (or even more often). Longer intervals up to one year are acceptable if they do not run across the start and end dates of the disclosure periods (BPR [1]);
 - Issuing of CHP-GO should be done without delay after the end of the metering period. (BPR [2])
 - The lifetime of CHP-GO should be limited to 12 months after the end of the metering period. CHP-GO which have exceeded this lifetime are collected into the Residual Mix. (BPR [3])
 - Cancellations of GO relating to metering periods in a given year X which take place until 31 March of year X+1 should count towards disclosure in year X. Later cancellations should count towards disclosure in year X+1. (BPR [4])
 - The same allocation rule applies for collections of expired GO (BPR [6])
 3. The implementation of the CHP-GO system in Ireland should be based on EECS operated by AIB. The implementation of a CHP-GO system based on EECS will help harmonise the system for European GO transfers, specially between EECS members. (BPR [7])
 4. In the case that a CHP-GO system is not implemented based on EECS, it should follow EECS requirements to facilitate making connections between EECs systems and non-EECS systems. If this is not undertaken, an adequate level of ambition as in the EECS system should be achieved and procedures for recognition and electronic transfer of GO to EECS members and other non-EECS member countries should be established. (BPR [8])

2.5 Further proposals regarding GOs

The following and proposals for improvement of the GO systems:

- Although EU directives require member states to establish GO for electricity from renewable energy sources and from high-efficiency cogeneration and in order to support differentiation also between other forms of electricity generation it is advisable:
 5. to extend the system of GO to other forms of electricity generation and that all GOs should be linked to disclosure (BPR [11, 13]);
 6. there should be no issuing of more than one GO for the same unit of electricity, which can be used for disclosure BPR [14]);

2.6 Matrix of disclosure related problems and country-specific proposals

Problem	Country-specific proposal
Possible double counting in different explicit tracking instruments	1, 2, 3, 4, 5, 6
Double counting of attributes in explicit and implicit tracking mechanisms	2
Double counting within individual supplier's portfolio	-
Loss of disclosure information	5
Intransparency for consumers	5
Leakage of attributes and/or arbitrage	1, 2, 3, 4, 5
Unintended market barriers	1,2, 3, 4