



# **SINGLE ELECTRICITY MARKET COMMITTEE**

**Round 16 of Quarterly Directed Contracts  
- Q3 2016 to Q2 2017**

**Information Paper**

**14<sup>th</sup> March 2016**

**SEM-16-009**

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## **1. Background**

In June 2012 the Northern Ireland Authority for Utility Regulation (Utility Regulator) and the Commission for Energy Regulation (CER), together referred to as the Regulatory Authorities or RAs, published a decision paper (SEM/12/048)<sup>1</sup> on the quantification and pricing for the initial “front loaded” Directed Contract (DC) subscription. It covered DCs for the period from Q4 2012 to Q3 2013.

This followed the publication on 19<sup>th</sup> April 2012 of a SEM Committee<sup>2</sup> decision paper (SEM/12/026)<sup>3</sup> committing to a new rolling quarterly approach to the offering of DCs.

This paper from the RAs follows the quarterly DC approach set out in the June 2012 decision paper (SEM-12-048). It provides information on the quantities and pricing for the upcoming quarterly DC subscription round, Round 16, covering the period Q3 2016 to Q2 2017 inclusive. Suppliers will also receive notification from the RAs of their updated DC eligibilities for Round 16.

## **2. Directed Contract Quantities**

Further to SEM/12/026, DC subscription windows are held every quarter, with DCs being allocated on a rolling basis up to 5 quarters ahead. For the next round of the quarterly DC offerings, Round 16, the Primary Subscription Window will be held from Monday 21<sup>st</sup> to Wednesday 23<sup>rd</sup> March 2016 inclusive, with the associated DC Supplemental Subscription Window on Thursday 31<sup>st</sup> March. DCs in Round 16 will be offered in quarterly segments for the period Q3 2016 to Q2 2017 inclusive.

In Round 15 DC products for only 3 quarters were offered (Q2-Q4 2016) in order to facilitate more time to robustly validate the PLEXOS model to end 2017. As a result of this the volume of Q1 2017 product that was originally scheduled for Round 15 (SEM-15-015) will be offered in this Round (16). Round 16 will offer double the normal volumes of Q1 2017. A note was published on the AIP website to this effect and [SEM-16-005](#) mentioned this as well.

There are three DC products in the market: Baseload, Mid-Merit and Peak. Suppliers can elect to subscribe for any given product in any particular quarter from ESB. The definitions of the products are set out in the Master Agreement. These are as follows:

- Baseload Product: For Trading Periods at the Contract Quantity arising in all hours.
- Mid-merit Product: For Trading Periods at the Contract Quantity during the hours beginning at 07:00 and ending at 23:00 on Business Days and for Trading Periods on days that are not Business Days at 80% of the Contract Quantity.
- Peak: For Trading Periods arising during the hours beginning at 17:00 and ending

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<sup>1</sup> Decision Paper on Directed Contracts Version 2 – [SEM-12-048](#).

<sup>2</sup> The SEM Committee is established in Ireland and Northern Ireland by virtue of section 8A of the Electricity Regulation Act 1999 as inserted by section 4 of the Electricity Regulation (Amendment) Act 2007, 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 RAs) that, on behalf of the RAs, takes any decision as to the exercise of a relevant function of CER or NIAUR in relation to an SEM matter.

<sup>3</sup> Directed Contracts Implementation for 2012/13 and Beyond - [SEM-12-026](#)

at 21:00 on all days during October, November, December, January, February and March at the Contract Quantity.

As previously, the RAs used the Herfindahl Hirschman Index (HHI) to set DC quantities and have continued to use a target HHI level of 1,150 for the period Q3 2016 to Q2 2017. NI Power PPB's market share does not warrant the offering of DCs. The DC quantities to be offered by ESB for Q3 2016 to Q2 2017 in Round 16 are set out below. The total DC quantities offered by ESB to date for Q3 2016 to Q2 2017 (including these Round 16 quantities) are also shown below.

**ESB DCs for Q3 '16 to Q2 '17 in Forthcoming Round 16 Subscription (Only), MW**

QUARTER	BASELOAD	MIDMERIT	PEAK
Q3 2016	155	0	N/A
Q4 2016	110	0	0
Q1 2017	204	0	8
Q2 2017	172	8	N/A

**Total DCs for Q2 to Q4 '16 offered to date (including March 2016 subscription), MW**

QUARTER	BASELOAD	MIDMERIT	PEAK
Q3 2016	585	2	N/A
Q4 2016	339	0	0
Q1 2017 <sup>5</sup>	204	0	8
Q2 2017	172	8	N/A

**Percentage of DCs offered to date (including March 2016 subscription)<sup>4</sup>**

QUARTER	BASELOAD	MIDMERIT	PEAK
Q3 2016	100%	100%	N/A
Q4 2016	75%	75%	75%
Q1 2017	50%	50%	50%
Q2 2017	25%	25%	N/A

The Concentration Model and the process set out above will continue to be conducted by the RAs on a quarterly basis in line with the rolling approach to DCs as per SEM-12-026.

### 3. Directed Contract Pricing

The prices of DCs are determined by regression formulae that express the DC strike price in a given quarter and for a given product (Baseload, Mid-Merit or Peak) as a function of forward fuel and carbon prices. The dependent variable in the regression formulae is the DC strike price; the independent variables are forward fuel and carbon prices.

The pricing formulae are updated every quarter in line with the new rolling approach to DCs as per [SEM-12-026](#). Every 2<sup>nd</sup> quarter whole new pricing formulae will be derived, including the formulae constant and the coefficients (as is the case in this round), and every other quarter just the formulae constant is changed.

<sup>4</sup> Note the exact percentages shown in this table will vary depending on outturn DC volumes in future subscription rounds.

<sup>5</sup> Round 16 offers double the normal volumes of Q1 2017. Refer to Section 2 above.

The DC seller, ESB, will apply the approved published fuel and carbon indices to the regression formulae each day throughout the subscription window and notify suppliers who have elected to subscribe for DC products on that day of the calculated strike price. ESB contracts will be priced in euro.

It should be noted that if, between the publication date of the pricing formulae and a time at which it is applied during the subscription period, forward fuel or carbon markets move to a point outside the range of values for which there is sufficient confidence in the pricing formulae, the Regulatory Authorities reserve the right to suspend subscription and rerun the econometric pricing model or otherwise to amend the determination of the DC strike prices to correct any mispricing. The rerun would be done using the prevailing forward fuel and carbon prices as inputs. In this case, the resulting formulae would replace the original formulae and would be used to establish DC strike prices thereafter. The formulae may also be rerun if there is significant change to plant availability. The subscription window would reopen once the formulae have been revised.

The Directed Contract regression formulae for Round 16 take the following form:

$$DCStrike_{q,p} = \alpha_{q,p} + \beta_{q,p} * Gas_q + \delta_{q,p} * Coal_q + \epsilon_{q,p} * CO2_q$$

where:

$DCStrike_{q,p}$  = Directed Contract Strike Price (in €/MWh) for the relevant quarter (q) and product (p), i.e., baseload, mid-merit and peak.

$\alpha_{q,p}$  = formula constant, which may vary by quarter (q) and product (p).

$\beta_{q,p}$ ,  $\delta_{q,p}$ , and  $\epsilon_{q,p}$  = formula coefficients, which may vary by quarter (q) and product (p).

$Gas_q$  = the price (in pence sterling per therm) for quarterly Intercontinental Exchange Natural Gas Futures for the relevant quarter, as published on <http://data.theice.com> as the "ICE UK Natural Gas Futures – NBP - (Quarters)" ÷ (GBP/EURO Exchange Rate) / 100.

$Coal_q$  = the price (in US dollars per tonne) for quarterly ARA Coal Futures as reported on [www.theice.com](http://www.theice.com) as "Rotterdam Coal Futures – ARA" ÷ USD/EURO Exchange Rate.

$CO2_q$  = the settle price (in Euro per tonne of Carbon Dioxide) for the December month Intercontinental Exchange ECX EUA Carbon futures as reported on <http://data.theice.com> as "ICE ECX EUA Futures – EUX - (monthly)" for the given calendar year. The December price for a given year will apply to all quarters falling within that year.

The values of the constants and the independent variable coefficients are set out in the table below.

Coefficients					
Multiply Gas coefficient by euro/therm Gas price, Coal coefficient by euro/tonne Coal price and CO2 coefficient by euro/tonne CO2 price.					
Contract (p)	Quarter (q)	Constant ( $\alpha_{q,p}$ )	Gas ( $\beta_{q,p}$ )	Coal ( $\delta_{q,p}$ )	CO2 ( $\epsilon_{q,p}$ )
Baseload	Q3 '16	10.61	53.005	0.0665	0.4577
Mid-Merit	Q3 '16	11.66	62.480	0.0480	0.4586
Baseload	Q4 '16	10.43	51.089	0.0986	0.4771
Mid-Merit	Q4 '16	11.55	57.246	0.1108	0.5083
Peak	Q4 '16	17.15	62.318	0.2047	0.7481
Baseload	Q1 '17	10.01	53.963	0.0804	0.5295
Mid-Merit	Q1 '17	10.32	60.438	0.0942	0.5923
Peak	Q1 '17	17.31	61.515	0.2305	0.9128
Baseload	Q2 '17	8.68	54.593	0.0747	0.4730
Mid-Merit	Q2 '17	9.73	56.313	0.0760	0.4780

#### **4. Subscription Rules**

The Subscription Rules for the Directed Contracts have been made evergreen. To allow this to happen two items which require updating will be included in the Information Paper published by the Regulatory Authorities prior to each quarterly DC round. These are the details of the matrix of ESTSEM p,q prices for the purpose of credit cover calculations and Bank Holidays.

#### **Prices for Credit Cover calculations**

The matrix of ESTSEM p,q prices for the purpose of credit cover calculations based on closing fuel and carbon prices from 4<sup>th</sup> March 2016 are as follows:

	ESTSEM p,q		
	Baseload	Mid-Merit	Peak
Q3 2016	€33.75 /MWh	€37.36 /MWh	n/a
Q4 2016	€37.40 /MWh	€41.65 /MWh	€54.07 /MWh
Q1 2017	€39.52 /MWh	€43.52 /MWh	€57.63 /MWh
Q2 2017	€34.81 /MWh	€36.59 /MWh	n/a

## ***Public/Bank Holidays 2016 and 2017***

The following dates are those known at the time of execution to be bank and public holidays (in the Republic of Ireland and Northern Ireland) between 1<sup>st</sup> January 2016 and 31<sup>st</sup> December 2017:

1 January 2016
17 March 2016
25 March 2016
28 March 2016
2 May 2016
30 May 2016
6 June 2016
12 July 2016
1 August 2016
29 August 2016
31 October 2016
25 December 2016
26 December 2016
2 January 2017
17 March 2017
14 April 2017
17 April 2017
1 May 2017
29 May 2017
5 June 2017
12 July 2017
8 August 2017
28 August 2017
30 October 2017
25 December 2017
26 December 2017



## **5. PLEXOS Model Updates**

The RAs' SEM Plexos Model has been validated for 2016-17 by Baringa and has been used in Round 16. A public version of this model along with an associated report will be published by the RAs in the coming weeks.

Below is a summary of the changes made to the PLEXOS Validated forecast model:

### **Generator Data**

Generator Data has been updated following consultation with generators. This new generator data will be published separately (minus confidential data).

### **Great Britain Bids**

The data for GB pricing has been updated as part of the validation exercise.

### **Demand**

Demand has been updated to include forecasts for 2017, consistent with TSO's GCS 2015 and Winter Outlook 2015/16

### **Embedded Generation**

Embedded generation capacities and profiles have been updated to include forecasts for 2017, provided by the TSOs.

### **Wind Capacities**

Wind generator capacities have been updated to include forecasts for 2017, consistent with TSO's GCS 2015 and Winter Outlook 2015/16

### **Demand Side Units**

Demand side units capacities have been updated to include forecasts for 2017, consistent with TSO's GCS 2015 and Winter Outlook 2015/16

### **Fuel transportation adders**

Fuel transportation adders have been revised following consultation with generators.

### **PLEXOS Version**

PLEXOS Version 6.207 R03 is used.