Single Electricity Market Committee

Directed Contracts –
Q4 2013 to Q3 2014
Quantification and Pricing for
July 2013 Auction - Round 5 of Quarterly
Directed Contract Auctions

Information Paper

2nd July 2013

SEM-13-042

Table of Contents

Page

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[1]) on the quantification and pricing for the initial "front loaded" Directed Contract (DC) auction. It covered DCs for the period from Q4 2012 to Q3 2013.

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

This paper follows the approach set out in the June 2012 decision paper (SEM-12-048) and provides information on quantities and pricing for the upcoming DC auctions covering the period Q4 2013 to Q3 2014. Suppliers will also receive notification from the RAs of their updated DC eligibilities for this round of auctions.

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. The July 2013 DC Primary Subscription Window will be held from Tuesday 9th to Thursday 11th July inclusive, with the associated DC Supplemental Subscription Window on Thursday 18th July. DCs will be offered in quarterly segments for the period Q4 2013 to Q3 2014.

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

Up to and including Round 3 of quarterly DCs, for the determination of DC volumes, the Moyle and East West interconnectors were assumed to be 100% "competitive capacity" up to their availability.

However, following consultation the SEM Committee (SEMC) decided to change this

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[1] Decision Paper on Directed Contracts Version 2 – SEM/12/048.

[2] 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.

[3] Directed Contracts Implementation for 2012/13 and Beyond - SEM/12/026

approach in a December 2012 decision paper[4]. The SEMC decided to model flows on both EWIC and Moyle assuming SMP + 5%, and to use the results in the Concentration model for DC quantity determination. This was applied in Round 4 of quarterly DCs.

For Round 5 a new methodology is used. The value of "Moyle Interconnector" is set to 0 MW in the Concentration Model and two new units are created – one for Moyle (capacity 250 MW) and one for East-West (capacity 530 MW). The quarterly prices for these units are the quarterly GB prices from the PLEXOS model run adjusted for their respective loss rates. The Concentration Model treats each unit as competitive if its price is equal or less than SMP + 5% so this method fully captures the spirit of the SEMC decision.

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 Q4 2013 to Q3 2014. NI Power PPB's market share does not warrant the offering of DCs. The DC quantities to be offered by ESB for Q4 2013 to Q3 2014 are set out below. The total DC quantities offered by ESB to date for Q4 2013 to Q3 2014 (including these Round 5 quantities) are also shown below.

ESB DCs for Q4 '13 to Q3 '14 in Forthcoming Round 5 Auction (Only), MW

QUARTER	BASELOAD	MIDMERIT	PEAK
Q4 2013	**90**	**45**	**77**
Q1 2014	**79**	**83**	**68**
Q2 2014	**91**	**24**	**N/A**
Q3 2014	**117**	**0**	**N/A**

Total DCs for Q4 '13 to Q3 '14 offered to date (including July 2013 auction), MW

QUARTER	BASELOAD	MIDMERIT	PEAK
Q4 2013	393	103	138
Q1 2014	232	188	168
Q2 2014	182	39	N/A
Q3 2014	117	0	N/A

Percentage of DCs offered to date (including July 2013 auction)[5]

QUARTER	BASELOAD	MIDMERIT	PEAK
Q4 2013	100%	100%	100%
Q1 2014	75%	75%	75%
Q2 2014	50%	50%	N/A
Q3 2014	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.

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4   http://www.allislandproject.org/en/mmu_decision_documents.aspx?article=adbbabe4-3f59-4b0f-a560-8702bc54958e

5 Note the exact percentages shown in this table will vary depending on outturn DC volumes in future auction rounds.

The PLEXOS validated forecast model has been updated since Round 4 of quarterly DCs and used in the derivation of DC quantities for Round 5 - see section 5 for details.

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 2nd quarter whole new pricing formulae will be derived, including the formulae constant and the coefficients (as is the case in Round 5), and every other quarter just the formulae constant is changed.

The PLEXOS validated forecast model has been updated for this round of DCs - see Appendix for details.

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 5 take the following form:

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

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 $\varepsilon_{q,p}$ = 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

www.theice.com as the "Daily Volumes for ICE UK Natural Gas Futures (Quarters)" ÷ (GBP/EURO Exchange Rate) / 100.

$Coal_q$ = the price (in US dollars per metric tonne) for quarterly Forward Coal API2 swap transactions, as reported by Argus Coal Daily International ÷ 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 www.theice.com as "ICE ECX EUA Futures (monthly)" for the given calendar year. This data is available under the report section of this website once the following options are selected – Category "End of Day Report"; Market – "ICE Futures Europe"; Report – "ICE Futures Europe". 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 C02 price.					
Contract (p)	Quarter (q)	Constant ($\alpha_{q,p}$)	Gas ($\beta_{q,p}$)	Coal ($\delta_{q,p}$)	CO2 ($\varepsilon_{q,p}$)
Baseload	Q4 '13	18.03	53.656	0.0586	0.4445
Mid-Merit	Q4 '13	25.10	57.322	0.0606	0.4940
Peak	Q4 '13	87.15	31.074	0.1124	0.7563
Baseload	Q1 '14	18.30	57.927	0.0373	0.4313
Mid-Merit	Q1 '14	25.89	61.636	0.0318	0.4680
Peak	Q1 '14	92.61	39.816	0.0521	0.4789
Baseload	Q2 '14	10.17	58.527	0.0598	0.4461
Mid-Merit	Q2 '14	12.14	62.969	0.0712	0.4863
Baseload	Q3 '14	7.65	59.824	0.0585	0.4205
Mid-Merit	Q3 '14	8.46	70.242	0.0390	0.4171
Baseload	Q4 '14	18.68	49.012	0.0701	0.4141
Mid-Merit	Q4 '14	25.32	52.597	0.0679	0.4342
Peak	Q4 '14	71.86	37.921	0.1298	0.5331

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 27th June 2013 are as follows:

	ESTSEM p,q		
	Baseload	Mid-Merit	Peak
Q4 2013	€67.82 /MWh	€78.25 /MWh	€122.98 /MWh
Q1 2014	€72.69 /MWh	€83.31 /MWh	€132.50 /MWh
Q2 2014	€60.27 /MWh	€66.51 /MWh	n/a
Q3 2014	€58.12 /MWh	€65.40 /MWh	n/a

Bank Holidays 2012, 2013 and 2014

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 1st October 2012 and 30th September 2014:

29 October 2012
25 December 2012
26 December 2012
01 January 2013
18 March 2013

29 March 2013
01 April 2013
06 May 2013
27 May 2013
03 June 2013
12 July 2013
05 August 2013
26 August 2013
28 October 2013
25 December 2013
26 December 2013
01 January 2014
17 March 2014
18 April 2014
21 April 2014
5 May 2014
26 May 2014
2 June 2014
14 July 2014
4 August 2014
25 August 2014

5. PLEXOS Model Updates

Updates to the PLEXOS Validated forecast model for Round 5

Outages

Generator scheduled outages have been updated with the latest information.

Moyle Cable Outage

One of the Moyle Interconnector's cables is on outage with no definite return date so its Max and Min Flow are still set at 250MW and -250MW respectively.

East-West Import Capacity

East-West Import Capacity increased to 530MW.

Great Island CCGT

The new Great Island CCGT has been included from the start of Q2 2014.

Generator Data

Generator Data has been updated to match that provided by generators. This new generator data will be published separately (minus confidential data).

Demand

Demand base profile shape changed to 2011 profile shape.

PLEXOS Version

PLEXOS Version 6207R03 is used.