



SINGLE ELECTRICITY MARKET COMMITTEE

**Round 4 of Quarterly Directed Contracts
Q1 2019 to Q4 2019 under revised SEM
arrangements**

Information Paper

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1. Introduction

For the first four quarters of Directed Contracts (DCs) under the revised SEM trading arrangements, arising from I-SEM implementation, the Regulatory Authorities (i.e. UREGNI and CRU) have decided to follow the quarterly DC approach set out in the November 2017 decision paper (SEM-17-081).

This information paper provides information on the quantities and pricing for the upcoming quarterly DC subscription round, Round 4, covering the period Q1 2019 to Q4 2019 inclusive. Suppliers will also receive notification from the Regulatory Authorities (RAs) of their updated DC eligibilities for Round 4 by Thursday 6th September.

2. Directed Contract Quantities

Further to SEM/17/081, DC subscription windows are to be held every quarter, with DCs being allocated on a rolling basis up to 5 quarters ahead. For the fourth round of the quarterly DC offerings under the revised SEM arrangements: Round 4, the Primary Subscription Window will be held from Tuesday 11th September to Thursday 13th September 2018 inclusive, with the associated DC Supplemental Subscription Window on Thursday 20th September. DCs in Round 4 will be offered in quarterly segments for the periods Q1 2019, Q2 2019, Q3 2019 and Q4 2019.

There are three DC products in the market: Baseload, Mid-Merit and Peak. Suppliers can elect to subscribe for any given product for which they are eligible in any particular quarter from ESB. The definitions of the products are set out in the ESB PG DC Subscription Rules.

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 Product*: 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.

As is the case with DCs, the RAs used the Herfindahl Hirschman Index (HHI) to set DC quantities and continue to use a target HHI level of 1,150 for the period Q1 2019 to Q4 2019. NI Power PPB's market share does not warrant the offering of DCs.

The DC quantities to be offered by ESB for Q1 2019 to Q4 2019 in Round 4 are set out in Table 1 below.

Quarter	Baseload	Mid-Merit	Peak
Q1 2019	0	355	0
Q2 2019	43	147	N/A
Q3 2019	32	136	N/A
Q4 2019	63	107	0

Table 1: ESB DCs for Q1 2019 to Q4 2019 in Forthcoming Round 4 Subscription, MW

As Table 1 shows, this round of DCs offers no Baseload products and an increase in Mid-Merit products for Q1 2019. This is due to the new method by which the RAs determine the volumes via the Market Concentration Model, as outlined in SEM-17-081¹.

The RAs wish to stress that the new methodology allows for a more accurate forecast² of the DC Volumes and that any under / over offering of DCs in earlier rounds are corrected in the final round so that the total volume of DCs offered for the quarter align with the output of the most up to date Market Concentration Model.

It is possible for this effect to arise under the new methodology when forward data used in forecasts changes from round to round. If the volumes in the previous rounds for a particular product add up to more than the annual total volume determined by the Market Concentration Model in the last round, then the volumes for that product are set to zero. This is the case for Q1 2019 Baseload product in this round.

The cumulative (all rounds) percentage of DC quantities offered by ESB to date for Q1 2019 to Q4 2019 (including these Round 4 quantities) are also shown in Table 2 below.

Quarter	Baseload	Mid-Merit	Peak
Q1 2019	100%	100%	-
Q2 2019	75%	75%	NA
Q3 2019	50%	50%	N/A
Q4 2019	25%	25%	-

Table 2: Percentage of DCs offered to date (incl. this Round 4 subscription)³

3. Directed Contract Pricing

The prices of DCs are determined by regression formulae that express the DC CfD Fixed 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 pricing formulae are updated every quarter in line with the established rolling approach to DCs as per [SEM-12-026](#) and [SEM-17-081](#).

The CFD Fixed Price for each transaction will be set using the published formulae and associated forward fuel prices, as set out in the Subscription Rules [SEM-18-036d](#).

The DC seller, ESB, will apply the approved published fuel and carbon indices to the

¹Per section 3.2.13 of SEM-17-081, the SEM Committee changed the part of the Market Concentration methodology, such that a fixed fraction will be solely used in the first round that a product is offered and in subsequent rounds up to the penultimate round, previous volumes sold are now deducted from the annual total determined by the Market Concentration Model in that round; then the balance is multiplied by the remaining fixed fraction.

² This is in part due to the shorter time horizon that the model would be forecasting on, once the final round for a quarter in question appears.

³ Note that the exact percentages shown in this table will vary depending on outturn DC volumes in future subscription rounds.

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 CfD Fixed 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 RAs reserve the right to suspend subscription and rerun the econometric pricing model or otherwise to amend the determination of the DC CfD Fixed 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 CfD Fixed 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 DC regression formulae for Round 4 take the following form:

$$\text{CfD Fixed Price}_{q,p} = \alpha_{q,p} + \beta_{q,p} * \text{Gas}_q + \delta_{q,p} * \text{Coal}_q + \epsilon_{q,p} * \text{CO2}_q$$

where:

CfD Fixed Price_{q,p} = DC Fixed Price (in €/MWh) for the relevant quarter (q) and product (p), i.e., baseload, mid-merit and peak.

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

β_{q,p}, **δ**_{q,p}, and **ε**_{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 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 following table.

Coefficients					
Multiply Gas coefficient by euro/therm Gas price, Coal coefficient by euro/tonne, Coal price and CO ₂ coefficient by euro/tonne CO ₂ price.					
Contract (p)	Quarter (q)	Constant ($\alpha_{q,p}$)	Gas ($\beta_{q,p}$)	Coal ($\delta_{q,p}$)	CO ₂ ($\epsilon_{q,p}$)
Baseload	Q1 19	19.55	44.953	0.1035	0.5632
Midmerit 1	Q1 19	26.03	49.251	0.1156	0.5938
Peak	Q1 19	46.31	58.008	0.1548	0.7018
Baseload	Q2 19	13.25	56.057	0.0445	0.5056
Midmerit 1	Q2 19	16.14	59.264	0.0554	0.5497
Baseload	Q3 19	12.57	54.214	0.0535	0.5272
Midmerit 1	Q3 19	14.99	57.368	0.0719	0.5689
Baseload	Q4 19	15.37	46.746	0.0813	0.5430
Midmerit 1	Q4 19	19.45	53.828	0.0838	0.5694
Peak	Q4 19	28.07	71.404	0.1103	0.6814

4. Subscription Rules

The Subscription Rules ([SEM-18-036d](#)) for the DCs have been made evergreen. To allow this to happen two items which require updating will be included in the Information Paper published by the RAs 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 (i.e. margin) 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 6th Aug 2018 are as follows:

	ESTSEM p,q		
	Baseload per MWh	Mid-Merit per MWh	Peak per MWh
Q1 2019	€70.79	€81.92	€113.65
Q2 2019	€59.33	€65.76	N/A
Q3 2019	€57.04	€63.38	N/A
Q4 2019	€61.36	€70.69	€94.66

Public/Bank Holidays 2018 and 2019

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 January 2018 and 31st December 2019:

01 January 2018
19 March 2018
30 March 2018
02 April 2018
07 May 2018
28 May 2018
04 June 2018
12 July 2018
06 August 2018
27 August 2018
29 October 2018
25 December 2018
26 December 2018
01 January 2019
18 March 2019
19 April 2019
22 April 2019
06 May 2019
27 May 2019
03 June 2019
12 July 2019
05 August 2019
26 August 2019
28 October 2019
25 December 2019
26 December 2019

5. PLEXOS Model Updates

The recently revised Baringa-validated and published PLEXOS model⁴ ([SEM-18-010b](#)) for 2018-19 has been used for this round (Round 4) of the DCs under the revised SEM arrangements.

6. Timetable for Round 5 – Round 8 of DCs

The SEM Committee will be publishing an Information Paper in October 2018 setting out the DC timetable for the next four rounds (ie, Rounds 5-8).

⁴<https://www.semcommittee.com/news-centre/i-sem-plexos-model-validation-2018-2019-information-paper>