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Market reference prices

CfD Expert Group workshop

27 September 2013

Agenda

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- Introduction / aims of the session
- Quick overview (10.00 – 11.30)
  - Setting the intermittent reference price
  - Setting the baseload reference price
- Reviewing the reference price – process (11.30-13.00)
- Reviewing the reference price – trigger events (13.00-14.00)
- Reviewing the reference price – principles (14.00-15.00)

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INTRODUCTIONS

Aims of the session

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- Aim is to run through the approach to setting and amending market reference prices, building upon the approach set out in the draft CfD and accompanying EMR CfD Contract and Allocation Overview document

- By the end of the session, want to have a clear proposal on all outstanding questions, with an underpinning rationale

- Next steps will be to take these conclusions and develop legal drafting. This will then be shared with industry.

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Supply and demand considerations

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- The reference price is a measure of the average price of electricity
- But electricity is traded in different ways and over different periods
- Stakeholders have expressed concern that the CfD model should drive the same behaviours on the supply and demand side, (i.e. through both the reference price and the structure of the Supplier Obligation)
- The impact of the Supplier Obligation levy options on wholesale market liquidity has been considered:
  - Initial view is that a shift to a unit cost fixed rate levy would not change suppliers' incentives to achieve the reference price and therefore trade in the reference market
  - However further views would be welcomed on the impact this type of levy could have on the wholesale market and liquidity, compared to other options

Baseload and intermittent generation

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- Have developed two reference prices reflecting the different characteristics of baseload and intermittent generation
- Regulations will set out which technologies are to be treated as baseload and intermittent in the context of applying for and receiving a CfD
- This is linked to how strike prices have been calculated

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SETTING THE INTERMITTENT REFERENCE PRICE

The intermittent reference price will be the GB day ahead hourly price

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If the Intermittent Indices have published a “GB Day Ahead Hourly Price” in relation to a Settlement Hour, then the Intermittent Market Reference Price for such Settlement Hour shall be expressed in £/MWh and shall be such “GB Day Ahead Hourly Price”.

(Clause 8.2 of the draft CfD)

“**Intermittent Index**” means each of the APX Index and N2Ex Index or such other replacement or additional index or indices as is or are determined in accordance with this Agreement, and “**Intermittent Indices**” shall mean all such indices

(Definitions of the draft CfD)

Day ahead market coupling is part of the European Target Model. N2Ex and APX are developing an algorithm to give a single coupled price from both exchanges. Target date for go-live is November 2013.

The contract sets out fallback options where the GB price is not available

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Using the price quoted by both Intermittent Indices if it is the same:

- If the Day Ahead Hourly Price in £/MWh for each Intermittent Index is the same, then the Intermittent Market Reference Price for the relevant Settlement Hour shall be expressed in £/MWh and shall be such Day Ahead Hourly Price.
  (Clause 8.2 of the draft CfD)

Using a volume-weighted average of the Intermittent Indices if the prices on the intermittent indices are different:

- If the Day Ahead Hourly Price in £/MWh for each Intermittent Index is not the same, then the Intermittent Market Reference Price for the relevant Settlement Hour shall be expressed in £/MWh and shall be calculated in accordance with the following formula:

$$\textit{Intermittent Market Reference Price} = \left(\frac{\sum_e (\mathrm{DAP}_{e,t} \times \mathrm{DAV}_{e,t})}{\sum_e \mathrm{DAV}_{e,t}} \right)$$

  (Clause 8.3 of the draft CfD)

What happens in the case of technical failure of an auction platform?

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The following options are under consideration, and we would welcome views:

- The provisions under clause 8.3 of the contract suggest that the first resort would be to use the price from the other index, where this is available
- The market coupling arrangements themselves will have fallback arrangements in place to produce a price under market coupling – we could simply adopt this
- Alternatively, an average price based on historic data could be used as a proxy – which could be measured in different ways to make allowance for shape within each day / week / season
- As a last resort, the imbalance price could be used. However, this is a within-day price so does not represent the same market segment as day ahead.

Questions:

- Which approach(es) should be adopted in the case of technical failure of an Intermittent Index?

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SETTING THE BASELOAD REFERENCE PRICE

Baseload reference price formula

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Baseload Market Reference Price = $\left(\sum_d \left(\frac{\sum_j (BP_{j,d} \times BQ_{j,d} \times W_j)}{\sum_j (BQ_{j,d} \times W_j)}\right)\right) / N_d$

- W_j is the weight attributed to each Price Index (j), as determined from time to time (expressed as a decimal) and such that the sum of all weights for all Price Indices included in the Baseload Market Reference Price equals 1;
- $\sum_j$ denotes the sum across the Price Indices (j);
- $\sum_d$ denotes the sum across the Trading Days (d) included in the Reference Price Sample Period;
- $BP_{j,d}$ is, for each Price Index (j), the Baseload Contract Price quoted on Trading Day (d) in the Reference Price Sample Period for delivery throughout the Calculation EFA Season;
- $BQ_{j,d}$ is, for each Price Index (j), the quantity of power in MWh traded through the trades considered in determining $BP_{j,d}$ for the Trading Day (d); and
- N_d is the number of Trading Days in the Reference Price Sample Period.

The baseload reference price will be set on a season-ahead basis initially

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- Previously stated preference for forward prices (ideally annual).
- Industry expressed concerns about low liquidity and basis risk, and the trading costs, of moving straight to a year ahead price.
- Disregarded the idea of using day ahead prices for baseload generation, due to distortion of trading incentives.
- Therefore plan to use season ahead price as an initial compromise:
  - Shows adequate liquidity
  - Reduces some of the concerns about clip sizes and costs associated with trading further forwards
  - Still provides some incentives to schedule outages efficiently

Trade information will be drawn from N2Ex and LEBA

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Price sources:

- N2Ex – UK Power Derivatives Seasonal Contract
- LEBA – UK Power Season Ahead Contract

The key benefit of these choices is that they are robust indices based on actual, verifiable trades. A consistent message we have received from industry is that the reference price should not be set based on any form of price assessment. This also avoids any double-counting of trades.

Limitations are that there are limited volumes in N2Ex currently, and that this does not capture bilateral trades; although volumes of these are said to be small and inaccessible to anyone other than the counterparty, so arguably not a robust basis for setting the reference price.

Alternative suggestions include creating a new index by placing a reporting requirement on all trades.

All trades each day will be volume-weighted to give a daily price

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This option has been selected because it:

- Captures more of the market volume
- Avoids distorting current trading patterns for this product, which show steady trading throughout the day
- Minimises gaming risks of setting the price based on a limited window.

It was suggested that we should just use the windows where Ofgem's proposed Mandatory Market Maker is in operation, however:

- If there is significant trading in this window it will be reflected in the price anyway
- If significant volumes are still traded outside the window, it would be important to capture these to ensure the reference price is robust

The daily prices will then be averaged to give the reference price

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Averaging the daily prices means that volumes can be spread evenly to match the way the reference price is set.

Some feedback suggested that this would give more weight to days with limited liquidity; however the alternative of volume weighting all trades in the reference price sample period would be almost impossible to hedge and therefore introduce significant risk for both generators and suppliers.

The reference price sample period will be every trading day in the season prior to delivery

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This period has been selected as it:

- Is simpler, as allows for continuous trading
- Lesser impact on market than forcing trading into a short time
- More robust price, as set over a longer period

Some generators have concerns about clip size restrictions and trading costs; however analysis shows these are not likely to be prohibitive.

Others raised concerns about prices not being set until immediately prior to delivery, and that this could cause problems with tariff-setting. However, on balance the view from generators is that this risk is manageable given daily averaging and the known approach to setting the price.

Questions on setting the baseload reference price

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- Are further measures to avoid distortion required e.g. by not including days with less than a minimum volume of trades in the reference price calculation?

- Should any other price sources be considered for inclusion? Are there any circumstances in which price reporters may be required?

- The formula in the draft CfD contains a weighting factor to reflect the quality of trade information. Is this required?
  - Should the CfD simply volume weight across all sources and disregard any price sources not deemed to be robust?
  - Are there other circumstances in which this may be required e.g. to adjust for any “gross bidding” on exchanges?

- Are there any other outstanding concerns with setting the baseload reference price?

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REVIEWING THE REFERENCE PRICE: PROCESS

Reviewing the reference price: Trigger

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Over the period covered by the CfD, it is inevitable that the market will evolve so as to require amendment of the reference price so that it remains a fair price from both the generator and CfD Counterparty perspective. The CfD therefore needs to contain provisions to enable such amendment, in accordance with strict and known parameters.

The reference price will be automatically reviewed once a year by the CfD Counterparty to assess whether any trigger events have occurred.

Questions:

- *Is this the right frequency?*
- *When should the review be conducted to minimise impact of any changes?*
- *How much notice is required ahead of implementing changes?*

Reviewing the reference price: Review body

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- Reviews will be conducted by the CfD Counterparty in line with the process set out in the contract.
- The Counterparty will be required to invite views from interested parties and consider these in reaching a determination.
- It may appoint independent expert advice to help determine the approach.

Reviewing the reference price: Types of review process

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Mechanistic process:

- The Counterparty will conduct this in accordance with set parameters in the contract
- This would apply following certain specified objective trigger events (these are set out in a later slide)

Principles-based process:

- The Counterparty will conduct the review in accordance with set principles in the contract (see later slide)
- This would apply in the case of a very limited number of trigger events for which it is unfeasible to provide a mechanistic change process e.g. market splitting

Questions:

- *How long should be allowed for each process?*

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Reviewing the reference price: Generator input

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Under both review processes generators (and other interested parties) would be notified of the review and have the opportunity to present evidence on the issues under consideration.

Parties to the contract would also be able to dispute whether or not the process had been properly followed in line with the standard dispute resolution procedures in the contract, subject to a threshold of 25% of CfD holders.

Disputes on a mechanistic process would lead to a binding determination; disputes on a principled-based process could only lead to a requirement to re-run the review, ensuring the principles were fully considered.

Questions:

- *What should be the threshold for considering disputes?*

Reviewing the reference price: Process map

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1. Trigger event occurs / time for regular review

Counterparty's decision, but generators can notify that they believe a trigger event has occurred and the decision whether or not to initiate a review can be disputed

2. Counterparty announces review:
- On website for all interested parties
- Specific notification to affected generators

3. Interested parties have opportunity to input evidence on the issues under consideration e.g. can provide evidence that an index meets the quality standard and minimum volumes so should be included as a price source

4. Counterparty conducts review following the metrics set out in the contract e.g. assessing new prices sources, whether market conditions allow a move to year ahead for baseload plant etc.

5. Counterparty sets out proposal on reference price
- On website for all interested parties
- Specific notification to affected generators
- Together with outline of evidence considered

6. Generators can dispute whether a change to the reference price has been made in accordance with the mechanistic or principles-based process (as applicable)
- Through the disputes procedure
- However, this would be subject to a threshold, as for change control

7. Determination of dispute

For mechanistic processes: binding decision on the correct answer

For principles-based processes: can either uphold outcome or require re-run of process

8. Otherwise proposal implemented on all parties through amendments to each affected contract, after appropriate formal notification

9. Amendment takes effect from next Reference Price Sample Period following issue of the notice.

This change would also apply to any new CfDs issued.

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REVIEWING THE REFERENCE PRICE: TRIGGER EVENTS

Trigger events

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- Volumes / weight of the market changes
- Assessment of the robustness of a price source changes
- Market conditions allow a change to a year-ahead reference price for baseload generation
- Market splitting / coupling makes the reference price inappropriate
- New regulations make the reference price inappropriate

Each of these will be examined in turn, to consider what it means and how it can be objectively assessed (where possible).

The first two would be captured under the mechanistic review process. The other trigger events would require a principles-based review.

Trigger events:
Volumes / weight of the market changes

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- Any change to the indices comprising the GB day ahead price will be incorporated into the contract
- The GB day ahead price will continue to be used for the intermittent reference price as long as this represents [liquidity measure]
- All sources regulated by the FCA / compliant with the FOA guidelines would be included in the baseload reference price, subject to meeting a [minimum volume threshold]

Questions:

- *What liquidity measures should be used for the intermittent price?*
- *What volume threshold should be used for the baseload price?*
- *How should these be measured?*
- *Should there be a maximum number of price sources?*

Trigger events: Assessment of the robustness of a price source changes

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Assessed against the following criteria (developed from a range of recent initiatives to improve the robustness of indices):

- Provision of data to be used for the index is:
  - Accurate,
  - Complete,
  - Capable of audit (parties keep records),
- Methodology for deriving the index or benchmark is robust, documented and does not include judgement (i.e. Is deterministic)
- Methodology is subject to change control that protects against conflicts of interest (e.g. through an oversight committee)
- Procedures exist in data providers and the index / benchmark to manage conflicts of interest and confidentiality
- The index is subject to external audit against its methodology – including a sample of data from data providers.

Trigger events: Market conditions allow a change to a year-ahead baseload reference price

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- A year ahead reference price could be set in various ways:
  - Annual products from April
  - Average price for the next two seasons (summer and winter)
  - Calendar yearly products (i.e. from January)
- The reference price sample period would be [each day in the year ahead of delivery]
- The reference price would have to have sufficient liquidity:
  - So that CfD volumes would not dominate
  - [Other metrics: minimum number / volume of trades, bid-offer spread, number of participants?]

Questions:

- *What should the sample period be for a year-ahead price?*
- *What liquidity metrics should be in place before changing?*
- *Should any other factors be considered before changing?*

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Trigger events:
Market coupling / splitting / regulations make the reference price inappropriate

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Market coupling / splitting

- This is intended to cover situations where there are changes to the wholesale electricity market in which CfD generators are trading

Regulations

- This is intended to cover, for example, regulations which are introduced that affect the way benchmarks are set

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REVIEWING THE REFERENCE PRICE: PRINCIPLED REVIEW

Principles to determine the reference price where a change cannot be prescribed in advance

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- The reference price should reflect the price that a generator could reasonably expect to achieve through trading in the market (i.e. market price not PPA price)
- The indice(s) from which the reference price is drawn must be sufficiently liquid to have confidence that it is a robust representation of market prices
- The reference price should avoid undue interference with price signals that incentivise efficient operation
- Subject to the above, for UK plant, the reference price should relate to the market into which the power is physically delivered
- Any changes must allow enough time for affected parties to amend their processes if required

Questions on the principles

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- Should these be quantified to reduce uncertainty?
- If so, what metrics can be used for each principle?
- Should any other principles be added?