National Grid Company

Proposed Modification to the Determination of Imbalance Prices under the BSC

Introduction

Since “go-live” there have been concerns within the industry at the levels of the two imbalance prices System Buy Price (SBP) and System Sell Price (SSP). Whilst some of the more obvious anomalies have been addressed by BSC modifications (P8, P10 and P18A) there are a number of outstanding issues:

- SBP remains unpredictable with a high mean and spread
- The price of the shorter stack (the “reverse price”) can, at times, still be significantly affected by costs associated with system actions
- The resultant high levels of SBP are driving the market long
- The defaulting rules were devised on the basis they would very rarely be called upon and it was therefore considered satisfactory that they should merely avoid setting extreme values. Currently the default rules are being used regularly and the resultant prices are significantly different from those produced by the “standard” rules.

Discussion

The first year of NETA operation has seen a market that has generally been long. It follows that SBP has normally been the reverse price, often operating with a very short stack of offer acceptances. The low volume of accepted offers means that any highly priced actions that do get included in the calculation for SBP have a significant impact on the volume weighted-average price, driving up SBP. This scenario is self-sustaining, as any increase in SBP tends to increase the incentive on participants to “go-long”. Several previous modifications have sought to prevent highly priced offer acceptances from inflating the level of SBP inappropriately (P8, P10 and P18A), but whilst the mean and standard deviation of SBP have both reduced, some volatility driven by system balancing effects remains.

As Ofgem noted in their July 1999 consultation document, (The New Electricity Trading Arrangements Vol.1), a “commodity” price could be used as the basis for setting imbalance prices, however it was subsequently rejected on the grounds that it would not be cost reflective. After a year’s experience of market operation the concept of a “main” (ie. the longer stack) and “reverse” price has become clearer. As the System Operator can normally avoid taking any action to correct errors that tend to reduce the system imbalance, no additional costs are imposed and thus the “commodity” or “market” price will reflect the cost of production. The main price will continue to reflect the costs incurred by the System Operator. The intention of this proposal is to remove fully the effects of system balancing from the reverse price, whilst retaining the incentive to forward contract. SSP will generally be at or below market price, whilst SBP will generally be at or above market price. The definition of the main price is effectively the same as the current rules with the Balancing Reserve Level set to zero.

Finally, the current defaulting rules are not sufficiently robust for their level of use. It is desirable to either reduce their utilisation or re-define them to give results more comparable to the “standard” rules. This proposal virtually eliminates the need for default rules.

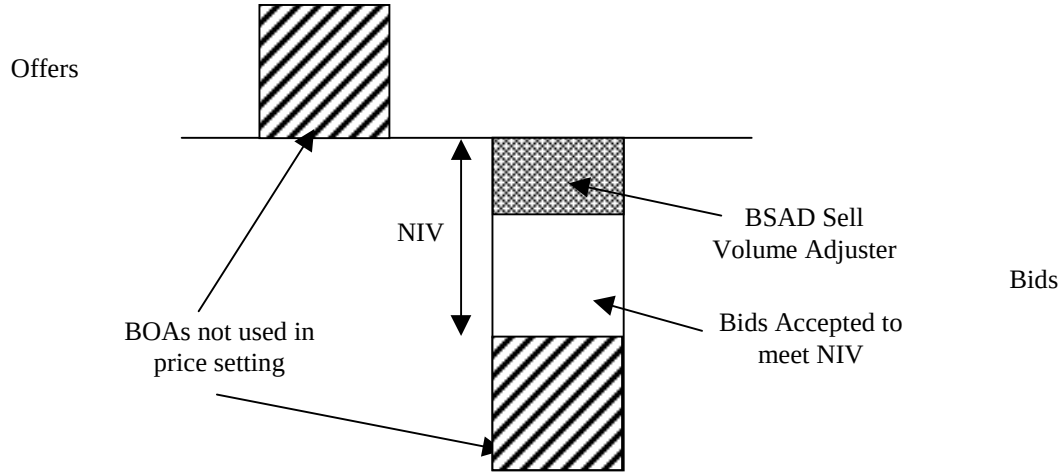
Proposed Method for Setting Imbalance Prices

- The main price (i.e. SSP when long & SBP when short) is set at the volume weighted average price of bids or offers required to meet the actual net imbalance. (i.e. the net effect of the Bid/Offer Acceptances and forward trades)

- The reverse price is set to a "market price". The only exception would be when this would lead to a negative price spread, in which case the reverse price would be set equal to the main price.

- Net Imbalance Volume (NIV) = Sum of Pre-gate closure trades + Sum of BOAs

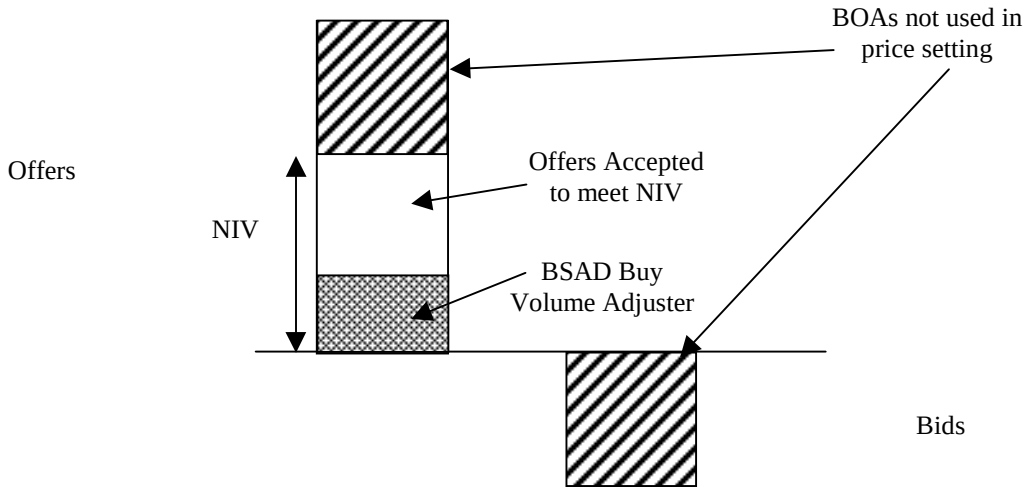
Long Market



SBP (Reverse Price) = Market price

$$SSP = \frac{\text{Sell Cost Adjuster + Cost of Bids to meet NIV}}{\text{NIV}}$$

Short Market



SSP (Reverse Price) = Market price

$$SBP = \frac{\text{Buy Cost Adjuster + Cost of Offers to meet NIV}}{\text{NIV}}$$

NB. Should pre-gate trades be in the opposite direction to NIV, the Cost Adjuster applicable to the main price will be zero and hence:

Main Price = volume weighted average price of Bids or Offers accepted to meet NIV.

The following features of the proposal are also worth noting:

- Arbitrage Bid/Offer acceptances will continue to be removed before calculating imbalance prices
- The concept of Balancing Reserve is not required with this methodology
- The only defaulting rule required is that for a zero net imbalance, both SBP and SSP would be equal to the market price. This rule would be used rarely as it requires a zero net imbalance.

Market Price

We believe that it is more appropriate for the Modification Group to develop a definition for the "Market Price" than for the proposer to "hardwire" a definition into the original proposal. However, as a starting point, we suggest the definition of the Single Price Net Imbalance Reference Price (SPNIRP) as defined in the Transmission Licence (see appendix).

Incorporation of Pre-Gate Closure Trades

If this modification proposal is implemented then National Grid intends to propose a corresponding change to the BSAD methodology statement such that net volumes are reported. The definitions would be as follows:

	Net Purchase Pre-Gate	**Net Sale Pre Gate**
Buy Volume Adjuster (BVA)	Net Purchase Volume	0
Sell Volume Adjuster (SVA)	0	Net Sale Volume
Buy Cost Adjuster (BCA)	(BVA) * (Average Price of Energy Trades)	0
Sell Cost Adjuster SCA)	0	(SVA) * (Average Price of Energy Trades)

Appendix: Extract from the Transmission Licence defining the Single Price Net Imbalance Volume Reference Price

B4 For the purpose of paragraph 9 of Part 2(i) of special condition AA5A, the term $NIRP_{j,}$ which is the net imbalance volume reference price for each settlement period j, during relevant period t, shall be derived as follows:

(a) (i) when $UKPX_j$ and APX_j data is published in respect of the relevant settlement period j then:

$$SPNIRP_j = (0.5 * UKPX_j) + (0.5 * APX_j)$$

(ii) when $UKPX_j$ data is published and APX_j data is not published in respect of the relevant settlement period j then:

$$SPNIRP_j = UKPX_j$$

(iii) where $UKPX_j$ data is not published in respect of the relevant settlement period j and APX_j data is published in respect of the relevant settlement period j then:

$$SPNIRP_j = APX_j$$

(iv) where neither $UKPX_j$ data and APX_j data has been published in respect of the relevant settlement period j then:

$$SPNIRP_j = SPNIRP_{j-1}$$

where:

$SPNIRP_j$ means the single price net imbalance volume reference price for each settlement period j.

j in all cases shall mean a settlement period (being a half an hour) as defined in the BSC.

$j-1$ the settlement period immediately preceding the relevant settlement period j.

$UKPX_j$ means the United Kingdom Power Exchange (UKPX) volume weighted reference price for each settlement period j based on the traded prices of half hourly spot contracts.

EFA block means the six four hourly blocks within the EFA day (being 23.00 hours to 23.00 hours in the immediately following day) set out in the table below:

Block	Time
1	23:00 to 03:00
2	03:00 to 07:00
3	07:00 to 11:00
4	11:00 to 15:00
5	15:00 to 19:00
6	19:00 to 23:00

APX_j means the Automated Power Exchange (UK APX) weighted average price in respect of all half hourly spot market and four (4) hour block market contracts delivered within the EFA block applying to those settlement periods j. In order to derive the APX_j price in respect of each relevant settlement period j the EFA block containing the relevant j shall be used.