Imbalance Pricing

RLG 2.3

Background

- Discussion on imbalance pricing at RLG 2.2
- Agreed that everyone would considered the matter further
- Purpose of today is to run through the issues again

HLD Decision

•The I-SEM will employ a single imbalance price for energy actions

•Market participants with a long position in imbalance settlement (contracted position > allocated volumes) will receive the same imbalance price as is paid by market participants with a short position (contracted position < allocation) in the same imbalance settlement period.

Issues for the Detailed Design

The detailed definition of the marginal bid and offer used to set the imbalance price in each settlement period will be an important issue to be addressed in the detailed design phase. The issues to be considered include, but are not limited to:
•the duration of bid and offer acceptance required to be the marginal bid or offer – i.e. the treatment of energy balancing actions shorter than the imbalance settlement period.
•the volume of bids and offers defined as being the marginal amount;
•the granularity of metering; and
•the process for separating energy balancing bids from system balancing bids (as discussed in more detail above).

Discussion at RLG 2.2

Some attendees at RLG 2.2 suggested that an averaging be considered in the imbalance price
- e.g the concept of Price Averaging Reference (PAR) in BETTA
  - PAR is currently 500MWh in BETTA
  - BETTA is circa 10 times the size of I-SEM

Imbalance Pricing Considerations

There will be a number of variables that will affect the imbalance price

- Identification of non-energy actions
  - Reserves, constraints etc
- Duration of action
  - Action must last 15 minutes in GB to be considered
- Size of action
  - De Minimis tagging of 1MWh in GB
- Price Averaging Reference (PAR)
  - Appropriate PAR Volume?

Setting the Parameters

Determining a level to set the various parameters at may not be straightforward
•Identification of non-energy actions may be difficult to parameterise
•Time allowed for pricing important
  –More time should improve accuracy

Effect on Incentives

•Important to get incentives right across the market timeframes
•Significant averaging in imbalance settlement may reduce incentives to participate in the IDM
  –Might be possible to but same power a little cheaper if left to BM
•Is the issue related to a concern around the transition between SEM and I-SEM
  –Or is it more?

Potential Option 1

- PAR 1 MWh
- Relatively long action duration (CADL)
- Higher de minimis?
  - Potentially gives defacto PAR
- More actions SO-flagged
- More 'aggressive' flagging and tagging (to remove more of the pollution by non-energy actions)

Does this give sufficient comfort at the transition between SEM and I-SEM?

Potential Option 2

- PAR of say 40 MWh
- Relatively short action duration (CADL)
- Lower de minimis
- Less aggressive flagging and tagging (pollution of some offers/bids mitigated by taking an average over more than one action)

Could this reduce incentives in the ex-ante markets and in particular for flexible plants?
Does this enshrine high PAR on an enduring basis?

Tagging & Flagging

- Choice of parameters can lead to T&F that is more (or less) 'aggressive', i.e. removes more (or less) actions that are deemed to be 'system' actions
- Out of 10 actions, could be deemed that:
    - 1 is non-energy / 9 are energy
    - 9 are non-energy / 1 is energy
- What if all non-energy actions / no energy actions?
- Could T&F leave a price that is 'thin'?
- Fallback procedure to derive marginal price for unconstrained energy balancing actions?

Fallback Procedure

•In the absence of 'qualifying' energy-only bids what are options for deriving a [marginal unconstrained energy price]?
    •Option 1: Administered Price
    •Option 2: Other market price – DAM
    •Option 3: Other market price – IDM
    •Option 4: Using actions not taken – simple stack
    •Option 5: Using actions not taken – include dynamics

Fallback Option 1

- Option 1: Administered Price
  - Pros
    - Simple
  - Cons
    - Choice of competitive price
    - Likely not to reflect prevailing conditions

Fallback Option 2

•Option 2: Other market price – DAM
  •Use DAM price
  •Pros
      •Uses competitively-formed price
  •Cons
      •DAM price not necessarily reflective of real-time conditions
      •Absence of *wholly energy* actions does not imply that conditions have not changed and no energy balancing has happened
      •Circularity?

Fallback Option 3

- Option 3: Other market price – IDM
  - Pros
    - Competitively-formed price
    - Potentially reflective of prevailing conditions
  - Cons
    - Which IDM price? Basket of IDM trades? All or over last x hours?
    - Illiquid price?
    - Circularity? What are the incentives on trades during the last x hours?

Fallback Option 4

- Option 4: Other market price – Including actions not taken
    - T&F uses actions actually taken and weeds out actions deemed to be non-energy
    - Option 4 would include actions that would have been taken had non-energy actions not been taken instead
- Purpose is purely to derive a imbalance price – inclusion of actions not taken used purely for the derivation of imbalance price, e.g. Unconstrained simple stack as per BETTA Mod P211
    - Pros: Solves illiquidity / circularity problems
    - Cons: Simple stack does not model plant dynamics. Meeting real demand typically involves more expensive actions that have better dynamics. Dampens prices – Reduced incentives for flexibility

Fallback Option 5

- Option 5: Including actions not taken T&F uses actions actually taken and weeds out actions deemed to be non-energy
- As Option 4 but model dynamics also
    - Algorithm needs to be more sophisticated.
    - May resemble / use shadow price calculation
    - Use FPNs as initial conditions
    - Over what period is the effect of the dynamics considered – rolling period – how long?
- Pros
    - Improves illiquidity problem.
    - Avoids dampening prices
- Cons
    - Need to choose period
    - May be a concern as to how will constrained off plant bid?

Summary

- Incentives across the market places are an important consideration
- Question as to whether this is a concern of transition between SEM and I-SEM or whether there the markets believes that an averaging of the imbalance price is needed.
- There are a number of options available
- Fallback procedures in the event of lack of qualifying energy offers / bids

Imbalance Pricing Discussion