

Most Promising Market Design Options

Balancing Markets

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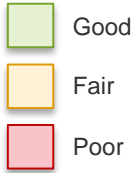
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Assessment of balancing arrangements

(Task 3.2.4)

- Main core elements required to achieve well-functioning, competitive and efficient balancing markets (ACER, 2014):
 - ✓ Framework to foster competition among BSPs: related to procurement designs that favor market liquidity
 - ✓ Adequate incentives on BRPs to balance themselves close to real time or to support the system balance: related to the cost-reflective procurement and imbalance settlement designs
- Main procurement design options:
 - ✓ Combined versus separated procurement of balancing capacity and balancing energy (i.e. BSPs without a contract for capacity provision can bid into the energy “market”)
 - ✓ Combined versus separated procurement of upward and downward balancing capacity (single product versus two products)
 - ✓ Marginal versus pay-as-bid pricing of balancing products
- Main imbalance settlement design options:
 - ✓ Single, dual price or hybrid pricing (i.e. mainly single pricing; dual pricing when both up & down energy is activated within the settlement period – Dutch model)
 - ✓ Short versus long settlement period

Assessment of balancing arrangements: procurement design options

Design option	Liquidity	Long-term efficiency/cost-reflectiveness	
Balancing capacity & balancing energy <ol style="list-style-type: none"> 1. <u>Combined procurement</u> (only capacity bids) 2. <u>Separated procurement</u> (capacity & energy bids) 	<ol style="list-style-type: none"> 1. Gate-closure for energy bids linked to capacity bids: capacity is typically guaranteed at least in the day-ahead 2. Possibility of gate-closures for energy bids much closer from real time: favors participation of RES/demand 	<ol style="list-style-type: none"> 1. Reduced competition may imply in higher balancing energy supply costs 2. Higher liquidity in the energy "market" contributes to reduce balancing energy costs 	 <p>Good Fair Poor</p>
Upward & downward balancing capacity <ol style="list-style-type: none"> 1. <u>Combined procurement</u> (single product) 2. <u>Separated procurement</u> (two products) 	<ol style="list-style-type: none"> 1. Linking upward to downward capacity bids may act as a barrier to the participation of small players 2. Facilitates the participation of RES/demand (although it depends on gate-closures for capacity bids) 	<ol style="list-style-type: none"> 1. Under some operating conditions, the costs of up (or down) capacity can be higher than down (or up) capacity 2. Reflects the costs of up and down capacity according to the operating conditions (two different prices) 	
Pricing of balancing products <ol style="list-style-type: none"> 1. <u>Pay-as-bid</u> 2. <u>Marginal pricing</u> 	<ol style="list-style-type: none"> 1. Less transparent and may act as a barrier to entrance (BSPs tend to bid as close as possible to the marginal cost) 2. Higher transparency facilitates the participation of smaller BSPs 	<ol style="list-style-type: none"> 1. Combined with average imbalance prices, does not reflect costs at the margin and correct signals to BRPs and BSPs 2. Provides stronger incentives to BSPs to invest in bal. capacity and BRPs to be balanced/support the system balance 	

Assessment of balancing arrangements: imbalance settlement design options

Design option

Imbalance pricing

1. Dual price: different prices are applied to BRPs aggravating and reducing the system imbalance
2. Single price: the same price is applied to all BRPs
3. Hybrid: mainly single price; dual price based on balancing energy prices is applied when both up and down energy are activated within the settlement period

Settlement period

1. Long: 1 hour
2. Average: 30 minutes – NCEB
3. Short: 15 minutes

Efficiency/cost reflectiveness

1. Incentives to BRPs to be balanced; typically, there is a “transfer of money” from less flexible units (e.g. RES/demand) to average users

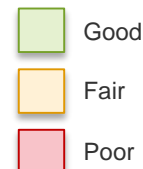
2. Incentives to BRPs to be balanced or to support the system balance; no transfer of money

3. Combined with short settlement period, increases efficiency in balancing energy cost allocation among imbalanced BRPs

1. Higher probability of imbalances on both directions and higher difficulty in allocating imbalance costs

2. Allocation of imbalance costs to BRPs can be improved with a shorter settlement period

3. Lower probability of activation of both up & down energy within a settlement period and more efficient allocation of imbalance costs to BRPs





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Thank you very much
for your attention