

# ACTIVATION PURPOSES

BSG

7 March 2017

# Disclaimer

**All answers provided are based on current applied principles and methods. Other options may exist.**

**Many questions relate to deliverables of the EBGL and thus can only finally be answered once EBGL deliverables have been proposed and approved by NRAs.**

# EFET

## Question

- Can ENTSO-E comment on the potential impact on pool-based bidding in case of non-balancing activation purposes?

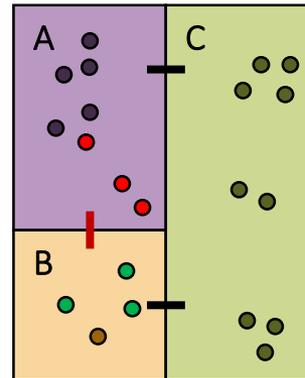
## Answer

- If pool-based bidding is applied, an activation for other purposes than balancing (i. e. redispatch) is only feasible, if the pool (as a whole) has a sufficient sensitivity on the congested line.

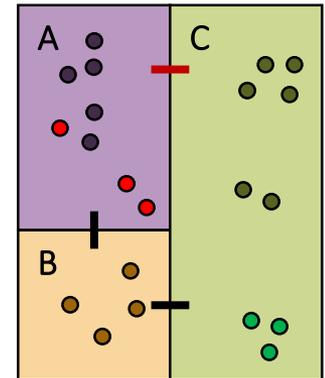
## Example

- Exemplary setup of control areas, generation units and (un-)congested lines connecting control areas
- » Activation of pool-based bids in control area A and B for redispatching a congested line A-B seems feasible due to high sensitivity of all generation units.
- » Activation of pool-based bids in control area A and C for redispatching a congested line A-C seems not feasible due to limited sensitivity of the generation units.

Portfolio-based activation:  
large impact on line A-B



Portfolio-based activation:  
limited impact in line A-C



- Control area (in which pooling is allowed)
- Generation unit (of a portfolio)
- Generation unit (increasing feed-in)
- Generation unit (decreasing feed-in)
- Uncongested line
- Congested line

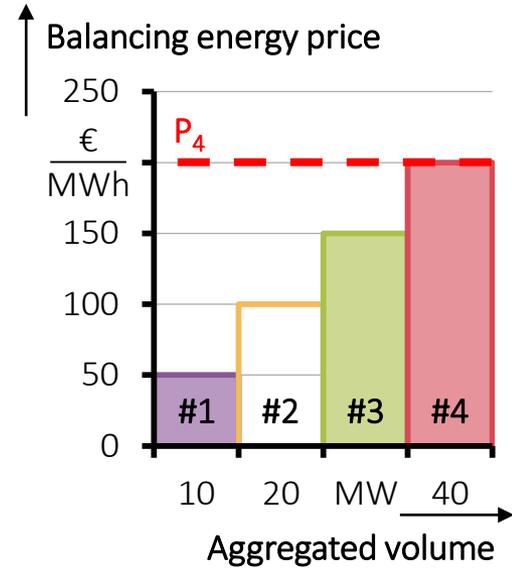
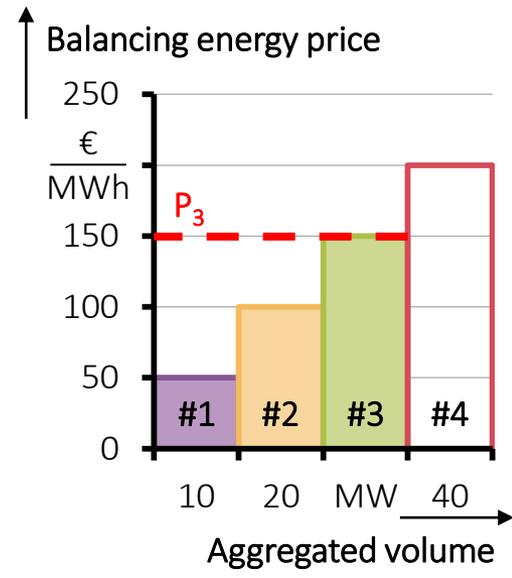
# Eurelectric (i)

## Scenario

- For the sake of illustration, let's assume the following mFRR merit order. 4 bids of the same size (let's say 10 MW each) are available, located in different control zones.
- Let's assume that the need of the TSO is to activate 30 MW. Logically, you would assume that the first three bids would be activated and that the marginal price would equal  $P_3$ .
- Imagine that the bid 2 is rejected, because it is located in a congested area or because it would create congestion if activated. Therefore, the bid #4 is activated so that total volume activated amounts to 30 MW.

## Questions

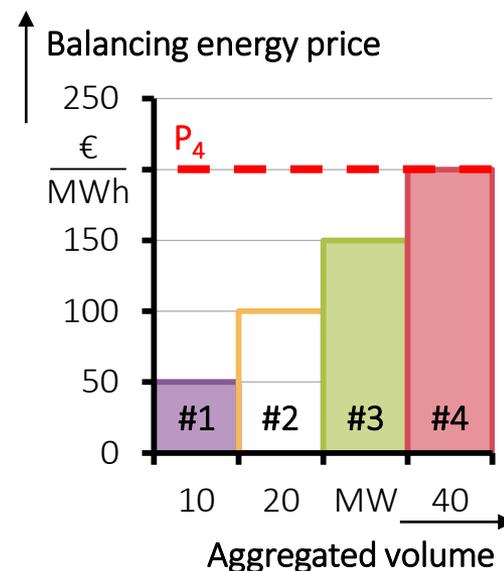
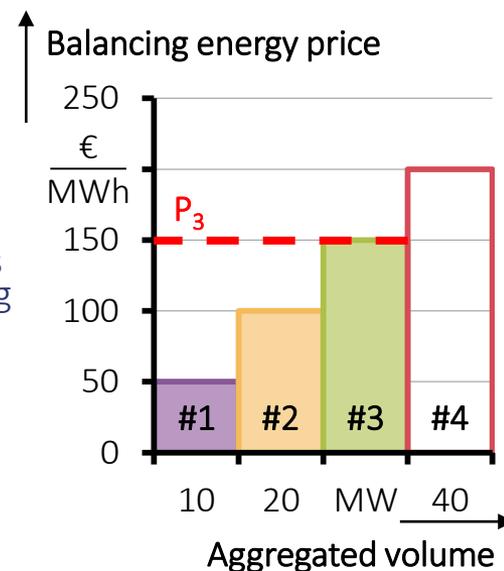
1. For all BRPs: what would be the imbalance settlement price?
2. How are the costs related to congestion and the costs related to balancing treated and allocated?
3. For the BSP #2: what is the impact for him? Is there any compensation foreseen?
4. What price will receive BSP #4?



# Eurelectric (ii)

## Answers

1. Imbalance prices remain a local price signals. According to GL EB, article 52.2 one year after entry into force all TSOs will put forward a proposal for harmonizing the main features. So, there is not necessarily a global imbalance price.
  - According to GL EB, article 55.4.a. and 55.5.a the absolute imbalance price is not smaller than the weighted average price for (positive/negative) balancing energy for FRR and RR.
  - According to GL EB, article 55.4.b and 55.5.b special conditions can apply, if there is no activation of balancing energy.
    - » Extra charges (increasing the imbalance price) may apply.
2. TSO-TSO settlement ensures that costs are transferred to the TSO for whom a balancing energy bid has been activated.
  - TSO costs for balancing are impacting BRPs via imbalance prices.
  - For activation purposes other than balancing, more complex rules could apply.
3. As BSP #2 is not activated, no compensation is foreseen.
  - This matches the rules currently applied, if a bid is skipped due to congestions.
4. According to GL EB, article 5.5 all BSPs activated for balancing (including BSP #4) are remunerated with the same balancing energy price (e. g.  $P_4 = 200 \text{ €/MWh}$ ).
  - According to GL EB, article 30.1.b balancing energy bids activated for purposes other than balancing are not likely to set the marginal price for balancing energy.



# CEDEC

## Question

- How does the coordination btw. TSO and DSO look like if a bid cannot be activated because of the risk of creating local congestion?

## Answer

- TSOs and DSOs will coordinate remedial actions during operational planning phase (e.g. day-ahead and intra-day congestion forecast) with the target to achieve a congestion free real-time grid. So usually, there will be no congestions for activation of balancing bids. If close to real time a congestion occurs, there will be a mechanism which prevents the activation of bids that worsen the congestion. In such cases, the bid will not be activated and the next bid is considered.

# EFET

## Question / Scenario

- Activation of mFRR to replace aFRR that is located in a congested area.

## Answer

- If an aFRR bid, which is located in a congested area, should be replaced by a mFRR bid, it must be checked that the mFRR bid does not worsen the congestion. If so, the next mFRR bid is considered. It should be mentioned that ideally congestion management is consistent for aFRR, mFRR and RR.

# EFET

## Question / Scenario

- Activation of mFRR to replace almost exhausted aFRR; next bids of mFRR are in a congested area.

## Answer

- Same answer/ principle as question before (slide 4).

# EFET

## Question / Scenario

- Activation of mFRR to replace almost exhausted aFRR; next bids of mFRR are in a congested area in another control zone.

## Answer

- Same answer/ principle as question before (slide 4).

# CEDEC

## Question

- Who bears the cost of balancing energy in countries where balancing energy is used to solve system constraints?

## Answer

- General rule is that: **(i)** cost of balancing energy used to balance the system is covered by BRPs who are imbalanced, **(ii)** cost of balancing energy used to solve system constraints should be allocated through tariffs to grid users (or end consumers) of the bidding zone (country) where the source of this constraint is located (nowadays in most cases it is allocated to grid users of the country where these constraints occur).
- EB GL does not regulate the rules of financing of costs resulting from congestion management, so different rules can be applied in different countries.

# CEDEC

## Question

- How are BRP informed there about the cost related to non-balancing activation purposes and those related to balancing activation purposes?

## Answer

- According to art. 29.4: for each balancing energy bid activated from the common merit order list, the TSO activating the bid shall define the activation purpose (balancing and non-balancing).
- BRP should be informed on correction of its position resulting from activation of bids of BSPs balanced by this BRP for all purposes.  
*New art 49.3 says: "For each imbalance adjustment, each TSO shall determine the activated volume of balancing energy calculated pursuant Article 45( 2) and any volume activated for purposes other than balancing energy."*
- For BRP the most crucial information should be how to change the overall position. Is there a need for information on the costs?

# CEDEC

## Question

- How does ENTSO-E ensure that only the cost for balancing is allocated to BRP if a balancing energy bid is used for both balancing and solving system constraints?

## Answer

- This is a detailed question and should be further investigated during development of pricing method (art. 30.1) and main principles of Imbalance settlement (art. 52)
- If activated bid satisfies balancing needs and solves system constraints and at the same time there were cheaper available bids which could be used to cover imbalance, then the activated bid doesn't impact on balancing energy price.
- When it doesn't impact on marginal balancing energy price, it doesn't impact on balancing cost which is reflected in imbalance prices.
- Balancing cost allocated to BRP is a product of its imbalance energy and imbalance price, so it doesn't include cost of solving system constraints.

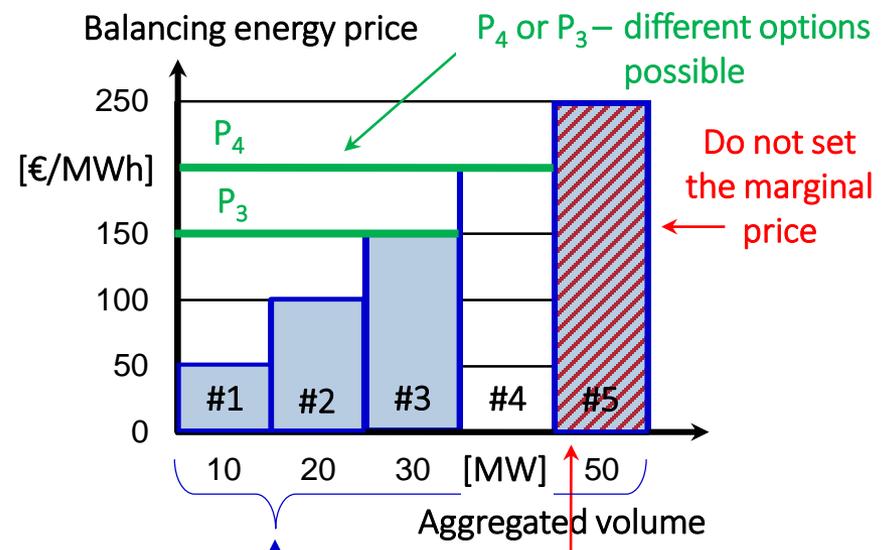
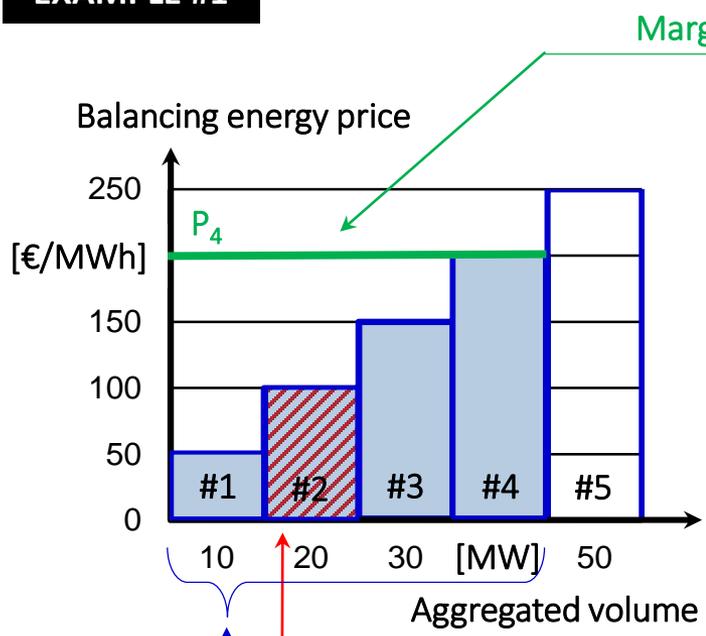
## Example

- Two illustrative examples to explain the cases or refer to the examples later on in the presentation

Assumption: bids from the same TSO area

## EXAMPLE #1

## EXAMPLE #2



Activation needed to solve network constraints

Activation needed to solve network constraints

Total needs of balancing energy (40 MW)

Total needs of balancing energy (40 MW)

Cost of balancing energy to balance system:  
 $= 200 \text{ €/MWh} * 40 \text{ MWh} = 8\,000 \text{ €}$

Cost of congestion management = 0 €

Cost of balancing energy to be covered by BRPs

Cost of balancing energy to balance system:  
 $P_3 := 150 \text{ €/MWh} * 40 \text{ MWh} = 6\,000 \text{ €}$   
 $P_4 := 200 \text{ €/MWh} * 40 \text{ MWh} = 8\,000 \text{ €}$

Cost of congestion management

$P_3 := (250 - 150) \text{ €/MWh} * 10 \text{ MWh} = 1\,000 \text{ €}$

$P_4 := (250 - 200) \text{ €/MWh} * 10 \text{ MWh} = 500 \text{ €}$

# CEDEC

## Question

- What kind of cost allocating mechanism does ENTSO-E have in mind to avoid cost from non-balancing activation purposes are passed on to BRP?

## Answer

- See answers to previous questions

# EFET

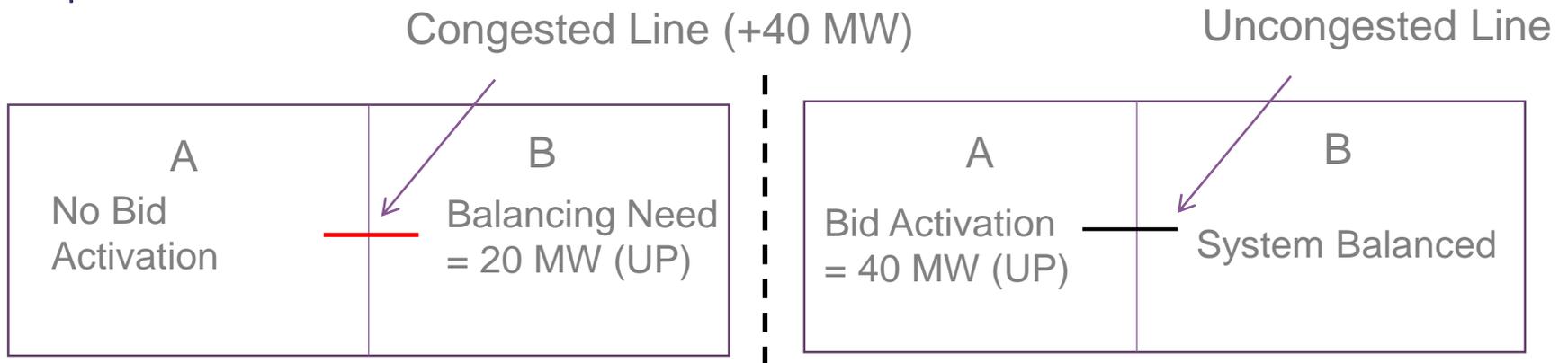
## Question

- Could Entso-E provide an example scenario where a bid would be partially allocated to balancing and partially allocated to congestion management?

## Answer

- A bid could be used both for balancing and to solve a congestion if it has a sufficient sensitivity on the congested line and, at the same time, it's used to keep the system balanced

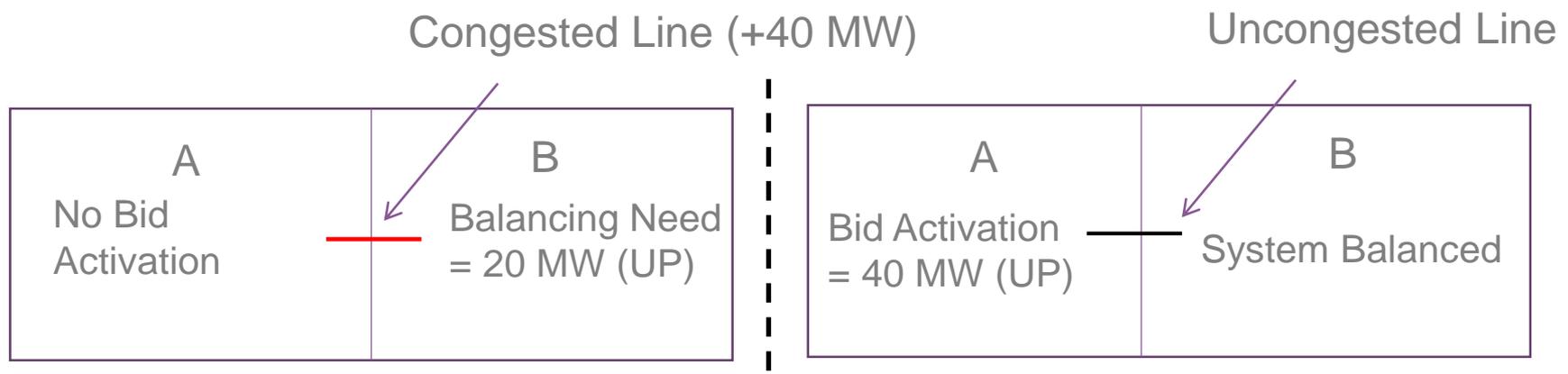
## Example 1



- Bid in TSO A is the cheapest available bid for TSO B
- In this case the activation a bid of 40 MW from a provider located in the control area of TSO A will solve the congestion of 40 MW between the two control zones and in the same time satisfy the Balancing Need of 20 MW of TSO B.
- The 20 MW used to satisfy the Balancing Need of TSO B will be allocated to “Balancing”, while the other 20 MW used to solve the congestion will be allocated to “congestion management” (or in general to non-balancing purposes)

# EFET

## Example 2



- Bid in TSO A is the “last” (most expensive) bid activated by TSO B
- In this case the activation a bid of 40 MW from a provider located in the control area of TSO A will solve the congestion of 40 MW between the two control zones and in the same time satisfy the Balancing Need of 20 MW of TSO B.
- The 20 MW used to satisfy the Balancing Need of TSO B will not be allocated to “Balancing”, because as stated in the guideline (Art. 30.1.b) balancing energy bids activated for purposes other than balancing are not likely to set the marginal price for balancing energy

## EFET

### Question/Scenario

- Activation of RR to replace mFRR that is located in a congested area

### Answer

- The proposed scenario is not likely to happen. For TSOs implementing a RR process, RR balancing energy bids will not be used to replace mFRR balancing energy bids whose underlying assets are located in a congested area. The TSO will use the next mFRR bids within the MOL to fulfil its balancing need. The settlement is described in the general restricted bid use case.

## EFET

### Question

- Can Entso-E comment on the TSO coordination when activating bids in order to free up faster uncongested bids ? Will bids involved in such an exchange become unavailable for other TSOs?

### Answer

- For TSOs implementing a security margin approach, specific balancing energy bids can be used to reach the required security margin in ID. Actions related to security margin do not lead to new faster bids but it can impact the need expressed by the TSO to the AOF.

### Example

- The TSO foresees the upwards security margin at the morning peak (8am).
- Seen from 6 am, the system will be perfectly balanced at 8am. The need for security margin is 2400 MW to deal with possible unforeseen events (system security policy requirement). 2400 MW of balancing energy bids are available for 8 am. The security criterion is matched.



- The margin need from 6.30am is 2000 MW (lower than the need from 6am because the risk of unforeseen events is reduced as it gets closer to real time).
- In order to fulfil this criteria, the TSO needs to activate 200 MW of 2h-FAT upwards bids before 6am (as 1800 MW of 15' FAT bids is not enough and 2h FAT bids will be useless for 8 am if activated after 6am). The TSO does not activate 15' FAT downwards bids.
- Seen from 6.30am, the system is long of 200 MW (in real time, i.e. at 8 am, 200 MW of upward bids will be activated) and 1800 MW of balancing energy bids are available. The security criteria is matched.

## Seen from 6h30

**Requested : 2000 MW**

**Available : 2000 MW**



- Even when the forecasted system imbalance is zero, the activation of upwards long FAT bids to provide system margin does not necessarily lead to the activation of downwards short FAT bids.

Between 6am and 8am, different cases can occur :

- There is no unforeseen event that cause negative imbalance. In that case, the system will be long and the TSO will express a downwards bid to the AOF.
- Unforeseen events that cause negative imbalance occur. In that case the ACE OL can be close to zero or even become negative. The TSO expresses the balancing need to the AOF. This need is lower than the one that it would express if no action for security margin had been taken.

In general : actions related to security margin do not lead to new faster bids but it can impact the need expressed by the TSO to the AOF.