MARI Project

Manually Activated Reserves Initiative - Creating a European platform for the exchange of mFRR balancing energy

BSG meeting 7/12

Presented by: Ulf Kasper/Benjamin Genet

The MARI project – now formally approved as reference project

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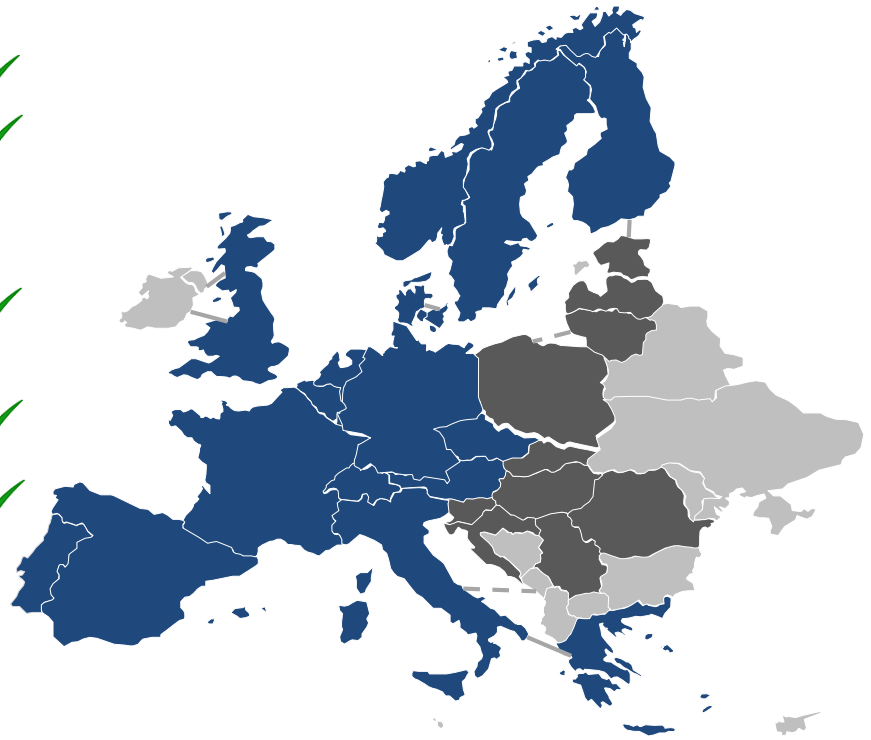
✓ = Signatures started



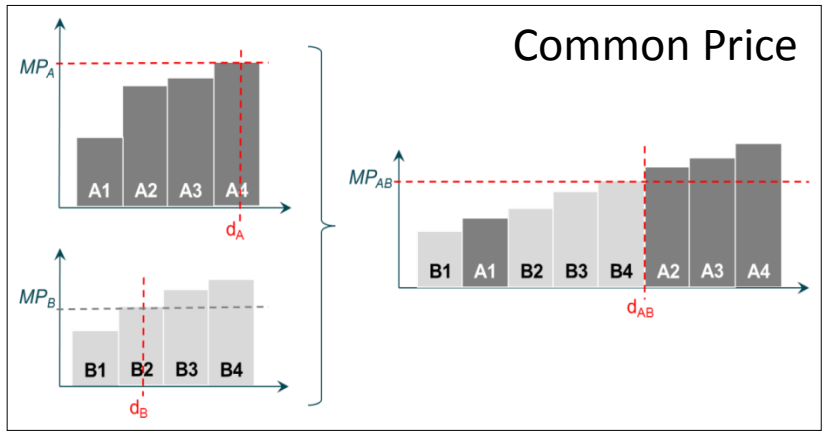
ENTSO-E reference project since 7th September 2017
Several of the observers are in the process of becoming members

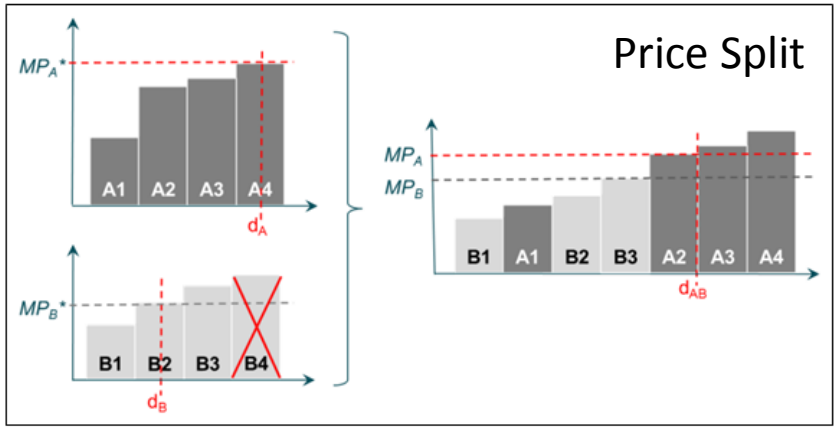
The first consultation is running from 20/11 to 21/12

Public document has been prepared
108 pages including 46 questions

- Product and Process
- Specification of the Activation Optimization Function
- Settlement
- Congestion Management
- Harmonisation

Settlement based on cross border marginal pricing





MARI propose to use cross-border marginal price for:

- TSO-TSO settlement
- TSO-BSP settlement

In case of no congestions between two areas, both areas will obtain the same price

In case of congestions between two areas each area will have it's own price – there will be a price split

In case of a price split there will be a congestion rent to be shared between TSO's

The principle is like the day-a-head market

Consequences of XBMP on imbalance pricing and local imbalance

one price for mFRR balancing energy for all BSPs

influence on imbalance price for all BRPs
motivation for BRP to keep imbalance low in its area

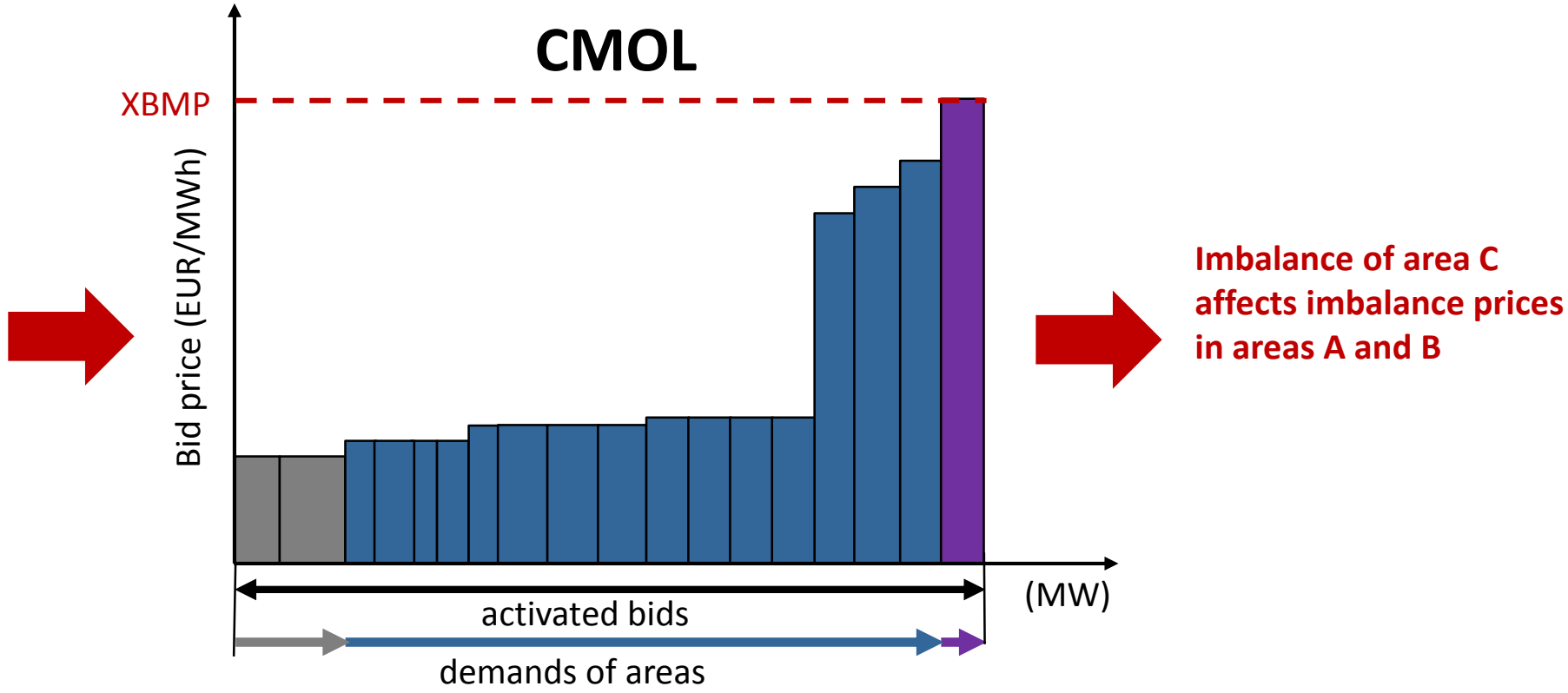
PROs

CONs

Area A has a small imbalance

Area B has a small imbalance

Area C has a high imbalance



Imbalance of area C affects imbalance prices in areas A and B

TSO-TSO Settlement – 1/5

Determination of the Settlement Energy Volume – **Option 1**

- For scheduled activation, the exchanged energy is settled within the main quarter hour (QH), as represented by the red shaded area Vi in figure 3 .
- For direct activation, the same principle applies, i.e. area Vi is independent from the point in time of the direct activation, but all the additional volume exceeding area Vi is settled in QH-1 and is represented by the dark or light green shaded area in figure 4.
- The evaluation of option 1 for both SA and DA will be based on the following criteria:

	Criterion
a.	**Consistency with algorithm:** Volumes considered in the algorithm should be consistent with the volumes for TSO-TSO settlement
b.	**Simplicity & transparency:** The number of quarter hours affected by an activation should be limited
c.	**Settlement energy volume = exchanged energy volume:** The settlement volume should be equal to the total energy volume exchanged between the TSOs according to the cross-zonal schedule.

Figure 5: Assessment of Option 1 for SA and DA

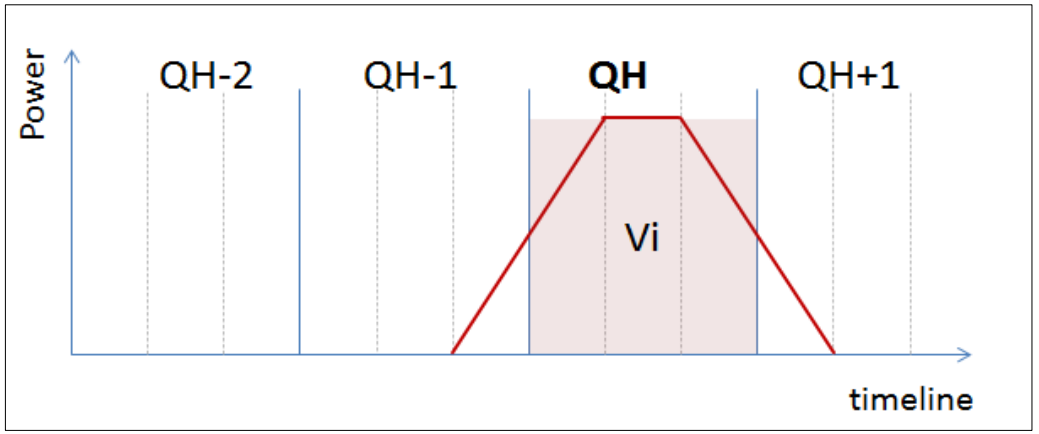


Figure 3: Settlement Energy Volume - Option 1 for SA

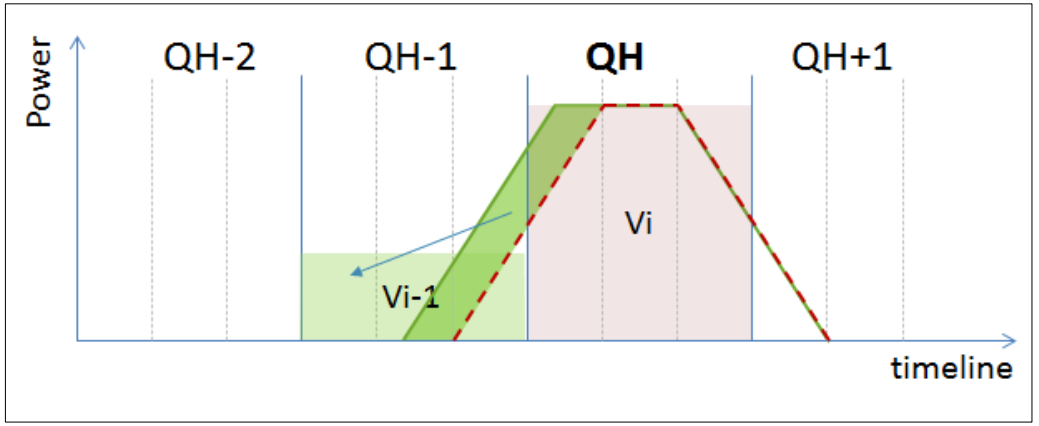


Figure 4: Settlement Energy Volume - Option 1 for DA

TSO-TSO Settlement – 2/5

Determination of the Settlement Energy Volume – **Option 2**

- For scheduled activation, the exchanged energy is settled in each quarter hour affected.
- Not be consistent with the algorithm. Moreover, the number of quarter hours affected is at maximum.

	Criterion
a.	**Consistency with algorithm:** Volumes considered in the algorithm should be consistent with the volumes for TSO-TSO settlement
b.	**Simplicity & transparency:** The number of quarter hours affected by an activation should be limited
c.	**Settlement energy volume = exchanged energy volume:** The settlement volume should be equal to the total energy volume exchanged between the TSOs according to the cross-zonal schedule.

Figure 5: Assessment of Option 2 for SA and DA

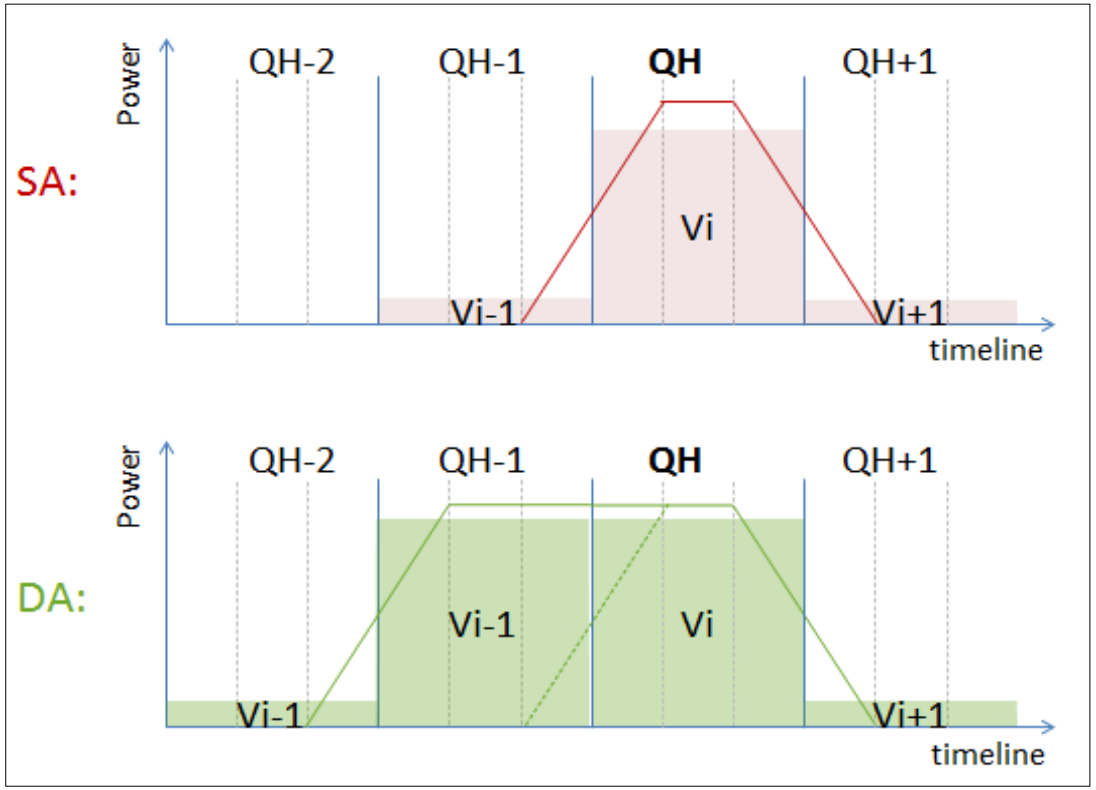


Figure 4: Settlement Energy Volume - Option 2 for SA and DA

Congestion Rent – 1/3

Concept and Formula

Concept:

- **Congestion** is the situation where transmission capacity available between areas is not sufficient to accommodate all transactions
- **"Congestion rent" =** In case of congestion, there is a price difference between the price that an area is "willing to pay" and the price that the other area is "willing to receive" at either side of the interconnector.
- → **Thus, a surplus from the congested interconnection will occur.**

Definition/Formula:

Congestion rent [€] **= Imported volume** [MWh] **x (MP of the exporting TSO** [€/MWh] **– MP of the importing** TSO [€/MWh]**)**

Sharing:

- Congestion rent resulting from mFRR activations = "congestion income" (Regulation 714/2009 article 16-6)?

Working assumption: Yes → implicit allocation of available capacity in the context of balancing services.

Thank you for your attention!

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