



Demand side flexibility and balance responsibility

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Aggregators financially responsible for imbalances that they cause

Directive - Article 17 – Demand response through aggregation

3. *Member States shall ensure that their relevant regulatory framework contains at least the following elements:
[...]*

*(d) an obligation on **market participants engaged in aggregation to be financially responsible for the imbalances that they cause** in the electricity system; to that extent they shall be balance responsible parties or shall delegate their balancing responsibility in accordance with Article 5 of Regulation (EU) 2019/943;*

Definition of balance responsibility

Regulation Article 5 Balance responsibility

1. All market participants shall be responsible for the imbalances they cause in the system ('balance responsibility'). To that end, market participants shall either be balance responsible parties or shall contractually delegate their responsibility to a balance responsible party of their choice. Each balance responsible party shall be financially responsible for its imbalances and shall strive to be balanced or shall help the electricity system to be balanced.

The regulatory framework for balancing is directly applicable

Electricity Directive and Regulation

Electricity Balancing GL

National Terms and Conditions / ACER decisions

What is the imbalance?

Position

commercial trade schedules between BRPs

Imbalance adjustment

change to the BRP position due to balancing energy activated by the TSO from a BSP belonging to this BRP

Allocated volumes

the volume physically measured or profiled

Implementing the Clean Energy Package for Demand Response

Balancing Responsibilities of Aggregators

Workshop #2

14th June 2021

From workshop #1 on consumers' rights...

- Art.17: *Demand Response through aggregation*
 - Aggregators, competing, whether supplier or independent
 - Art.17(1) *All electricity markets*
 - Not just balancing markets, all markets, including day ahead (or capacity)
 - Next workshop on balancing responsibilities of aggregators
- Art.13: *Aggregation contract*
 - (1) *All customers* (see also recital 39)
 - (1): *independently from their supply contract*
 - (2): *without the consent of the [supplier/BRP]; also art.17 (3-a): without consent of other market participants*
 - All customers, not just large ones or those with smart meters
 - How to deal with profiled consumers
 - How to protect small consumers, right to switch, etc.
 - No agreement with supplier nor supplier's BRP
 - Neither before, nor after (which is also before a future contract)
 - Following workshops on 'models' for the balance responsibility of suppliers and possible compensation to suppliers
- Data
 - Art.13 (3): all relevant DR data to consumer
 - Art.17 (3-c): exchange data [...] while fully protecting commercially sensitive info & customers' personal data
 - Another workshop dedicated to data after we see what (really) need be shared with whom

Balance Responsibility - Principles

✓ Every market participant to bear balance responsibilities

- One grid
- No free rider
- DR aggregators on a level-playing field with generators
 - Compete with generators in all electricity markets
 - Same physical impact in case of failure to deliver
 - Same balance responsibility

✓ A clear framework from EU legislation...

- Directive 2019/944, particularly art.17 – 3 (d)
- Regulation 2019/943, particularly art.5, *recital 15*
- *Commission regulation 2017/2195 on electricity balancing,*
 - *Art. 2, definitions (8), (9), (14) & (15)*
 - *Possible adaptations for DR: to be discussed*

... to be implemented in Member States

Balance responsibility of aggregators

As per CEP

- Directive art.17

- (d) an obligation on market participants engaged in aggregation to be financially responsible for the imbalances that they cause in the electricity system; to that extent they shall be balance responsible parties or shall delegate their balancing responsibility in accordance with Article 5 of Regulation (EU) 2019/943;

- Regulation art.5

1. All market participants shall be responsible for the imbalances they cause in the system ('balance responsibility'). To that end, market participants shall either be balance responsible parties or shall contractually delegate their responsibility to a balance responsible party of their choice. Each balance responsible party shall be financially responsible for its imbalances and shall strive to be balanced or shall help the electricity system to be balanced.

- Regulation recital 15 (*to clarify the intention of articles*)

- (15) Title V of Regulation (EU) 2017/2195 established that the general objective of imbalance settlement is to ensure that balance responsible parties keep their own balance or help restore the system balance in an efficient way and to provide incentives to market participants for keeping or helping to restore the system balance. To make balancing markets and the overall energy system fit for the integration of the increasing share of variable renewable energy, imbalance prices should reflect the real-time value of energy. All market participants should be financially responsible for the imbalances they cause in the system, representing the difference between the allocated volume and the final position in the market. For demand response aggregators, the allocated volume consists of the volume of energy physically activated by the participating customers' load, based on a defined measurement and baseline methodology.

Balance responsibility of aggregators

Definitions from EBGL

- Commission regulation 2017/2195: only on balancing markets => not today

Subject matter and scope

1. This Regulation lays down a detailed guideline on electricity balancing including the establishment of common principles for the procurement and the settlement of frequency containment reserves, frequency restoration reserves and replacement reserves and a common methodology for the activation of frequency restoration reserves and replacement reserves.

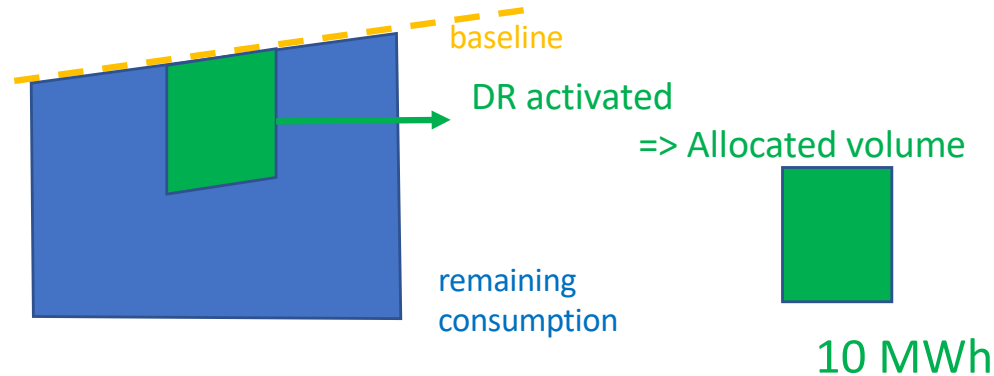
- Look for consistency...and/or need for adaptations, so far mainly definitions

- (8) 'imbalance' means an energy volume calculated for a balance responsible party and representing the difference between the allocated volume attributed to that balance responsible party and the final position of that balance responsible party, including any imbalance adjustment applied to that balance responsible party, within a given imbalance settlement period;
- (9) 'imbalance settlement' means a financial settlement mechanism for charging or paying balance responsible parties for their imbalances;
- (14) 'imbalance adjustment' means an energy volume representing the balancing energy from a balancing service provider and applied by the connecting TSO for an imbalance settlement period to the concerned balance responsible parties, used for the calculation of the imbalance of these balance responsible parties;
- (15) 'allocated volume' means an energy volume physically injected or withdrawn from the system and attributed to a balance responsible party, for the calculation of the imbalance of that balance responsible party;

Allocated volume for DR aggregators = DR volumes delivered = change in consumers' load

For demand response aggregators, the allocated volume consists of the volume of energy physically activated by the participating customers' load, based on a defined measurement and baseline methodology.

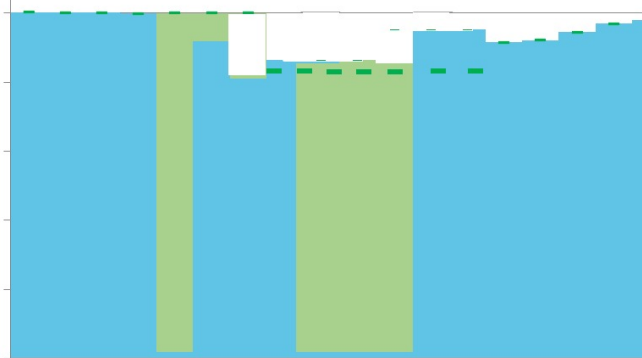
Physical delivery of DR



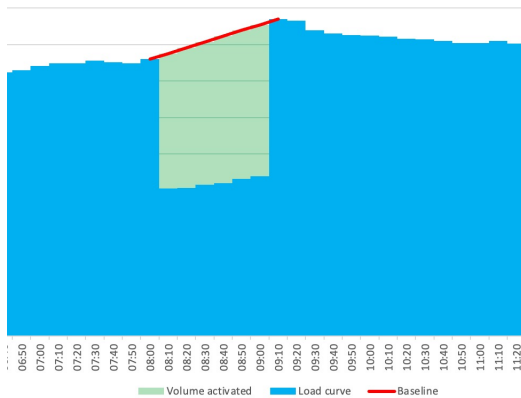
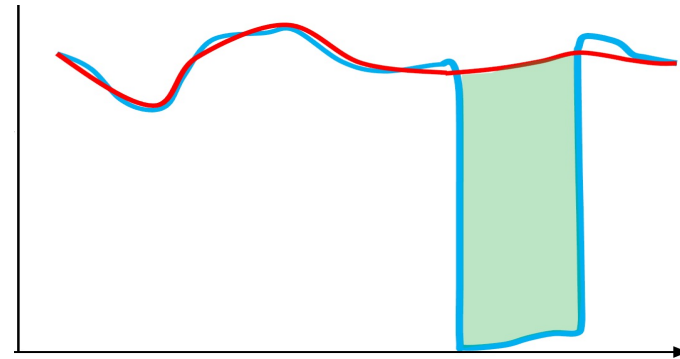
- Allocated volumes = volumes of DR physically delivered

Various baseline methodologies depending on the kind of DR loads and services

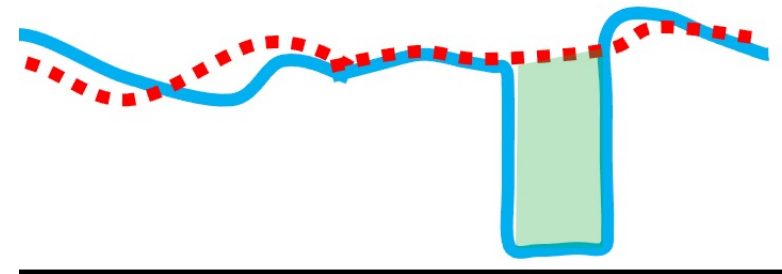
Direct reading



Historical average



Straight interpolation

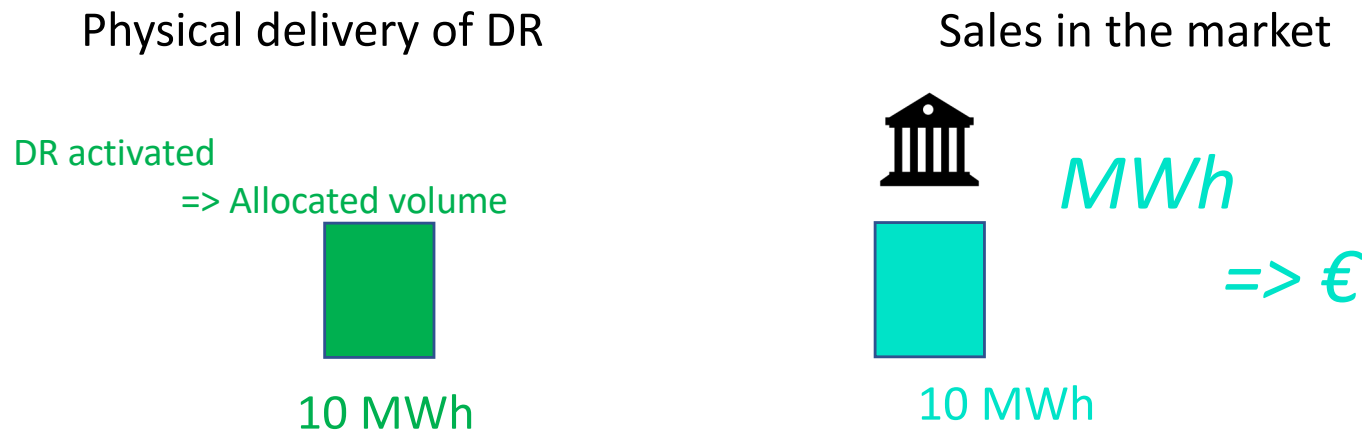


Forecast

Methodologies may be proposed by DR Aggregators, subject to approval by NRAs

To determine imbalances created in the system, compare allocated volume and sales

All market participants should be financially responsible for the imbalances they cause in the system, representing the difference between the allocated volume and the final position in the market.

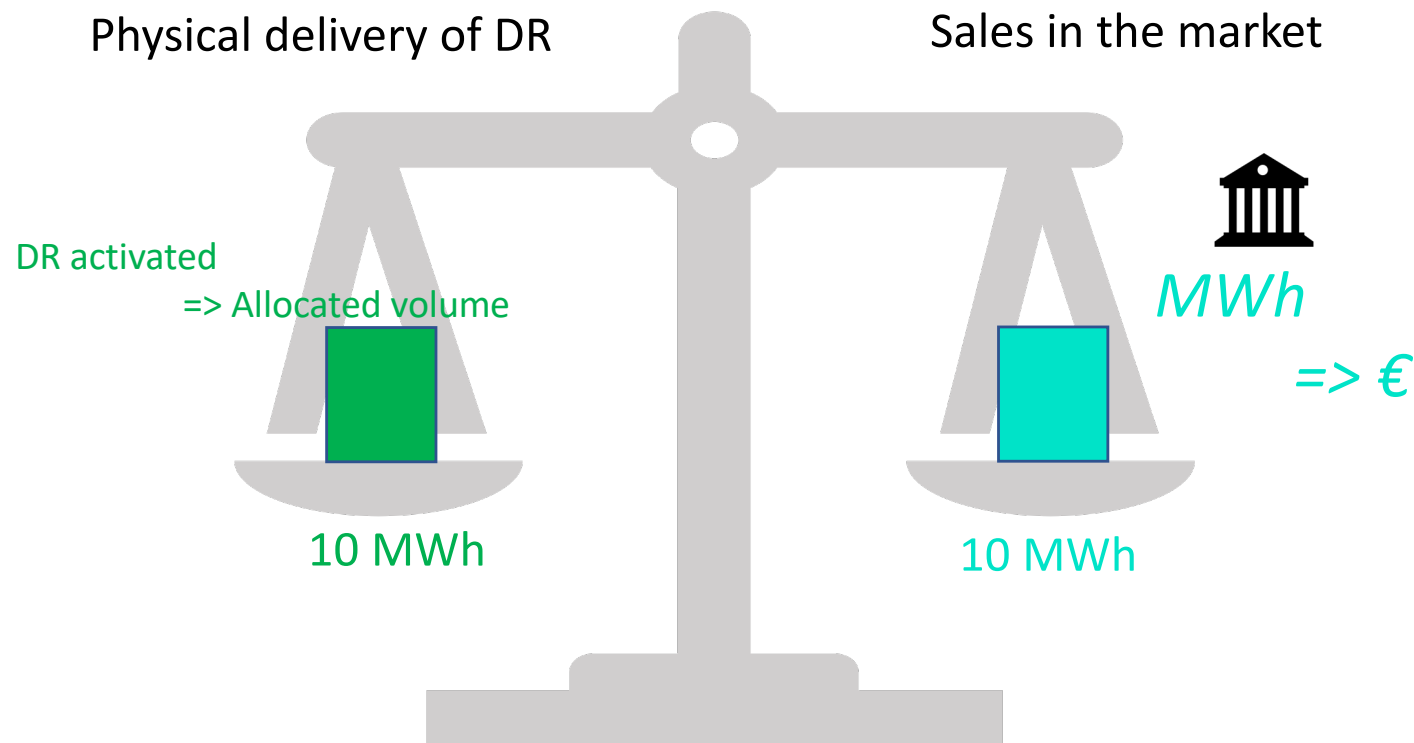


$$\text{Imbalance} = \text{allocated volumes} - \text{sales}$$

- (8) 'imbalance' means an energy volume calculated for a balance responsible party and representing the difference between the allocated volume attributed to that balance responsible party and the final position of that balance responsible party, including any imbalance adjustment applied to that balance responsible party, within a given imbalance settlement period;
(for balancing energy -> later workshop)

Imbalance = allocated volume – sales

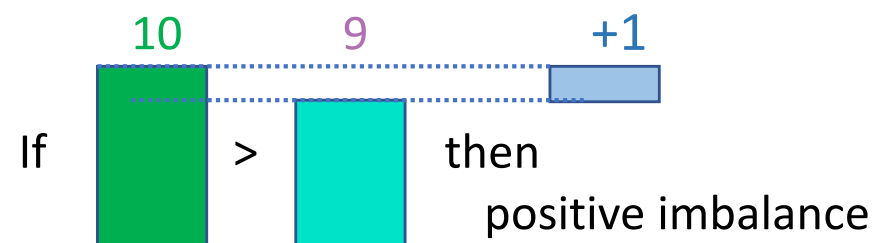
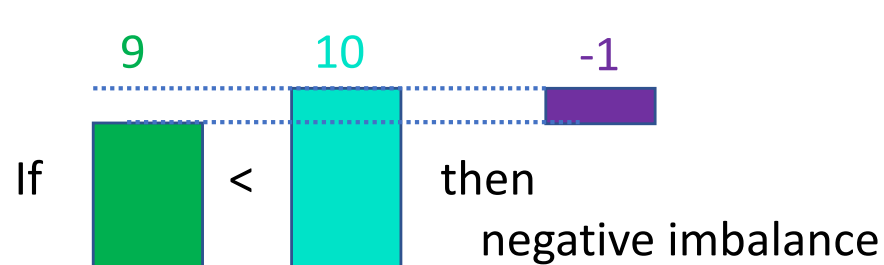
All market participants should be financially responsible for the imbalances they cause in the system, representing the difference between the allocated volume and the final position in the market.



When allocated volume = sales, DR aggregator creates no imbalance

Imbalances occur when DR volumes delivered differ from MWh sold in the market

Physical delivery of DR $>$ Sales in the market
 $?$
 $<$



To determine one's imbalance position,
always compare sales and deliveries,
not impact on third parties

Balancing Responsibilities of Demand Response Aggregators

DR operating in the electricity wholesale market (e.g. day ahead)

Other topics coming later = not today

- *Balancing responsibilities of other parties, namely suppliers*
- *DR in the balancing market*
- ...

Now Q&As, comments welcome!