



Balancing & Intraday Markets

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Berlin, 17.02.2017

Agenda

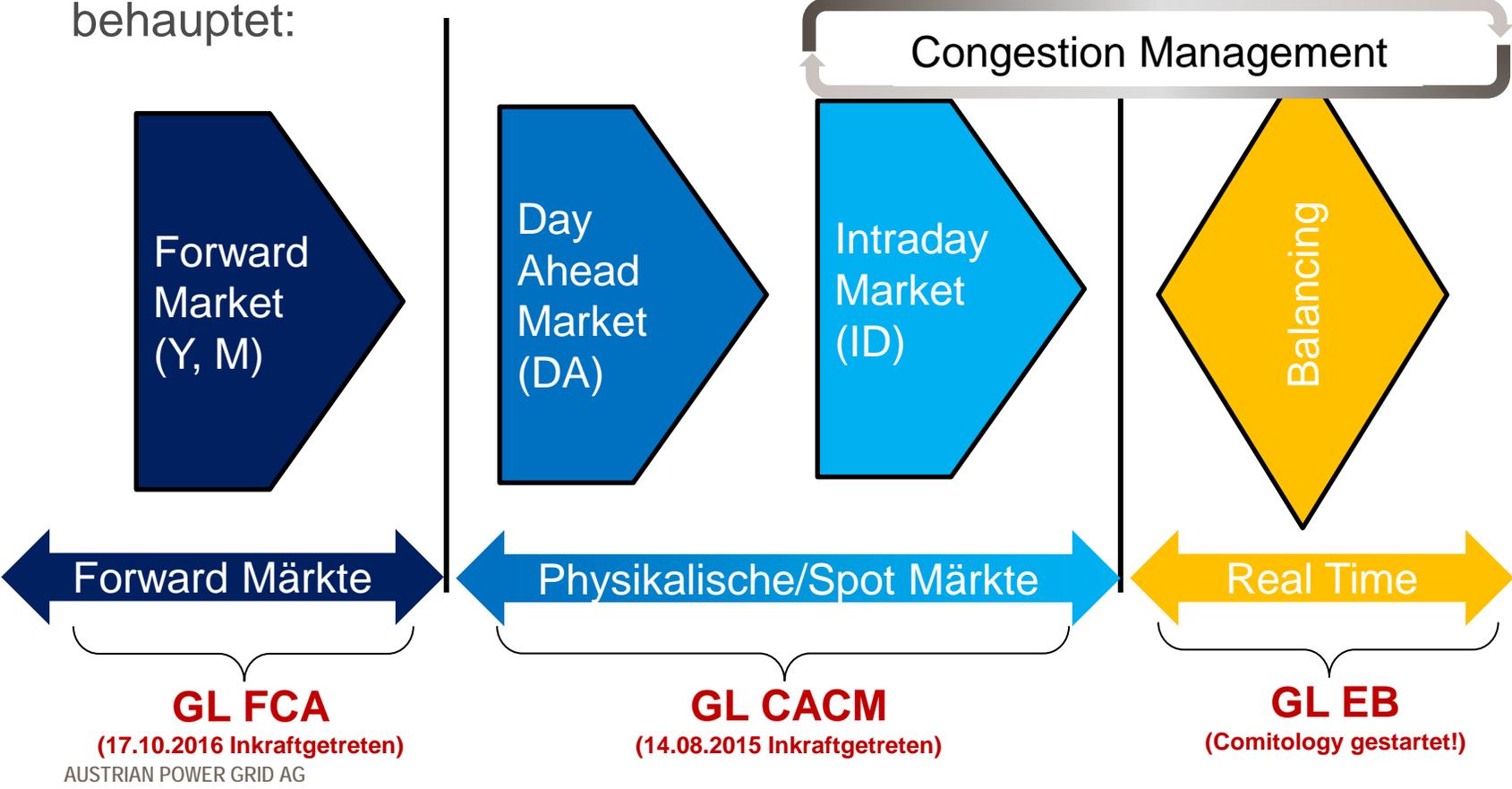


- General View on the Electricity & Balancing Market
- Balancing & Intraday Markets: What is the problem?
- Possible Solutions

General View on Electricity & Balancing Markets

Electricity Markets overview

- With the liberalisation of energy markets, areas of competition have been created (generation & trading).
- Aufgrund physikalischer Abhängigkeiten hat sich folgende Gliederung behauptet:



Goals & Challenges

Goals



Operational
Security

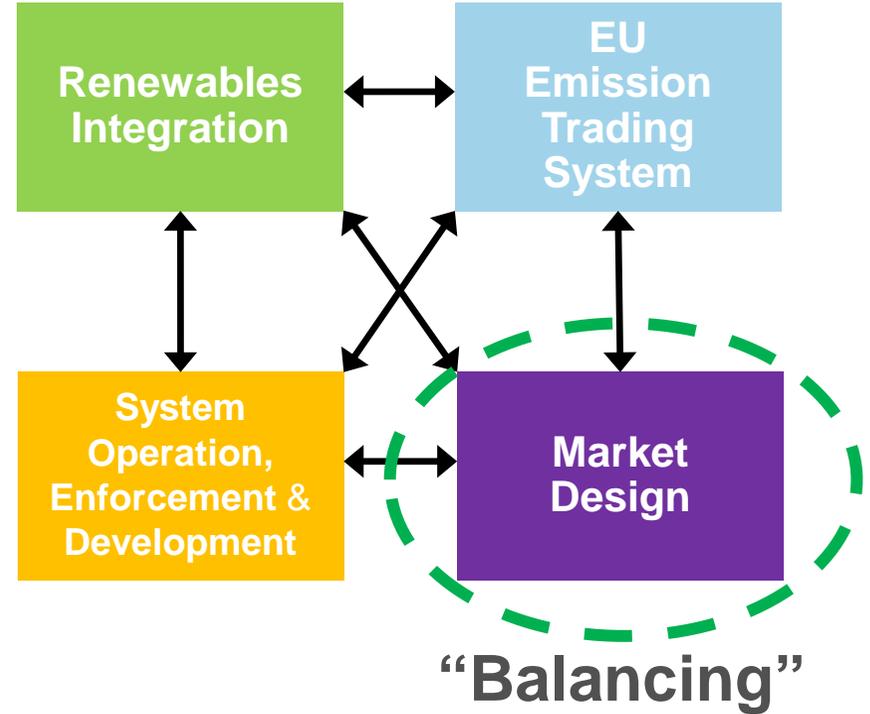
(IEM)
Internal
Electricity
Market

Efficiency
(costs)

Sustainability

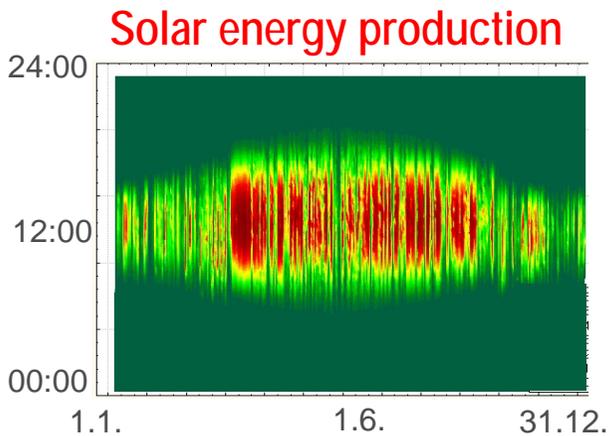
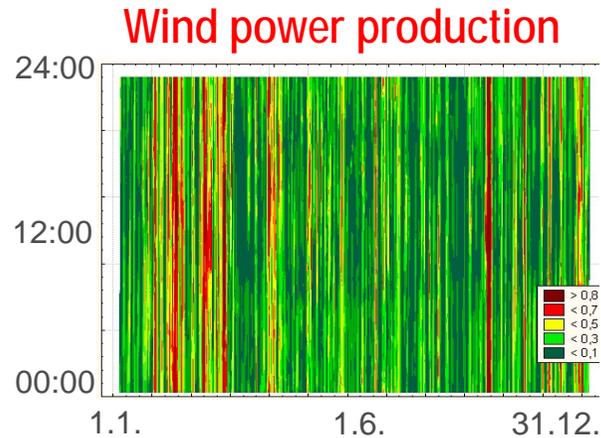


Challenges



How Balancing should be treated:

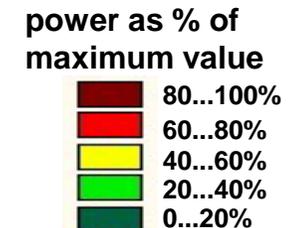
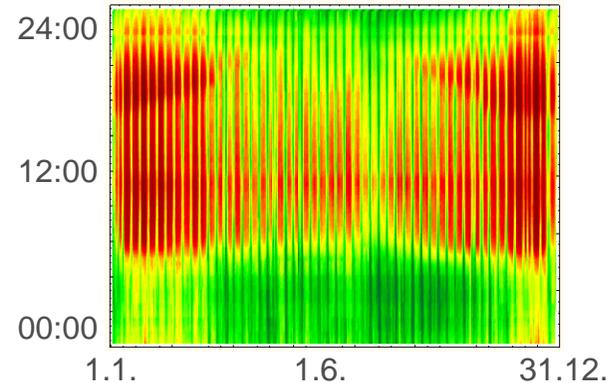
- Volatile generation patterns (not in line with demand)



Conventional production / DSM



Demand characteristics



**Balancing will become even more important for ensuring operational security!
TSO need the appropriate tools to manage an ever less steady system!**

How Balancing is currently treated:

Current view on the „Clean Energy“-Package



CLEAN ENERGY FOR ALL EUROPEANS

Reserves sizing and procurement

Impact assessment: Section 2.1, 5.1, Annex 2.1; Electricity Regulation Art 5, 15c

- Draft Balancing Guideline sets baseline on which further steps can be developed
- But potential benefits from further action...
 - Regional sizing of daily reserve capacity requirements.
 - Facilitation of the regional procurement of daily balancing capacity that can be shared and exchanged across Member States.

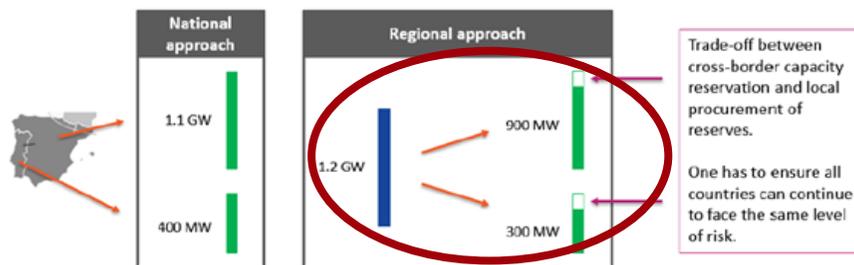
3,4 EUR billion annual savings

→ De-facto cutting balancing costs in half

Key issues

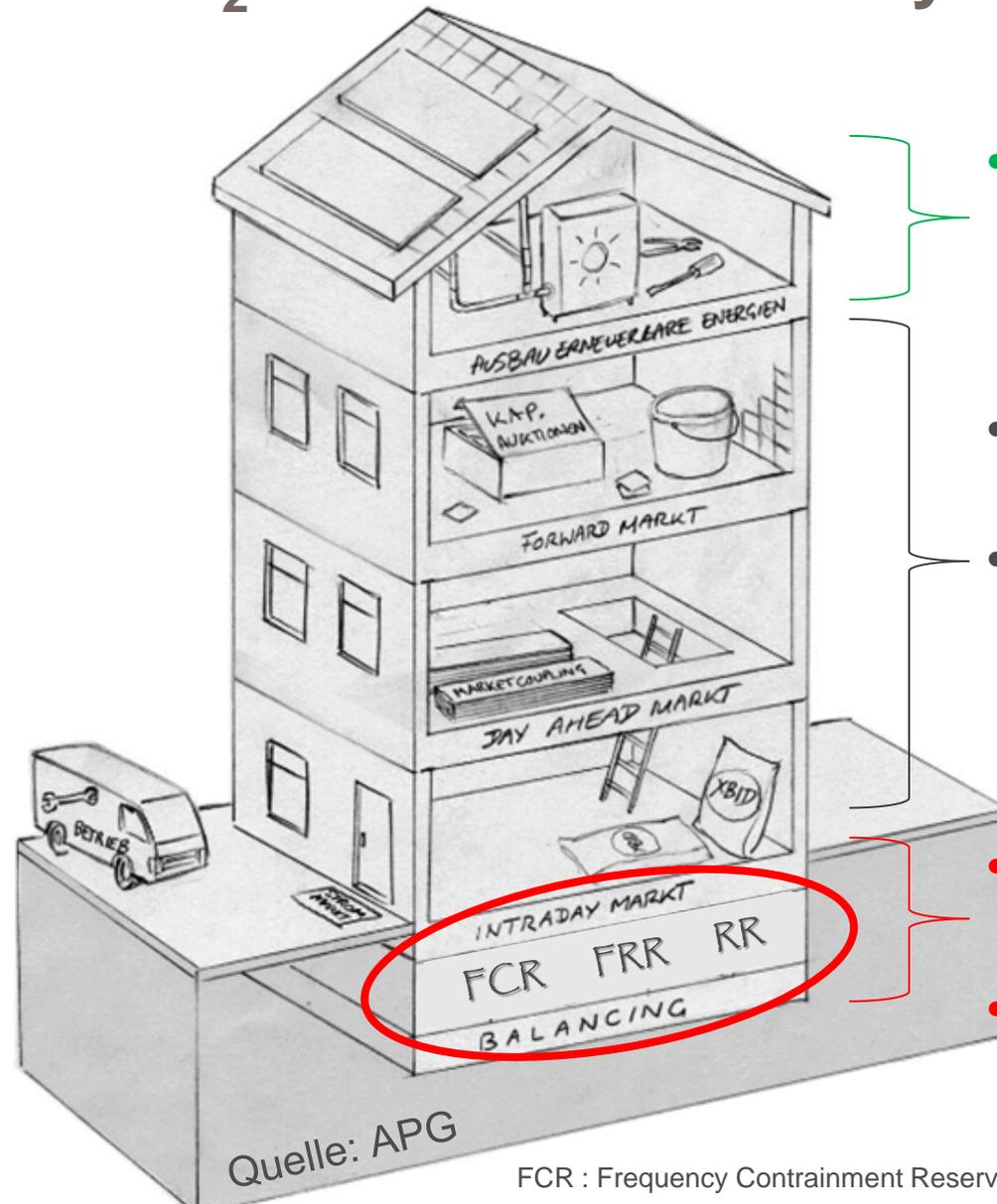
- Suboptimal procurement of balancing capacity.
- Insufficient harmonisation of the procurement rules (level playing field for new entrants).

Trade-off between local provision of reserves and interconnectors' reservation
 – 2016– EC study on the integration of electricity balancing markets and regional procurement of balancing reserves



→ By drastically reducing available reserves?

Balancing as the foundation of a CO₂ – neutral Electricity supply!



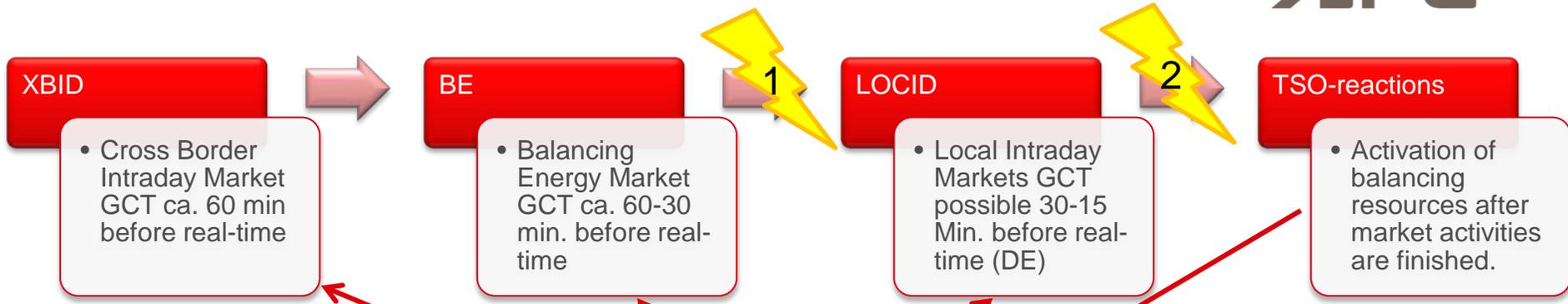
- Goal is the re-construction of Europe's Electricity supply towards a de-carbonised system!
- All Market Segments must be made fit to accomplish this in the best way possible.
- The Electricity Market is under heavy re-construction on all levels (Market Coupling, Flow-based, XBID, FTRs, Prosumer, Block-Chain, Digitalisation...).
- **Currently Balancing is the stable foundation to allow this progress!**
- **Weakening the foundation cannot be the right way forward!**

Balancing & Intraday Markets: What is the problem?

Alternativ Question:

„Who needs a local Intraday Market anyway?“

Illustration of the problem



1 In some Balancing Energy markets remaining flexibility that was not pre-contracted via a balancing capacity auctions or sold in previous market time frames can / must be placed as so call “free bids”. If this is the last possibility for Market Participants to offer their flexibility this allows to make all flexibility visible to the market and to be utilized if needed.

If there are subsequent market time frames (e.g. Local Intraday) this method causes competition for liquidity between (XB-)BE and LOCID markets.

Market Participant

Goal: Identify options to overcome differences to use all flexibility and allow for the most liquidity in all systems.

In some market systems, market activities are closed quite early and the TSO starts to take measures already around 60 min before real-time. On the one hand (esp. in combination with obligations / possibilities described in (1) the TSOs has all available flexibility at hand to deal with imbalances.

On the other hand such a procedure does not allow for price signals close to real-time or optimization of a Market Participant’s portfolio according to short-term market signals. (e.g. in Local Intraday or “self-balancing” → esp. RES).

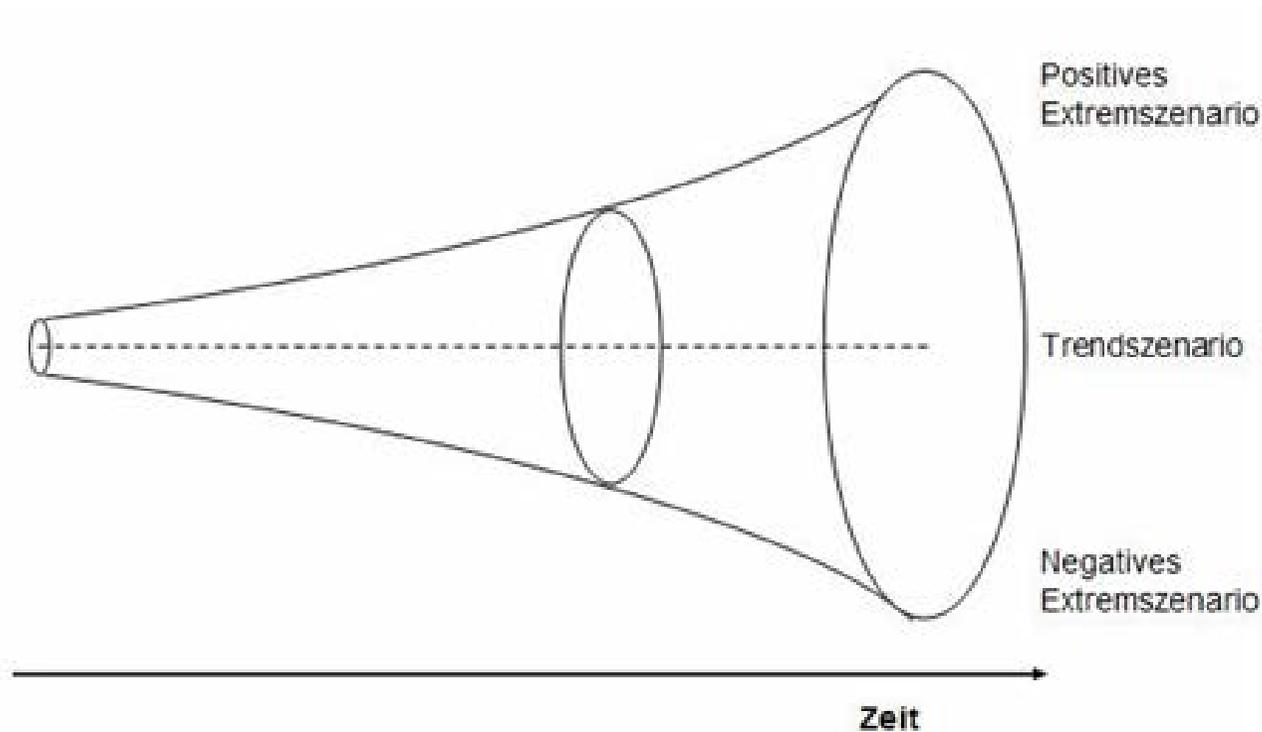
Local Intraday – the trouble maker (?)



- **Local Intraday GCT must be close to real-time to allow portfolio optimisation (esp. for RES & consumption)**
 - EITHER: pushing Balancing Energy GCT even further to real-time (if BEGCT shall also be after ID-GCT)
 - OR: creating a market after BEGCT (that needs sufficient remaining liquidity to function!)

SO WHY LOCAL INTRADAY AT ALL?

Local Intraday – the trouble maker (?)



- **The closer to real-time, the better your forecast.**
- **RES need short term possibilities to balance their portfolios.**

Possible Solutions

Disclaimer: The following slides do not show proposed solutions but the currently identified possibilities. Especially technical feasibility is not assessed.

Abandon Local Intraday Markets



2 possible scenarios:

TSO-centered approach

- All market activity is stopped after XBID-GCT
- All remaining flexibility has to be bid into the CMOL
- RES deviations are dealt with by activation of BE

MORE reserves needed (not less)
LESS freedom for market players
LOW Imbalance Prices needed
(no scarcity signals possible)

Shorter XBID GCT

- Market players can optimise their portfolio until short GCT (30-45 min?)
- Harmonised & Liquid XBID-market
- Makes Local Intraday less relevant
- Balancing Energy Markets can close afterwards

60 min was already hard work to compromise (Scheduling / Matching)
MAYBE final target model for the future?

No Balancing Energy Markets

- Balancing Energy prices are set ex ante (e.g. in capacity auction)
- TSOs have only contracted reserves at hand (needs sufficient dimensioning)
- All remaining flexibility goes to Local Intraday Markets or remains for self-balancing

Market Participants have certainty which resources are available.
TSOs do not keep flexibility from the market. (No „locked bids“)
Flexibility is concentrated in local markets (after XBID).
Flexibility not allocated in Local Intraday Market is lost.

No uncontracted bids



No uncontracted bids

- Similar as no Balancing Energy Market
 - more flexibility in price setting for market players
 - GCT-overlap not fully solved

Capped Volume of Balancing Energy Market

- Both contracted & uncontracted bids are collected in BE-Market
- TSOs set a maximum limit, on how much volume will be submitted to the CMOL
- Most expensive bids (regardless if contracted / uncontracted) are released to participate in LOCID

Market Participants have certainty which resources are available.
TSOs only keep limited flexibility from the market. (Limitation of „locked bids“)
Flexibility is allocated to the market where it is most valued.
Flexibility not allocated in Local Intraday Market is lost.

Uncontracted Bids can be withdrawn



Uncontracted bid can be withdrawn until **defined deadline**

- Both contracted bids and uncontracted bids are allowed
- Uncontracted bids can be marked as unavailable to the CMOL
- An additional deadline (several minutes ahead of possible activation) to be set.
 - „Withdrawl Gate Glosure Time“
- Withdrawl only possible until dimensioning volume is reached

Market Participants decide themselves which ressources stay in CMOL.

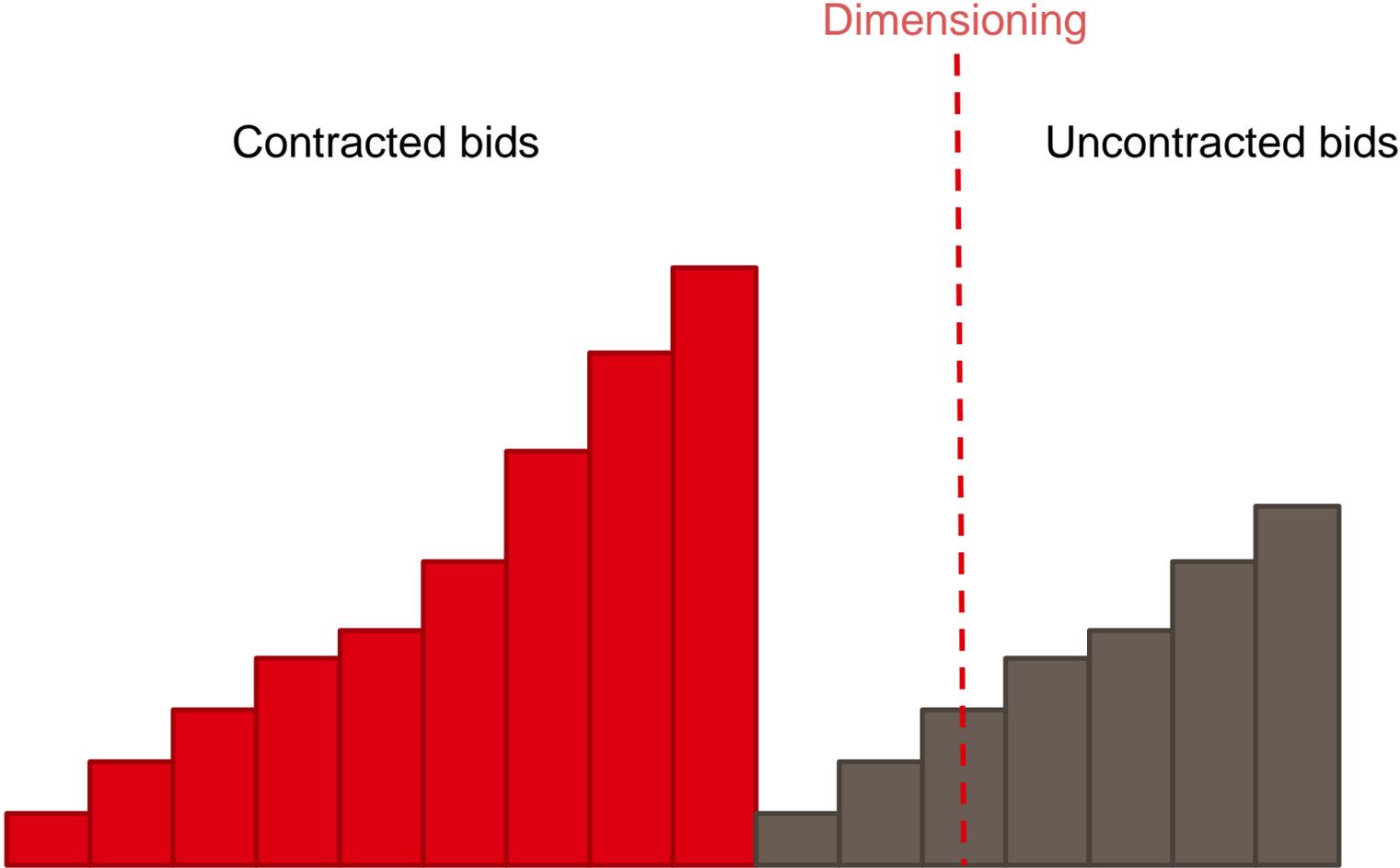
Flexibility is allocated to where it is most valued (XB-BE or LOCID).

No lost flexibility – all is either used in ID-Market or visible to TSOs for balancing.

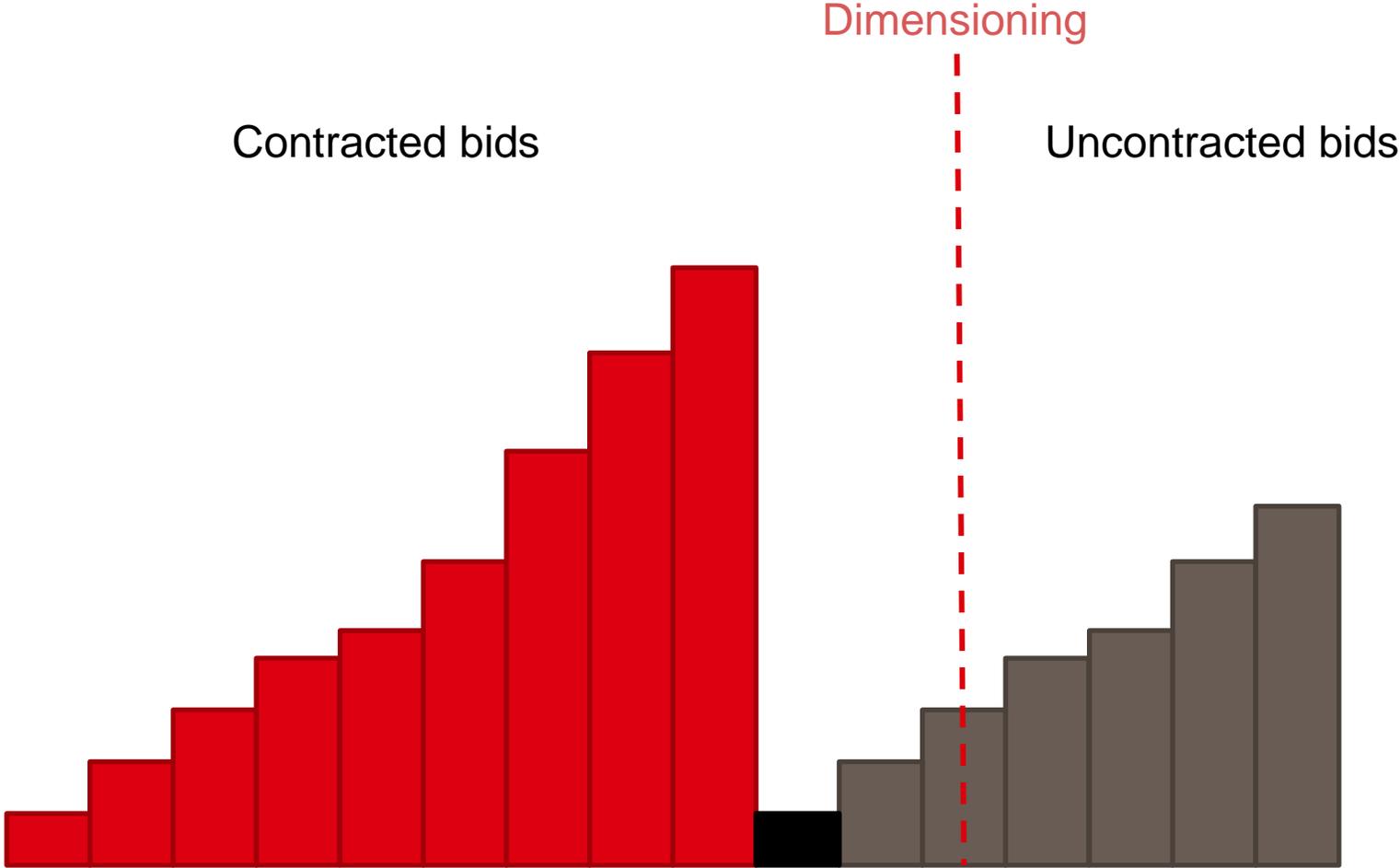
Technically challenging (esp. Communication times BSP→TSO→CMOL)

--> Complexity reduces signigicantly if dimensioning is always reached by conctraced bids!

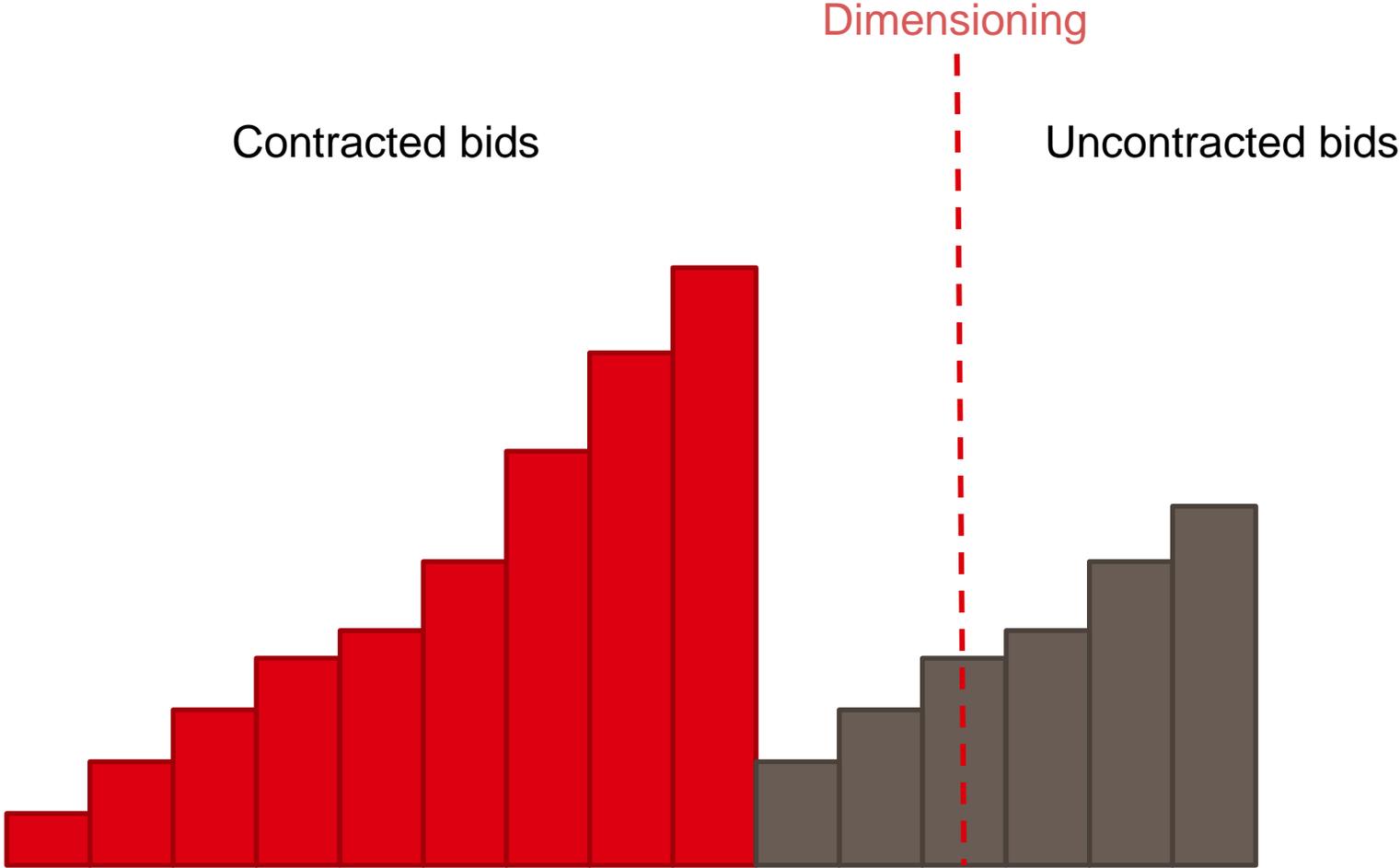
Uncontracted Bids can be withdrawn



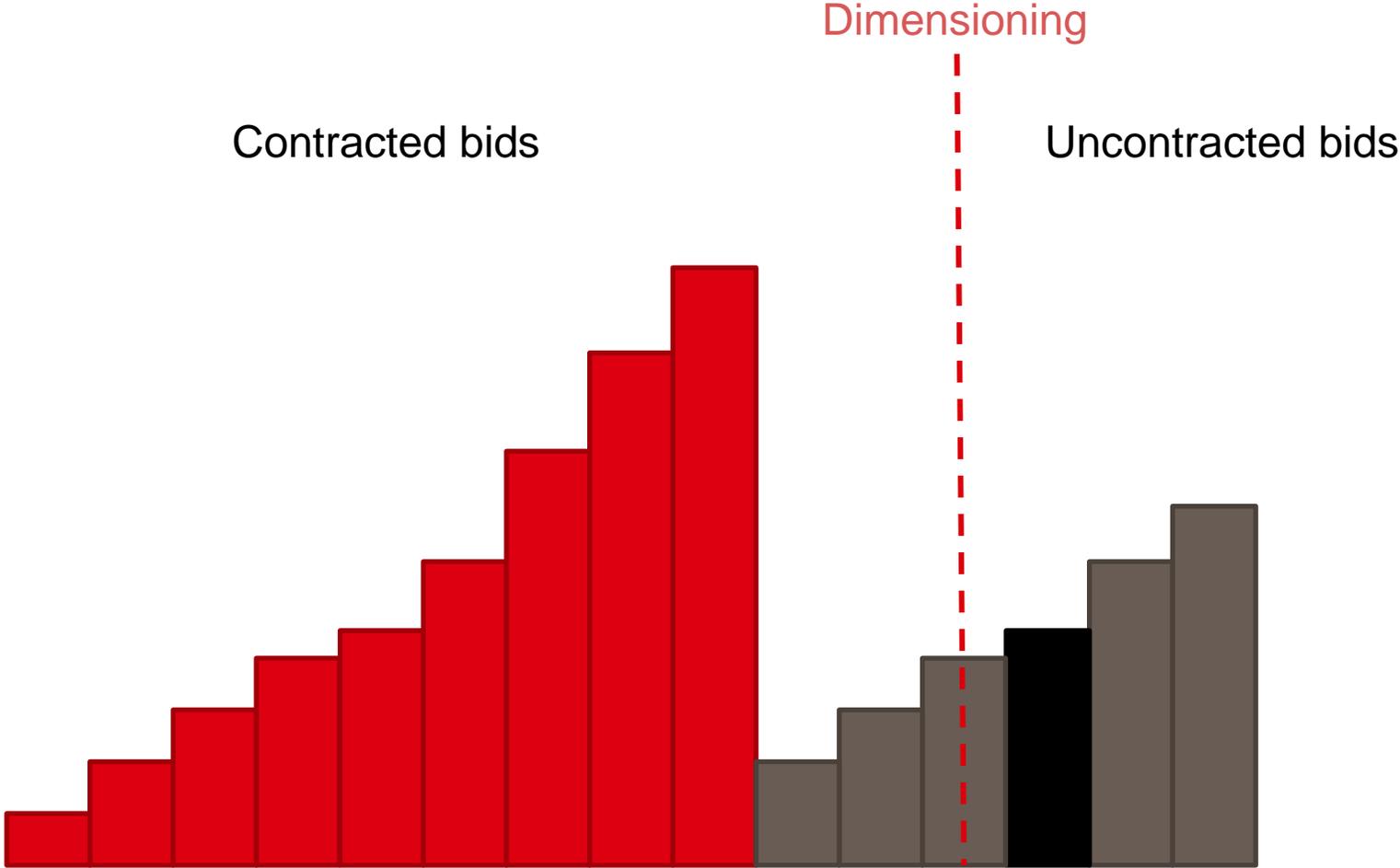
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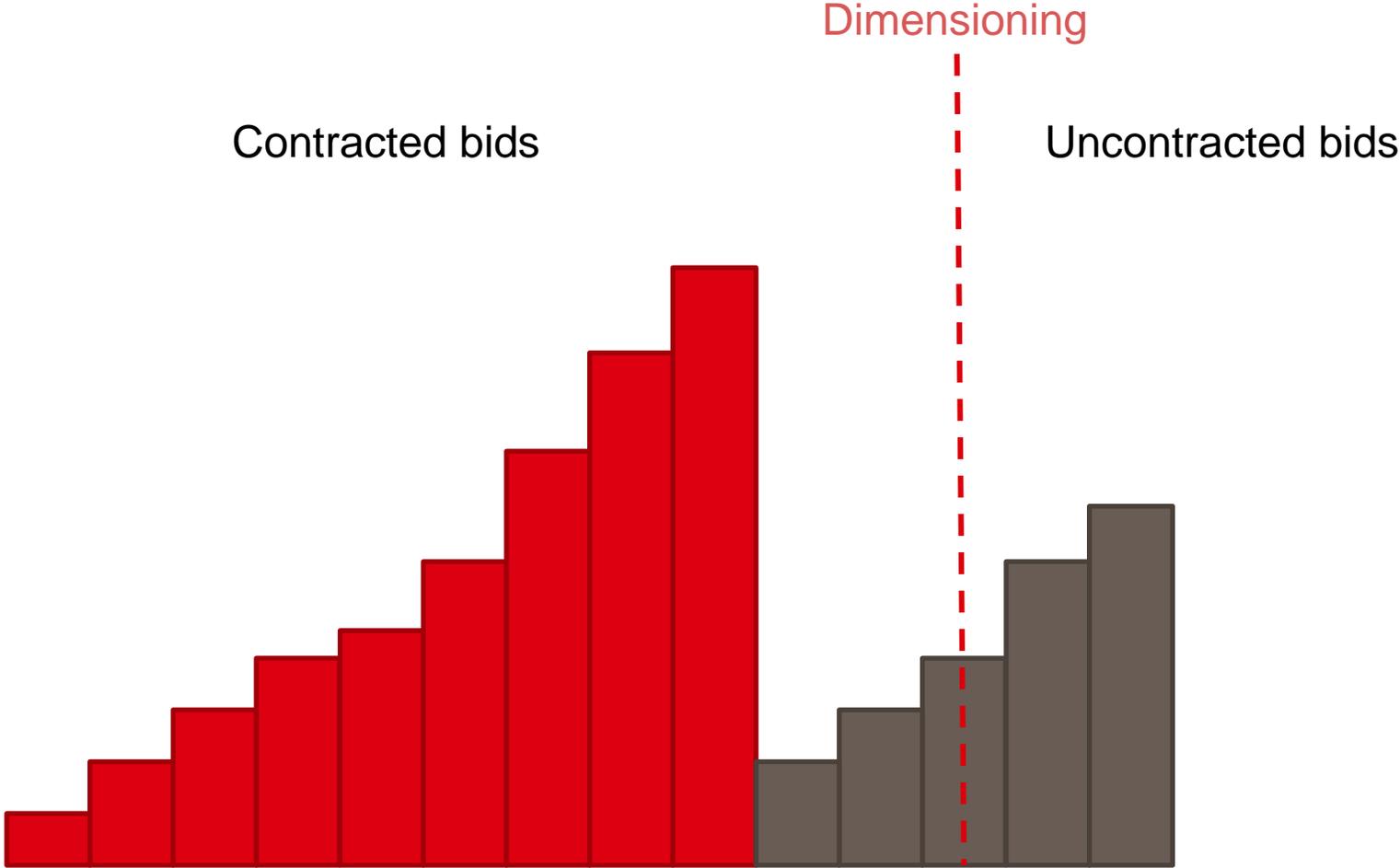
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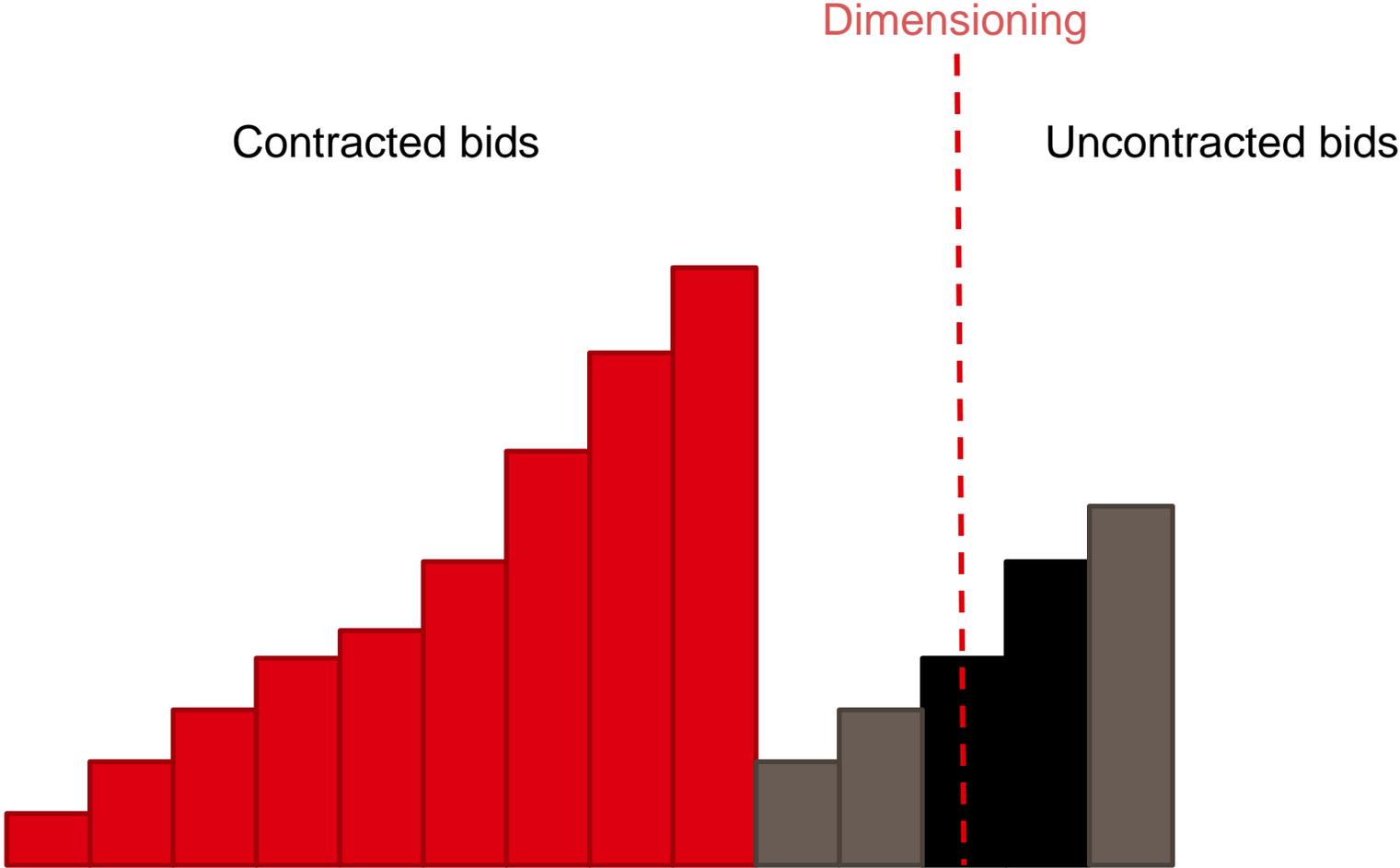
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Uncontracted Bids can be withdrawn



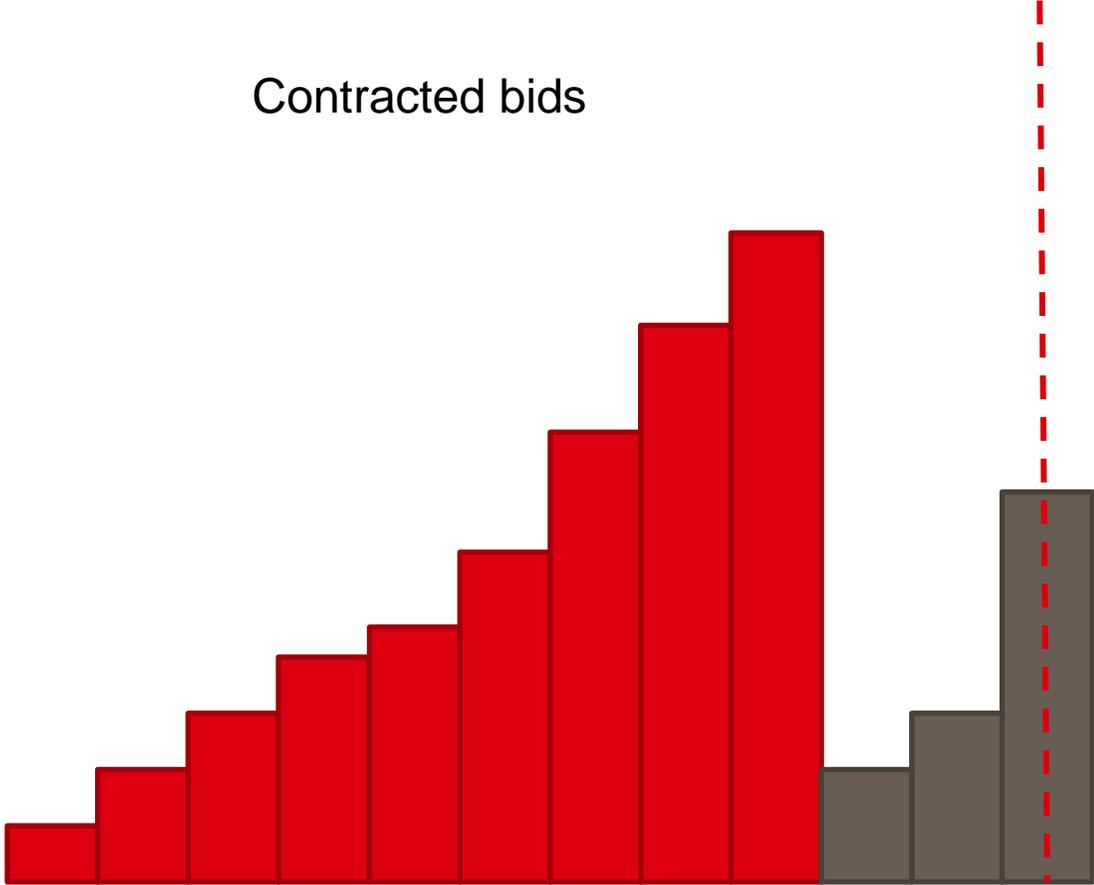
Uncontracted Bids can be withdrawn



Dimensioning

Contracted bids

Uncontracted bids



Combined Intraday & Balancing Market



2 possible scenarios:

Sequential

- All flexibility is automatically forwarded into the next subsequent market – considering **pre-qualification**
- E.g.: XBID → RR → LOCID → mFRR → aFRR
- One price for the same flexibility

„One stop market for BSPs“
Effects limited - PQ is limiting factor
Technically very challenging
TIMING ISSUES REMAIN

Linked Bids

- Market players bid same flexibility into all platforms at the same time.
- Bids can be linked to one another
- Once a bid is cleared or activated on one platform – not available for others.

Requires real-time communication between platforms
What to do with overlapping requests?