CROSS-BORDER CAPACITY RESERVATION

Initial description of options

April 2016
Overview of reservation methodologies

1. Co-Optimization Approach
2. Market Based Reservation
3. Inverted Market Based
4. Economic Efficiency Analysis (not analyzed)
## Descriptive comparison of methodologies

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Co-Optimization Approach

- Single optimization process for allocation of cross-zonal capacity between energy market and balancing market (both implicit and explicit auctioning) accounting for different market structures and principles (linked balancing markets, …)

- TSOs shall bid the Market Value into the co-optimized allocation.

- Procurement of balancing reserves must take place in parallel to a existing XB-capacity allocation auction or DA market coupling.

- Co-optimization to account for impact on welfare for both market segments
Co-optimization: Timeline in Long Term Capacity allocation

- Balancing capacity allocation
- Yearly Auction for Capacity (explicit)
- LT, DA, ID capacity allocation

Timeline:
- M-1
- Common Algorithm
- LT Capa GCT
- LT Capa Clearing
- Bal. Capa Clearing
- Balancing Capa GCT
- Balancing Capa GOT
- Return LT Capacity
- XB Capa Calculation

Day Ahead Allocation of Capacity (implicit)
Co-optimization: Timeline in Day ahead

Balancing capacity allocation

- Yearly Auction for Capacity (explicit)
- Monthly Auction for Capacity (explicit)
- Return LT Capacity
- XB Capa Calculation

LT, DA, ID capacity allocation

- Balancing Capa GOT
- Balancing Capa GCT
- Bal. Capa Clearing
- Common Algorithm
- Linked bids
- Intraday Allocation of Capacity (implicit)

MC GCT

MC Clearing

MC GOT

D-1 12:00
Market Based Reservation

- Methodology has to be developed 2 years after EIF of NC EB.

- Market Based Reservation shall compare the actual market value of XB-capacity for balancing with the forecast market value of XB-capacity for the energy market.

- Reservation could take place whenever* balancing reserves shall be procured → for instance weekly or in D-2 before the DA allocation

*provided coherence with capacity calculation and allocation processes is ensured
Market Based: Timeline in Long Term Capacity allocation

- **Balancing capacity allocation**
  - Bal. Cap GOT
  - Bal. Cap GCT
  - Bal. Cap Clearing
- **TSOs assessment of cap. Value for balancing**
- **Yearly Auction for Capacity (explicit)**
  - XB Cap Re-calc
  - Return LT Cap. rights
- **Monthly Auction Specs**
  - TSO estimate of M-1 XB capacity price
  - Possible reduction of XB cap. for M-1 auction
  - LT Cap GOT
  - LT Cap GCT
  - LT Cap Clearing
Market Based: Timeline in Day-Ahead

Balancing capacity allocation

Monthly Auction for Capacity (explicit)

LT, DA, ID capacity allocation

Bal. Cap GOT

Bal. Cap GCT

TSOs assessment of cap. Value for balancing

Bal. Cap Clearing

Compare

D-2 16h

D-1 11h

D-1 12h

XB Cap Re-calc

TSO estimate of DA MC XB capacity price

Possible reduction of XB cap. for MC

LTR Nomination deadline

DA MC GCT

MC Clearing
“Inverted Market Based”

- Not presently foreseen by draft NC EB
- Create additional capacity only product in the DA market (like co-optimization) or TSOs bid for capacity in explicit auctions.
- XB-capacity bid by TSOs allocated by algorithm together with capacity and/or energy products.
- Reservation can take place in any given XB-capacity allocation auction before the procurement of balancing reserves.
- Remaining Capacity can be given back to the market in subsequent timeframe depending on the balancing market auctioning outcome.
Inverted Market Based: Timeline in LT Capacity allocation

Balancing capacity allocation

- Bids based on TSOs forecast of cap. Value for balancing

TSOs allocated XZC from winning bids

Balancing market GOT

Balancing market XZC

GCT

- TSOs nominate XZC to be used for balancing reserves

Compare real outcome with forecast

Yearly/ Monthly / (Weekly?) Auction for XZ-Capacity (explicit)

XZC Capacity Auction

Nomination GCT

Market nominates XZC

Unnominated XZC to be returned to monthly/DA market
Inverted Market Based: Timeline in Day-Ahead

Balancing capacity allocation

Unnominated LT XZC from explicit auctions

TSOs assessment of cap. Value for balancing

TSO successful bids allocated XZC

Balancing Market

Balancing market XZC GCT

Unnominated XZC

TSOs nominate XZC to be used for balancing reserves

Monthly Auction for Capacity (explicit)

LT, DA, ID capacity allocation

Unnominated LT XZC from market

DA Implicit Market

DA MC GCT

MC Clearing

D-1 12h

XBID