

Smaller bidding zones in European power markets: liquidity considerations

ACER Market Stakeholder Committee

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The importance of « getting the prices right »

- Prices have a signalling role. They should reveal the value of electricity (level and volatility).
- Markets must be designed in such a way that efficient decisions are supported:
 - Consumption: energy efficiency and flexibility
 - Production: dispatch decisions
 - Investment: increasing or decreasing capacity in the right location, moment, technology and amount
 - Innovation: improve existing or develop new technologies or solutions
- In power markets, the value of the electricity is closely linked to the ability of the grid to transport electricity. Power prices have therefore to internalize the grid constraints.
- Ultimately, the physics of the system must be obeyed: what the market cannot capture will have to be done out of the market.

Why smaller bidding zones?

- Strong development of decentralized and intermittent RES
- Transmission grid mainly designed to accommodate centralized thermal generation
- More congestion within existing BZs can be expected
- A finer representation of the grid in the market clearing will be required
- Ex.: dedicated offshore bidding zones to better integrate offshore renewable energy

What are the issues?

- **Market power abuse?**
 - Are traditional concentration indicators helpful? What would be the relevant market?
 - Literature argues that smaller BZs actually increase competition! A larger part of the network is made available to the market, one competes over a larger network, transparency is increased (in vs. out of the market)
 - **Liquidity**
 - In short term markets, it is probably more difficult to find a counter-party (need to move to auction-based trading, possibly FBMC)
 - Sufficient liquidity will be required in forward markets to hedge locational risk
- ↳ **Focus of the study**

Historical cases

Nordics

- In 2011 the Swedish TSO is accused of capacity withholding, leading to the breakdown of the country into 4 zones. That increased the total number of zones in the Nordic Market to 15 (4SE, 5NO, 2DK, 1FI, 1EE, 1LV, 1LT).
- A drop in forward liquidity (both on futures & EPADs) has been reported by traders but evidences the split had a direct impact on liquidity are weak according to the data studied: influence of the 2008 crisis, tighter regulations, RES roll-out, abstraction of bilateral trades,...
- **Evidence that the split had a direct impact on liquidity is not conclusive:** influence of the 2008 crisis, tighter regulations, RES roll-out, abstraction of bilateral trades,...

Italy

- Ever since its liberalization, Italy has been running a market with several BZs (currently 6)
- Intra-IT transmission is hedged using Financial Transmission Rights (FTRs), auctioned at various timeframes by Terna.
- **Overall liquidity can be considered as average. No discussion on merging BZs.**

Germany - Luxemburg – Austria

- Driven by increasing redispatch caused by renewables in DE, The BZ was split in 2018 (following a 2016 ACER decision) in 2 smaller BZs: DE-LU & AT.
- Following the split, the liquidity in DE-LU did not significantly change, while **liquidity was initially concerning in AT. However, the situation seems to have improved again since then** (ACER MMR 2019).

Conclusions:

- No strong evidence that smaller BZs have significantly impacted liquidity (positively or negatively)
- Different mechanisms are in place to hedge against transmission risk (EPADs in the Nordics, FTRs in Italy and DE/LU-AT)

FTR alternative design options (1/2)

Option vs Obligation:

- Obligations provide a **perfect price hedge** but expose buyers to the downside risk (negative payouts)

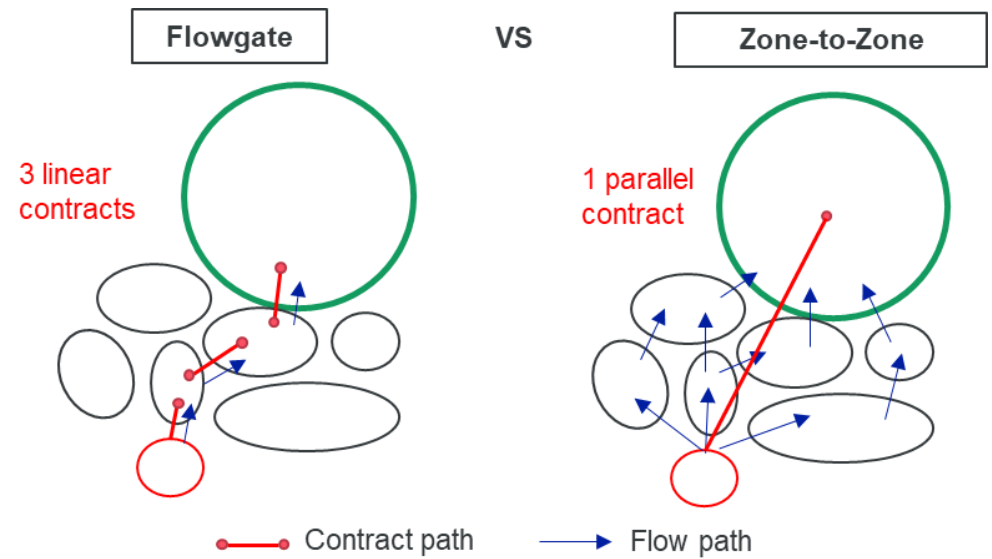


	Option	Obligation
FTR A → B	0	-10
FTR B → A	+10	+10

- TSO extra income can be used to offer more FTRs in the opposite direction thanks to netting
- Counterparty risk for TSOs but possibly **lower contract premiums** for participants (cheaper hedge)

Flowgate vs Point-to-Point:

- Hedging between **any two distant zones** with a single contract (sink & source, no portfolio needed).
- Network compliance: can be decomposed into contributions from individual transmission elements (Flow-Based)



FTR alternative design options (2/2)

Zone-to-Hub FTRs:

- The 'Hub' is a **regional reference liquidity pool** whose liquidity should not be impacted by zonal reconfigurations.
- It addresses both energy and transmission liquidity issues since all futures and TRs become settled at the hub
- Various Implementations possible: either fully virtual (e.g. Nordic SYS) or a physical aggregation of underlying BZs (e.g. IT PUN)
- When the Hub is a **physical aggregation**, it has the double advantage of:
 - ❑ Being compatible with a network-backed procurement by TSOs (extension of Zone-to-Zone)
 - ❑ Retaining higher price correlation with its BZs



Note: Hedging between any two zones A-B remains possible: $FTR A-B = FTR A-Hub + FTR Hub-B$

Recommendations within the existing legal framework

(requiring specifications of the current provisions of FCA GL, terms and conditions or methodologies)

N°	What?	Why?
1	Phase-out of PTRs in favour of FTRs	PTRs are linked to a physical line of the grid and reduce therefore the set of feasible trades. Nominations can result in inefficiencies.
2	Centralized flow-based allocation of FTRs	Currently, the interaction between the capacities made available on different borders is not considered. A FB allocation takes interdependencies into account and increases the overall amount of transmission capacity allocated to the market.
3	Longer maturities (month-, year-, multi-year-ahead) and secondary markets	Allowing market participants to adjust their portfolio regularly.
4	Establishing a methodology to carry over ongoing contracts when BZ reconfigurations occur	Market participants might be reluctant otherwise to trade FTRs

Recommendations going beyond the existing legal framework

(requiring amendments of the FCA GL)

N°	What?	Why?
5	Replacing flowgate FTRs by a Zone-to-Zone design	Zone-to-Zone FTRs allow <u>direct</u> access to any zone, facilitating liquidity and competition. A FB design (network externalities) and FTR Obligations (perfect bidirectional hedge) would increase the volume and efficiency of the allocation.
6	Expanding the Zone-to-Zone to a Zone-to-Hub design with a synthetic price hub	All forward risk hedging products can be settled against the hub. This design becomes necessary in the longer term, when we move to 'many' small bidding zones.



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About ENGIE Impact:

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CLIENT

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PROJECT SUMMARY

- Supporting EU policy making, research and innovation in the field of energy
- **Focussing on large-scale integration of RES in the power system**
- Offering insights from a technology, policy (market design, regulation) and business point of view

STUDY EXAMPLES

- Consumer satisfaction KPIs for the roll-out of smart meters
- Flexibility/storage needs to meet 2030 targets
- Technology pathways in decarbonization scenarios
- Formats & procedures for electricity data access and exchange
- Regulatory priorities for enabling DSF
- **Smaller bidding zones and liquidity considerations**
- Gender equality study (work in progress)
- ...
- **29 studies in total**

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[ASSET studies on the EC website](#)



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