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The influence of existing bidding zones on electricity markets

Energy Norway welcomes ACER's hearing on the influence of bidding zones on electricity markets, which is an important question for all market participants. We hope that the hearing will be followed up by more occasions for stakeholder engagement in the process of assessing and possibly redefining existing bidding zones.

Energy Norway is the non-profit industry organization representing about 270 companies involved in the production, distribution and trading of electricity in Norway.

General conclusions

Bidding zones have an important influence on the electricity markets, as they determine, which electricity price producers and consumers face. Therefore bidding zones have to be designed with the electricity market in mind and allow for the development of liquid wholesale and retail markets. This indicates the bigger bidding zones are to be preferred to smaller bidding zones, since more actors are active in a bigger zone to support liquidity. Stability of zones is also crucial to allow the development of liquid forward markets.

On the other hand, bidding zones that ignore the physical grid and locations of structural congestion, can lead to a higher cost for countertrading/redispaching, congestion moved to national borders and to a less efficient usage of transmission capacity.

To find a compromise solution between an exact representation of the grid (or the extreme of nodal pricing) and bidding zones that can support a liquid electricity markets, the first precondition is full transparency on the exact location, duration and frequency of congestion and full transparency on the exact location, use and cost of countertrading and redispaching. Only then an informed debate can take place between NRAs, TSOs and stakeholders with regards to the cost and benefits of redesigning bidding zones versus the use of countertrading/redispaching to stabilize bidding zones and the cost and benefits of grid investment and the right balance between these three factors.

In that debate not only the split but also merger of zones even across national borders should be addressed. If there is no frequent structural congestion between them and price differences are small, countertrading cost would probably be smaller than the benefits a bigger zone would entail for market development.

Other issues to be addressed are improved procurement methods for countertrading/ redispatching, which could reduce cost and allow for the creation of bigger zones. TSOs should work towards integrated cross border market based procurement methods.

Further improvement in the use of the existing grid capacity should be made by the TSOs developing and using one single common grid model. Several different national models lead to a less optimal use of capacity, since they result in the lowest common denominator with regards to available capacity.

Below are our detailed answers to the questions:

1) How appropriate do you consider the measure of redefining zones compared to other measures, such as, continued or possibly increased application of redispatching actions or increased investment in transmission infrastructure to deal with congestion management and/or loop flows related issues? What is the trade-off between these choices and how should the costs attached to each (e.g. redispatching costs) be distributed and recovered?

Redefinition of zones and other measures such as redispatching and increased investment in the transmission grid do not exclude each other but should be considered and used in parallel in a cost efficient manner.

Grid investments that increase the overall socio economic welfare should be the primary measure to deal with congestions, since they bring physical relief. Grid investment is however more of a long term measure and can't be implemented in the short term. Nevertheless, in the process of assessing bidding zones, existing plans and concessions for grid investments should be considered before redefining bidding zones, to avoid the need to change zonal borders due to newly build grid.

With regards to the more short term measures i.e. the redefinition of zones or redispatching and countertrade, a balanced approach has to be found. While big zones are beneficial for the development of liquid markets, they can lead to high cost for internal congestion management, the temptation to move congestion to national borders and to blurred investment signals for transmission infrastructure but also production and consumption. Therefore bidding zone size has to be a compromise between an exact representation of the underlying grid, reducing redispatching cost but potentially making a liquid electricity market difficult, and zones of a sufficient size to allow liquid markets, with potentially higher redispatching cost.

Redispatching and countertrading should be seen in this context. Existing redispatching cost should be made public, so that an informed discussion can start about their location, their size, the procurement methods, incentives and the cost distribution relative to the benefit of having larger or smaller bidding/price zones. In addition, procurement methods for redispatching and countertrading should be market based and cross border to minimize procurement cost.

If a country has recurring high redispatching costs at one location or if a country reduces redispatching costs by moving congestion to their national borders, then a split into smaller zones should be

considered. On the other hand, merging of zones even across national borders should be considered, if neighbouring zones have converging prices for most of the time, since redispatching costs would be low and the market would benefit from a bigger price zone, as would be the case for example in Northern Norway and Northern Sweden.

2) Do you perceive the existing bidding zone configuration to be efficient with respect to overall market efficiency (efficient dispatch of generation and load, liquidity, market power, redispatching costs, etc.) or do you consider that the bidding zone configuration can be improved? Which advantages or disadvantages do you see in having bidding zones of similar size or different size?

Current bidding zone configuration is not optimal. It follows largely national borders, which may have reflected structural congestions in the past, but maybe not today. As mentioned above this is the case in Northern Norway and Sweden, but also in CWE structural congestion is not necessarily at the national borders. Zones should follow structural bottlenecks and not national borders. If there is no physical congestion at the border, zones should be merged.

In addition, only long term structural bottlenecks should lead to a discussion on the redefinition of zones. Dynamic bottlenecks, caused by precipitation changes in a hydro dominated system, network failures etc. should not lead to the definition of new bidding zones, eg. NO5 in Norway. Dynamics can change very fast, making yesterday's obvious new zone unnecessary tomorrow. Dynamic zones can furthermore seriously harm market functioning and prove to be a very costly remedy compared to short term increased countertrading costs.

In addition, TSOs should work with neighbouring TSOs to define bidding zone borders. The borders within Norway (NO3 and NO4) and Sweden (SW1 and SW2) were not set in coordination adjacent to each other, leading to an unnecessarily high amount of borders to neighbouring price areas for NO4 and SW2, which also make congestion management for the TSOs more complicated.

In addition, there needs to be enough flexible generation in each zone to avoid that a zone becomes a price taker from the neighbouring zone with the highest price, like SW4. In that case market functioning is harmed and a merger of SW4 with DK2 or SW4 with SW3 should be considered.

3) Do you deem that the current bidding zones configuration allows for an optimal use of existing transmission infrastructure or do you think that existing transmission infrastructure could be used more efficiently and how? Additionally, do you think that the configuration of bidding zones influences the effectiveness of flow-based capacity calculation and allocation?

Whether transmission infrastructure is used efficiently or not has nothing to with bidding zone configuration to start with, if bidding zone borders are set correctly. Bidding zones just show transparently where congestion lies as different spot prices emerge as opposed to countertrading, where prices appear after the day-ahead market.

To increase efficiency in the use of the current grid infrastructure, TSOs should start building and using one common grid model instead of different national ones following different national principles, which means ending up with the smallest common denominator in the availability of cross border capacity.

In addition, the use of existing infrastructure could be improved by a better timing of grid maintenance to fall in low load periods instead of peak periods. The current draft of the NC Operational Planning and Scheduling, Article 35, goes in the right direction obliging TSOs to follow the principle of " a) minimizing the impact on the market while preserving Operational Security".

The configuration of bidding zones does not influence the effectiveness of flow based capacity calculation. To do flow based effectively the TSO needs to know as detailed as possible where generation and consumption are located and for this there are several options: The TSO can build detailed models to forecast generation and demand, they can receive input through bids in the different bidding zones or they could also receive input through locational bids, which are bids giving a more exact location, not identical to the bidding and price zone, which can be bigger in size.

In general, the discussion should not only focus on the optimal use of the existing transmission infrastructure but be balanced with producers' and consumers' need for well-functioning electricity markets and incentives for future capacity investments.

4) How are you impacted by the current structure of bidding zones, especially in terms of potential discrimination (e.g. between internal and cross-zonal exchanges, among different categories of market participants, among market participants in different member states, etc.)? In particular, does the bidding zones configuration limit cross-border capacity to be offered for allocation? Does this have an impact on you?

If all capacity between bidding zones was allocated in implicit day-ahead auctions and continuously during the intraday, e.g. the Nordic area and in CWE, there would be no discrimination between market parties in the different areas, since all have access to the day ahead and intraday markets. If differences between area prices are considered to be discriminatory, new capacity between the zones should be built to reduce price differences, if a socio-economic welfare gain can be proven.

Nevertheless, when reductions in cross border capacity happen, they should be made public, explained and carefully monitored, to avoid that these reductions lead to discrimination between market parties. Discrimination could for example happen when congestion is moved to the border due to high wind production, instead of managing it within a zone where it occurs. That way costs for parties within that zone are reduced, but they increase for market participants in neighbouring zones.

Other causes for inefficiencies, which might lead to discrimination, are the use of different reliability margins which reduce available XB capacity. These and other inefficiencies could be reduced by the TSOs developing and using a common principle and one model to calculate available capacities.

5) Would a reconfiguration of bidding zones in the presence of EU-wide market coupling significantly influence the liquidity within the day-ahead and intraday market and in which way? What would be the impact on forward market liquidity and what are the available options to ensure or achieve liquidity in the forward market?

If all capacity between bidding zones is allocated in implicit day-ahead auctions and through continuous trading intraday, a reconfiguration would not change the liquidity of the day ahead and intraday markets, since the liquidity in the respective price zones depends on the physical transmission

grid between them. Liquidity in the price zones would therefore be more affected by increasing available capacity between them. In addition, the price zone debate should not be used to delay the introduction of market coupling.

With regards to the forward markets, the most important precondition is a credible reference price created in a functioning spot market. Hence, a well-functioning day-ahead market should be the first aim. Based on a functioning day-ahead market, the forward market will look different depending on the number and size of the involved price zones.

In the Nordic countries, we have several small price zones, which as such can't support a liquid electricity forward market. Therefore we have created the system price, which is an index price of the various area prices, which disregards bottlenecks, that serves as a reference for the forward markets. The liquidity in the forward markets that are linked to the system price as reference is high. Overall the index is working well, since deviations from the index price are relatively small and most area prices are averaging the index price over a certain period. If there is a wish to hedge remaining area price risk (the difference between system price and area price), Contracts for Differences (CfDs) are available.

Liquidity in the CfDs could be further improved by guaranteeing stability of the price areas, which unfortunately is not the case in Norway today, and merging the smallest price areas into bigger ones as mentioned in the questions above.

6) Are there sufficient possibilities to hedge electricity prices in the long term in the bidding zones you are active in? If not, what changes would be needed to ensure sufficient hedging opportunities? Are the transaction costs related to hedging significant or too high and how could they be reduced?

Hedging possibilities in the Nordic area are in general considered to be sufficient: the system price and forward contracts based on the system price reflect area prices well enough, as the long term average of the area prices is close to the system price and the divergence is relatively small. Forward markets based on the system price are very liquid. Locational risk can be covered by CfDs, if desired.

The recent division of Sweden has introduced some debate in Sweden, whether there is enough liquidity in their CfD market and different alternatives are debated. The best solution is probably investment in grid between SW3 and SW4 and a reconfiguration of the bidding zones especially with regards to SW4, which could be merged either with DK2 or SW3. In Northern Sweden, Statnett and SvK should consider a merger of the Northern Swedish and Norwegian zones across the borders to create bigger zones with more market participants in them.

In Norway, as mentioned in question 5, the market liquidity could be further improved, by putting an end to dynamic adjustment of bidding and price zones. If there is no confidence in a price zones' existence, market parties hesitate to trade CfDs. CfD liquidity could therefore be greatly improved by increasing the stability of price zones or by allowing for longer, more predictable and transparent redesign process that allow market participants to adjust. Such stability, however, should not prevent the merger of price zones to create bigger price zones where this is proven efficient.

7) Do you think that the current bidding zones configuration provides adequate price signals for investment in transmission and generation/consumption? Can you provide any concrete example or experience where price signals were/are inappropriate/appropriate for investment?

Bidding zones that follow structural congestion and that remain stable over a long period in time could provide stable price signals that can influence investment decisions of generators and consumers. However, generators and consumers must have confidence in the stability of the zones. In addition, different RES support schemes, different grid connection tariffs and other regulations and subsidies that affect the cost calculation of companies currently distort signals from electricity prices.

Bidding zones that are dynamic, such as Norwegian dynamic bidding and price zones, fail to give any investment signals to producers and consumers, since there is no fundamental confidence in their stability. They can, however, give some operational signals.

With regards to investment in transmission capacity, bidding zone configuration does not give any direct incentives to TSOs for investment. However, it puts the spot light on congestions in the system and might increase public acceptance for investment in transmission infrastructure since electricity price differences due to congestion become clearly visible, as opposed to the less visible cost countertrading and cost paid through tariffs.

8) Is market power an important issue in the bidding zones you are active in? If so, how is it reflected and what are the consequences? What would need to be done to mitigate the market power in these zones? Which indicator would you suggest to measure market power taking into account that markets are interconnected?

The Nordic and Norwegian power markets both wholesale and retail have a reputation for being well functioning and competitive, so market power is currently not an issue. When configuring the bidding zones the regulators have focus on the issue in order to avoid creating bidding zones that can facilitate market abuse.

9) As the reporting process (Activity 1 and Activity 2) will be followed by a review of bidding zones (Activity 4), stakeholders are also invited to provide some expectations about this process. Specifically, which parameters and assumptions should ENTSO-E consider in the review of bidding zones when defining scenarios (e.g. generation pattern, electricity prices) or alternative bidding zone configurations? Are there other aspects not explicitly considered in the draft CACM network code that should be taken into account and if so how to quantify their influence in terms of costs and benefits?

The draft NC CACM is a good starting point, although we disagree with the option for dynamic price zones, which significantly short cuts the regular processes in the draft NC CACM. As a minimum rule there should be no introduction of new bidding zones without a consultation of the relevant stakeholders within a given timeframe that allows stakeholders to comment and do necessary arrangements in order to alter or hedge their positions.

With regards to the process to start the assessment of bidding zones, another precondition that the TSOs should consider before introducing new bidding zones is the existence and use of common grid models in order to improve the utilization of the existing infrastructure.

Once the assessment process has started, the main criterion should be the location of the structural congestions. To that end, all congestion has to be made transparent. In addition, countertrading and redispatching costs and their location need to be made public, so that an informed debate on the cost and benefits of a bidding zone reconfiguration can take place.

NRAs and ACER should complement the TSOs/ENTSO-Es assessment by an evaluation of the economic and market consequences of a new zonal design.

10) In the process for redefining bidding zones configuration, what do you think are the most important factors that NRAs should consider? Do you have any other comments related to the questions raised or considerations provided in this consultation document?

In our view the NRAs role is to have a critical eye on the TSOs reports, their incentives and especially the TSOs assessment of the congestion and the correct use of remedial action such as countertrading. Ideally they should develop common methods and standards for that evaluation. In addition, the NRA's role is to evaluate the consequences of a zonal restructuring for the electricity markets.

Last but not least, they should safeguard the interest of the market participants by ensuring that there is transparency around the evaluation and enough possibilities for market participants to make their voices heard.

Energy Norway thanks for the possibility to participate in that hearing, and is available for future questions and discussions.

Best regards
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