QUARTERLY NEWSLETTER
from Nord Pool Market Surveillance

Q2 2022

The price of power in auction-based power markets is set by the intersection of the demand and supply curves. These curves represent the offers and bids of market participants. For power markets to work efficiently – delivering power to consumers in the least expensive way possible – it is very important that supply and demand curves correctly represent the state of the power system.

Currently, we have seen extreme prices in the electricity market in Europe, while many market participants are meeting new challenges in how to comply with REMIT regulations related to the market situation. In this latest newsletter from Nord Pool's dedicated Market Surveillance team, we address some of the key topics that have been brought to our attention during the turbulent period experienced by the market in the last few months.

Economic withholding

The term *economic withholding* is used to describe the behaviour of offering production capacity at prices exceeding the marginal cost without a legitimate justification. ACER Guidance defines economic withholding as:

"Actions undertaken to offer available generation capacity at prices which are above or at the market price and do not reflect the marginal cost (including opportunity cost) of the market participant's asset, which results in the related wholesale energy product not being traded or related asset not being dispatched."

This indicates that if a market participant offers capacity to the market at prices above the marginal cost of its assets, this may be market manipulation. Further, it indicates that there may be justifications for why a market participant would offer capacity to the market above marginal cost without this being considered market manipulation. ACER Guidance specifies that the reasons for offering capacity at prices above marginal cost can be technical, regulatory and/or economic. The latter (legitimate economic reason) is specifically important for this newsletter.

The idea of legitimate economic reason is based on opportunity cost. ACER Guidance explains: *"Opportunity costs represent the expected value of the most valuable choice that was not taken. In wholesale electricity markets, this can, for example, represent offering at a different point in time for energy-limited available generation assets, e.g. reservoir hydropower units. It can also represent offering in a different sequential market (such as forward, day-ahead or intraday markets) for available generation assets, based on said expectations. Ultimately, the expectation on the value of electricity in real time, including expected outages and considering the volume to be traded, will impact the opportunity costs."*

Legitimate justification of price offer

National Regulatory Authorities (NRAs) have the final responsibility for investigating if a given case constitutes market manipulation. The assessment may be different in different countries, depending, for example, on market characteristics. In this newsletter we provide several examples where it might be relevant for market participants to review their compliance and make sure that their justification for offering capacity above the marginal cost is legitimate.

A) Modifying water values based on political statements

In hydro power systems, such as for example that seen in Norway, the price offer is based on an opportunity cost – the expected value of producing now, compared to producing at a later point. Calculation of water values is a complex process and includes short-term optimisation as well as long-term analysis. Hydro power producers base

their water values on factors contributing to future production and expectations of price, such as:

- Demand forecast
- Transmission forecast
- Price of commodities such as gas, coal and CO_2
- Inflow of water
- Available and unavailable production

These factors are termed *fundamental* and contain information about how supply and demand in the future are likely to interact.

"Social responsibility"
In the current situation with high prices, we observe political pressure on hydropower producers to save more water before winter (for example, in Norway, to review their *social responsibility – samfunnsansvar*). In our view, taking into account a concept of *social responsibility* is not a fundamental factor in calculating water values. Motivating an increase in water values by taking account of social responsibility might not hold as a legitimate justification and may be considered a breach of REMIT. Such increasing of water values may lead to unreasonably low levels of production, higher prices and hence the loss of social welfare.

Political interventions as a fundamental factor
However, the assessment is different if the modification is based on a public statement that is perceived as fundamental information about the power system, e.g., an increase in perceived risk of rationing, expressed by a competent authority. Such statements may be seen as a fundamental input and therefore can be included in the systematic calculation of water values.

Systematic evaluation of inputs
Market Surveillance advises market participants to exercise caution when implementing changes to their systematic way of evaluating fundamental factors. In our view, water values should be based on the best possible forecasts of fundamental factors to ensure the optimal usage of water in the short and long term. Any ad-hoc interventions in this process should be carefully reviewed. Ad-hoc interventions may be applied if a market participant perceives that the models do *not* capture the fundamental factors correctly.

Correct at all price levels
We also recommend that hydro power producers ensure that their water values are correct at all price levels – even ones that are highly unlikely. This will ensure the robustness of markets in the face of large fluctuations that may sometimes occur.

B) Competitive offering of capacity in blocks

Nord Pool provides several block products ranging from simple all-or-nothing, to exclusive groups and parent-child structures. Such block products are a convenient structure to ensure that a power plant is accepted for a certain number of consecutive hours, does not have to ramp up and down abruptly and that start-up costs and the minimum load level can be properly reflected in an offer.

In price formation, however, market participants shall be conscious that blocks are far less flexible than standard curve orders. If accepted, blocks simply shift the supply or demand curve, without creating a new price point. It is always the actual curve orders that define the price level. That means that in areas with limited flexibility in curve orders there might not be sufficient points on the curve to form a reasonable price intersection.

Block design is important
ACER Guidance states that *"electricity generation capacity withholding refers to the practice of keeping available generation capacity from being* ***competitively*** *offered on the wholesale electricity market, even though offering it competitively would lead to profitable transactions at the prevailing market prices [emphasis added]."*

In some cases, the design of the block order can be decisive as to whether the block is accepted in the day-ahead auction or not. In that case, it is important that the blocks are designed in a way that complies with the requirement to offer capacity competitively. In our assessment, blocks that are too large, or too long, may not be seen as being *competitively* offered, depending on the technical possibilities of activating the production asset. Therefore, we recommend market participants review their bidding strategy to ensure that their bids are as likely as possible to be accepted in the price calculation.

General considerations for offering blocks
Taking the above into account, we recommend considering the following factors to ensure generation capacity (offered as blocks) is offered competitively:

- offering (parts of) the volumes in curve orders instead of blocks
- offering shorter exclusive groups and/or exclusive groups with lower volumes
- specifying lower acceptance ratio in the blocks

Further, based on our experience and communication with market participants, we generally expect the following:

- longer blocks are offered at a lower cost, as start-up and shut-down costs are distributed over a longer period
- blocks shall be designed with a view of highest expected price periods – e.g. there are blocks covering the demand peaks

C) Economic withholding on demand side

As pointed out earlier, the price is formed by the intersection of the supply and demand curves. Therefore, it is important that both curves correctly represent the available flexibility and resources.

ACER Guidance focuses on generation capacity withholding. But, in our view, offering demand price-independently, when there is real demand flexibility available, may also be considered a REMIT breach. Not offering flexibility that is available on the demand side is equivalent to, without economic justification, pricing the demand that shall be offered at a lower price level, up to the maximum price level.

In our view flexibility may represent the following:

- Physical flexibility – consumers reducing consumption when prices are high. This may also include special routines and processes at industrial consumption facilities – demand response
- Opportunity cost-flexibility – covering consumption that is not covered in the day-ahead market in alternative markets, e.g. intraday. Based on ACER Guidance, opportunity cost is a legitimate reason for adjusting the price offer. As an example: a market participant wants to purchase a certain volume to cover non-flexible consumption. The market participant believes that if prices in the day-ahead market go above 1000 EUR/MWh, they will be able to purchase this volume more cheaply in the intraday market. Pricing based on opportunity cost in the day-ahead market would then open for purchasing only up to 1000 EUR/MWh

As an illustration, we can take the events of 17th August 2022, when prices in the Baltic countries reached 4000 EUR/MWh in one hour. We have seen that significant flexibility was added to the curve after the event – this is visible in a comparison of the aggregated bidding curves for auction with delivery on 17th and 18th August. On 17th August, the price-dependent demand in hour 18 in the Baltic area was 81 MWh/h. On 18th August there was already 234.1 MWh/h of flexible demand offered. This flexibility might have been discovered based on physical or opportunity cost demand flexibility.

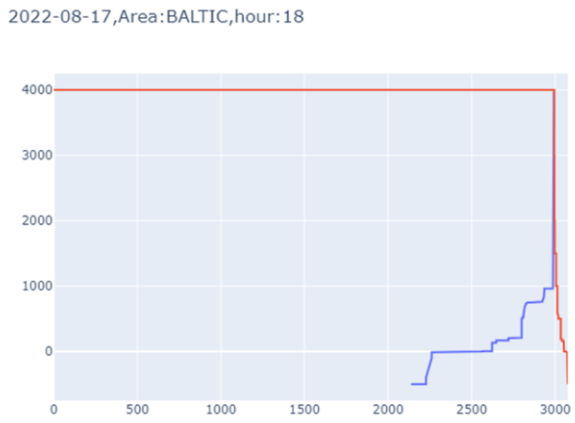

Figure 1. Aggregated bidding curves for hour 18 in the Baltic bidding area for 17th August 2022.

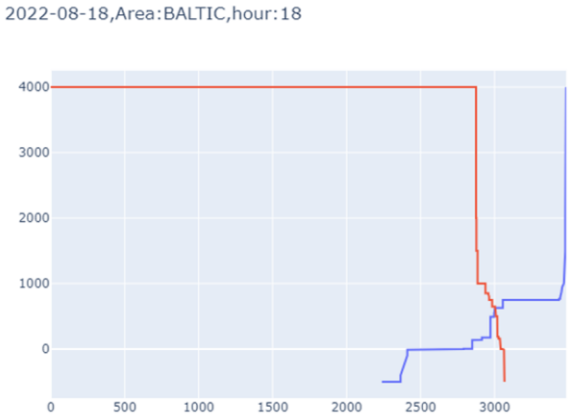

Figure 2. Aggregated bidding curves for hour 18 in the Baltic bidding area for 18th August 2022.

As an illustration of opportunity costs difference, the figure below shows that the day-ahead price, compared to the volume-weighted average price of the intraday market in Lithuania, was much lower.

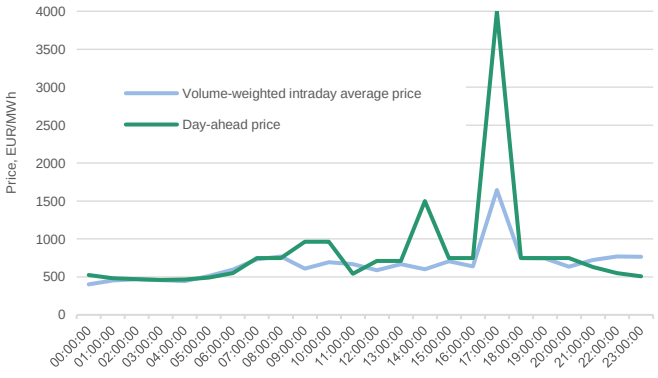

Figure 1. Volume-weighted intraday price and day-ahead price in LT for delivery on 17th August 2022.

Please note that this is only an illustration and liquidity in the intraday market is important for assessing how much demand can be purchased in a later market.

Conclusion

It is difficult to successfully navigate the current energy landscape with high gas prices, risks of political intervention and significant uncertainty before the upcoming winter season. In this newsletter we have aimed to address some of the REMIT challenges that market participants may face, when designing their bids and offers for the power market. While the final decision over whether a certain behaviour amounts to a REMIT breach will be made by the NRA, our newsletter aims to point at the circumstances and assessments that a market participant should undertake to avoid the possibility of such breaches.

We are open to more detailed discussions on these challenging topics and welcome any input. Please use the contact details below.

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