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Business Solutions

Study on the possible evolution from pay-as-bid to pay-as-cleared remuneration of aFRR and mFRR capacity

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Public contribution of Centrica Business Solutions to the consultation

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Executive Summary

Given the negative short- and long-term impact of the current pay-as-bid (PAB) mechanism, CBS is strongly in favour of implementing pay-as-cleared (PAC) in both mFRR and aFRR capacity auctions as soon as possible. In the meantime, the PAB design needs to be significantly improved, in particular regarding transparency (publication of availability, bid curves, prequalified capacities by technology, etc.).

1. Currently, PAB in Belgium doesn't allow all market participants to access full remuneration of the service provided, hampering their ability to recover their incurred costs, in particular up-front capital expenditure (CAPEX)

- To create value for the system by unlocking flexibility, aggregators such as CBS have invested in Virtual Power Plant (VPP) platforms and need to cover incurred costs by market revenues, including capital expenditure;
- On top of seeking to cover opportunity costs linked to the non-participation in other markets, aggregators operating a VPP in the balancing markets also seek to recover longer-term costs;
- The current PAB mechanism leads to significant revenue losses for aggregators engaged in mFRR Flex and Standard;
- The current PAB design does not allow certain market participants to access the clearing price. Given that current market revenues can be insufficient to fully recover costs, such market participants either need to reach a critical mass and sell more MWs (volume effect) or obtain higher unit prices in the balancing markets (price effect).

2. The introduction of PAC shouldn't be made conditional to increased liquidity, as this inevitably results in a "chicken and egg" dilemma. A sound long-term market design must prevail over short-term price considerations to decide on PAB or PAC

- Short term price reduction under PAB cannot be the only performance indicator used to discard market design changes. Only a sound long-term market design will reveal prices for balancing reserves which truly reflect the cost of providing the service;
- Delaying the introduction of PAC might have a downwards effect on prices in the short run, but does not imply overall lower procurement costs for balancing reserves in the long run;
- Market liquidity and concentration can therefore not be the only pre-condition to introduce PAC for the mFRR or aFRR auctions.

1. Currently, PAB in Belgium doesn't allow all market participants to access full remuneration of the service provided, hampering their ability to recover their incurred costs, in particular up-front capital expenditure (CAPEX)

As an aggregator, CBS has invested – and continues to invest – in a Virtual Power Plant (VPP) platform to create value for the system by unlocking reliable flexibility. These incurred costs (mostly up-front CAPEX) are yet to be fully recovered by market revenues.

In order to provide capacity to the balancing market, increase liquidity and competition and drive technological innovation, aggregators such as CBS build portfolios by combining demand response and distributed generation assets. Their primary use is not to deliver balancing services on their own, which provides value to aggregation. Combining such assets allows to provide capacity to the FRR market, and therefore a valuable contribution to the grid.

In order to provide this service, aggregators such as CBS have invested in and developed platforms, requiring both initial CAPEX and recurrent O&M costs, independent from the number of MWs offered to the market. This leads to a cost structure that is significantly different from standalone assets explicitly built to provide capacity or energy to the electricity system.

On top of seeking to cover opportunity costs linked to the non-participation in other markets, aggregators operating a VPP in the balancing markets also seek to recover investment costs over a longer time horizon.

Two categories of assets can take part to the aFRR or mFRR auctions:

- Category 1: technologies not built with the primary goal of providing balancing reserves, and which price their opportunity cost of not partaking in other markets in the aFRR or mFRR auction (e.g. CCGTs);
- Category 2: technologies built with the primary goal to provide balancing reserves and that must compete with assets of the aforementioned Category 1 in order to earn revenues (e.g. VPPs).

MWs of Category 2, such as Demand Response, have been the main source of increased competition and lower prices of balancing reserves in several European countries. They provide a competitive alternative to assets of Category 1, such as CCGTs, which are typically more suited to deliver energy on the wholesale markets.

To pursue this trend, it is key that price formation in these markets reveals the proper price signals to allow MWs of Category 2 to be paid according to the value of the service they deliver, and hence be able to fully cover their costs. If this cannot be ensured and the value for the same service is different, MWs of Category 2 will not be able to remain competitive in the balancing markets, which means that:

- in the short run, they will not be selected in the auctions because their bid price will be too high compared to capacities of the Category 1;
- in the long run, they will not be able to recover their incurred costs and defect the market.

The current PAB mechanism in Belgium leads to significant revenue losses for aggregators engaged in mFRR Flex and Standard

Pay-as-bid rewards good guesses. Market participants try to forecast market price, which is costly and provides advantage to large players.

The table below summarizes the impact of the pay-as-bid (PAB) design on CBS' revenues for mFRR Flex and Standard, covering the period from February 2020 (go-live of the daily 4-h block mFRR product) to September 2020.

It illustrates two negative effects of PAB, being the fact that:

- CBS cannot be paid up to the marginal price of the last competitive MW selected by Elia;
- CBS' bids can get rejected when CBS cannot estimate the clearing price with sufficient precision.

Since providers such as CBS need to estimate the clearing price in an often opaque market, these two effects currently lead to a [CONFIDENTIAL]% loss of revenues when taking part to mFRR compared to the price paid by Elia to the last selected MW.

This clearly demonstrates the current lack of transparency in the mFRR market, where the available information does not allow market participants to correctly anticipate the price formation in order to submit competitive bids allowing to cover their costs. Overall, this leads to a non-optimal price formation, where the total cost-minimizing merit order dispatch can't be assured due to varying estimates of what the highest accepted bid will be.

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Table: Overview of PAB vs. PAC impact in mFRR Flex and mFRR standard for the period Feb. – Sep. 2020

Remark: CBS also considered the fact that moving from PAB to PAC could trigger a change of bidding behaviour, i.e. in PAC market participants might decrease their bids by removing any margin or risk premium present in PAB. However, even in that case, moving from PAB to PAC would yield higher revenues for aggregators ([CONFIDENTIAL]% uplift).

The current PAB design does not allow certain market participants to access the clearing price. As this might lead to lower revenues and hamper the ability of participants to fully recover costs, such market participants either need to reach a critical mass and sell more MWs (volume effect) or obtain higher unit prices in the balancing markets (price effect)

As underlined previously, several market parties face an information asymmetry under the current PAB mechanism (e.g. with regards to unavailability), which hampers their ability to predict prices and bid efficiently. Consequently, they cannot be paid up to the real value of the service offered in mFRR, having to bear significant revenue cuts and increase the risk of not recovering their costs.

As long as transparency in the FRR markets hasn't been significantly enhanced, market parties cannot increase the price of their bid to get closer to the marginal price. As demonstrated above, even with a significant safety margin, the rejection rate is already meaningful. Increasing prices would lead to an even higher risk of not being selected.

Alternatively, market parties could seek to grow the number of MWs of their portfolio ("critical mass"). Indeed, the more MWs operated, the lower the cost at which each MW can be offered. However, given the limited size of the balancing markets, the growth potential of an aggregator's portfolio is possible but finite.

CBS therefore concludes that moving to PAC would significantly improve the situation, as outlined in the next chapter.

2. The introduction of PAC shouldn't be made conditional to increased liquidity, as this inevitably results in a "chicken and egg" dilemma. A sound long-term market design must prevail over short-term price considerations to decide on PAB or PAC

Short term price reduction under PAB cannot be the only performance indicator used to discard market design changes. Only a sound long-term market design will reveal prices for balancing reserves which truly reflect the cost of providing the service

CBS understands the concerns raised by stakeholders in the WG Balancing regarding the overall procurement costs of mFRR and aFRR, and the fact that PAC should not lead to an unjustified increase.

However, CBS points out that seeking lower prices *per se* cannot be the only driver of a market design, especially when only looking at short term price evolution. Pushing this ever-descending price logic to its limits would mean that only a price at 0 is acceptable, not considering the real cost to provide the service.

While a temporary price increase due to the introduction of PAC cannot be ruled out, it can also not be proven. It can however be argued that in the medium to long run, the introduction of PAC for FRR capacity:

- Removes asymmetry of information and eases an efficient price formation;
- Fosters competition and promotes investment in new capacities;
- Leads to a transparent market and overall lower procurement costs;
- Is easier to monitor, since providers have clear incentives to bid at short run marginal cost;
- Is in line with the recommended harmonized pricing methodology of balancing energy for standard balancing products, as foreseen in EBGL and the Electricity Regulation.

It can therefore be argued that a potential temporary price increase in the period after the introduction of PAC will be mitigated or even over-compensated by the incentive for more participants to enter the market, innovate and make investments required.

Delaying the introduction of PAC might have a downwards effect on prices in the short run but does not imply overall lower procurement costs for balancing reserves in the long run.

Due to the different cost structure of different technologies (cf. above, Categories 1 and 2), and the long-term price dynamics, efficiency of price formation can only be looked at in the longer run.

Delaying the introduction of PAC might lead to lower prices in the short-term. But if barriers remain and market participants are unable to cover their costs due to the lack of transparency, complexity and drawbacks implied by PAB, this can lead to lower revenues for providers, costs not being covered. As such a situation cannot be sustained over longer periods of time, it might lead to even further decreasing liquidity and increasing prices.

Therefore, the long-term dynamics of the market must be considered: if prices are currently low but increase in the future due to a "missing money" issue created by the PAB design, overall procurement costs will be higher than necessary.

Market liquidity and concentration can therefore not be the only pre-condition to introduce PAC for the mFRR or aFRR auctions

Looking to the pre-requisites laid down by Elia before envisaging a shift towards PAC in aFRR and/or mFRR, CBS points out the following remarks:

- Liquidity as such is not a sufficient pre-requisite. Indeed, liquidity can only increase to a certain extent, and will only do so if price signals are incentivizing. As outlined above, maintaining PAB will not lead to increasing liquidity, and therefore pre-conditions for PAC will never be fulfilled ("chicken and egg" dilemma);
- Over-subscribing the market can have adverse effects, in particular on assets of the Category 2. Continuing to grow liquidity while balancing needs stay the same (or even decline) will lead to a situation where prices decrease without allowing providers to be selected and/or cover their costs. The parallel with the FCR Regelleistung market is quite relevant;
- Market concentration should also be considered carefully, given the limited size of the balancing reserves market. Given the cost structure of aggregation platforms, multiplying the number of providers will only increase the overall amount of costs to recover, therefore not contributing to declining prices.

Conclusion

Given the negative short- and long-term impact of the current pay-as-bid (PAB) mechanism, CBS is strongly in favour of implementing pay-as-cleared (PAC) in both mFRR and aFRR capacity auctions as soon as possible. In the meantime, the PAB design needs to be significantly improved, in particular regarding transparency (publication of availability, bid curves, prequalified capacities by technology, etc.).