**Results of the public consultation on the market study of the electricity balancing reserves**

On March 12, 2021, AS "Augstsprieguma tīkls", together with other Baltic TSOs, - Estonia 's "Elering and Lithuania 's "Litgrid" published a jointly developed electricity balancing reserve market study "Baltic Reserve Capacity Market Study" (hereinafter – the Study). Public consultation was launched inviting electricity market participants to express their views regarding the electricity balancing reserve market study.

The study is based on the request of the Baltic national regulatory authorities (Regulators) to allow the Regulators to decide on investment requests for the second stage of synchronization of the Baltic electricity grid, which includes the installation of battery storage systems for provision of reserves.

Under the framework of the study possibilities to ensure the required amount of balancing reserves were modelled and evaluated for each country separately and for the Baltic States together in the single market, as well as for scenarios when the resources of neighbouring countries have been attracted after connecting to synchronous work with the networks of continental Europe.

A total of five electricity market participants provided feedback during the public consultation, and the Baltic TSOs received 21 comments and questions on the Study. The Baltic TSOs have evaluated all the comments and questions received, prepared answers and made respective amendments to the Study.

The Study findings are as follows:

1. Considering market simulation data Estonian, Latvian and Lithuanian power systems individually are not able to maintain required reserve capacities: FCR, aFRR, mFRR downward, whereas only mFRR upward could be maintained. Must run generators are necessary to maintain FCR, aFRR and mFRR, however none of individual power systems can maintain all required reserves.
2. Technical potential to maintain FCR and mFRR required reserve capacities within common Baltic LFC block is feasible, however provision of aFRR capacity will not be ensured during all periods. Results of feasible options show that must run generation in each power system will be necessary with total annual generation reaching up to 2,4TWh and total annual costs of maintaining FCR and FRR reserves is expected up to 214MEUR (Low price scenario) or 295 MEUR (High price scenario). Indicative distribution of the costs among the individual Baltic TSOs in a low price scenario is as follows: Elering – 79 million EUR, AST – 38 million EUR, Litgrid – 99 million EUR. Indicative distribution of the costs among the individual Baltic TSOs in a high price scenario is as follows: Elering – 107 million EUR, AST – 56 million EUR, Litgrid – 132 million EUR. Aforementioned numbers represent 3rd scenario (“Baltic reserve market scenario”), which doesn't foresee integration of Baltic Balancing capacity market with neighbouring markets
3. Modelling results shows that available resources in market are not sufficient to ensure mFRR downward reserve capacity as last resort reserve resource provision from Kiisa power plant would be necessary to ensure required mFRR downward reserve capacity for 34 hours in average of 42.28 MW of reserve capacity.
4. Common Baltic LFC block reserve capacity market also allows to reduce must run cost from 104,6 MEUR in 2nd scenario of local markets down to 48.52 MEUR.
5. Considering that marginal pricing model will be used for common Baltic LFC reserve capacity market the most expensive bids from the must run generators with costs of 48.52 MEUR would increase the Total costs up to 148 MEUR from the market price level.
6. It is expected that BSPs would adjust the usage of assets in the energy market to provide offers for the reserve capacities, however the reserve capacity price additionally to operational and maintenance costs will also include the opportunity costs: not received income from the energy market. Therefore, it is expected that price for the maintaining reserve capacities could increase from the current reserve price level in Baltics to the price level in the other European countries reaching yearly average price up to 12 EUR/MW/h in low price scenario.
7. Necessity for must run generation to ensure mFRR downward reserve was observed only during nigh hours when market results included hydro pump storage units in pump mode. During these hours must run generation could be replaced by bids from hydro pump storage unit, however it will significantly reduce the pump mode possibility thus leading to reduction of generation mode during peak load hours and reduction of possibilities to provide aFRR reserve capacity.
8. Possible integration of reserve capacity markets with neighbouring areas Finland, Sweden, Poland to exchange reserves through the interconnections could ensure Baltic power system a technical capability to maintain all required reserves on the expense of reducing available interconnection capacity for day-ahead and intra-day energy trade and would significantly decrease the need of must run generation down to 0,6TWh for 4th scenario or 0,1TWh for 5th scenario, however marginal effect of the most expensive reserve bid which sets the marginal price would not be mitigated. Considering complex and uncertain nature integrating two or more regional markets there is a substantial risk that integration of the Baltic, Nordic and Polish reserve capacity markets might not be achieved by 2025.
9. Commissioning of new perspective projects concluded from the public consultation eliminates the need to activate must run generation and cover all the reserves required by the TSO.
10. Commissioning of new projects are necessary to provide reserves during all hours. Without these (3A scenario) there will still be reserve shortage even with must-run generation.
11. Operational logic behind BESS management could be a big unknown in this study. The management of BESS will determine the bid sizes, frequency of these bids and which reserve type they offer. In theory they could participate in all of the reserve offers with their maximum power, however, this is an unrealistic behaviour by the battery owner.
12. Future CO2 prices are difficult to predict. Significant price increases will also lead to a significant increase in reserve costs.
13. The market test study assumes that the Baltic States will be able to exchange and share reserves with each other without restriction. If restrictions are imposed on the use of cross-zonal capacity for the exchange and share of reserves, in accordance with the Commission Regulation (EU) 2017/2195, which will not allow the use of these cross-sections in sufficient quantities, there may be a shortage of reserves in some of the LFC area.
14. Sensitivity analysis of non-typical outage of single major reserve providing units shows that Baltic LFC block is highly dependent on availability of reserve resource providers. Unavailability of single reserve resource provider result in the insufficient or even absence of aFRR reserve capabilities in Baltic states.

For further details please refer to attached responses prepared by the Baltic TSOs, as well as the updated Study.

Documents:

Baltic reserve capacity market study

TSOs responses for public consultation feedback