

DISCLAIMER: The memo is solely intended to clarify and explain topics and processes within and related to the Nordic Balancing Model Program, and may be updated during the program execution period. The answers are based on current knowledge and maturity of the program and may not be accurate in every circumstance. The content does not constitute or purpose to constitute legal advice or positions, and is not intended to be binding, in any manner.

Memo - Process for activating products

The Nordic region has had a common regulating power market (RPM) since 2002. Simplified, it can be said that RPM is mFRR energy activation market of today. Many changes are necessary before we have an automated mFRR activation market that meets all EBGL requirements. These are both changes in internal TSO processes, product definitions and development of terms and conditions for market participation. Changes in internal TSO processes are not only necessary for legal compliance and European market integration, but are also driven by the need for automation in order to be able to operate the future green power system in a secure and efficient manner.

Efficient and well-functioning activation markets are integral tools in the TSO operational processes and critical for a secure and efficient operation of the power system. TSOs have to be confident that the activation market design fulfils the operational needs and continues to work well while changing the balancing process and markets. This includes reliable fall-back arrangements and any interim solutions. The coming years imply a sequence of complex changes in core operational processes. These changes must be deployed in a continuously operating environment and carried out in a way that the impact from each change is thoroughly understood and that all relevant risks are appropriately mitigated. As there is no blueprint for these changes, the TSOs need to apply an adaptive approach to the implementation which implies that adjustments in the implementation are continuously considered and incorporated when new learnings from both TSO and stakeholder processes unfolds.

This memo gives an outlook for the product development and how the activation markets are an integrated part of the system operation. This memo will be updated as new information is available. Background for updates may be new knowledge (based on e.g. experience, analysis or stakeholder feed-back) or improved explanations or elaborations. This may be needed as the explanations in this memo does not include detailed answers on all stakeholder questions and as there is still uncertainty related to exactly how the transformation will be performed.

Brief description of some features of today's Nordic balancing

Balancing process today

Today, Nordic balancing is frequency based. Frequency deviations are caused by imbalances in the whole Nordic synchronous area, even though the Nordic synchronous area consist of 4 countries and 11 bidding zones.

Balancing and congestion management is currently done in one integrated process. Congestions may either cause activation of regulating power bids in order to relieve overload, or congestions may cause balancing bids not to be chosen in order to avoid creating or worsen overload.

The requested volumes and geographical restrictions of activations are defined by the TSOs' control room operators. Regulating power bids, provided by balancing service providers in all Nordic countries, are visualised in a common merit order list from which the operators choose the cheapest available bids that will not create or worsen overload.

Operators of the Nordic TSOs continuously co-ordinate in the above described process with Svenska Kraftnät and Statnett sharing the co-ordination lead.

In addition to the activation process described above, the operators perform planning and preparation activities, such as changes in production schedules and grid re-configuration. This is done both before the operational day, but also close to real-time and is linked to the manual congestion management process.

TSO-BSP process

After the TSO operator has chosen a bid, the BSP is contacted, either by phone or electronically. The BSP confirms that the bid will be activated and the exact timing of the activation is agreed on between the TSO and the BSP.

Products

Today, the bids in the RPM are directly activated¹. The formal full activation time (FAT) is 15 minutes, but it is often agreed as part of the TSO-BSP process to activate quicker than 15 min. Also, bids with longer FAT than 15 minutes may be accepted, in some countries. The bids are used for both congestion management and balancing. Gate closure time

¹ Directly activated bids can be activated continuously, while scheduled bids can only be activated at defined scheduled times.

is 45 min before the start of the operational hour, and the validity period is one hour.

A bid stays activated for the validity period (hour) or until it is deactivated. The current practice varies between the TSOs. In Norway a manually activated bid is activated until it is deactivated (for more than one delivery period), while electronically activated bids in Norway and all bids in Sweden have to be re-activated for a new hour.

Intermediate period (from now until 15 minute ISP)

The transformation to a new way of balancing must be done gradually in controlled steps and consequently the system operation must be ensured not only in the target solution, but also in a number of different transitory phases. One of the challenges is to balance the power system and to avoid overload simultaneously. The transformation will require changes in TSO internal operational processes and market design, as well as new IT-tools.

Products

In this period, there is not planned any big changes to the products. However, some changes may be needed:

- The intention is to start to activate the current (directly activated) bids as if they were scheduled bids. The BSP will recognise more changes in activations each 15 min, even though the product is unchanged.
- The TSOs will investigate the need for changes in the balancing and congestion management process. To be able to automate the near-real time process, it may be beneficial to do some activations ahead of the current gate closure time for mFRR. If the learnings from the stepwise implementation is that such changes are necessary, there will be a dialogue with the market players on how this best can be facilitated via market-based solutions. In some countries, it may be necessary to introduce an additional product/market with earlier gate closure time (GCT) than what we have today.

Production smoothening (Norway) and the production shifting (Norway, Sweden and Finland) may still play a role during this period.

Situation when 15 min resolution is introduced (from 15 minute ISP until Nordic join MARI)

TSO internal process

When the Nordic TSOs introduce 15 min time resolution, TSOs have implemented some automatization and operator supporting tools, eg. improved imbalance forecasts, automatic bid selection and full electronic ordering.

To avoid that activation of balancing bids shall cause any congestions, it is necessary to have a "bid filtering" mechanism within some bidding areas. This mechanism marks bids as unavailable if activation of these bids are likely to cause congestions. It will be described later how this bid filtering will work.

The detailed TSO operational process will be developed based on more analyses and experiences from the different implementation steps.

Products

The European standard product for mFRR will over time be the standard product also in the Nordics. Most features are defined by the European legislation. Still, some features remain to be decided nationally, e.g. rules for shape of ramp-up of FRR. The features of the standard product will be introduced stepwise.

The need for specific products is still being analysed and will not be decided before the TSOs have some experience with the implementation. One relevant specific product might be a mFRR product with shorter activation time. A need for a product that can be activated before the harmonised mFRR balancing GCT will as well be considered.

In time for the introduction of 15 minutes time resolution, the following standard product features shall be introduced:

- 15 minutes validity period for mFRR bids
- 15 minutes pricing period for mFRR activation
- Rolling GCT for mFRR bids for every 15 minutes period, i.e. 4 times per hour. GCT may continue to be 45 minutes before the start of the validity period.
- Updated rules for activation process and activation profiles of the BSPs.
 - Agreed rules for activation / deactivation profile and timing, include stronger enforcement of 15 minutes FAT

Before the Nordic TSOs join the MARI platform, the remaining features of the standard product shall be implemented including:

- FAT 12.5 minutes
- New prequalification requirements (for some TSOs)
- New format and protocol for bid interface between BSP and TSO (for some TSOs)
- GCT 25 minutes
- 1 MW minimum bid size and 1 MW bid granularity

Some of these changes may be implemented at an earlier step. A more detailed plan for these changes will be discussed with the stakeholders before implementation.