Thanks to all of you giving questions and comments on Sli.do during the Webinar!

We will provide answers to all questions here on the NBM webpage. The Report will hopefully also give the answer to many of your questions. We also appreciate comments and feedback on the webinar format itself. This was our first time and already we have gotten experiences and lessons learned that will help us improve for the next webinar.

From the Nordic TSOs the following participated in this webinar: Program manager Jakob Aldrin (Svenska kraftnät), Lars Olav Fosse (Statnett), Olga Ingrid M. Steinsholt (Statnett), Mikko Heikkilä (Fingrid) and Marie Sandahl (Svenska kraftnät). Energinet participated online (Kristine Bock and Torben Skødt), but did none of the presentations this time.

Summary of questions and comments from Sli.do:

1. Would it be possible to maintain one detailed table with the indicative timelines and go-live dates covering all the changes? on NBM website maybe? This detailed table should contain not only balancing but also Imbalance scheme, ISP, ID auctions. the table should contain more detailed description on the project(s) to allow all more insight how they are proceeding.
   We intend to have an updated roadmap on the NBM website with relevant milestones for stakeholders. The TSOs will also define internal milestones that can be used in a transparent way to follow the progress of the roadmap.

2. 3rd party aggregators are currently not "visible" in your presentations, I guess it is assumed that they have a BSP to back them up

3. Are 3rd party aggregators regarded as stakeholders?

   All relevant parties, including 3rd party aggregators and IT-vendors are regarded as important stakeholders for the NBM-program. The consultation is open to all stakeholders which are welcome to join webinars and take an active part in the dialogue. Examples of changes that could affect aggregators are separation of the roles for BSP and BRP and automation of the mFRR balancing process.

4. Is a possible scenario that the TSO's implement the single price regime before moving into 15 minutes timeresolution?
   Yes, this is described further in the NBM roadmap report section 3.3.

5. We are sending volumes to Elhub (Statnett) with hour resolution. I think some have to do some estimations of the values until the hardware can handle 15 min..?
   Elhub, the new Norwegian datahub, is developed to handle 15 minutes, but some reconfiguration is needed. A plan will be made both on how this reconfiguration will be done including profiling of meter data with hourly resolution and onboarding of all parties.

6. Will the time table to be published after consultation include more detailed dates, than Q4/2022?

- The updated/finalized roadmap after consultation will probably be on the current level of detailing regarding timing. Projectplanning/management will be an ongoing activity througout this program and that will also give us more details so that we can update the roadmap continuously. We assume this question mainly relates to the date for go-live of 15 minutes ISP. The detailed date is subject to regulatory approval process.

7. This may be a trivial question, non the less to be sure, will the new 15 min settlement be implemented across both DK1 and DK2 at the same time?

   This is indeed not a trivial question, and the answer might depend on the final roadmap. If the Nordic will postpone the shift to 15 min by +2 years, it might be beneficial to change to 15 min in DK1 before the Nordic (DK2). If the Nordic is less delayed it might be beneficial to change at the same time. This is a topic that will be specifically addressed on the Danish stakeholder meetings, and Energinet would like to involve all parties, including NRAs on this issue.

8. Why does the operation change for the TSO's when we go to 15min? The TSO's are already balancing the grid in real time independent on the settlement perod!?

   Today all balancing decisions are taken by the TSO control room operator, with limited decision support. This approach is challenging today, and it is expected that the challenges will continue to grow.

   15-minute resolution in energy trade makes the time available for making manual assessments much shorter. At the same time, the amount of information that needs to be assessed is increased. Changes in area imbalances, production, cross border flows and mFRR resources, which today happens once from one hour to the next, will in the future happen four times per hour. With the time line for the current balancing model in mind, it is clear that the operators must deal with several market time units in parallel, drastically increasing the information that has to be processed at any given time. In addition, there will be no room for making corrections between market time units, so any mistakes must be merged into the prognosis for the next market time unit. As there will most likely be no stable period between market time units that can act as reference, improved operator support for determining mutually regulated areas, balancing need and balance activation for the mutually regulated areas becomes critical.

   Please also see section 3.5 in the NBM Roadmap report for more information.

9. What kind of IT system, file format will be used?

   There are many different IT systems involved in NBM. The file formats for interfaces between BSPs/BRPs and TSOs can vary. We acknowledge that the various parties need information in due time about protocols and formats for communication. The implementation guides for interfaces are targeted to be published by each TSO minimum 6 months prior to go-live of the respective changes.

10. Is it correct that automation of mFRR requires a precise transmission grid model within bidding zones? Will this model be available publicly?

    Both Nordic and European balancing energy markets (MARI, PICASSO) requires a grid model which describes available transmission capacity between the bidding zones.

    In addition, within some bidding zones or countries, automation of mFRR process will require a transmission grid model which describes the grid within the bidding zones. Currently TSOs do not foresee that such models can be made public. However, bids that cannot be activated due to local grid constraints will be published. Please also see sections 3.5.1 and 3.5.3. of the NBM roadmap.

11. Are mFRR needs forecasted so that units providing balancing services can expect long continuous activation periods - not start/stop

12. Pls. be very much aware. That long activations periods for balancing units is prerequisite for low balancing costs.

    The methodology for determining the needed activation volume of balancing products is not yet developed and may also vary between the TSOs. We will continue to activate based on a merit order list. With finer time resolution in the markets and proactive balancing based on merit order list, we do expect that there will be more activation/deactivation of bids.

    Please see section 3.5 in the Roadmap report.

13. Could you elaborate with "roadmap aims to be both ambitious and realistic". How big is the risk it not being realistic and should it not be realistic. How do ensure that market is timely informed? This spring informing market participants of the delay to many months

    - NBM and the transition to 15 minutes time resolution is an extensive change and modification of IT platforms, operational procedures and legal regulations for the Nordic TSOs. This great challenge brings uncertainties to the roadmap planning. We expect valuable input from stakeholder in the consultation, contributing to a realistic roadmap from both a TSO and stakeholder perspective.

    The road map is considered realistic with a moderate level of uncertainty. The need for additional contingency (risk reserve) in the roadmap will be assessed throughout the consultation process period and will be reflected in the finalized roadmap report.

    The ambition is to have a transparent dialogue througout this program, especially on milestones and changes relevant to stakeholders.

14. 15 min settlement will that be on all measure point that is Hourly today?

    Which meters will be reconfigured or replaced to have a 15 minutes granularity is a national decision taken by each NRA or ministry dependent of national legislation. In general, production meters with the potential exception of micro production, exchange points between meter grid areas and consumption above a certain treshold will be reconfigured or replaced.

15. Why a separate Nordic AOF as backup instead of a copy of the European AOF?

    The Nordic AOF is not only needed as a backup. It is also needed to ensure a stepwise and controlled transition to the automated mFRR balancing process. When the transition is completed, and the Nordics have joined MARI, the Nordic AOF could be seen as a copy of the European AOF unless supplemental functionality is needed (ref. chapter 3.5.4 in the report). The Nordic TSOs are involved in the European platform projects.

16. Why do you expect to use specific Nordic products in 2023?

    We cannot say today that we expect to use specific products in 2023, but if that is needed sometime in the future, the Nordic AOF can be used to handle that.

17. When will you join the European MARI and PICASSO platforms? WHen will you implement the standard products?
18. When was the Nordic supposed to join Picasso again? Also Q4/2023?

Much of the needed preparation to join MARI is done in NBM 1st generation. The standard product will be implemented stepwise, the first step is in the mFRR balancing process automation. We expect to have the standard product for mFRR fully implemented during 2023. This is a prerequisite for joining the MARI platform. That gives us the earliest possible time to join MARI second half of 2023.

To join PICASSO we need to implement aFRR energy activation market and introduce standard product for aFRR. This is part of NBM 2nd generation, which is not included in this roadmap.

This and the legal obligations for joining the European platforms are further described in section 3.8 in the NBM Report.

19. Are you going to establish common Nordic timeline regarding national issues, fex. Datahub's and changes in metering?

    To some extent we will include national issues that have clear dependencies to NBM, but there are no plans to present a common Nordic timeline with all ongoing changes. For example local changes in metering is not something that will be included in the NBM road-map.

20. When single price is live, will producers still be obliged to send production plans to the TSO?

    Yes. Production plans are still needed for operational reasons, for example to create imbalance forecast and to handle congestion management. However, when single price model is implemented, productions plans are not anymore components of imbalance settlement.

21. Is it possible to give us some calculation examples that demonstrate the change between the present imbalance practice, and the forecoming single price regime?

    Yes. Example calculations of single price regime can be made by the TSOs. These could be presented for example in the context of NBM stakeholder reference group meetings and national stakeholder events.