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Question 1 - 3: Please add here your feedback related to General questions

Caruna Oy

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Centrica Plc

"Centrica Energy Trading A/S (CET A/S) is part of the Centrica Energy Marketing & Trading (EM&T), the business unit of the Centrica providing energy management and optimisation services. CET A/S is based in Denmark.

EM&T manages commodity risk and provides wholesale market access for the Centrica Group. EM&T is active with its route to market services, trading and optimisation activities in various European countries, including with a prominent position in the Nordics. Therefore, we are very interested in providing our views on the Nordic Balancing Model Roadmap proposal.

We welcome the consultation opened by the NBM project and we are keen to provide constructive feedback on the proposals. We would welcome more open involvement in the common Nordic stakeholder reference group NBM. Unfortunately, despite our early expression of interest, we were denied joining the group.

General comments

We understand the challenge of the changes ahead to be fully in line with the requirements of the Electricity Balancing Guidelines (EBGL) and we do not underestimate the complexity of the need for cooperation across four different TSOs and multiple control areas.

Without minimising the effort needed, we believe that this is like the challenge experienced by other TSOs across Europe and market participants on the 'receiving end' of the changes driven by European legislation, and whose details are primarily identified by TSOs. In this context the Nordic market should be facilitate from a long-standing cooperation in the Nordics market.

First and foremost, we would appreciate more details concerning the 'changes of systems, operational procedures and legal regulations for the TSOs' that are mentioned in the consultation report. There are some indications in the chapter on the 15minutes resolution, but this is not comprehensive and does not cover all the parts subject to change.

We expect the Nordic TSOs to identify systematically the interdependencies and possibly estimating the costs involved. This would allow us to assess with greater certainty the level of change and costs that will be required on our systems and

processes. We are keen, like the Nordic energy regulators, to avoid unnecessary delays and to work on a detailed implementation plan.

Finally, we recommend the NBM to assess the interactions and interdependencies with projects affecting interconnected systems and markets. For instance, a delayed implementation in the Nordic could have impacts on how the systems are operated in consequence of changes taking place in interconnected markets. In this context, there is probably a role for ENTSOE to provide information in a consistent manner across the continent and possibly play a coordinating role in case of border-specific issues.

General Questions

1. The most relevant issues seem to be included in the consultation report. However, we believe that the Nordic TSOs should more clearly and systematically identify for each of the changes described, the systems, procedures and legal regulations that will be affected. This analysis should also provide a view on the interdependencies and on high level costs of the options available.

2. The Nordic TSOs should approach the uncertainty around the project with a professional project management approach, laying down all the details of the steps that need to be taken to deliver the result, including a governance structure, accountabilities, roles and responsibilities and clarifications on the decision-making process.

Our main concern is related to the contractual relationship with our customers, primarily to manage and optimise their assets. Most of these contracts are valid for up to 10 years and many will be starting or renewed between 2020 and 2024. Having sufficient advance notice about the upcoming changes is essential to avoid contractual disruption and to avoid impacting the competitive environment and uncertainty is not beneficial for our activity and for our clients.

Therefore, we believe that for each relevant change the Nordic TSOs should identify appropriate 'go/no-go gate closures' to allow market parties to manage their contractual obligations.

3. We believe that the Nordic TSOs should consider the implications and interactions on with the Nordics system coming from a timely implementation in neighbouring markets and/or systems."

Danish Energy

"Danish Energy thanks for the opportunity to comment on the Nordic TSOs' proposed Roadmap for Implementation of the Nordic Balancing Model (NBM) and welcomes the in-creased transparency and stakeholder dialogue in the NBM project. The NBM Roadmap lays out the changes to the Nordic balancing markets in the coming years and is an important tool to ensure visibility and clarity for market participants.

Danish Energy has four main recommendations to improve the roadmap:

1. The roadmap should describe the integration with European platforms and include a timeline for 'NBM 2nd generation'
2. The roadmap should clarify the situation for DK1 in all steps and components of the NBM implementation
3. Nordic TSOs should seek to implement the single price model as soon as possible and in accordance with the Electricity Balancing Guideline (EBGL) requirements
4. Nordic TSOs should plan a stepwise implementation of 15 ISP and allow flexibility for some bidding zones to move to 15 ISP ahead of others
5. Algorithms, products and processes in the NBM should be identical to MARI and PICASSO

We provide detailed comments on the roadmap and our five recommendations in the section below. In the subsequent section, we provide responses to the 17 questions raised in the consultation letter. We hope our comments and suggestions will be considered when finalizing the roadmap.

---1. The roadmap should describe the integration with European platforms and include a timeline for 'NBM 2nd generation'---

One of the key objectives of the NBM project was initially to align the Nordic balancing markets with EU network codes and integration with future European platforms. In this perspective, the roadmap is surprisingly vague on when and how the Nordic TSO will join the future European balancing platform MARI and PICASSO and comply with the requirements of EBGL.

Much of this is postponed to what is now called the '2nd generation NBM'. We suggest that Nordic TSOs include this in the final roadmap and clearly describe at least the following key steps:

- When will a Nordic aFRR energy activation market based on European standard products be implemented?
- When will the Nordic join MARI?
- When will the Nordics join PICASSO?

This description and an overall commitment to the European integration of balancing markets is a prerequisite for our endorsement of the proposed roadmap.

The recent delays and changes to the NBM project has raised doubts about the willingness to seek European rather than Nordic solutions. We do not want to see the NBM developing separate Nordic market solutions that will postpone or create barriers to integration with the continent. The NBM process should primarily serve as a stepping stone towards full participation in the MARI and PICASSO platforms. One of the primary drivers of the EBGL and European harmonization is the massive economic gains from larger and more efficient balancing markets. Mott MacDonald (2013)

estimated the benefits from European balancing market harmonization and sharing of reserves to be in the order of €3b/year. In Denmark, consumers and renewable energy producers will gain significantly from closer integration with continental balancing markets in the borders to Germany and the Netherlands. These gains will be lost if TSOs seek Nordic rather than European integration.

----2. The roadmap should clarify the situation for DK1 in all steps and components of the NBM implementation----

The NBM leaves DK1 (which is part of the Continental Europe Synchronous Area but largely integrated in Nordic balancing markets) in a limbo. Unfortunately, the roadmap contains no description of the development of the balancing market design in DK1 in the coming years and no clarity on whether continued access to the Nordic markets will be ensured. This causes significant insecurity for market participants in DK1 and the lack of market access after NBM implementation may result in much higher balancing costs and imbalances prices in DK1.

The roadmap merely states that: “Bidding zone DK1 needs special attention. It has initially been expected that DK1 will be included for initial go-live of the Nordic mFRR capacity market, the Nordic mFRR energy activation market and the Nordic aFRR energy activation market. Now it is foreseen that, DK1 will not be part of the Nordic aFRR capacity market at initial go-live, but is expected to be included at the same time as mACE is introduced in the Nordics.”

We are unsure how to interpret this statement. Does it mean that DK1 will be included in 2023 with the go-live of mACE based mFRR balancing, or does it mean that DK1 must wait until 2nd generation NBM which comprise the full mACE model implementation and integration to European platforms? DK1 should not be left out of NBM until full mACE is implemented. DK1 should already today be able to participate in the implementation of the main NBM components such as the single price model, the 15 min ISP and the mFRR balancing process automation. Additionally, we do not see any major barriers to DK1 participation in the aFRR and mFRR capacity markets. In particular, access to the Nordic mFRR energy activation market and the current NOIS list is of key importance. Across TSOs BSPs and BRPs, there is a mutual interest in ensuring DK1 access to the Nordic market, especially considering the risk of delays in the integration with Continental Europe.

We have consistently called for an analysis of the situation in DK1 and the prospects for integration in NBM. However, TSOs have so far not provided any information on the matter. We urge TSOs to provide this analysis along with a roadmap for the development of balancing markets in DK1 and the integration with the Nordics vis-à-vis Continental Europe.

----3. Nordic TSOs should seek to implement the single price model as soon as possible and in accordance with the Electricity Balancing Guideline (EBGL) requirements----

According to EBGL Article 52(2)(c) and 52(4), the use of single pricing must be implemented no longer than 18 months after all NRAs approval of the imbalance settlement harmonization proposal – ie most likely during the first quarter of 2021. We see no barriers for implementing the single price model in accordance with this requirement. Applying a single price, single position model will align the Nordic with Continental Europe and the EBGL target model and improve the overall efficiency of the balancing market. It will also reduce transactions costs and administrative burdens for market participants and contribute to supporting the system frequency when the 15 minutes ISP is implemented and real time information on the system state is provided. Larger market participants already have the ability of shifting positions between generation, consumption and trade through internal trades. Consequently, we do not foresee any detrimental impacts on Nordic markets or real time operations. We propose that the single price model is implemented simultaneously in DK1 and DK2. We do not see a need for simultaneous implementation of the single price model across the Nordics and any delays in other Nordic countries should not prolong the implementation in Denmark.

TSOs note that 'The main drawback is TSO operational concerns in some geographical areas and operational situations'. TSOs should be transparent about which areas this concerns and if these could possibly move to single pricing at a later stage without delaying implementation and EBGL compliance in other areas.

TSOs further note that 'The assessment of the solutions require further analysis and discussions with NRAs as well as other stakeholders. This will be done in parallel with the consultation process.' We have not been involved or made aware of any analysis or discussion of this during the consultation period. We urge TSOs to initiate this discussion as soon as possible.

----4. Nordic TSOs should plan a stepwise implementation of 15 ISP and allow flexibility for some bidding zones to move to 15 ISP ahead of others----

We understand that the move to 15 ISP and 15 min markets is dependent on significant automation of TSO control room process and, in addition, IT-updates in eSett. The significant delay from 2020 to 2023 is regrettable but – to our understanding – unavoidable as TSOs apparently underestimated the scope of the task initially. We urge TSOs to ensure that the new timeline is respected and that any potential delays are communicated well in advance.

We do not see any barriers to a step-wise implementation of 15 ISP. National decisions on the move to 15 ISP should not be dependent on delays and local challenges in neighboring countries or bidding zones. National decisions on the move to 15 ISP should not be dependent on delays and local challenges in neighboring countries or bidding zones. It is however important to mention that a necessary condition for the readiness from a DSO and metering perspective is that a 15 minutes ISP-regime can be

handled with pragmatic metering and profiling solutions. In line with that we find it important that metering requirements supporting 15 ISP will be decided in consensus between DSOs and the TSO in every single country.

TSOs can safely and efficiently operate the balancing markets across Nordic markets with different ISPs and a implementing a 15 ISP in one bidding zone will not hinder access to hourly markets in neighboring areas. Rather, a stepwise implementation, in which one or both Danish bidding zones move swiftly to 15 ISP, will have significant benefits. Firstly, a higher market time resolution will increase efficiency and reduce balancing costs. Denmark should realize these economic gains as soon as possible. Secondly, by implementing 15 ISP in accordance with EBGL, Denmark would be ready to join MARI and PICASSO at go live. DK1 could for instance have access to the aFRR market in PICASSO (as Nordic TSOs have not planned an aFRR energy market implementation) while remaining in the Nordic mFRR market. This will reduce balancing costs to the benefit of consumers and renewable energy producers.

----5. Algorithms, products and processes in the NBM should be identical to MARI and PICASSO----

Nordic TSOs should not duplicate ongoing European work or put resources into developing separate Nordic solutions that may hinder European integration. All TSOs have agreed on a set of common European rules and methodologies for the future balancing markets, comprising platforms, algorithms, standard products and processes. These should be the building blocks of the NBM. Consequently, we urge that algorithms for activation of mFRR and aFRR in the Nordics are identical to those in MARI and PICASSO and do not see a reason for developing separate and more 'sophisticated' Nordic algorithms. We similarly urge TSOs to use the standard energy products from go-live, to implement the balancing processes in accordance with EBGL, and to implement the MARI and PICASSO platforms at go-live.

We are concerned any separate Nordic developments, for instance the 'more sophisticated' activation algorithms, will serve as an excuse for postponing integration with MARI and PICASSO.

Answer to question 1-3:

The roadmap should include additional aspects, most importantly:

- DK1 impacts
- Timeline for 2nd generation NBM
- Clear timing for integration with European platforms
- Any risk of delays and contingency planning
- A detailed gantt chart of TSO implementation tasks as shown in stakeholder meetings.

This information is necessary in order for market participants to understand the interdependencies in the roadmap steps.

It is crucial that market participants can trust the current timeline and that any potential changes are flagged well in advance. Any changes to the timetable should be preceded by stakeholder dialogue and consultation in order to gain industry input and ensure transparency and full, timely and equal access to information for all market participants."

E.ON Energidistribution Sverige AB

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Energi Norge

"Response from Energy Norway to the NBM consultation report

Energy Norway, the Industry association of the Norwegian renewable industry welcomes the opportunity to comment on the revised NBM roadmap presented in the consultation report of May 27th 2019.

Generally, we regard the consultation as an example of increased transparency and stakeholder involvement from the Nordic TSOs which is highly welcomed. As expressed earlier, it is important that the TSOs involves the key stakeholders in the shaping and implementation of the NBM, given it's importance and relevance for both market players, grid companies and other stakeholders.

Energy Norway's response to this consultation is structured as follows:

- First we highlight our main recommendations.
- Then we present our response to the topics and questions presented in the stakeholder letter following the Roadmap consultation report.
- We hope our input provides value in the further shaping and implementation of NBM.

MAIN RECOMMENDATIONS:

- Market solutions where market players can trade imbalances need to be in place before implementation of 15 min ISP. Energy Norway want to underline the importance of this prerequisite for shifting to 15 min ISP. Timeline for introduction of such market solutions has not been included in the roadmap and should be included in the revised roadmap.
- The transparency of overall NBM project cost and budgets should be increased by showing budgeted annual NBM cost and actual cost for the different years in total and divided per TSO. Based on the draft roadmap for 1st generation of NBM, several activities have already started, and we therefore expect that it is possible to present the NBM-budget for several years ahead.

- We would like a more detailed revised roadmap that also, at least partly; includes 2nd generation NBM and shows scheduled timeline for implementation of the main elements of mACE. It should also describe the interaction between NBM and the European MARI and PICASSO platforms. In order to give more insight to the NBM-project, the revised roadmap should highlight important uncertainties and dependencies.
- It is unclear whether there will be specific prequalification processes in order to participate in the aFRR and mFRR markets under NBM. Anyhow, information on prequalification should be included in the revised roadmap.
- Energy Norway would like several topics to be more thoroughly explained in the revised roadmap, such as the process of establishing grid models, explanation of automatic activation and the filtering process.

ANSWERS TO QUESTIONS TO STAKEHOLDERS:

General questions

We refer to our main recommendations described above."

Energiateglisusur ry

"1. Have the Nordic TSOs described the most important issues from your perspective for changes towards the Nordic Balancing Model? What should possibly be kept/added/deleted?"

We welcome the road map and consider it as rather good general prescription of the Nordic Balancing model. However, there are many themes that should be included and/or presented more in detail:

- Eventually the milestones need to be defined more in detail, by which date at the latest is a milestone expected / needed?
- In general, we lack the sufficiently detailed prescription of what the automated optimization function is expected of doing.
- Relations with European markets are still too open. The co-existence of European and Nordic platforms is presented on too high-level, not sufficiently in detail. What are the Nordic platforms expected of doing and how are they interlinked with the European platforms?
- What are the roles of European platforms, Nordic AOF and individual TSOs?

- The needed regulatory changes are not presented sufficiently in the Road Map. These require time. The regulatory framework also needs to be in place sufficiently early. Best way to promote smooth regulatory process is by starting open discussions with stakeholders in an early phase for to discuss alternatively solutions and by having these discussions in as detail level as possible. And based on these discussions and analysis to prepare well-reasoned and detailed proposals ready for consultation and regulatory approval process.
- In addition to regulatory approvals by regulators, a part of the changes may require legislative changes. These should be checked and put forward so that where changes are needed, they proceed in accordance with the Road Map.
- Market based balancing and giving incentives to market participants to help the system should be more present. We miss the discussion on increasing transparency on imbalance price formation and extending the ID GC closer to operational phase, which would enable to market participants being better balanced when operational hour / quarter begins, and hence decreasing the TSOs need to balance the system.
- The TSOs have so far not been able to explain sufficiently in detail why they need as much time before operational hour/quarter, and whether they have analyzed / could include in the road map how they could reduce the needed time?
- How trading will be moved into 15 minutes? DA, ID and the whole value chain, how it will be in 15 minutes' world? It needs to be recognized that the majority of trading today takes place on the DA-markets. If balancing takes place in quarters but trading in hours, this creates additional risk for market participants, especially to retailers.
- We lack the detailed prescriptions how balancing prices will be defined and calculated? How netting will be valuated? We understand that there may not yet be ready answers on these and consider that these need to be discussed with stakeholders. However, also details that are not yet ready, should be present in the Road Map, "the known unknowns".
- Ramping of cables is not included in the road map. We expect that the ramping constraints could and should be relieved as ISP shortens to quarter.

- We would like to see something on the development different reserves' products been in use in different Nordic control areas. Are they all needed, and could some merging take place? A more holistic market set-up with respect to balancing products would be welcome.

a. Is the level of the details for the presented roadmap and milestones adequate?

We welcome the more detailed road map but would appreciate a more in detail prescription of the different work packages. We consider that the Road Map is on a too high level.

Especially more details should be given with respect to AOF, what it is expected of doing, before and after the implementation of European platforms and what will remain as tasks of individual TSO?

b. Have the TSOs possibly in your view missed some explanations or milestones?

Yes, please see answer under question 1.

We'd promote to discuss further on the interdependencies, both project's internal but also external internalities. These include:

- Regulatory changes, both on a legal level and on regulatory approval level
- Needed actions from market participants. What are the expected timelines that market participants need for making their systems ready for different characteristics of the NBM and ISP 15, and are there risks that the implementation timelines of those projects would cause delays for the NBM work packages?
- Datahubs

We encourage TSOs to further deepen discussions both on Nordic and European level with the market coupling operators for having 15 minutes' products available at least in ID-markets, but preferably also in DA-markets by when Nordic bidding zones swift into ISP 15.

c. Are there any undefined dates in the current roadmap that in your opinion are crucial to be added as soon as possible? Please explain the reasoning.

We'd appreciate more in detailed initial time line. Now the time line is on very high level. By which date different details and rules are expected to be delivered?

We consider that all previously mentioned issues should be included. As most crucial with respect to scheduling we consider having expected dates for:

- all regulatory approvals and legal changes and

- timelines when datahubs in all Nordic countries are expected of being in operation
- In the final Road Map there needs to be exact dates at least for:
- when we will move into single price model and
- which date ISP 15 will be taken into operation

2. Any views or comments on how the Nordic TSOs should approach uncertainty with respect to timing in the roadmap? What are of importance to you?

The uncertainties should be prescribed more in detail. Especially the TSOs should be prepared to inform of the situation timely, if there is something that is likely affect the timetable. If exact information is not available, the TSO could start by informing what is under risk of being postponed and later updating with more precise prescription of the situation and its effects.

We emphasize considering also external uncertainties. It has been recognized that in Finland the implementation of datahub is crucial for implementing ISP 15. The current timetable for having datahub in operation is April 2021, but a number companies have informed not getting the needed IT services in a time. There's a bottleneck in IT providers services which could affect in addition to Finland, also other countries. Big changes in procedures need to have adequate time in between. For datahub and changing the ISP, there needs to be at least 6 months in between, for to ensure that datahub delivers properly and the workforce is available for ISP implementation.

If the datahub would be delayed, it will need to be taken into account in NBS road map too. The situation should be better known later in the autumn, before the TSOs need to deliver the road map proposal and to apply for derogation with respect to ISP.

3. Any other views or comments related to the presented roadmap and milestones?

Please see previous answers. We emphasize the need to have more precise timing, to prescribe dependencies and ensure that final Road Map, while being realistic and ambitious, emphasizes being realistic. All changes and delays cause costs to market participants."

Fortum Power and Heat Oy

"1. Have the Nordic TSOs described the most important issues from your perspective for changes towards the Nordic Balancing Model? What should possibly be kept/added/deleted?"

Market based balancing and giving incentives to market participants to help the system should be more present. We miss the discussion on increasing transparency on imbalance price formation also in real time and extending the ID GC closer to operational phase, which would enable market participants being better balanced when

operational hour / quarter begins, and hence decreasing the TSOs need to balance the system.

TSOs should ideally facilitate self-balancing in a system where market signals give direction, not aim for central dispatch.

The TSOs have so far not been able to explain sufficiently in detail why they need as much time before operational hour/quarter, and whether they have analyzed / could include in the road map how they could reduce the needed time?

There are also issues in the report that are assumed to be taken at face value, without facts backing them up. As examples: The assumed significant socioeconomic gains from aFRR cross-border capacity reservation. This might be true for aFRR market alone, considering all possible products and markets, this is not necessarily true, or even likely. Also, regarding the use of single price in hourly resolution, the main drawback is TSO operational concerns in some geographical areas and operational situations. What are the areas and what kind of operational situations are the concerns? Are there other ways of addressing or mitigating these drawbacks, rather than postponing single price development? A more transparent way of presenting TSO concerns could increase the understanding of the problem and might also lead to finding new ways for mitigating them.

Ramping of cables is not included in the road map. We expect that the ramping constraints could and should be relieved as ISP shortens to quarter.

Relations with European markets are still too open. The co-existence of European and Nordic platforms is presented on too high-level.

The need for multiple platforms should be better explained, are there needs for multiple layers of redundancy (European, Nordic and National platforms)?

We would also like to see something on the development different reserves' products been in use in different Nordic control areas. Are they all needed, and could some merging take place? A more holistic market set-up with respect to balancing products would be welcome.

To this goal one should think building the Nordic more weather dependent system from scratch, and what reserves and products would then be needed and used. How much reliance is currently on legacy products with added layers of complexity with every new regulating market product? Keeping European harmonisation.

Eventually the milestones need to be defined more in detail, by which date at the latest is a milestone expected / needed?

How trading will be moved into 15 minutes? DA, ID, the whole value chain, how it will be in 15 minutes' world?

The TSO markets should not be seen as a standalone step, they should be regarded as parts in a bigger value chain. There is very little concern in the report for the BSP or BRP development needed to take part in the future market. Is there risks that complications would reduce the volume of bids in the market, at least on short term. Can this have adverse economic implications for the socioeconomic welfare of the region?

a. Is the level of the details for the presented roadmap and milestones adequate?

We welcome the more detailed road map but would appreciate a more in detail prescription of the different work packages.

b. Have the TSOs possibly in your view missed some explanations or milestones?

Detailed prescriptions how balancing prices will be defined and calculated? Valuation of netting, how the machine will work? By which date will the rules be defined? Alignment with power exchange needs for developments is mostly missing.

c. Are there any undefined dates in the current roadmap that in your opinion are crucial to be added as soon as possible? Please explain the reasoning.

We would welcome (frequently updated with correct dates) an online timeline showing all known and anticipated changes (Hubs, Balancing market, Ancillary market, PX) with their current deadlines. As well as decision points deriving from guideline and network codes. There are multiple changes in many different processes that need to be aligned.

2. Any views or comments on how the Nordic TSOs should approach uncertainty with respect to timing in the roadmap? What are of importance to you?

We can appreciate that fundamental changes in the balancing philosophy together with big IT developments, and changes in processes can, and most likely, will have delays. Thus, we would rather see timetables that are realistic to the level of slightly pessimistic, rather than overly “ambitious and realistic”. The timelines should anyway also show legal deadlines, even if not seen as achievable by the TSOs. Any changes to timelines, should be informed as soon as they are known, even if not knowing the new deadlines. Information should be amended with details as soon as possible. Past experience has shown that TSOs can give informal information bilaterally, and rather all market participants should be informed in unison.

3. Any other views or comments related to the presented roadmap and milestones?

The timelines should be such that when they are defined all market parties shall meet those. There should be some financial compensation for a market party having to work with multiple systems due to late changes in timetables. If allowing delays due to some parties not being able to reach targets, then there should be some remuneration for extra costs for those that are ready."

Local Power Association / Paikallisvoima ry

"1. Have the Nordic TSOs described the most important issues from your perspective for changes towards the Nordic Balancing Model? What should possibly be kept/added/deleted?"

- In general, roadmap needs more detailed prescriptions f. ex. on different functions and milestones or required timetables. Question raises: Are there details that can have an effect on the whole time schedule?
- Relations with the European markets are left too open. Especially, what are the roles of individual DSOs, TSOs, Nordic AOF and European platforms?
- There needs to be made several regulatory changes in every Nordic country. These changes are vital for successful proceeding of the whole model. This regulatory evaluation should start with all regulators through Nordics asap. (transparency!)
- IT-providers' point of view should be included in a transparent way. It is important to keep several IT providers at the hearth of the project. It is vital also to be able to discuss with the IT providers for all stakeholders (DSOs, Retailers, etc).

a. Is the level of the details for the presented roadmap and milestones adequate?

- We welcome the more detailed road map but would appreciate a more in detail prescription of the different work packages. We consider that the Road Map is on a too high level.
- Especially more details should be given with respect to AOF, what it is expected of doing, before and after the implementation of European platforms and what will remain as tasks of individual TSO?

b. Have the TSOs possibly in your view missed some explanations or milestones?

- Yes, please see answer under question 1.
- We'd promote to discuss further on the interdependencies, both project's internal but also external internalities. These include Regulatory changes, both on a legal level and on regulatory approval level, actions from market participants and datahubs-

c. Are there any undefined dates in the current roadmap that in your opinion are crucial to be added as soon as possible? Please explain the reasoning.

- Detailed time line is required. The timeline have to include also regulatory framework and changes and timelines of Datahubs in every country in the Nordics"

Nord Pool

"1. Have the Nordic TSOs described the most important issues from your perspective for changes towards the Nordic Balancing Model? What should possibly be kept/added/deleted?"

Nord Pool would appreciate understanding the composition of the budget of the NBM project.

a. Is the level of the details for the presented roadmap and milestones adequate?"

Nord Pool considers that to be able to assess the roadmap and consider alternative implementation order/activities it would be necessary to understand the details of the IT development indicated to be the bottleneck and which is driving the roadmap. Without this information it is challenging to propose alternative roadmaps.

b. Have the TSOs possibly in your view missed some explanations or milestones?"

Nord Pool considers that the cost of delaying 15 minute ISP further is not properly analysed and evaluated against potential cost of increasing development velocity at the TSO side or against other alternative solution models. Furthermore, alternative solutions such as using the intraday market or platform for energy activation products. Also it seems that the justification for implementing capacity markets prior to energy activation markets seems to be missing. In Nord Pool's view focus should be on efficient energy activation markets for AFRR as supplement to FCR.

Other alternatives, such as implementing 15 minute ISP but keeping hourly gate closures, seem also not to be assessed, or at least is such analysis not presented.

c. Are there any undefined dates in the current roadmap that in your opinion are crucial to be added as soon as possible? Please explain the reasoning.

Lacking timeline for implementing AFRR, lacking timelines relevant for stakeholders such as testing plans.

2. Any views or comments on how the Nordic TSOs should approach uncertainty with respect to timing in the roadmap? What are of importance to you?"

The Nordic TSOs, NRAs and stakeholders should carefully consider the value and potential cost of risks and deliveries to ensure that the order of implementation is correct and that the correct effort level is applied. E.g. if the TSOs could increase velocity by increasing resources which would generate wins for stakeholders and the industry then this should be considered. Currently there is little detail related to the TSO thought process available.

3. Any other views or comments related to the presented roadmap and milestones?"

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Nordenergi

"Nordenergi, the umbrella association of the Nordic electricity industry associations, welcomes the opportunity to comment on the Road Map. Please find below comments organised as main comments and more specific comments to the different topics. For more elaboration, we refer to the consultation replies from the individual associations. We have six main recommendations to improve the roadmap:

1. The Road Map needs to develop into a more detailed Road Map and give a more precise prescription on the different elements, including overall and per TSO actual cost and budget
2. The Road Map should describe the integration with European platforms, clarify the roles of European platforms, Nordic AOF and individual TSOs, and include a timeline for 'NBM 2nd generation'
3. Implementation of the single price model needs to proceed as soon as possible but take place no later than Q1/2021 in accordance with the Electricity Balancing Guideline (EBGL) requirements
4. The final Road Map needs to have a realistic timetable for implementing ISP 15 and consider all information available.
5. The Road Map needs to support the integration of European short-term markets and ensure that Nordic balance markets and settlement is based on foreseen European standard solution given that these are best practice.
6. The Road Map should include discussion on creating market participants more possibilities to provide for system balance through trade in the organised power markets. These include real-time transparency on imbalance price formation and extension of trading opportunities in the organised markets in order to trade imbalances in these markets close to or until the beginning of operational phase.

Comments on question 1-3:

Overall the Road Map is yet on too high level. The Road Map needs to include more details and information on the expected timing of work packages aiming to deliver the higher-level targets. Especially we lack the sufficiently detailed prescription of what the automated optimization function is expected of doing.

The Road Map is vague on when and how the Nordic TSO will join the future European balancing platform MARI and PICASSO and comply with the requirements of EBGL. We suggest that Nordic TSOs include this in the final roadmap and clearly describe at least the following key steps:

- When will a Nordic aFRR energy activation market be implemented?
- When will the Nordics join MARI?
- When will the Nordics join PICASSO?
- When will aFRR energy standard products be used?

It seems counterproductive if NBM development create separate Nordic market solutions that will postpone or create barriers to integration with the European balancing markets. The NBM process should aim towards full participation in the MARI and PICASSO platforms, given that the latter has best-practice solutions. Relations with European markets are still too open in the Roadmap. The co-existence of European and Nordic platforms is presented on too high-level, not sufficiently in detail. The foreseen roles and responsibilities of European platforms, the Nordic NBM/AOF and individual Nordic TSOs needs to be prescribed more in detail.

Market based balancing and giving incentives to market participants for helping the system through trade in the organised markets prior to real-time operation should be more present. We miss the discussion on increasing transparency on imbalance price formation and extending the ID GC closer to operational phase, which would enable to market participants being better balanced when operational hour / quarter begins, and hence decreasing the TSOs need to balance the system. The TSOs have so far not been able to explain sufficiently in detail why they need as much time before operational hour/quarter, and whether they have analysed / could include in the Road Map how they could reduce the needed time?

The Road Map needs to include at least governing externalities:

- How are the ID and DA markets expected to move from hourly trading into 15 minutes' trading? Most trading today takes place on the DA-markets. If balancing takes place in quarters but trading in hours, this creates additional risk for market participants, especially to retailers.
- The needed regulatory approvals and legal changes are not presented sufficiently in the Road Map. These require time. The regulatory framework also needs to be in place sufficiently early. Best way to promote smooth regulatory process is by starting open discussions with stakeholders in an early phase for to discuss alternatively solutions and by having these discussions in as detail level as possible. And based on these discussions and analysis to prepare well-reasoned and detailed proposals ready for consultation and regulatory approval process.
- The Road Map should recognize also all other known external risks of importance. For instance, it's recognized that in Finland ISP 15 can't be implemented before datahub is in operation, and there are some risks related to foreseen datahub timetable. These are

clarified during this autumn and need to be included in the final Road Map. Another theme is the situation of DK1.

- We promote to discuss further on the interdependencies, both project's internal but also external internalities. These include:
 - Regulatory changes, both on a legal level and on regulatory approval level
 - Needed actions from market participants. What are the expected timelines that market participants need for making their systems ready for different characteristics of the NBM, and are there risks that the implementation timelines of those projects would cause delays for the NBM work packages?

We miss the detailed prescriptions how balancing prices will be defined and calculated and how netting will be evaluated. We understand that there may not yet be ready answers on these and consider that these need to be discussed with stakeholders. However, also details that are not yet ready, should be recognized in the Road Map."

Norsk Hydro

"Hydro supports the Nordic TSOs initiatives to improve the functionality and efficiency of the Nordic power market.

The changes require software development. It is important that the TSO's as early as possible describes the market products and schedules, as well as how the market participants shall interact with the TSO (e.g via Fifty)

It is important that the market participants as soon as possible get information about which production- and consumption meters that will be affected by 15 min settlement. This should be consulted among stakeholders before concluded.

Does this roadmap include the full scope of all activities to be carried out by both TSOs and market participants? This is important to set aside sufficient resources.

Has timeline and uncertainties been audited by an external consultancy? E.g. DNV GL audited the Elhub timeline."

Statkraft Energi AS

"We acknowledge that the NBM is a complex and extensive project which influences each other and where this Nordic process needs to cope with the European solutions also being developed. Statkraft believes it is advantageous if NBM can be a forerunner in the European development. Overall the Road Map is on a high level. For Statkraft as a major Nordic generator and market participant it is important to have sufficient information and updated estimated timelines for the development to meet the requirements from NBM. Further it is important to understand implication on proposed changes for our operational units and foresee possible need to change systems, routines etc. Therefor we need as detailed information in this respect as possible included timeline and be informed about possible delays; and we hope the latter can be avoided going forward

Market based balancing and giving incentives to market participants to help the system should be more present. This especially due to legal obligation to implement a single price model. We agree that a review of the BRP fees are needed. Statkraft has for several years asked for a review and Nordic harmonization of cost coverage of ancillary services and what should be financed through grid tariffs and what should be financed through the balancing settlement. GCT will initially be 45 minutes, as it is today, but we encourage the TSO to reduce the GCT, hopefully before MARI is implemented. We would like to see the same GCT within bidding areas, between bidding areas in the Nordic and also towards other regions.

We look forward to discuss the detailed rules on how balancing prices will be defined and calculated and how netting will be valuated. We understand that there may not yet be ready answers on these and consider that these need to be discussed with stakeholders. However, also details that are not yet ready, should be recognized and marked for follow-up in the Road Map."

Swedenergy

"Even though there is a clear structure, we lack more detailed information. This to increase the understanding but also as a help to identify issues we might have missed or neglected. All to achieve an efficient dialogue with the stakeholders securing a smooth implementation of NBM.

There should be milestones within each initiative, including when market participants will get detailed information. Of importance is of course also information concerning delays and other adjustments of implementation time lines. Late changes usually imply increased costs due to changes in system adaptations etc. Regarding uncertainty, a concrete suggestion is that the TSOs develop a back-up date that is planned and communicated. Then market participant can plan accordingly.

The roadmap mainly deals with the 1st generation NBM. Nevertheless, it is important to keep the 2nd generation NBM in mind in order not to introduce unnecessary temporary solutions.

Furthermore, we notice that FCR is not mentioned at all in the report. Is FCR not part of the NBM? Why is DK1 kept out of the first wave? Please explain.

In addition, Swedenergy would like to refer to the reply from Nordenergi."

The Association of Energy Users in Finland

"Nordic TSOs has described several important issues towards the Nordic Balancing Model but from buyers' perspective it would be important to have fixed schedule for 15 minutes day-ahead markets. Day ahead market is the core market and if its period will differ from other markets there will be additional balancing costs.

In the NBM's level of the details and milestones are good but it is important to fix add dates and synchronize those proper way. There will be investments and contract costs not only to TSOs' but as well to end-users who are active in the market. Market parties shall be able to trust NBM's schedule."

UPM-Kymmene Oyj

"1. Have the Nordic TSOs described the most important issues from your perspective for changes towards the Nordic Balancing Model? What should possibly be kept/added/deleted?"

a. Is the level of the details for the presented roadmap and milestones adequate?"

UPM ANSWER: No comments.

b. Have the TSOs possibly in your view missed some explanations or milestones?"

UPM ANSWER: No comments.

c. Are there any undefined dates in the current roadmap that in your opinion are crucial to be added as soon as possible? Please explain the reasoning.

UPM ANSWER: Market participants need certainty about the date of the implementation deadline of one imbalance position and one imbalance price to be able to start their own implementation projects on due time.

2. Any views or comments on how the Nordic TSOs should approach uncertainty with respect to timing in the roadmap? What are of importance to you?

UPM ANSWER: No comments.

3. Any other views or comments related to the presented roadmap and milestones?

UPM ANSWER: No comments."

Vattenfall AB

"1. Have the Nordic TSOs described the most important issues from your perspective for changes towards the Nordic Balancing Model? What should possibly be kept/added/deleted?"

There is a clear structure/separation on what distinct changes will be implemented, as well as the period when this changes are prepared incl. expected go live. However we miss a more general description that puts the different issues in a common context. This would increase the understanding and basis for further prioritization and would in our opinion facilitate a more efficient dialogue with stakeholders.

Furthermore: FCR is not mentioned at all in the report. Why is that the case? Is FCR not part of the NBM? Why is DK1 kept out of the first wave? Please explain.

a. Is the level of the details for the presented roadmap and milestones adequate?

High level, yes. But there is still a large number of details that need to be clarified, well in time before go-live.

b. Have the TSOs possibly in your view missed some explanations or milestones?

There should be milestones within each initiative, including when market participants will get detailed information. Deadline for informing market participants should be consulted for each initiative.

c. Are there any undefined dates in the current roadmap that in your opinion are crucial to be added as soon as possible? Please explain the reasoning.

Please see 1b

2. Any views or comments on how the Nordic TSOs should approach uncertainty with respect to timing in the roadmap? What are of importance to you?

Early and clear information about delays and adjustments of implementation time lines. Late changes usually increase costs due to changes in system adaptations etc. Regarding uncertainty, a concrete suggestion is that the TSOs develop a back-up date that is planned and communicated. Then market participant can plan accordingly.

3. Any other views or comments related to the presented roadmap and milestones?

The roadmap mainly deals with the 1st generation NBM. Nevertheless it is important to keep the 2nd generation NBM in mind in order not to introduce unnecessary temporary solutions."

Question 4: Please add here your feedback related to the Nordic aFRR capacity market

Caruna Oy

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Centrica Plc

No comment.

Danish Energy

We expected go-live in 2019 according to the initial timetable and have prepared accordingly. While market participants are ready for the go-live in Q1/2020, we remain skeptical of the reservation methodology and urge TSOs to continuously monitor its performance and refine it as needed. As we have shown in previous consultation responses, the reservation methodology has particularly poor performance on borders between DK2 and the Nordics.

E.ON Energidistribution Sverige AB

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Energi Norge

"Nordic aFRR/mFRR capacity markets

In order to avoid unnecessary regulatory risk, it seems right to postpone the market design and IT-implementation of the Nordic mFRR capacity market until the proposal for the aFRR capacity market has been approved by the regulators."

Fortum Power and Heat Oy

"We welcome swift implementation of Nordic markets in all products, thus we are positive to finally having a Nordic aFRR capacity market. We do still have concerns regarding the reservation of transmission capacity, and the accuracy of the forecasted social welfare from these reservations."

Energiateollisuus ry

We welcome launching the common Nordic aFRR capacity market, but underline that the current set-up (especially with regards to reservation of cross-border capacities) is to be seen as intermediate. We refer to Nordenergi's earlier consultation answers.

Local Power Association / Paikallisvoima ry

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Nord Pool

"The impact on the open markets should be clearly analysed and understood prior to introduction of any new capacity products. See our response to the consultation for more details. Nord Pool also believes that energy activation markets in general should be prioritized over capacity markets."

Nordenergi

"We expect go-live in 2019 according to the initial timetable and have prepared accordingly. We urge TSOs to monitor reservation methodology's performance and refine it as needed. As we have shown in previous consultation responses, the reservation methodology has particularly poor performance on borders between DK2 and the Nordics.

However, we want to remark that according to EBGL (38:5), the reservation of capacity should only be done if cross-zonal capacity is calculated in accordance with the CCM developed pursuant to CACM and FCA."

Norsk Hydro

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Statkraft Energi AS

We hope than further delay of the aFRR capacity market can be avoided.

Swedenergy

"According to EBGL (38:5), the reservation of capacity should only be done if cross-zonal capacity is calculated in accordance with the CCM developed pursuant to CACM and FCA. We therefore would like more information on your interpretation and if there has been any dialogue with the Nordic NRAs.

With lack of further information, we find it difficult to provide firm feedback.

We still ask for clarity in the choice of pricing model, and the move from pay as bid to the announced harmonization on pay as cleared. We cannot see any reason to further delay the implementation of pay as cleared.

It is difficult to understand what price will be used for the energy activation before the energy activation market is in place. Would it be regulating price in respective area?

In addition, Swedenergy would like to refer to the reply from Nordenergi."

The Association of Energy Users in Finland

Reservation of cross-border capacity for reserves will bring significant negative socio-economic benefits for the Nordic market if market prices differences will be established or increased. Cross border capacity should be fully available for day-ahead market where are most of the trading volumes and base for financial products.

UPM-Kymmene Oyj

UPM ANSWER: No comments.

Vattenfall AB

"4. The Nordic TSOs have submitted an aFRR capacity market proposal for NRA approval. These have already been subject to public consultation according to EBGL. The TSOs expect the go-live of the Nordic capacity market in Q1/2020. Any views or comments related to the expected go-live date of the Nordic aFRR capacity market?"

We still ask for clarity in the choice of pricing model, and the move from pay as bid (e.g currently used in Sweden) to the announced harmonization around Pay as cleared.

During a stakeholder meeting on May 23rd Svk announced an upcoming move to pay as clear for both mFRR and aFRR but without giving a firm timeline. At least regarding aFRR Vattenfall does not see any reason why not implementing pay as cleared without further delay.

Another question mark is related to the contract length, frequency daily (Finland) or weekly (Sweden). With less uncertainty bids could be priced more accurately hence daily auctions is preferred.

Secondly, what price will be used for the energy activation before the energy activation market is in place, regulating price in respective area?"

Question 5: Please add here your feedback related to the Nordic mFRR capacity market

Caruna Oy

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Centrica Plc

No Comment

Danish Energy

The Nordic mFRR energy market is to a large extent based on voluntary mFRR bids. In this perspective, the mFRR capacity market is not of high priority. However, if and when a Nordic mFRR capacity market is implemented, a prerequisite for a fair competition with a level playing field for participants is that there is full reciprocity in market access. This means that all Nordic TSOs should commit to procuring mFRR capacity when the common market goes live. We support the Q3/2021 go-live and discourage further delays.

E.ON Energidistribution Sverige AB

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Energi Norge

"Nordic aFRR/mFRR capacity markets

In order to avoid unnecessary regulatory risk, it seems right to postpone the market design and IT-implementation of the Nordic mFRR capacity market until the proposal for the aFRR capacity market has been approved by the regulators."

Energiateollisuus ry

"We welcome the move towards a common Nordic and European markets, including having a Nordic mFRR capacity market. Though, being important we'd not consider it as first priority. Would the resources in NBM project be strained and risks foreseen with respect of delivering time, we find the implementation of one price model and introduction of AOF more important.

Inclusion of also down-regulation in Nordic mFRR capacity market could be a benefit."

Fortum Power and Heat Oy

"We welcome the move towards a common Nordic mFRR capacity market. As there already are mFRR capacity markets in some Nordic countries we would rather see harmonization rather than developing any more local variants in other Nordic countries. The development of national FFR markets is also a sign of difficulty in harmonizing, even non existing markets. So, harmonization should be a priority, even if Nordic mFRR capacity market is likely not of highest priority. Highest priority should be given to single price balancing model and implemented on its own right."

Local Power Association / Paikallisvoima ry

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Nord Pool

"Nord Pool considers that the need in the future of the partially complimentary aFRR and mFRR capacity markets should be evaluated. Focus should in our opinion be on quicker products and primarily on energy activation markets as a small complement to the open market, e.g. Day Ahead and Intra Day. . Market participants should be incentivised, empowered and trusted to resolve system balances as far as possible in the open markets."

Nordenergi

"A prerequisite for a fair and competitive Nordic mFRR capacity market with a level playing field for participants is that there is full reciprocity in market access. This means that all Nordic TSOs should commit to procuring mFRR capacity when the common market goes live. We support the Q3/2021 go-live and discourage further delays.

Though, being important we'd not consider it as first priority. Inclusion of also down-regulation would be a benefit."

Norsk Hydro

"Timing of implementation should not have the highest priority. It is important to keep flexibility in the products wrt to duration and resting time so that as much consumption as possible can participate.

Weekly and seasonal products, as part of the total portfolio at the Nordic/national level, will make it easier for consumption to participate. Consumption has the ability to bid in relatively long obligations. Daily markets will require more follow-up, both in the market and in operation, as the obligations become more on / off, and may reduce the participation for the industrial consumers. The design should not discriminate consumption, e.g by differentiate in high- and low quality, as the valuation of the bids might be wrong and unfair."

Statkraft Energi AS

In order to avoid unnecessary regulatory risk, it seems right to postpone the market design and IT-implementation of the Nordic mFRR capacity market until the proposal for the aFRR capacity market has been approved by the regulators.

Swedenergy

"Svenska kraftnät often declare their worries regarding the lack of downregulation bids in SE3/4. From that perspective capacity market for mFRR should be important to get in place as soon as possible. Also, the mFRR capacity market introduction is perceived to be one of the less challenging.

In Section 3.2 it is stated that the mFRR capacity market will be based on the same principles as the aFRR capacity market. Does that mean that mFRR will also require capacity reservations in competition with the day ahead market?

In addition, Swedenergy would like to refer to the reply from Nordenergi."

The Association of Energy Users in Finland

In the future when there is 15 minutes time resolution most of the volumes are utilized via aFRR rather than mFRR. It is important that Nordic market is ready to join European mFRR-platform as soon it will be operationally ready.

UPM-Kymmene Oyj

UPM ANSWER: The most important building blocks of the NBM roadmap for UPM are the deadlines of one imbalance position, one imbalance price and 15 min ISP. However, to prepare for the future market, all relevant dates of implementation are necessary to be known as soon as possible, including the Nordic mFRR capacity market.

Vattenfall AB

"5. The Nordic TSOs plans to postpone the market design and IT implementation until the result of the regulatory process related to the aFRR capacity market is known and therefore the go-live is expected to be during Q3/2021. How high priority do you see the Nordic mFRR capacity market in the overall NBM roadmap?"

All initiatives are important. However it is clear that the expected effort differs significantly. The mFRR capacity market introduction is perceived to be one of the less challenging.

Capacity market for mFRR should get in place asap bearing in mind SvK's regular announcements that there are no downregulation bids in SE3/4 and to avoid situations like May 9 2018 when SvK forced down regulation in Ringhals (due to high frequency) and refused paying regulating price.

In Section 3.2 it is stated that the mFRR capacity market will be based on the same principles as the aFRR capacity market. Does that mean that mFRR will also require capacity reservations in competition with the day ahead market?"

Question 6 - 8: Please add here your feedback related Single price model

Caruna Oy

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Centrica Plc

"6. Yes, we agree. We believe that the changes expected for the settlement process are minimal. However, the switch would impact also other processes for market participants including commercial and analytical areas.

We strongly advise the Nordic TSOs to provide sufficient and transparent notice to BRPs about changes to the balancing price model. The imbalance cost is an important element for the preparation of competitive offerings for asset optimisation and for modelling the asset optimisation strategies. In case of introduction of the Single Price Model, 1-year notice should suffice.

7. We have been made aware that the European NRAs have requested further amendments on the proposal to further specific and Harmonise Imbalance Settlement . Therefore, the timeline has shifted most likely of another quarter, to Q2/2021.

However, we see this as the last date possible for an implementation of the Single Price Model compliant with the EBGL. We do not see any impediment for the Nordic TSOs to

opt for an early implementation of the Single Price Model e.g. already in January 2021 and at the latest by Q1/Q2-2021. We believe that this is achievable and does not impact on the remaining changes.

We see no barriers for implementing the single price model in accordance with this requirement. Applying a single price, single position model will align the Nordic with Continental Europe and the EBGL target model and improve the overall efficiency of the balancing market.

In addition, Nordic TSOs are already calculating a single price currently (for consumption portfolios) therefore the process should be all in all very similar. Therefore, we do not see the need for a lengthy or delayed implementation, since all the information needed is already available and it is being used to calculate imbalance charges.

Some Other TSOs in Europe have either already implemented such a model or they are planning to introduce/improve it by early 2020 e.g. GB, France, Netherlands, therefore we do not see obstacles to the implementation of the Single Price Model related to the EBGL implementation.

We agree with the benefits and advantages identified in the Consultation Report, especially concerning the positive incentive that a single price provides to BRPs.

Given the overall complexity of the NBM project, we believe that there is an additional benefit in the execution of plans step by step, anticipating the Single Price Model to early 2021. We believe that a Single Price Model would be beneficial to the entire system.

The TSOs should provide more evidence to support their concern that ‘The main drawback is TSO operational concerns in some geographical areas and operational situations’. TSOs should be clear and transparent about what are the operational concerns and which geographical areas may be more concerning.

Any delay in the implementation beyond Q2/2021 would not be in line with the EBGL requirement and it would need a substantial analysis made available to market participants for consultation ahead of submission to the NRAs. If, at the end of such a process, TSOs have justified operational concerns there might be some mitigations that could help the implementation e.g. starting the single price model during the ‘low season’ spring or autumn.

Without clear indications or risks is impossible to recommend mitigation actions that could counter to these concerns and there is nothing to suggest that a late implementation would remove these concerns.

TSOs further note that ‘The assessment of the solutions requires further analysis and discussion with NRAs as well as other stakeholders’. We urge TSOs to initiate this discussion as soon as possible and we refer to the answer to Q.17 for further comments.

Finally, due to the complexity of introducing changes to implement the 15minutes resolution, combining the two milestones may lead to unjustified delays of the implementation of the Single Price Model, which would make sense very much also as a stand-alone project and within the current regulatory framework.

Starting with the Single Price Model in early 2021 would also reduce transactions costs and administrative burdens for market participants and prepare for the long-term solution when the 15 minutes ISP will be implemented and real time information on the system state will be provided.

In conclusion, we strongly recommend an implementation of the Single Price Model in line with the EBGL requirement because it would provide better economic incentives, lower costs and administrative burden and it would ensure the full neutrality of the TSOs.

8. The existing dual balancing regime does not have economic and financial foundation, it is very penalising when operating generation assets in a free market and does not ensure neutrality of revenues for the TSO.

At the core of our asset optimisation activity lies the ability to make assets available and running when it is needed for the system. Therefore, any incentive to be operational at the time of system need is key to ensure that the costs of balancing are minimised and that the TSOs are able to remain financially indifferent from the overall balance of charges.

Finally, on the information that Denmark will be joining eSett, it is important that the timeline for the shift is clearly communicated and sufficient time given for preparatory activities."

Danish Energy

"We refer to our comments on the single price model in the first section of the consultation response.

We believe the Nordics should comply with the EBGL deadline of Q1 2021 and do not deem this ‘early implementation’. Postponing the implementation to Q4 2022 is a significant and unwarranted delay. We see no challenges in moving to single price/single position immediately and while we largely agree with the impacts described in the roadmap, we have not seen any evidence that the implementation of the single price model will result in operational challenges for TSOs. Our members welcome the change and will make the necessary adjustments in a timely manner.

Any deviation from the single pricing EBGL deadline - in some or all Nordic bidding zones – should be supported by substantive analysis providing a justification for the deviation. TSOs should naturally make such analysis publicly available and consult on it prior to a potential NRA application."

E.ON Energidistribution Sverige AB

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Energi Norge

"Single price model

Energy Norway agrees with the statement that a switch to single price imbalance model and single imbalance price only will require minor adjustment to settlement data reporting.

In addition to other requirements regarding balancing markets, requirements for harmonisation of imbalance pricing is described in the network code EBGL. According to EBGL Article 52(2)(c) and 52(4), the use of single pricing must be implemented no longer than 18 months after all NRAs approval of the imbalance settlement harmonization proposal – ie most likely during the first quarter of 2021.

We see no barriers for implementing the single price model in accordance with this requirement. Applying a single price, single position model will align the Nordics with Continental Europe and could improve the overall efficiency of the balancing market. It could also reduce transactions costs and administrative burdens for market participants and we do not foresee any detrimental impacts on Nordic markets or real time operations.

TSOs note that "The main drawback is TSO operational concerns in some geographical areas and operational situations'. TSOs should be transparent about which areas this concerns and what assessments that are made regarding moving to single pricing for these areas/situations.

TSOs further note that "The assessment of the solutions require further analysis and discussions with NRAs as well as other stakeholders. This will be done in parallel with the consultation process.' We have not been involved or made aware of any analysis or discussion of this during the consultation period, and encourage the TSOs to explain how to involve stakeholders/NRAs in the revised roadmap."

Energiateollisuus ry

"6. The switch to the single imbalance model and single imbalance pricing is expected to require only very small adjustments to the settlement data reporting from market participants to TSOs. Do you agree on this statement?"

Yes, fully. Changing into single price model is expected to require some changes in optimization tools, but these changes are moderate.

We, however, consider that a more concrete analysis what's going to change (from TSOs' and balancing agreements point of view) when balance model changes is needed

timely, especially a detailed prescription of pricing models. This analysis should be discussed with the stakeholders so that changing the balancing model can happen smoothly.

7. There are two high level alternatives for implementation. Either early implementation Q1/2021 or together with 15 min ISP Q4/2022

a. Do you agree on the advantages and disadvantages described for the alternative implementation plans?

Yes. We emphasize that bundling many changes into one creates not only risk related to timetables (one part is delayed, everything is delayed), but also operational risks. It is better not to bundle all changes in to one.

We consider that single price model should be implemented so that there's sufficiently time before other expected implementation projects. Implementation should not overlap with Finnish datahub implementation, and it needs to take place early Q1/2021.

b. What are of importance to you and how can this be met?

We consider the expected efficiency gains from early implementation considerable and find no reasons for postponing. We do not consider Q1/2021 as early implementation since it's already a bit late of what EBGL requires.

c. Which of the two alternatives do you prefer? Please explain the reasoning.

We prefer the early implementation to single price model, and latest by Q1/2021 as required by EBGL. This is due to recognized benefits and also having sufficient time between different changes.

We underline the need of determining a firm date in the final Road Map. The TSOs could take benefit of NBM reference group while deciding the date. The date could be in early Q1/2021

Though clear, we remind considering the time difference between Finland and other Nordic countries for to ensure that the change takes place the same time in the whole region.

d. Do you see some other alternative implementation plans or gradual implementation alternatives? Please elaborate.

We'd like to have more in detail explanation what is meant with gradual implementation. We'd prefer early implementation of single price model simultaneously in all Nordic countries. However, if for some reason it would turn out being impossible to implement single price model on time in some bidding areas, it must not postpone the implementation in other bidding areas.

Would such a situation occur, the TSOs need to deliver an analysis on how the gradual implementation would happen with respect to exception-areas.

8. *Any other views or comments related to common Nordic imbalance pricing?*

Please see previous answers."

Fortum Power and Heat Oy

"Single price model

6. *The switch to the single imbalance model and single imbalance pricing is expected to require only very small adjustments to the settlement data reporting from market participants to TSOs. Do you agree on this statement?*

Yes, fully.

7. *There are two high level alternatives for implementation. Either early implementation Q1/2021 or together with 15 min ISP Q4/2022*

a. *Do you agree on the advantages and disadvantages described for the alternative implementation plans?*

We agree on the advantages from a separated single price model implementation. We do not agree with all of the disadvantages. The report does not clarify nor give much details on the statement "The main drawback is TSO operational concerns in some geographical areas and operational situations", if there are concerns they should be highlighted and discussed openly. Whatever the concerns may be, there might be found market-based solutions to address those.

One would need to know beforehand how (and if) the tariffs for imbalances would change, to fully comment on monetary benefits or drawbacks.

b. *What are of importance to you and how can this be met?*

We consider that the expected efficiency gains from early implementation are considerable.

We also see that incremental and step wise implementation suits better for the market, rather than all at once. Step wise implementation also allows for swift feedback on potential caveats in implementation and those can be addressed as needed.

c. *Which of the two alternatives do you prefer? Please explain the reasoning.*

We prefer early implementation to single price model. This is due to recognized benefits and also having sufficient time between different changes.

Same time in every country (CET 00 is in Finland EET 01). Any 1st day of the month on a working day is acceptable.

d. *Do you see some other alternative implementation plans or gradual implementation alternatives? Please elaborate.*

We see no technical, nor market-based obstacles for moving towards a single price model early on disregarding other NBM developments. Regarding the market, there are of course many open questions regarding future development, such as how the imbalance price is calculated when using also energy price in aFRR. The imbalance price should be defined as the value of avoided activation, even if meaning the price of mFRR, if it is the only energy product.

8. Any other views or comments related to common Nordic imbalance pricing?

Not regarding Gen 1 model. Before going to 2nd generation, with mACE etc. there are many things that need to be defined and consultations are needed at that point of time."

Local Power Association / Paikallisvoima ry

"6. The switch to the single imbalance model and single imbalance pricing is expected to require only very small adjustments to the settlement data reporting from market participants to TSOs. Do you agree on this statement?

- Yes fully. No other comment.

7. There are two high level alternatives for implementation. Either early implementation Q1/2021 or together with 15 min ISP Q4/2022

a. Do you agree on the advantages and disadvantages described for the alternative implementation plans?

- Yes.

b. What are of importance to you and how can this be met?

- There are no reasons identified for postponing

c. Which of the two alternatives do you prefer? Please explain the reasoning.

- Early implementation to single price model. Reason in previous answer"

Nord Pool

"6. The switch to the single imbalance model and single imbalance pricing is expected to require only very small adjustments to the settlement data reporting from market participants to TSOs. Do you agree on this statement?

-

7. There are two high level alternatives for implementation. Either early implementation Q1/2021 or together with 15 min ISP Q4/2022

a. Do you agree on the advantages and disadvantages described for the alternative implementation plans?

Nord Pool disagrees with the negative oscillation theory presented as a concern related to early implementation of the single price model. Enabling all BRPs to self-balance with economic incentives should rather minimize the need for balancing actions than create increasing imbalances.

b. What are of importance to you and how can this be met?

-

c. Which of the two alternatives do you prefer? Please explain the reasoning.

Nord Pool considers that implementation should be as early as possible to further level the playing field between producers and consumers. Furthermore, from a project methodology perspective it is beneficial to deliver small increments towards one vision rather than to tie all changes to one delivery (in which case everything is easily delayed).

d. Do you see some other alternative implementation plans or gradual implementation alternatives? Please elaborate.

-

8. Any other views or comments related to common Nordic imbalance pricing?

Nord Pool is supportive of this initiative and considers that it should be accompanied by the possibility to exchange net positions between BRPs through intraday markets up to delivery within and/or between Bidding Zones. In a single price model the BRP can in any case self-balance within the BZ without consideration for potential bottlenecks and therefore no negative consequences from trading with other BRPs within the BZ would arise."

Nordenergi

"We believe the Nordics should comply with the EBGL deadline of by Q1 2021 and do not deem this as 'early implementation'. Postponing the implementation to Q4 2022 would be a significant and unwarranted delay. We see no challenges in moving to single price/single position immediately and while we largely agree with the impacts described in the Road Map. Our members welcome the change and will make the necessary adjustments in a timely manner.

Applying a single price, single position model will align the Nordic with Continental Europe and the EBGL target model and improve the overall efficiency of the balancing market. It will also reduce transactions costs and administrative burdens for market

participants and contribute to supporting the system frequency when the 15 minutes ISP is implemented and real time information on the system state is provided. Larger market participants already have the ability of shifting positions between generation, consumption and trade through internal trades. Consequently, we do not foresee any detrimental impacts on Nordic markets or real time operations.

We prefer implementation of single price model simultaneously in all Nordic countries. Any deviation from the single pricing - in some or all Nordic bidding zones – should be supported by substantive analysis providing a justification for the deviation. TSOs should naturally make such analysis publicly available and consult on it prior to a potential NRA application. We'd like to have more in detail explanation what is meant with gradual implementation.

We emphasize that bundling many changes into one creates not only risk related to timetables (one part is delayed, everything is delayed), but also operational risks. The single price model should be implemented so that there's sufficiently time before other expected implementation projects.

Detailed examples/alternatives for new pricing models (including proposals for new fees for BRPs) should be made available as soon as possible to use for discussion/consultation."

Norsk Hydro

We support the implementation of the single price model. Operating various settlement models requires more work and system coordination than one model. It will create only small adjustments for us so it can be implemented early in the roadmap. We see no need for a coordinated implementation. In general we prefer to implement one thing at a time.

Statkraft Energi AS

"We agree that a switch to single price imbalance model and single imbalance price will only require minor adjustments to settlement data reporting.

Requirements for harmonisation of imbalance pricing is described in the network code EBGL. According to EBGL Article 52(2)(c) and 52(4), the use of single pricing must be implemented no longer than 18 months after all NRAs approval of the imbalance settlement harmonization proposal – ie most likely during the first quarter of 2021. We see no barriers for implementing the single price model in accordance with this requirement. Applying a single price, single position model will align the Nordics with Continental Europe and could improve the overall efficiency of the balancing market. It could also reduce transactions costs and administrative burdens for market participants and we do not foresee any detrimental impacts on Nordic markets or real time operations.

We emphasize that bundling many changes into one creates not only risk related to timetables (one part is delayed, everything is delayed), but also operational risks. It is better not to bundle all changes into one. We consider that single price model should be implemented so that there's sufficiently time before other expected implementation projects.

We prefer implementation in accordance with EBGL (that is by Q1/2021) of single price model simultaneously in all Nordic countries."

Swedenergy

"Swedenergy strongly prefer that the single price model is implemented as soon as possible. Besides the removal of unjust competition, it would also be an opportunity to analyse the isolated effect on imbalances, which will be impossible if it is implemented together with ISP 15.

To give feedback on imbalance pricing it would be beneficial if elaborated on how "aFRR energy price shall be included as component to imbalance pricing", especially since the aFRR market is likely to play an even more important role in balancing process.

What is the reason not to require full harmonization of imbalance settlement among European TSOs (Section 3.3, page 8)?

In Section 3.3 it is stated that the aFRR energy price shall be included as a component to imbalance pricing. Moreover, aFRR will play a more dominant role in the balancing concept already in the 1st generation NBM since procured volumes and hours are expected to increase. However, the aFRR energy market will be introduced during the 2nd generation NBM. Which role will aFRR play in the imbalance pricing during this intermediate phase?

Detailed examples/alternatives for new pricing models (including proposals for new fees for BRPs) should be made available as soon as possible to use for discussion/consultation.

In addition, Swedenergy would like to refer to the reply from Nordenergi."

The Association of Energy Users in Finland

"6. We agree that the single imbalance model and single imbalance pricing is expected to require only very small adjustments to the settlement data reporting from market participants to TSOs. However, it will harm seriously balance of market power in the Nordic electricity market.

7. We prefer implementation together with 15 min ISP Q4/2022. Advantages and disadvantages what are described in the paper are looking market either from TSOs' or producers' perspective. We hope that single imbalance pricing will offer more volume to the market and enchant flexibility, but single imbalance model will not work for better market.

8. We believe that the future structure of the electricity market after single imbalance model will develop somewhat as follows. The large electricity producers are reducing their net size in the market by offering good conditions for large electricity users to be part of their portfolio. The comprehensive service offered will include everything from balance sheet management to price flexibility and flexible collateral to price hedging products. These offers are so good that few can refuse.

With trading and balance sheet management in the electricity generators' own portfolios, the electricity market from end users' perspective will be not needed as it is today in The Nordic countries.

The electricity market will only be part of the overall optimization of a producer's portfolio. Its importance, liquidity and reliability are eroded.

We are afraid that the buyers of electricity will remain in this camp of losers. The money from the new single price model will be flowing via higher non-liquid market prices to large electricity producers (old Nordic state owned incumbents)."

UPM-Kymmene Oyj

"6. *The switch to the single imbalance model and single imbalance pricing is expected to require only very small adjustments to the settlement data reporting from market participants to TSOs. Do you agree on this statement?*

UPM ANSWER: UPM agrees that there will not be major mandatory changes due to single price model to settlement data reporting.

7. There are two high level alternatives for implementation. Either early implementation Q1/2021 or together with 15 min ISP Q4/2022

a. Do you agree on the advantages and disadvantages described for the alternative implementation plans?

UPM ANSWER: UPM agrees with the TSOs about the advantages of early implementation of single imbalance price and single imbalance position. In the current model, market participants are not allowed to support TSOs in maintaining system balance by their own operations in scarcity situations. In addition, we see the possibility of market participants to manage their own actual imbalances without production plans causing calculatory imbalance.

UPM does not regard TSO operational concerns in some geographical areas and operational situations as a major drawback. TSOs are worried that “a 60 min ISP combined with single pricing opens a relatively long-time window for self-regulation actions” may strengthen opposite self-regulation response. However, FRR markets can be used sufficiently during the 60 minutes ISP to manage the system balance and for this reason we do not see the strengthening of opposite self-regulation response as big risk as the TSOs. Correct functioning of the markets in supporting system balance should be trusted.

b. What are of importance to you and how can this be met?

UPM ANSWER: For UPM, the possibility to manage own imbalances without production plans restricting it is of high importance. Also harmonization and level-playing field for BRPs is important for us.

c. Which of the two alternatives do you prefer? Please explain the reasoning.

UPM ANSWER: UPM prefers early implementation of single imbalance price and single imbalance position in Q1/2021. We see that the market efficiency gains and the contribution of market participants in supporting to restore system balance outweigh the risks of drawback of separation of the plans. Also the separation of plans makes testing and implementation of 15 min ISP easier to BRPs. After the implementation of single price model, BRPs can test metering in 15 min resolution with the already implemented single balance structure. If single price model and 15 min ISP are implemented simultaneously, the testing is more complicated.

In the document it is stated that “There are also a range of solutions in-between alignment and separation of the plans, which will be further assessed. These solutions

could imply in some bidding zones a gradual introduction of the market reforms included in the Single price model, including publication of real-time information and conditional use of dual pricing". In UPM's view, the Nordic electricity market should remain as harmonized as possible. Therefore, we do not support solutions that separates areas from each other in the Nordic model. Gradual introduction of market reforms would create an uneven and unfair playing-field for market participants. However, UPM supports the possibility of conditional use of dual pricing with the precondition that real-time information is published and that the same solution is used everywhere in the Nordic electricity market at the same time.

d. Do you see some other alternative implementation plans or gradual implementation alternatives? Please elaborate.

UPM ANSWER: No. Single imbalance price and single imbalance position should not in any case be separated from each other. However, the components and formation pattern of single imbalance price can be different before and after 15 min ISP implementation. If it is beneficial in 60 minutes ISP environment to have different balancing price formula than in 15 min ISP, UPM accepts this kind of uncertainty.

8. Any other views or comments related to common Nordic imbalance pricing?

UPM ANSWER: In UPM's opinion all imbalance prices should come from the market as the situation is in Nordic electricity market. Imbalance price should be the marginal of marginal prices of actualized FRR bids. If there are no actualized FRR bids, reference balancing price should be day-ahead market price, as currently. No additional components, such as scarcity factors or other "incentivizing components", should be used. There should be enough trust in the markets in determining the right price for imbalance price. This is why price limits should be allowed to rise as high as possible rather than having additional components.

All artificial factors transform the market into a more politically driven and TSO operated direction, which is highly undesirable. TSOs should not direct markets nor influence in the price formation. If e.g. a scarcity factor is added on the formation of imbalance price, it will create a strong incentive for market participants to withdraw some of their assets from FRR markets in order to gain a better price in imbalance settlement as scarcity factor would increase the imbalance price. Therefore, the number of bids would be decreased."

Vattenfall AB

"6. The switch to the single imbalance model and single imbalance pricing is expected to require only very small adjustments to the settlement data reporting from market participants to TSOs. Do you agree on this statement?

With the current level of information we do not find it possible to provide any decisive comments or recommendations.

7. There are two high level alternatives for implementation. Either early implementation Q1/2021 or together with 15 min ISP Q4/2022

a. Do you agree on the advantages and disadvantages described for the alternative implementation plans?

Vattenfall strongly advocates that the single price model is implemented as soon as possible. We do not expect oscillation to become a big issue. If the price difference is low between spot and regulation the incentive to steer for imbalance during the hour of operation is low (and vice versa, - If the price difference increase the incentive increase).

b. What are of importance to you and how can this be met?

The risk of oscillation should be further analyzed and discussed with the market participants, in parallel of finding efficient mitigation measures.

c. Which of the two alternatives do you prefer? Please explain the reasoning.

We prefer that the single price model is implemented as soon as possible, since it's the target model and provides a level playing field (2-price punish inflexible assets harder than flexible).

d. Do you see some other alternative implementation plans or gradual implementation alternatives? Please elaborate.

Some international experience with addressing similar challenges can be gained from the NL.

8. Any other views or comments related to common Nordic imbalance pricing?

To give feedback on imbalance pricing it would be beneficial if TSOs could elaborate on HOW "aFRR energy price shall be included as component to imbalance pricing", especially since the aFRR market is likely to play an even more important role in balancing process.

What is the reason not to require full harmonization of imbalance settlement among European TSOs (Section 3.3, page 8)?

In Section 3.3 it is stated that the aFRR energy price shall be included as a component to imbalance pricing. Moreover, aFRR will play a more dominant role in the balancing concept already in the 1st generation NBM since procured volumes and hours are expected to increase. However, the aFRR energy market will be introduced during the

2nd generation NBM. Which role will aFRR play in the imbalance pricing during this intermediate phase?"

Question 9 - 10: Please add here your feedback related to 15 minutes resolution

Caruna Oy

"Q9:

- Proposed timetable includes only one go-live time for 15 minutes ISP (Q4/2022). In the previous road map, implementation was divided into three phases depending on the type of measurement. We require phasing with reasonable transition time, but it must be also possible to move all the meters to 15 minutes ISP after the main go-live in Q4/2022. After main go-live, at least one year transition time is needed for sites with less than 3x200A fuses and at least 6 months transition time for sites with minimum 3x200A fuses.
- We recommend avoiding 15 minutes time resolution go-live between 1.12.2022 and 9.1.2022. Due to holidays, support staff availability may be a problem during that time.

Q10:

- The 15 minutes go-live is much simpler, if datahub is in operation and all the processes can be designed only for the datahub. From the IT development point of view, it is very expensive and unlikely to make two separate implementations to support also case when datahub is not in operation.
- It is crucial that Finnish datahub is operational at least six months before 15 minutes time resolution go-live. Based on datahub experiences in other countries we suggest preparing for reasonable transition time.
- Minimum requirements for 15 min capable meter (e.g. requirements for minimum memory capacity) must be defined as soon as possible. Scope of the transition is strongly dependent on how many meters need to be changed to 15 minutes ISP.

- Transition time for meters which don't meet the minimum requirements must be long. It is crucial to avoid too early meter mass changes.
- 15 minute products must be available for the end customers in DA-markets. It is crucial that 15 minutes time resolution creates value directly for the end customers and that way justify remarkable investments."
-

Centrica Plc

"9. We understand the challenge of the shift to 15minutes time resolution and we agree that the change in terms of processes and systems is much greater than in the case of the Single Price Model. We are not fully convinced that this will lead to a sharp change in day-ahead trading and intraday trading based on 15-mins products, but we see the increase of importance of more volumes trading closer to real-time.

We believe that implementation costs (IT systems, processes) and ongoing costs (processes, balancing costs) of the 15minutes time resolution will not be negligible, therefore we recommend proceeding with caution and with extensive involvement of stakeholders.

We recommend testing, back-testing where feasible/reasonable and detailed clarification of the steps involved in the change.

10. Given the expected high impact, the crucial pre-condition for the implementation is a well-functioning governance of the project. A messy implementation could become very expensive and ineffective.

We believe it is necessary setting up a robust governance structure, with clear responsibilities and clear decision-making process. We recommend the creation of focus groups (on subsets of the project) with the task to identify the systems' changes involved and facilitate the assessment of the impacts on stakeholders' groups.

The information flow concerning change in assumptions, decisions and timelines must also be a key component, including sufficient notice."

Danish Energy

"Market participants are ready for 15 ISP and already handle this in other European markets. We urge TSOs to implement 15 ISP as soon as possible and do not see any barriers to a step-wise implementation. National decisions on the move to 15 ISP should not be dependent on delays and local challenges in neighboring countries or bidding zones. It is however im-portant to mention that a necessary condition for the readiness from a DSO and metering perspective is that a 15 minutes ISP-regime can be handled with pragmatic metering and profiling solutions. In line with that we find it important

that metering requirements supporting 15 ISP will be decided in consensus between DSOs and the TSO in every single country.

TSOs can safely and efficiently operate the balancing markets across Nordic markets with different ISPs and a implementing a 15 ISP in one bidding zone will not hinder access to hourly markets in neighboring areas. Rather, a stepwise implementation, in which one or both Danish bidding zones move swiftly to 15 ISP, will have significant benefits. Firstly, a higher market time resolution will increase efficiency and reduce balancing costs. Denmark should realize these economic gains as soon as possible. Secondly, by implementing 15 ISP in accordance with EBGL, Denmark would be ready to join MARI and PICASSO at go live. DK1 could for instance have access to the aFRR market in PICASSO (as Nordic TSOs have not planned an aFRR energy market implementation) while remaining in the Nordic mFRR market. This will reduce balancing costs to the benefit of consumers and renewable energy producers.

The proposed timeline leaves sufficient room for our members to make the necessary changes to internal processes. Any potential change to this timeline should be communicated well in advance and should be subject to stakeholder consultation."

E.ON Energidistribution Sverige AB

"The NBM program has announced a delay in the planned introduction of the NBM program and the 15 minutes ISP as part of the program. The introduction of NBM according to the current time plan is close in time, which results in expensive forcing of meter management in the field. Following an analysis of the new conditions, we have two alternatives that we consider to be most cost-effective for the introduction of ISP for DSO-s in Sweden, of which we prefer option 1 as the most cost-effective.

Option 1 - Introduction 2025:

The best option for NBM is if measured value collection with a resolution of 15 minutes is introduced on all meters. Therefore, we believe that coordination of the introduction of ISP with the introduction of new generation smart meters in 2025 is the most cost-effective for DSO-s in Sweden. The benefits speaking in favor for this option is the following:

- Several of the meters in category 2-5 out in the field must be physically visited for conversion to 15 minutes measured value collection and some must be replaced to fulfill the requirements. DSO-s carry out verification of meters every 6 years, by a physical visit. In order to avoid costs for physical visits due to the forced time plan and to reduce the cost of early depreciation, we believe that network owners can adapt meters to 15 minutes measured value collection during the planned verification visits. Until 2025, all meters will be visited for verification without any forcing.
- All low-voltage meters will be exchanged for meters that enable measure value collection with 15 minutes resolution within the program of switching to new generation smart meters until 2025

- According to the current schedule, a national data hub in Sweden will be commissioned at the end of 2022 and will be able to handle 15 minutes of ISP, which does mean that temporary solutions for grid settlement will not be required to develop.

Option 2 - Coordinated time plan with the introduction of the electricity market hub:
We cannot ignore the estimated cost-benefit result of an early introduction of NBM and understand the NBM program's drive in introducing reform as early as possible. The new proposal from NBM means that grid owners will have more time for the planned change that we believe is positive for DSO: s. We consider that postponement of the original plan should be coordinated with the introduction of the electricity market hub in Sweden. We also believe that the collection requirement of 15 minutes resolution until this timepoint should be limited to network exchanges and meters category 3 to 5 (Production and Consumption). Meters category 1 and 2 (consumption and production) should be excluded from reporting with 15 minutes resolution until 2025. The benefits speaking in favor for option 2 are as follows:

- A lower cost for forcing the visits in field for handling of the meters category 3-5 is added
- No temporary solution for grid settlement with 15 minutes resolution is needed if the plans for these two reforms are coordinated. The function for present 15 minutes of measure data collected with a different resolution than 15 minutes will be developed in the data hub.

On the negative side, not all production will be measured at 15 minutes resolution from the beginning:

A small part of meters on small production plants (very small installed effect that do not affect trade considerably) will not be changed before the commissioning of the electricity market hub (production and consumption measured with meters category 1 and 2). Until 2025, these meters will collect measure value per month and hour and can be divided in the data hub to 15-minute resolution. In addition, the replacement of meters within the framework of exchange new generation smart meters will start in 2020. This means that a large proportion of production meters of cat 1 and 2 will be exchanged for meters that can collect measure value with 15 minutes resolution at the introduction of the electricity market hub, while the rest will gradually be changed to meters that can collect measure value with 15 minutes resolution until 2025."

Energi Norge

"15 min time resolution

The postponement of 15 min ISP from Q4 2020 as originally planned to Q4 2022 has caused some uncertainty and will most likely have negative impact on ramping restrictions. That being said, Energy Norway regards that a postponement to Q4 2022 can be reasonable in order to make the necessary preparations in an orderly way. This goes both for the internal preparations by the market players, implementing necessary functionality in the datahubs in order to process settlement data on 15 minute time resolution and interoperability between the national hubs and eSett. In total these

activities represent substantial changes that need to be implemented before moving to 15 min ISP.

We stress that the new timeline for implementation of 15 min ISP presented in the revised roadmap should be firm."

Energiategollisuus ry

"9. Go-live of 15 minutes time resolution is planned to take place during Q4/2022. What is your opinion of the timeline proposal? Is the proposed timeline acceptable to make necessary changes to your business processes and IT solutions?"

It needs to be followed closely that the proposed timetable is doable from TSOs' perspective. From the Finnish market participants' viewpoint, according to current information the proposed Q4/2022 is doable. However, we emphasize that the final date needs to consider datahub timetable. The datahub needs to be in operation at least 6 months before changing the ISP.

We underline that final Road Map has to be realistic, and would it be foreseen risks of further delays, we clearly prefer postponing the implementation of ISP 15 with 6 months or so instead of risking to end up in situation where the implementation is informed of being postponed later. As the change is substantial, it can take place earliest Q4/2022.

The Road Map needs to include a more precise deadline "by when" different work packages are needed. We call to recognize that December is a challenging month for making substantial changes and propose considering November or Q1/2023.

The timeline needs to be fixed in autumn 2019 (having exact dates) and all uncertainties known before finalizing the road map to be considered, whether known during this consultation period or emerging later before finalizing the Road Map. We expect that not all significant information related to Finnish datahub implementation will be available by August 16th but will be clarified by the end of September.

10. What are the crucial preconditions for the implementation of 15 minutes time resolution in the national and in the Nordic level? Please explain the reasoning.

Swift to 15 minutes' ISP requires many changes in IT systems and to metering. It has been recognized that the change is much simpler when having datahub in operation, and from the Finnish perspective having datahub operational at least 6 months before changing to ISP 15 is an absolute pre-condition. It has been recognized that there's a significant risk that datahub would be delayed. However, whether the risk will realize and how long the delay would be is still unclear. More insight is expected in early autumn. Risks are not related to datahub itself but on a number of market participants' pro-longed IT-projects.

When 15 minutes ISP is taken into operation the market participants need to have it possible to trade with 15 minutes' products. As a minimum there must be liquid trading possibilities in ID, but it would be better to 15 minutes' products available also in DA once 15 ISP is implemented. We encourage TSOs to further deepen discussions both on

Nordic and European level with the market coupling operators for having 15 minutes' products available at least in ID-markets, but preferably also in DA-markets by when Nordic bidding zones swift into ISP 15.

We recognize that the more generation and consumption is metered at least with the granularity of ISP, the better. However, exchanging meters before their life time is a cost. In Finland we have developed a road map for moving into 15 minutes' metering and propose that the TSOs require that a sufficiently concrete road is developed in each country."

Fortum Power and Heat Oy

"15 minutes time resolution

9. Go-live of 15 minutes time resolution is planned to take place during Q4/2022.

What is your opinion of the timeline proposal? Is the proposed timeline acceptable to make necessary changes to your business processes and IT solutions?

Yes. However, it needs to be followed closely that the proposed timetable is doable from TSOs' perspective. Needs to include a more precise deadline "by when". December is not a perfect month for making substantial changes, maybe to consider November? The timeline needs to be fixed in autumn 2019 and all uncertainties known before finalizing the road map need to be considered. When making substantial changes, we would anticipate at least 6 months in between, to stabilize systems and processes before next big change.

10. What are the crucial preconditions for the implementation of 15 minutes time resolution in the national and in the Nordic level? Please explain the reasoning.

Nordic TSOs should promote also swift adaption to 15 minute in day ahead market. Removal of profiling in all end user metering should be the target, even if the timetable can diverge between regions. A deadline for last end user 15 minute metering should be in place.

The systems should be created so that the granularity of data (length of ISP) could be changed in the future."

Local Power Association / Paikallisvoima ry

"9. Go-live of 15 minutes time resolution is planned to take place during Q4/2022.

What is your opinion of the timeline proposal? Is the proposed timeline acceptable to make necessary changes to your business processes and IT solutions?

- Our evaluation finds out that proposed Q4/2022 is doable, if datahub's timetable (6 months before changing 15 min time resolution), mentioned regulatory framework, and clarification of milestones doesn't bring out any surprises. Previously we have mentioned the need for more exact deadlines. Implementation in December is challenging, because of the end of the year. Therefore end of Q1/2023 is more suitable.

10. What are the crucial preconditions for the implementation of 15 minutes time resolution in the national and in the Nordic level? Please explain the reasoning.

- Many changes in all IT systems and to metering. Implementation of 15 minutes time resolution is much easier, when Finnish Datahub is in operation. The “go live” for Datahub and implementation of 15 minutes time resolution cannot be at the same time. Therefore there have to be at least 6 months datahub operational time before implementation of 15 minutes time resolution."

Nord Pool

"9. Go-live of 15 minutes time resolution is planned to take place during Q4/2022. What is your opinion of the timeline proposal? Is the proposed timeline acceptable to make necessary changes to your business processes and IT solutions?"

Nord Pool considers that the go-live should be much earlier to realize the benefits presented by the TSOs in the Finer Time Resolution report from 2017.

10. What are the crucial preconditions for the implementation of 15 minutes time resolution in the national and in the Nordic level? Please explain the reasoning.

Nord Pool considers that power market including 15 minute intraday products within and possibly between BZs would be sufficient. TSO balancing could, if necessary, be done in the intraday market. In any case, allowing and incentivising balancing in 15 minute level should produce a more stable system than today's hourly resolution and therefore require less balancing activity."

Nordenergi

"The proposed timetable must be doable from TSOs' perspective. The Road Map needs to include a more precise deadline “by when” different work packages are needed. We recognize that December is not a perfect month for making substantial changes and propose considering November. Alternatively, one would need to consider Q1/2023.

The timeline needs to consider datahub timetables. However, the timeline needs to be fixed in autumn 2019 and all uncertainties known before finalizing the Road Map to be considered. Any changes after the final Road Map will mean costs, hence any potential delays must be communicated well in advance.

When 15 minutes ISP is taken into operation the market participants need to have it possible to trade with 15 minutes' products. As a minimum there must be liquid trading possibilities in ID, but it would be better to 15 minutes' products available also in DA once 15 ISP is implemented.

We recognize that the more generation and consumption is metered at least with the granularity of ISP, the better. However, exchanging meters before their lifetime is a cost. In Finland a road map for moving into 15 minutes' metering is developed and we

propose that the TSOs require that a sufficiently concrete road is developed in each country.

We urge TSOs to ensure that the timeline to be presented in final Road Map is respected and that any potential delays are communicated well in advance.

As the move to ISP15 is not a “metering reform”, it is crucial that a suggested method for profiling is presented early in order to be discussed with market participants.”

Norsk Hydro

We support implementation of 15 min resolution. The timeline for implementing 15 min time resolution is dependant on how many and who will be affected. Consultants have assessed that 15-minute ISP should first be implemented on measuring meters above a certain limit. The benefit of including all is not cost effective. It is important to have this clarified as soon as possible. We await consultation from the NRA. We request clearly defined timeline with sufficient time for adaptations. Physical meters may have to be upgraded, also fiber cables etc. and software. We will not start the work of identifying which meters need to be upgraded before we know which will be included.

Statkraft Energi AS

"The postponement of 15 min ISP from Q4 2020 as originally planned to Q4 2022 caused some uncertainty. Statkraft regards that a postponement to Q4 2022 is reasonable in order to make the necessary preparations in an orderly way. This goes both for the internal preparations by the market players, implementing necessary functionality in the datahubs in order to process settlement data on 15 minute time resolution and interoperability between the national hubs and eSett. In total these activities represent substantial changes that need to be implemented before moving to 15 min ISP. We stress that the new date for implementation of 15 min ISP presented in the revised roadmap should be firm.

It needs to be followed closely that the proposed timetable is doable from TSOs' perspective. The Road Map needs to include a more precise deadline "by when" different work packages are needed. We recognize that December is not a perfect month for making substantial changes and propose considering November.

When 15 minutes ISP is taken into operation the market participants need to have it possible to trade with 15 minutes' products. As a minimum there must be liquid trading possibilities in ID.

We urge TSOs to ensure that the timeline to be presented in final Road Map is respected and that any potential delays are communicated well in advance."

Swedenergy

"Most important is that details are disclosed to market participants at least 18 months prior go-live.

A pre-condition for a smooth implementation of ISP 15 is the timely transparency on details. Whereas a necessity is that it is possible for the market participants to trade with 15 minutes' products. As a minimum there must be liquid trading possibilities in ID, but it would be better to 15 minutes' products available also in DA once 15 ISP is implemented.

As the move to ISP15 is not a "metering reform", it is crucial that a suggested method for profiling is presented early in order to be discussed with market participants.

In addition, Swedenergy would like to refer to the reply from Nordenergi."

The Association of Energy Users in Finland

"9. Timeline information should be realistic when it is delivered to the market. 15 minutes time resolution will definitely affect to large end-users' processes, IT solutions and service contracts. In some cases even factories manufacturing processes must adjust to the new timeline. It is as well still unclear what will happen to the volumes of the demand flexibility to balancing markets.

10. We are quite happy so far how Finnish TSO, Fingrid, have informed local stakeholders about 15 minutes time resolution progress and plans. This co-operation is important for end-users and the best way to reach cost-effective solutions to the reforms. We believe that the preparation to the commissioning of the Finnish Datahub is crucial for market. Market parties needs schedules which are realistic and transition periods.

As well timing is crucial, Finland shall not be in 15 minutes resolution before Sweden we believe that the optimal solution would be common schedule."

UPM-Kymmene Oyj

"9. *Go-live of 15 minutes time resolution is planned to take place during Q4/2022. What is your opinion of the timeline proposal? Is the proposed timeline acceptable to make necessary changes to your business processes and IT solutions?*

UPM ANSWER: The proposed implementation date of Q4/2022 is fine for UPM but also an earlier implementation would have been a feasible solution for us. We estimate 12 months to be required for the implementation of necessary changes in business processes and IT solutions.

10. *What are the crucial preconditions for the implementation of 15 minutes time resolution in the national and in the Nordic level? Please explain the reasoning.*

UPM ANSWER: Crucial precondition for UPM is that over 1 MW production units and MGA exchange points are metered in 15 min resolution at the same time when 15 min ISP is implemented. Failing to meet this precondition would cause a serious market access problem. If power generation and large consumption connected to distribution grid are not measured in 15 minutes resolution, they will not be able to participate in 15 min markets (intraday and mFRR) without a risk of significant imbalances and related costs.

There should also exist at least one 15 min product in the intraday market for market participants to be able to balance their own imbalances in the market."

Vattenfall AB

"9. Go-live of 15 minutes time resolution is planned to take place during Q4/2022. What is your opinion of the timeline proposal? Is the proposed timeline acceptable to make necessary changes to your business processes and IT solutions?"

The timeline is acceptable as long as details are disclosed at least 18 month prior go-live.

10. What are the crucial preconditions for the implementation of 15 minutes time resolution in the national and in the Nordic level? Please explain the reasoning.

Clarity on details well in time. ID and ancillary markets traded in 15 min. All plans, schedules etc. in 15 min. Automation of regulation bid activation is preferable (mandatory?)."

Question 11 - 15: Please add here your feedback related to mFRR balancing processes automation

Caruna Oy

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Centrica Plc

No comment.

Danish Energy

"We believe that all features of the European standard product for mFRR should be implemented immediately. Most importantly, we suggest the Gate Closure Time (GCT) conforms with the standard product at T-25 min instead of the proposed T-45 min. A shorter mFRR GCT will increase volumes offered to the market, improve market efficiency and contribute to lowering balancing costs. Furthermore, it is a prerequisite to enable trading closer to real-time through shorter intraday GCT in line with TSO ambitions. Finally, we believe that an earlier implementation of T-25 min GCT will allow TSOs and market participants to gain valuable experience prior to moving to MARI.

Any bid filtering functionality should be transparent for market participants and the methodology should go through public consultation. Market participants should be able

to understand and verify how and when their market access is blocked by TSOs in order to avoid undue discrimination."

E.ON Energidistribution Sverige AB

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Energi Norge

"mFRR balancing process automation

As already pointed out, the alignment between NBM and the MARI platform including European standard mFRR product is important and should be better explained in the revised roadmap. We do not oppose to the described process of stepwise harmonisation between mFRR product under NBM and standard European mFRR products as long as there is full harmonisation between NBM and the European platforms when the latter are put into operation.

Regarding congestion management, the explanation of how to involve DSOs in congestion management in their grids seems to have been neglected. More bids will in the future be located in the DSO grids since the minimum bid size will be lowered from 10 MW (Norway) to 1 MW.

We would need a better explanation of what bid filtering is before being able to comment on this functionality.

We do not have any particular opinion at this stage regarding scheduled go live for mFRR balancing process automation or the approach regarding use of scheduled and direct mFRR activation."

Energiatlantis ry

"11. In the first phase only scheduled mFRR activation will be part of a Nordic markets. When there is a need for direct mFRR activation it will be handled locally. This might also lead to a local calculation of the imbalance price in those situations. What is your opinion of this approach?"

We find that the mFRR balancing processes automation and AOF's functioning needs to be prescribed and discussed more in detail. At the moment there not enough information:

- What different functions there are in AOF?
- How the AOF will be built, which are the work packages?
- What's the budget for AOF in total?
- What the AOF is expected of doing and what will be shifted to European platforms and what will remain as individual TSOs responsibility?

It's hard to identify the difference between scheduled and direct activation. More important than how the resources are activated is why they have been activated. Should the activation be based on congestion management, it should not affect imbalance

prices. On the other hand, irrespective of for reason resources are activated they have to be compensated to reserve providers on equal terms.

Activation time should be determined - how long one shall deliver? Its important that after balancing is ordered, it is not ramped down before agreed. Balancing down, including ramping down balancing up, need to be activated from the market, not by requiring stopping balancing up.

12. At the time for the introduction of 15 min time resolution, some features of the European mFRR standard product will be introduced. Before the Nordic TSOs join the MARI platform the remaining features of the standard product shall be implemented. Is the order of the implementation of the product features in your opinion feasible or is there some very important features that should be introduced earlier?

We consider that the Nordic products should be as identical as possible with expected European standard products from the start. We find it not optimal would the requirements change first when Nordic AOF starts its operation and again when Nordic TSOs connect European platforms.

Specific products hamper competition and tend to increase costs.

13. The go-live is expected at the same time as 15 min ISP (Q4/2022). What is your opinion of the timeline proposal?

It needs to be followed closely that the proposed timetable is doable from TSOs' perspective. From the Finnish market participants' viewpoint, according to current information, the proposed Q4/2022 is doable. However, we emphasize that the final date needs to consider datahub timetable. The datahub needs to be in operation at least 6 months before changing the ISP.

We underline that final Road Map has to be realistic, and would it be foreseen risks of further delays, we clearly prefer postponing the implementation of ISP 15 with 6 months or so, instead of risking to end up in situation where the implementation is informed of being postponed later. As the change is substantial, it can take place earliest Q4/2022.

The Road Map needs to include a more precise deadline "by when" different work packages are needed. We call to recognize that December is a challenging month for making substantial changes and propose considering November or Q1/2023.

14. The TSOs plan to continue current practice where mFRR energy bids can be also used for congestion management. Any views or comments related to congestion management?

We agree with this, but underline that using mFRR bids for congestion management purposes must not affect balancing prices. Irrespective of for reason resources are activated they have to be compensated to reserve providers on equal terms.

15. The TSOs plan to implement bid filtering functionality on some bidding zones of Nordic market. Any views or comments related to bid filtering functionality?

Starting point should be applying similar methodology as expected in the European market places, though it needs to be subject consultation.

We encourage the TSOs to develop transmission grid and congestion management so that no filtering would be needed but understand that at times there may exist grid congestion, also within a bidding zone. Possible bid filtering should not affect on bidding into reserve markets, but rather only when bids are needed for congestion management purposes."

Fortum Power and Heat Oy

"mFRR balancing processes automation

11. In the first phase only scheduled mFRR activation will be part of a Nordic markets. When there is a need for direct mFRR activation it will be handled locally. This might also lead to a local calculation of the imbalance price in those situations. What is your opinion of this approach?

For a balancing energy provider, the biggest concern is the unharmonized compensation for mFRR energy depending on the need for balancing. Meaning grid congestion activated mFRR energy is priced as volume weighted whereas balancing mFRR activations are on marginal pricing, this discrepancy should be removed in favor of marginal pricing. The benefit being that for a balancing energy provider then the activation reason is of no interest and all activations treated equally.

Ideally direct activation should not be used in normal state. aFRR should be used initially and scheduled activation as fast as the schedule allows. The direct activation can at times be only marginally faster from a scheduled activation, though in honesty on some events it can be substantially faster from scheduled. TSOs must bear in mind that the level of automation needed in the future also increases for the BSPs and all exceptions and additional features only complicate systems for the BSPs as well. Keeping the market simple should be a focus point, not adding complexity. The report fails to clarify the need or added system security when using both directly and scheduled activation of mFRR, while also having increased aFRR capacity.

12. At the time for the introduction of 15 min time resolution, some features of the European mFRR standard product will be introduced. Before the Nordic TSOs join the MARI platform the remaining features of the standard product shall be implemented. Is the order of the implementation of the product features in your opinion feasible or is there some very important features that should be introduced earlier?

We consider that the Nordic products should be as identical as possible with expected European products from the start.

Full activation time 12,5 minutes, as an example, is likely an easy implementation for many BSPs. GCT for mFRR energy bids should also move closer to delivery, rather

sooner than later. We welcome the development in Finland with ID trading GCT moving to time of delivery. Such development would be welcome also in other bidding zones and products.

13. The go-live is expected at the same time as 15 min ISP (Q4/2022). What is your opinion of the timeline proposal?

If the TSOs consider it feasible, we're fine with it. TSOs should be more precise with AOF content.

14. The TSOs plan to continue current practice where mFRR energy bids can be also used for congestion management. Any views or comments related to congestion management?

For a balancing energy provider, the biggest concern is the unharmonized compensation for mFRR energy depending on the need for balancing. Meaning grid congestion activated mFRR energy is priced as volume weighted whereas balancing mFRR activations are on marginal pricing, this discrepancy should be removed in favor of marginal pricing. The benefit being that for a balancing energy provider then the activation reason is of no interest and all activations treated equally.

15. The TSOs plan to implement bid filtering functionality on some bidding zones of Nordic market. Any views or comments related to bid filtering functionality?

We find that any bidding zone internal congestions should not hinder participation, or at least full remuneration for lost activation, in the balancing and ancillary markets. The loss of market access, due to TSO related constraints, temporary or systematic, should be compensated and thus create economic will for TSOs to address congestions. Such compensations and loss of cheaper balancing power should be financed by the TSO in question and not create additional cost for the unbalanced market participants, or TSOs should use counter-trades to create market access."

Local Power Association / Paikallisvoima ry

"11. In the first phase only scheduled mFRR activation will be part of a Nordic markets. When there is a need for direct mFRR activation it will be handled locally. This might also lead to a local calculation of the imbalance price in those situations. What is your opinion of this approach?

- There is not enough information about AOF's functions and mFRR balancing processes automation. What kind of role remains at TSOs responsibility?

13. The go-live is expected at the same time as 15 min ISP (Q4/2022). What is your opinion of the timeline proposal?

- Is this possible for TSOs perspective?"

Nord Pool

"11. In the first phase only scheduled mFRR activation will be part of a Nordic markets.

When there is a need for direct mFRR activation it will be handled locally. This might also lead to a local calculation of the imbalance price in those situations. What is your opinion of this approach?

Nord Pool fails to understand the difference between scheduled and direct activation from a market perspective and the local vs. Nordic description. Would local and Nordic markets exist in parallel? If this is the case, what would the impact on liquidity be?

12. At the time for the introduction of 15 min time resolution, some features of the European mFRR standard product will be introduced. Before the Nordic TSOs join the MARI platform the remaining features of the standard product shall be implemented. Is the order of the implementation of the product features in your opinion feasible or is there some very important features that should be introduced earlier?

Nord Pool considers that NBM should only implement the standard mFRR product to ensure compatibility and access to a large European liquidity pool related to mFRR products. Any national or regional products should be properly justified.

13. The go-live is expected at the same time as 15 min ISP (Q4/2022). What is your opinion of the timeline proposal?

Nord Pool considers that similar to 15 minute ISP this timeline is too late if it is considered necessary. Once shifting to 15 minute ISP, what is the exact purpose of mFRR as the activation time is equal to or longer than the ISP? Should not DA+ID+aFRR+FCR-n+FCR-D be sufficient to resolve system balance? Of these mentioned markets and products FCR could remain a capacity market whereas ID and aFRR energy activation could be combined in one short term market platform, potentially Intra Day (ID). This would be efficient from a time-to-market perspective and simplify processes from the market participant perspective.

14. The TSOs plan to continue current practice where mFRR energy bids can be also used for congestion management. Any views or comments related to congestion management?

Nord Pool considers that transparency needs to be increased related to congestion management and special regulation.

15. The TSOs plan to implement bid filtering functionality on some bidding zones of Nordic market. Any views or comments related to bid filtering functionality?

Bid filtering effectively limits access to market and therefore Nord Pool considers that bid filtering within Bidding Zones should be avoided as much as possible. If such filtering is done the filtering and the reason for the filtering must be fully transparent to the whole market. Similarly, the BSP whose order is filtered due to some reason should probably be compensated due to lost business opportunity."

Nordenergi

"We consider that the Nordic products should be as identical as possible with expected European standard products from the start with the aim of securing effective harmonisation. Specific products hamper competition and tend to increase costs.

The impact of implementation of new mFRR market is not the same magnitude as the change in ISP and affects lesser number of market participants. If the TSOs consider this feasible, we agree. However, as stated earlier, we consider that TSOs should be more precise with respect to what Nordic AOF is expected of doing and what will be done by European platforms, what by Nordic AOF and what by individual TSOs.

We underline that using mFRR bids for congestion management purposes must not affect balancing prices.

Any bid filtering functionality should be transparent for market participants and the methodology should go through public consultation even if it should be more explained in the revised roadmap. Preferably, if needed, the methodology for bid filtering should be the same as expected in the European marketplaces. We encourage the TSOs to develop transmission grid and congestion management in a socio-economic way in order to avoid unnecessary filtering but understand that at times there may exist grid congestion, also within a bidding zone. Market participants should be able to understand and verify how and when their market access is blocked by TSOs in order to avoid undue discrimination."

Norsk Hydro

It is important that the TSO's as early as possible describes the standard products that are being introduced, as well as how the market participants shall interact with the TSO

Statkraft Energi AS

"The alignment between NBM and the MARI platform including European standard mFRR product is important and should be better explained in the revised roadmap. We do not oppose to the described process of stepwise harmonisation between mFRR product under NBM and standard European mFRR products as long as there is full harmonisation between NBM and the European platforms when the latter are put into operation.

We would need a better explanation of what bid filtering is before being able to comment on this functionality.

We do not have any particular opinion at this stage regarding scheduled go live for mFRR balancing process automation or the approach regarding use of scheduled and direct mFRR activation.

The impact of implementation of new mFRR market is not the same magnitude as the change in ISP and affects lesser number of market participants. If the TSOs consider this feasible, we're fine with it."

Swedenergy

"Swedenergy recommends the use of only scheduled activation (SA) in order to achieve a well-functioning system and avoid costly complexity. Using both activation methods, four CMOLs and different prices, which de facto makes DA & SA different products, seriously hampers the effectiveness of the platform and the balancing system as a whole. For system balancing it is neither necessary nor preferred using two different types of activation.

We also regard SA as the more accessible product for smaller BSPs that don't have sophisticated IT-systems. Another advantage of SA is higher liquidity as offered capacity only has to be available for the following ISP. Finally, the fact that SA takes place on pre-specified points in time makes it possible to allocate cross-zonal capacity in the most optimal way. TSOs that need to solve an imbalance fast, and therefore claim that DA is necessary, could use the aFRR product instead.

In 3.5.2 New mFRR standard products, it is stated that "BSP will normally not be allowed to decline activation requests", such requirements might limit the supply of available mFRR-bids – which shouldn't be in the interest of the TSOs. If possible, it could be better to either allow free decline of any activation request to maximise market liquidity, or to introduce penalty fees for activation declines, if this turn out to be a frequent and big issue.

A crucial prerequisite is that balance prices are unaffected by actions originating from constraints in the grid, i.e. actions intended to solve bottlenecks should not affect the pricing of balance power nor imbalance prices. Generally, grid regulation using the balance market should thus only be used as a temporary solution, as it to some degree distorts the balance market prices as bidders may anticipate a grid regulation and thus bid as if it is under a “pay as bid” regime.

To maintain the credibility of the market functioning under those situations, it is therefore central that the TSOs publish the bid price, reason and any corrective measures when they use the regulation power market for handling congestions in the grid. The current praxis for special regulation methodology could be improved either through:

1. Separate market/product for grid regulation applying marginal price, or
2. Allowing for two prices for the same bid, depending on purpose of activation.
3. Ensure transparency and efficiency in the combined activation of different products such as aFRR and mFRR. It has been observed that the latter has not been used to restore the former, contrary to the defined role for respective category.

Transparency and fair competition are prerequisite for bid filtering and the methodology for bid filtering should undergo public consultation.

In addition, Swedenergy would like to refer to the reply from Nordenergi."

The Association of Energy Users in Finland

"11. It looks that TSOs are not knowing how the process is developing and what they can promise, or can they keep planned schedules for new mFRR. They are mentioning in their report that in the new mFRR-process activation must be fully electronic and also mostly automated. There is no reason to have additional steps. In process first and last move shall be fully electronic and automated mFRR process.

12. Nordic TSOs should join MARI as soon as possible. It would be good for the market if Nordic mFRR platform would have as well common European products even MARI project is not finished.

13. As well intra-day market and day-ahead market should have same 15 minutes time period as soon as possible.

14. TSOs should prepare proper analyses for the market participants that mFRR product for congestion management will lower total cost in the Nordic Electricity market. Value-add for end users must be goal for those actions.

15. If this is common European way to operate in the market, then it is fine. It is important that all this kind of actions are transparent and will lower total cost in the Nordic Electricity market. It is not good enough that it will lower TSOs' costs."

UPM-Kymmene Oyj

"11. In the first phase only scheduled mFRR activation will be part of a Nordic markets. When there is a need for direct mFRR activation it will be handled locally. This might also lead to a local calculation of the imbalance price in those situations. What is your opinion of this approach?"

UPM ANSWER: If local calculation means calculation based on price areas, UPM supports this approach.

12. At the time for the introduction of 15 min time resolution, some features of the European mFRR standard product will be introduced. Before the Nordic TSOs join the MARI platform the remaining features of the standard product shall be implemented. Is the order of the implementation of the product features in your opinion feasible or is there some very important features that should be introduced earlier?"

UPM ANSWER: UPM does not understand why TSOs propose creating a different intermediate product compared to the upcoming European mFRR standard product. For example, why should there be an intermediate 15 min FAT and 45 min GCT instead of implementing 12,5 min FAT and GCT of 25 minutes straight away? With the proposed solution, market participants would need to implement changes in automation and IT systems twice which causes additional costs. This is the case especially with FAT. Nordic market should be aligned with the European model already in the first phase.

In general, UPM regards the harmonization of rules and requirements at the Nordic level highly important. Currently there are many discrepancies in the terms for participation for similar assets in different Nordic countries.

UPM also wants to remind that to ensure the participation of large industrial consumers in the balancing market also in the future, there should be products with a longer maximum delivery duration (e.g. 60 minutes) available in mFRR energy market. Shorter delivery durations decrease the incentive for manufacturing industry to be flexible in their demand by altering or interrupting their industrial processes. There is a risk of losing the potential of industrial flexible demand which could offer high amount of MW to balance the market in scarcity situations. Products with longer maximum durations would give these industrial loads access to the balancing market.

13. The go-live is expected at the same time as 15 min ISP (Q4/2022). What is your opinion of the timeline proposal?"

UPM ANSWER: UPM supports the proposal.

14. The TSOs plan to continue current practice where mFRR energy bids can be also used for congestion management. Any views or comments related to congestion management?"

UPM ANSWER: UPM supports the proposal.

15. The TSOs plan to implement bid filtering functionality on some bidding zones of Nordic market. Any views or comments related to bid filtering functionality?

UPM ANSWER: UPM does not understand the need for bid filtering functionality. The process should be transparent and ensure a level playing-field for all market participants. Bid filtering functionality could lead to the opposite direction."

Vattenfall AB

"11. In the first phase only scheduled mFRR activation will be part of a Nordic markets. When there is a need for direct mFRR activation it will be handled locally. This might also lead to a local calculation of the imbalance price in those situations. What is your opinion of this approach?"

Our recommendation is to avoid the parallel use of two different activation methods. As we highlighted in previous EU consultations, Vattenfall believes that a system build around only scheduled activation (SA) the key to facilitate a well-functioning system, and avoid costly complexity. Using both activation methods, four CMOLs and different prices which de facto makes DA & SA different products in our mind seriously hampers the effectiveness of the platform and the balancing system as a whole.

We also regard SA as the more accessible product for smaller BSPs that do not have sophisticated IT systems.

Another advantage of SA is higher liquidity as offered capacity only has to be available for the following ISP. Finally, the fact that SA takes place on pre-specified points in time makes it possible to allocate cross-zonal capacity in the most optimal way. TSOs that need to solve an imbalance fast, and therefore claim that DA is necessary, could use the aFRR product instead.

If still applied, which model will be used for local price calculation? Same model to be used in all Nordic/European areas?

12. At the time for the introduction of 15 min time resolution, some features of the European mFRR standard product will be introduced. Before the Nordic TSOs join the MARI platform the remaining features of the standard product shall be implemented. Is the order of the implementation of the product features in your opinion feasible or is there some very important features that should be introduced earlier?"

In 3.5.2 New mFRR standard products it is stated that "BSP will normally not be allowed to decline activation requests", such requirements might limit the supply of available mFRR-bids – which shouldn't be in the TSO interest. If possible it should be better to:

1. Allow free decline of any activation request to maximise market liquidity

2. Introduce penalty fees for activation declines, if this turn out to be a frequent and big issue.

13. The go-live is expected at the same time as 15 min ISP (Q4/2022). What is your opinion of the timeline proposal?

Since that change mainly impact TSOs we do not have any firm views

14. The TSOs plan to continue current practice where mFRR energy bids can be also used for congestion management. Any views or comments related to congestion management?

An crucial prerequisite for this is that balance prices are unaffected by actions originating from constraints in the grid, that is actions intended to solve bottlenecks should not affect the pricing of balance power nor imbalance prices. Generally, grid regulation using the balance market should thus only be used as a temporary solution, as it to some degree distorts the balance market prices as bidders may anticipate a grid regulation and thus bid as if it is under a “pay as bid” regime.

To maintain the credibility of the market functioning under those situation it is therefore central that the TSOs publish the bid price, reason and any corrective measures when they use the regulation power market for handling congestions in the grid. Vattenfall strongly argues that the current praxis for special regulation methodology would be improved either through:

1. Either organize separate market/product for grid regulation applying marginal price (ref to opening balancing auction as mentioned above), or
2. Allowing for two prices for the same bid, e.g. bid price + some acceptable margin (e.g. +10%) for a bid if used for grid regulation.
3. Ensure transparency and efficiency in the combined activation of different products such as aFRR and mFRR. Currently we have observed cases where the latter have not been used to restore the former, contrary to the defined role for respective category.

15. The TSOs plan to implement bid filtering functionality on some bidding zones of Nordic market. Any views or comments related to bid filtering functionality?

Vattenfall supports bid filtering as long as the filtering is not limiting fair competition and is transparent for the market."

Question 16: Please add here your feedback related to Outlook for energy activation markets

Caruna Oy

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Centrica Plc

No comment.

Danish Energy

Harmonizing and integrating Nordic balancing markets with Continental Europe, and ensuring compliance with EBGL, should be a key objective of the NBM. We believe the current draft roadmap fails in describing this harmonization and integration process in sufficient detail. Most importantly, the final roadmap should comprise implementation deadlines for what TSOs describe as '2nd generation NBM', as this is where full integration with European markets is expected to happen.

E.ON Energidistribution Sverige AB

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Energi Norge

"Outlook for energy activation markets

Energy Norway agrees that it is important that the balancing processes and products under NBM is well aligned with the European platforms MARI and PICASSO. The NBM roadmap should be designed in such a way that there should be a seamless transition between the NBM platforms for aFRR and mFRR activation products and the similar European platforms MARI and PICASSO when the latter are implemented. We however support that solutions under NBM can be developed and implemented independent of MARI/PICASSO, among others since all properties of MARI/PICASSO is not known at present and there is a risk that implementation of these platforms can be postponed. As already expressed, the revised NBM roadmap should explain how NBM activities are aligned with activities related to MARI/PICASSO and dependencies between them in order to optimize the alignment between NBM and the MARI/PICASSO platforms."

Energiatollisuus ry

Harmonizing and integrating Nordic balancing markets with Continental Europe, and ensuring compliance with EBGL, should be a key objectives of the NBM. The presented Road Map doesn't describe harmonization and integration process in sufficient detail. The final Road Map should comprise implementation deadlines for what TSOs describe

as '2nd generation NBM', as this is where full integration with European markets is expected.

Fortum Power and Heat Oy

"Outlook for energy activation markets

16. Alignment of the balancing processes and products in order to be able to efficiently join the European platforms is one of the targets for the planned changes in the new Nordic Balancing Model. Do you have any views or comments related to the described outlook?

The European products are already defined to quite some level of detail, as can be read in the report. Any future derogations, should be removed as early as possible, and latest in unison with European level harmonization."

Local Power Association / Paikallisvoima ry

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Nord Pool

"16. Alignment of the balancing processes and products in order to be able to efficiently join the European platforms is one of the targets for the planned changes in the new Nordic Balancing Model. Do you have any views or comments related to the described outlook?

Nord Pool considers that the alignment of processes and liquidity is important. To some level, the potential cost in time of implementation Pan-European platforms and markets must however be considered when choosing the best development path. Some local solutions efficiently linked to or piloting European concepts could be an efficient path."

Nordenergi

Harmonizing and integrating Nordic balancing markets with Continental Europe, and ensuring compliance with EBGL, should be a key priority of the NBM. We believe the current draft roadmap fails in describing this harmonization and integration process in sufficient detail. Most importantly, the final roadmap should comprise implementation deadlines for what TSOs describe as 2nd generation NBM, as this is where full integration with European markets is expected to happen.

Norsk Hydro

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Statkraft Energi AS

We agree that it is important that the balancing processes and products under NBM is well aligned with the European platforms MARI and PICASSO. The NBM roadmap should be designed in such a way that there should be a seamless transition between the NBM platforms for aFRR and mFRR activation products and the similar European platforms MARI and PICASSO when the latter are implemented. We do however support that solutions under NBM can be developed and implemented independent of MARI/PICASSO, among others since all properties of MARI/PICASSO is not known at present and there is a risk that implementation of these platforms can be postponed. The revised NBM roadmap should show how NBM activities are aligned with activities related to MARI/PICASSO and dependencies between them in order to optimize the alignment between NBM and the MARI/PICASSO platforms.

Swedenergy

"In Section 3.7, it is stated that remuneration for the aFRR energy activation market will be based on "cross-border marginal price". This must be explained in further detail.

We think it will be important to analyse the need for non-standard mFRR-products to avoid unnecessary limitations which might exclude flexibility from faster or slower resources.

In addition, Swedenergy would like to refer to the reply from Nordenergi."

The Association of Energy Users in Finland

16. If there is need for introduce new European wide products like congestion management products and /or specific balancing products with shorter activation time, then it is mandatory to have a dialogue with the market players. The most important is to analyze will the cost in the market be lower for end customers or not. After this is ready and discussed it is possible to discuss further on how this can be introduced as efficient as possible with the new mFRR and aFRR standard products.

UPM-Kymmene Oyj

"UPM ANSWER: In general, UPM regards the harmonization of rules and requirements at the European level highly important. Nordic countries should not be left behind from European platforms as currently seems to happen.

We see that the European model should be implemented in the Nordics at the same schedule as in rest of the relevant EU Member States. For example, GCT in European

mFRR market will be 25 minutes. Despite this inevitable development, Nordic TSOs propose in the report that GCT would initially be 45 minutes. Intermediate solutions should not be used in the Nordic market as they create an unequal playing-field for Nordic companies compared to the rest of the Europe."

Vattenfall AB

"16. Alignment of the balancing processes and products in order to be able to efficiently join the European platforms is one of the targets for the planned changes in the new Nordic Balancing Model. Do you have any views or comments related to the described outlook?"

In Section 3.7, it is stated that remuneration for the aFRR energy activation market will be based on "cross-border marginal price". Could you please explain this in more detail? We foresee a need to analyse need for non-standard mFRR-products to avoid unnecessary limitations which might exclude flexibility from faster or slower resources"

Question 17: Please add here your feedback related to Stakeholder involvement

Caruna Oy

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Centrica Plc

"We are glad of the consultation on the NBM roadmap, the set-up of the NBM website and the availability of webinars. However, we would welcome more open involvement in the common Nordic stakeholder reference group NBM. This would give the opportunity for more interaction between the Nordic TSOs and stakeholders i.e. can be a discussion rather than information from the TSOs to stakeholders only (unidirectional).

Despite having expressed our interest very early in the process (March 2019), we were denied joining the reference group. However, we found out last April that the group has been established and representatives from companies have also been nominated and none of those are based in Denmark to our knowledge.

Therefore, we would appreciate to join this group and for the future we would welcome more transparency with open applications for joining similar groups.

We hope you will find this response helpful. If there are any of the points raised in this response that you would like to discuss feel free to contact me at riccardo.rossi@centrica.com.

Yours sincerely,

Riccardo Rossi

Head of Regulatory Affairs | Energy Marketing & Trading
Centrica Legal & Regulatory Affairs"

Danish Energy

"Stakeholder involvement has improved significantly since the inception of NBM. Many of the initial design flaws and underestimation of the scope of the tasks could have been prevented through timely stakeholder involvement. We hope that TSOs will continue to strengthen transparency and open dialogue on challenges in the implementation plan.

An important step in August – October 2019 will be to publish and openly discuss analyses and studies on some of the uncertainties raised in the roadmap, including:

- Evaluation on impacts and potential integration solutions for DK1
- Solutions and implementation milestones of the single price model
- The detailed steps and timeline for European integration
- Scope of the 15 min ISP postponement request to NRA

The NBM project team has indicated a willingness to share and discuss these analyses, and we are hopeful that TSO will allow the sharing of this information."

E.ON Energidistribution Sverige AB

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Energi Norge

"Stakeholder involvement

As a starting point, Energy Norway wants to express that the gradual increase of stakeholder involvement we now experience is very positive and promising for the future.

The change from individual national stakeholder processes to more harmonised and predominantly Nordic processes is supported. Still, we would like to highlight the need to involve some stakeholder groups more actively going forward. Firstly, we recommend to involve Nordpool and possible other PEX'es more in order to facilitate a coordinated implementation of short term markets that provides for easy access for market players and linking of bids. Secondly DSOs should be involved as stakeholders

since a substantial amount of bids are already located in DSO grids and even more so when minimum bid size will be lowered from today's 10 MW to 1 MW in the activation markets. Involving aggregators in the future stakeholder dialogue should also be considered."

Energiateglisuury

"As the TSOs have prescribed, this is one of the biggest changes in the electricity market, and the stakeholders need to be involved more firmly.

We welcome the NBM reference group and encourage to use it for testing ideas in an early phase. We welcome the increased transparency on the whole. Reference group, however, doesn't remove the need to inform content, changes and potential delays in a timely manner for the whole market.

There are many details in 1st generation NBM that needs to be further clarified and much is left to 2nd generation NBM, so far not presented sufficiently. More discussions and information is needed.

We also encourage TSOs to deepen discussions with IT-providers. How they find the timetable and do they consider it doable from their perspective (not only TSOs' systems, but all the changes in general. Eventually, the same IT-providers offer their services in the whole Nordic market and the risk of bottlenecks exists."

Fortum Power and Heat Oy

"Stakeholder involvement

17. Any views or comments related to the presented stakeholder involvement?

As the TSOs have prescribed, this is one of the biggest changes in the electricity market, and the stakeholders need to be involved more firmly.

Welcoming the NBM reference group and encouraging to use it for testing ideas. Also welcoming the increased openness on the whole. Reference group, however, doesn't remove the need to inform content, changes and potential delays in a timely manner. The reference group meetings could ideally be webcasted (even if without possibility to comment). Also testing ideas prior to consultations should be considered. It might be easier to explain TSO wishes early on, and potential caveats from market participant point of view could be avoided earlier in the process. One crucial thing to consider is that any worries from TSOs on the functioning of the market, or balancing processes etc. Need not be fixed alone by TSOs, rather they should raise their worries and invite market participants to address any concerns. The functioning of the market should be in the guiding star, not system stability concerns that would otherwise be solved in non market ways."

Local Power Association / Paikallisvoima ry

"17. Any views or comments related to the presented stakeholder involvement?"

- All the stakeholders need to be involved more firmly. Especially IT-providers, and not only from the TSO point of view. When IT-providers are involved in planning and developing all changes, the risk for failure in the implementation of whole 1st gen NBM is much smaller. When 2nd gen NBM is going under evaluation and planning, the co-operation with all stakeholders is vital."

Nord Pool

"17. Any views or comments related to the presented stakeholder involvement?"

Nord Pool would appreciate further clarity related to the state of the NBM project and the milestones within the project. Example can be taken from the detailed timelines presented (and delayed) within the XBID project."

Nordenergi

"Stakeholder involvement has improved significantly since the inception of NBM. It is our opinion that initial design flaws and underestimation of the scope of the tasks could have been prevented through timely stakeholder involvement. Given the complexity of NBM it through stakeholder involvement is important going forward as this could also improve the overall NBM project result and improve its legitimacy. We therefore recommend that TSOs continue to strengthen transparency and open dialogue on challenges in the implementation plan.

An important step in August – October 2019 will be to publish and openly discuss analyses, and studies on some of the uncertainties raised in the roadmap, including:

- Evaluation on impacts and potential integration solutions for DK1
- Solutions and implementation milestones of the single price model
- The detailed steps and timeline for European integration
- Scope of the 15 min ISP postponement request to NRA

The NBM project team has indicated a willingness to share and discuss these analyses, and we are hopeful that TSO will allow the sharing of this information.

As the TSOs have prescribed, the NBM represents one of the biggest changes in the electricity market, and the stakeholders need to be involved firmly. We welcome the NBM reference group and encourage to use it for testing ideas in an early phase. We welcome the increased transparency overall, but we want to point out that the formation of a Reference group doesn't remove the need to inform content, changes and potential delays in a timely manner for the whole market."

Norsk Hydro

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Statkraft Energi AS

Statkraft is satisfied with the gradual increase of stakeholder involvement we now experience. The change from individual national stakeholder processes to more harmonized and predominantly Nordic processes is supported. Still, we would like to highlight the need to involve some stakeholder groups more actively going forward. We recommend also to involve Nordpool and possible other PEX'es more in order to facilitate a coordinated implementation of short-term markets that provides for easy access for market players and linking of bids.

Swedenergy

"Even though we find that the stakeholder involvement has improved significantly since the inception of NBM, we still find the plan for involvement unclear and would like to stress again the importance of close dialogue and involvement with market participants. There needs to be enough time for feedback on detailed solutions so that solutions can be improved/corrected/adjusted.

In addition, Swedenergy would like to refer to the reply from Nordenergi."

The Association of Energy Users in Finland

17. We are quite pleased how Fingrid has led the process in Finland. It is important that as well as the Nordic stakeholder process is activated and is transparent. The most important issue is to encourage TSOs to have transparent processes and quality published analyses of how proposed changes will affect the markets and to the positions of the market players.

UPM-Kymmene Oyj

UPM ANSWER: UPM supports involving stakeholders strongly in the market development process. We wish that the Nordic TSOs continue the good work that they are currently doing in this field.

Vattenfall AB

"17. Any views or comments related to the presented stakeholder involvement?"

We still find the presented plan for involvement as unclear. Again we would like to emphasize the importance of close dialogue and involvement with market participants and provide sufficient time for feedback on detailed solutions."