

Nordic CCM SHG – meeting minutes

DRAFT Version

December 9 2020, 9.00-12.00 (Web Conference)

Participants		
<p>CCM project</p> <ul style="list-style-type: none"> Ulrik Møller (Energinet) Stefan Svensson (Svk) Emma Wennberg (Svk) Trond Jensen (Statnett) Ida Eriksson (Statnett) Jussi Matilainen (Fingrid) Ritva Hirvonen (Fingrid) Pieter Schavemaker (E-Bridge, PM) Erik Ek (Svk) Jens Møller Birkebæk (Nordic RSC) <p>FBIMP project</p> <ul style="list-style-type: none"> Jens Stenport Nørgaard (PM) 	<p>NRA</p> <ul style="list-style-type: none"> Kaj Forsberg (EI) Toril Naustvoll Gange (NVE) Søren Søndergaard (DUR) Jori Sääntti (EV) <p>NEMO</p> <ul style="list-style-type: none"> Hilde Rosenblad (EMCO) Rose Sargant (Nasdaq) Bernd Botzet (Nasdaq) Sylvie Tarnai (EPEX) 	<p>Other participants</p> <ul style="list-style-type: none"> Vidar Hansen (ECO) Rickard Björström (Vattenfall) Jens Mortensen (Orsted) Håkon Egeland (Statkraft) Anders Sivertsgård (Norwegian energy) Heini Ruohosenmaa (Fortum) Petteri Haveri (Energia) Martin Schröder (Dansk Energi) Magnus Thorstensson (Energiforetagen) Carsten Chachah (Danish energy) Nils Flaten Raeder (Hydro Norway) Per Arne Vada (Norwegian energy) Stig Rolstadaas (TrønderEnergi) Maiken Thomsen (Danish energy)

Text in non-italics are statements, questions or claims from the person mentioned.

Text in italics are answers or comments provided by the person mentioned, or the project.

1. Status update (9.00-9.45)

NRA decision, changes made, and criteria proposed (Kaj)

Q: Rickard: Assessment of key criteria – effect on the ID market?

A: *Kaj: The TSO KPIs have been used as a basis for the NRA criteria. We loosely defined the criteria on the ID market.*

Q: Jens Mortensen: Will the external parallel run evaluation report be public?

A: *Kaj: Yes, it is public and needs to be consulted upon with stakeholders by the TSOs*

Q: Magnus: Evaluation report should consist of 5 months of parallel run?

A: *Kaj: No, the report should cover at least three consecutive months of parallel run to demonstrate that the methodology and its implementation meet the criteria*

Q: Anders: Did you list the criteria in an order of importance?

A: *Kaj: No, they are equally important.*

Q: Petteri: some criteria may be conflicting: a large gain on the DA may come at the expense of the ID? This confirms the need to have a stakeholder consultation with regard to the evaluation report.

A: *Kaj: Indeed.*

Q: Anders: Shouldn't we focus on what are the key objectives of introducing FB as such, e.g. to utilize the system in a more efficient way.

A: *Kaj: One such measure is the expected higher socio-economic welfare under FB, when operated at the same level of operational security as NTC – the latter makes it difficult to compare the FB with the current system.*

Petteri: The total welfare effects are important, i.e. DA+ID

What do the NRA changes imply (Ulrik)

Q: Heini: Are you planning to publish the results of the internal parallel run? When will you start the external parallel run?

A: *CCM: The results of the internal parallel run will be published, but the data may come with a disclaimer and the amount of data will be limited (i.e. certainly not cover 24/7). The external parallel cannot start before April 2021.*

Q: Rickard: What can we expect, in terms of the effect on ID in the evaluation report?

A: *CCM: This question is closely related to the problem statements, that we will discuss under agenda item 2.*

Q: Petteri: Most important is that we have a robust capacity calculation that delivers the expected welfare effects. The NRA decision is a good way to take this forward.

A: *CCM: The checkpoint process is okay, but the challenge is that it requires the process to be close-to-perfect in an early stage.*

CCM: We adopted the NRA criteria, and replaced the TSO KPIs with those. We did receive shortly before this meeting KPI proposals from Vattenfall and Mats Nilsson. We will check how to take those into account.

Kaj: indeed, in a usual IT project, KPIs are put at the end of the testing period. This illustrates that this is more than an IT project. With the criteria to be met in the beginning, it may - for example - require you to perform 7 months of internal parallel run to reach that, and this is fine. The more information we have, the better. The KPIs are still part of the CCM – being the arrangement between TSO, NRAs, and stakeholders. We still need them.

Jori: It is a requirement to define the KPIs.

Heini: I was worried that you planned to discard the TSO KPIs, but I am relieved now that Jori confirmed that they are required. It would be good to discuss how to take the ID into account and to define how the NRA criteria are to be measured.

Implementation timeline (Jens Stenport)

Q: Håkon: For external parallel run, you will use the Simulation Facility (SF), and the consequence is that the market results are published 14 days later? How will this impact the assessment on the stakeholders to compare the results?

A: Jens Stenport: It is – upon request of the NRAs – being investigated whether the 14 days grace period can be reduced. The ability to compare the results will be delayed by at least the grace period.

Håkon: Operators do not perform a historical back tracking: this is a challenge.

Jens Mortensen: I agree with Håkon. We need to be much closer to the actual operational day with these market simulations.

Stig: I support these statements - in order to understand the impact, we need to have the simulation results close to the day of operation.

Q: Håkon: MR3 – what does it contain? What is the impact on the parallel run?

A: Jens Stenport: Mainly: the extraction of the ID ATC will be integrated in the industrial tool. In the beginning of the external parallel run, this will be performed by means of a prototype tool. Furthermore, the voltage-dependent I_{max} to F_{max} conversion will be implemented at that time.

Q: Jens Mortensen: When will Euphemia be ready? When will we see day-to-day results of the simulations?

A: Jens Stenport: Day-to-day simulations are only possible in the last two weeks before go-live (indeed, no such system exists to do this for a long period of time). Euphemia should be ready to handle the Nordic FB, but I can't give you a precise date now.

Q: Heini: The SF is using Euphemia / the same algorithm as Euphemia. When you start the parallel run, the SDAC region is included in the SF, so the main difference is the grace period? How is Core region handling this? Will we have a parallel run with both Core and Nordics in FB?

CCM: Indeed, the SDAC region will be simulated in the SF. The Core region is using the SF, with the 14-days grace period, during their parallel runs. The parallel run is intended to compare the current operational situation with the situation where the Nordics have a FB capacity calculation and allocation. When the Core region is using NTCs in daily operations, so will it be in our Nordic FB market simulations; when the Core goes live with FB after February 2022, the Core will be represented with FB constraints in our market simulations.

Q: Rickard: How does the CGM fit in the planning?

A: Jens Stenport: CGM implementation is ongoing, and issues are being resolved. It is a necessary input for the capacity calculation process.

Q: Petteri: Are the virtual bidding zones (BZs) an integral part of the capacity calculation?

A: CCM: The virtual BZ are a means to translate the impact of the power flow on DC links (and radial AC borders with other CCRs) to the AC network (CNECs). The virtual BZs are an integral part of the capacity calculation, and the impact (PTDFs) of the virtual BZs on the CNECs will be available to the stakeholders as well.

Q: Håkon: 70% rule - how is this taken into account?

A: CCM: In principle, this will be taken into account in the capacity calculation process. Norway is not part of the EU, and does (in principle) not need to comply. Sweden will have an action plan. Finland and Denmark are not opting for an action plan.

Q: Håkon: The 70% rule - how will this impact the virtual BZs of DC interconnectors?

A: CCM: No impact as such... the 70% check needs to be made on the capacity of the DC interconnector.

Håkon: 70% is also related to the internal CNECs?

CCM: The virtual BZs define how the flow on the DC link translates into flows on the CNECs. The 70% rule only looks to the RAM, and not to the PTDFs (that describe the impact of the virtual BZ on the CNEC).

Q: Toril: Did I understand correctly that Statnett will not monitor the 70%?

A: CCM: I only indicated that Norway is not legally obliged to follow-up on the 70% rule.

Petteri: Good discussion. Although there is no legal obligation, I would welcome if Norway would follow the same rules, and to have a commonly aligned approach.

Erik: Sweden does not foresee to have an action plan for the interconnectors. For the internal lines, this is difficult to measure, as explained by Trond in the Dec 4 NRA stakeholder meeting.

2. Problem statements (9.45-10.45)

How is flexibility defined and will the room for flexibility decrease and is this an economic efficiency problem given a certain reference for comparison (what is the reference)?

- Rickard: flexibility = the ability to adjust the production or consumption based on price signals. Concern is that ID trade cannot take place due to non-intuitive flows and limited capacity. This would require the TSOs to activate more balancing resources
- What kind of reference would you like us to apply when performing this assessment?
 - Rickard: The socio-economic welfare = welfare DA + welfare ID
 - Ulrik: will improvement of ID be at the expense of the DA?
 - Rickard: this may be the case. This is all about a trade-off: gain in DA vs loss in ID
- Heini: agree with Rickard. Flexibility is closely connected to trading possibilities in the ID market. It allows us to balance ourselves in a market-based way.

FB DA and ID ATC: can non-intuitive flows lead to arbitrage?

- Rickard: there will not be arbitrage
- Ulrik: would you like us to explain us how this works?
- Rickard: I understand how this works

Is zero ID capacity on certain borders a problem in terms of economic efficiency, given a certain reference for comparison (what is the reference)?

Is a more optimized (FB) DA market at the expense of the ID market? Can a quantitative or qualitative statement be made on the socio-economic impact of introducing DA FB including the ID impact as well?

- Rickard: ID in the Nordics, we are dependent on trade between BZs – zero capacity is a problem
- Rickard: today, there is always capacity in the other direction – this provides a possibility to trade
- Ulrik: should we hold back capacity from the DA?
- Rickard: no, we need to make a fair comparison between gain DA / loss ID, and the need to activate more expensive balancing resources. No possibility to trade ID, will lead to a TSO that is more in need to activate balancing resources.
- Trond: zero capacity in the ID market is not unheard of today
- Toril: in the current Nordic market, there are non-intuitive flows
- Trond: It is not just the NO1-NO3 border, but also the ramping restrictions that give rise to non-intuitive flows
- Rickard: indeed, but we are mainly concerned about the large SE borders in this respect

- Nils: FB will create a better price formation, and thereby lead to smaller price differences in the ID market as well. It is not just negative. We need numbers to assess. With many ID trades, ending up in a corner of the domain, you may have to re-evaluate the ID ATC. This may solve the issue.
- Ulrik: ID recomputations are indeed foreseen
- Petteri: with regard to the question whether ID capacity may need to be reserved on the DA - not for now, maybe in the future. When DA puts the market in a FB corner, how to get out of a corner?
- **Ulrik – summary: economic efficiency as the reference to assess the ID. Reserving DA capacity for ID is not seen as a solution. Non-intuitive flows, and the possibility to end up in FB corners → solved by recalculation of capacities.**

How do you apply the “tool” hedging and what need does it cover?

What is a sufficient hedging instrument?

Why would EPADs and LTRs not work in a FB setting where non-intuitive flows can occur?

- Rickard: Hedging is the process to mitigate price exposure
- Ulrik: how do you apply this tool?
- Rickard: hedging is not a tool, but a process. Participants, either short or long, have risk exposures: mainly price and volume. If you have a contract to deliver to a consumer at a fixed price, you may need to hedge the price risk.
- Ulrik: volume risk is related to your customers, or production (hydro e.g.).
- Ulrik: why do you need to hedge your generation?
- Rickard: We need to deliver a cash flow for the company’s investments, while maintaining the credit rating.
- Bernd: EPAD covers the difference between the area and system price. EPAD is not impacted by non-intuitive flows. Risk premiums may increase, but the product in itself is not impacted.
- Håkon: hedging going from NTC to FB - main issue is to be able to analyse the price / forecast the price in the future by the market participants.
- Ulrik: LT (MA/YA) price forecasting is needed – so you need to know the state of the power system as an input to this process?
- Håkon: yes, indeed
- Rickard: when it comes to hedging as such, I fear that if the transparency gets harder, the liquidity in EPADs may go down and risk premiums may go up.
- Ulrik: so this is highly linked to the transparency.
- Nils: I agree to the transparency aspect. Southern Norway is frustratingly illiquid. This is not going to change. The price of the EPAD is not linked to the capacity of the grid. NTC vs FB is not the most important discussion when touching upon price differences in long term. You cannot solve the hedging issues by the capacity calculation methodology. A good transparency, and UMM, that is the basis.
- Heini: Indeed, closely connected to the transparency. We are worried that FB may be less transparent and more complex to understand – it may reduce liquidity in the hedging market.
- **Ulrik summary: problem statement on hedging is closely related to transparency. It is not FB that is the problem of the hedging instruments. The main focus should be on transparency and complexity of FB.**
- Ulrik: Given this discussion, statement 2 “Impacts to the financial market and hedging possibilities are not covered in the studies performed by the TSOs up to date” seems not relevant anymore. Is there, in this respect, a study that would you like us to perform?
- Rickard: big producers are well-represented in the SHG. Consumer-side is not well-reflected. I have suggested to Svk that they have some interviews with big consumers.
- Stefan: Svk has done some interviews with the industries. We can return to this topic later.

How do you apply grid info today and how do you foresee to apply it in the future FB set-up?

Why is a permanent identifier needed to understand, explain and forecast the market results?

- Ulrik: what do you do with the info on NUCs, and will it differ with FB?
- Håkon: Advanced models to do water value calculations. Possibility to transfer energy between BZs is important in this calculation. NTC, unavailability, grid reinforcements, empirical values (to correlate to what extent the capacities are curtailed due to high wind e.g.) are used. Tools have been developed based on the market experience during the last 20 years. With FB, what will the TSOs publish for next week, year, day, and can we do price calculation based on that?
- Ulrik: Is the model based on NTCs?
- Håkon: indeed
- Heini: I agree with Håkon. Transmission capacity information is important for price forecasting from ST to LT. Today it is rather transparent. Our concern: if there are internal CNEs, especially those without unique IDs, it is difficult to monitor and forecast them.
- Petteri: Trust is key. Today cross-border capacities are pretty stable. It is important to know why something happened (e.g. a high price peak). The great public needs to understand it as well. There needs to be trust in the market functioning, and that the capacity calculation is delivering as it should.
- Nils: Suggestion: enter into a dialogue with persons making the price forecasts / software. What kind of data can they use? Note that all small actors use external providers of this information.
- Nils: There are different types of models being used - fundamental models (using weather, grid, ...), statistical models, AI models, and so on.
- Nils: unique identifiers would be needed for statistical models e.g.
- Ulrik: who should we talk to? → The TSOs already received names of companies that are working with price forecasting models; thanks for that!
- Ulrik: do the models work on an hourly basis?
- Nils: ST models work on an hourly basis, LT models do not – and there is everything in between. We are not looking for an hour-by-hour information, but this may depend on the production technology
- Rickard: ST models are on hourly basis, MT models focus on price duration, and LT models on investment decisions.
- Ulrik: hourly resolution also for MA?
- Rickard: we need two weeks outlooks on an hourly basis
- Heini: Trust – we need to be able to explain the results, especially when we have non-intuitive flows
- Ulrik: Transparency is not a goal in itself – it serves as a means to create trust in the market

Why is the transparency of FB considered to be lower than the current NTC?

- Ulrik: you need to change your models to cope with FB matrices instead of NTCs?
- Nils: partly that, partly not that. Some models may not use the NTC market / information; other numbers may be more meaningful for some models.
- Rickard: biggest challenge (experience from VF in Germany): to forecast D+2 - to forecast for the period where you don't have a matrix provided by the TSOs.
- Ulrik: permanent and unique identifier is important for the statistical model?
- Nils: yes
- Håkon: power system is fundamental with some stochastic parameters – aim: utilize the resources as good as possible. Starting point for the TSOs should be the fundamental model. I agree with Nils that it would be good to speak to companies selling price forecasts

- Stig: Sintef is working on a three years study "The value of grid information in flow-based market clearing" – many Norwegian hydro producers are using the tools from Sintef.

3. UMM initial ideas (10.45-11.15)

Q: Rickard: In 2022, a TSO-UMM will not be published in the same way as today: there is no NTC information anymore? Our Mid-Term models are NTC-based.

A: CCM: *Indeed, but it is possible to do an NTC extraction procedure and provide an NTC – but it may not be comparable to the values you have today.*

Rickard: I see; that probably requires us to alter our MT models

Q: Rickard: YA/MA domains – how often do you foresee to update them?

A: CCM: *YA model contains all outages foreseen in the relevant period it tries to capture. When an outage plan changes, the impact needs to be re-assessed. When we are in February e.g., a change in the outage plan in July will be assessed by using the YA model, whereas a change in March will be assessed in the MA CGM for March.*

Q: Rickard: Nuclear revision in four years time – market participants will publish this information.

A: CCM: *TSO outage plans are created one year in advance. We are only focusing on the obligation on the TSOs here, and not on the other requirements from the Transparency Regulation.*

Q: Håkon: TSOs need to deliver a calculation tool according to CACM?

A: CCM: *Indeed, a tool that facilitates you on the DA timeframe – the Market Information Tool – to be published at JAO. A tool for the UMM information may be a good suggestion as well; we may come back to this one.*

Q: Hilde: Would it be possible for the TSOs to provide an example of such a new UMM?

A: CCM: *Good idea - we will try to illustrate a future UMM for the upcoming SHG.*

Q: Rickard: YA – what does it mean?

A: CCM: *Year ahead - in December we will provide CGMs and the outage plan for the upcoming year.*

4. Stakeholders' topics (11.15-11.45)

None.

5. AOB (11.45-12.00)

CCM: Next steps

- Assess the inputs that we received from you on the problem statements.
- We will deliver a report where we try to come up with our point of view on the problem statements
- UMM, we will continue to work on this, and present the status and an example (how does it look like) in the next SHG.

All participants are thanked for their constructive inputs!

We wish you already an excellent Xmas break, and a healthy start of 2021!

The presentation has been uploaded on the Nordic RSC website: https://nordic-rsc.net/wp-content/uploads/2020/12/12092020-Nordic-CCM-SHG_Vf.pdf

Action items

Description	Responsible	Due date
1. Assess the inputs that we received from you on the problem statements, and deliver a report where we try to come up with our point of view on the problem statements	TSOs	Next SHG meeting
2. Continue the work on the UMM under FB, and present the status and an example (how does it look like) in the next SHG	TSOs	Next SHG meeting