

Nordic FB SG (Stakeholder group) – meeting minutes

FINAL Version

April 15 2016, 9.00-15.30 (Stockholm Arlanda airport, Radisson Blu Skycity)

Participants		
FB project <ul style="list-style-type: none">• Trond Arnljot Jensen (Statnett)• Ulrik Møller (Energinet.dk)• Heini Ruohosenmaa (Fingrid)• Márten Bergman (Svenska kraftnät)• Martin Julander (Svenska kraftnät)• Pieter Schavemaker (E-Bridge Consulting)	NRA <ul style="list-style-type: none">• Toril Naustvoll Gange (NVE)• Johan Roupe (EI)• Jarno Lamponen (Energiavirasto)• Peter Christian Olsen (Energitilsynet) Excused: <ul style="list-style-type: none">• Björn Klasman (EI) PX <ul style="list-style-type: none">• Hilde Rosenblad (NPS)	Market representatives <ul style="list-style-type: none">• Set Persson (Vattenfall)• Mats Nilsson (Svensk Energi)• Raimo Peltola (Fortum)• Pasi Kuokkanen (Elfi)• Petteri Haveri (Energia)• Jens Mortensen (Dong Energy)• Marie Holst (Dansk Industri)• Jørgen Gunnestad (SKS)• Andrea Stengel (Energi Norge) Excused <ul style="list-style-type: none">• Per-Vidar Hansen (E-CO)• Thor Kalstrup (Danske Commodities)

1. Welcome and tour de table (9.00-9.20)

Objective: Welcome to the second Stakeholder Group meeting, and introduction of the participants (as there are some new faces around the table).

2. Objective and agenda (9.20-9.30)

Objective: Objective of the meeting; manage the expectations; agree upon the agenda.

The agenda of today's stakeholder group meeting has been agreed upon.

3. Status update of the Nordic FB project (9.30-10.00)

Objective: Presentation by Trond on the current status of the Nordic FB project.

Please note that in the remainder of the minutes, the text in italics is the response from the project whereas the non-italics text refers to questions posed, and comments made, by the stakeholders.

The following questions were raised, comments were made, during the presentation:

- Pasi – What is the optimization that will be used in the FB allocation mechanism. *It is the same as today: it is the social welfare (consisting of consumer surplus, producer surplus, and congestion rent) that is optimized.*
- Set – if you change the maximum price at the PXs will the outcome of the optimization change? *No, in essence not (unless the market clears at the maximum price).*
- Johan - Belgian case: even when the Belgium price is at 3000 EUR, there is a risk that Belgium don't get the energy; this should not happen in the Nordics. *Indeed, in the FB mechanism it is not only the bid price, but also the impact of a bid on a network congestion (by means of the PTDF factors, aka "flow factor competition") that determines whether or not a bid is contributing to the maximum social welfare and is accepted. The behavior mentioned, is linked to the non-equally-sized bidding zones in CWE, and to the price bounds implemented in the allocation mechanism. The bidding zones in the Nordics are more equally sized, and a mitigation ('patch') has been implemented in Euphemia that prevents price taking orders (orders submitted at the price bounds set by the exchanges) to be curtailed because of "flow factor competition".*
- Mats - There is a benefit of sticking to NTC. Indeed, the ID remains to work as today, whereas now the ID in CWE is a major concern. This should be done in a better way in the Nordics.
- Set – Are stability / dynamic issues simulated in offline grid models? *Yes, indeed, the current prototype CGMs (Common Grid Models) created within the FB project can only be used for static grid analysis.*
- Toril – Are the parallel runs delayed? *No, the timing remained unaltered, but there may be a delay on the external publication of the weekly simulation runs, due to some issues faced with creating forecast grid models.*
- Toril - If the CCR approval is not delayed, the comparison between FB and CNTC is a challenging task.
- Petteri – According to the planning, the decision to go for FB (or CNTC) will be made in March 2017 (Capacity Calculation Methodology (CCM) proposal). Does this mean that the external parallel run is more to confirm the correct performance and behavior? *Indeed, and in addition it is intended to have all stakeholders get acquainted to the FB capacity calculation and allocation results.*

4. Presentation of some FB capacity calculation and allocation examples (10.00-11.00)

Objective: Presentation by Márten of FB capacity calculation and allocation examples.

The following questions were raised, comments were made, during the presentation:

- Mats – Why is the Congestion Revenue (CR) part of the social welfare? *The objective function of the NTC and FB market coupling is the same: it is the social welfare that is maximized. Congestion revenue as such is not maximized; congestion revenue is a natural by-product when transmission capacity turns out to be a scarce good. In the two graphs below (where NEC stands for the Net Export Curve, being the relation between the Bidding Zone price and Bidding Zone import/export*

position), we see first an unconstrained exchange from A to B, followed by a constrained exchange situation (source: Schavemaker, Pieter, and Van der Sluis, Lou.: *Electrical Power System Essentials*, Wiley, April 2008, ISBN: 978-0-470-51027-8):

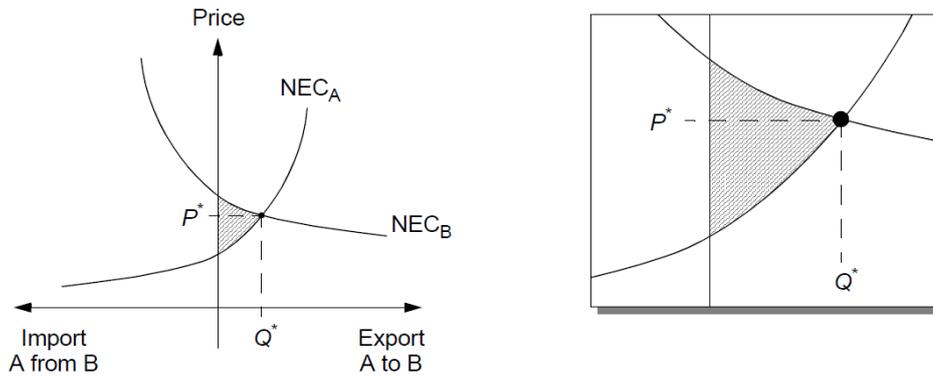


Figure 7.11 NEC curves of a low-price and a high-price area combined in a single graph and a close-up
Hatched area: gain in social welfare

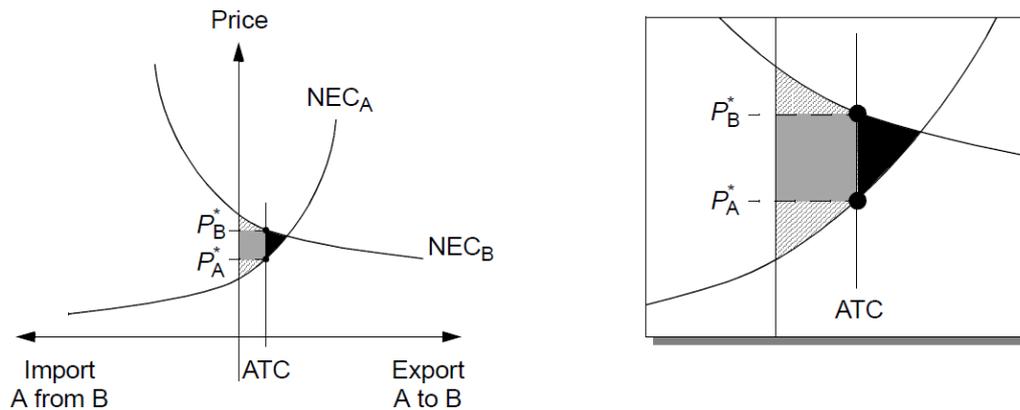


Figure 7.12 Congestion of the interconnection capacity and a close-up
Hatched area: market surplus
Grey area: utility surplus (congestion rent)
Black area: market efficiency loss

The hatched and grey area is the additional welfare gain obtained by having an export from A to B.

- Peter – What is the shadow price? The shadow price is a by-product of a constrained optimization; there is a shadow price for each constraint in a constrained optimization. Within the FBMC context, where the FB constraints act as constraints in the market optimization, the shadow price of a FB constraint indicates the social welfare increase when we would increase the margin of the FB constraint with 1 MW. It is a kind of 'price-tag' that is labelled to the FB constraint on a specific hour and day.
- Johan – The complete picture, going beyond the Nordic area only, is used in the market simulations. Yes, although not the whole European geographical scope is used (e.g. Iberia and Italy are not taken into account).
- Mats – In case of congestion under FB, prices are converging but they are different. Indeed when compared to NTC, on average, FB brings more timestamps with a full price convergence, but in case of a congestion the prices differ in all bidding zones that contribute to the congestion. On average, the resulting price spread will be lower than under NTC though: a better price convergence towards the system price is established.
- Andrea - The hedging needs to be addressed. Indeed, TSOs will facilitate this discussion. In this respect, it is mentioned that today it is mainly the system price that is used for hedging purposes. Andrea indicates that, although EPADs may not be intensively used today, it does not mean that the market actors do not want to use them. Indeed, they do not make use of them for other reasons (e.g. illiquid markets).
- Pasi – Why is there a zero on the link to Poland in FB? Please note, in this respect, that hourly results are always impacted by all the hours of the day, due to block bids, ramping constraints, and so on. Indeed, it is not always straightforward to evaluate hourly results due to this dependency. **After the meeting:** The SwePol cable was limited by PSE for the 21st of January 2016 16:00-17:00, Svk submitted max NTC in both directions.
- Set – what will happen with ID capacity and the balancing market? Indeed, if there are different prices after the DA, and there is capacity left after the DA, the market will take it directly on the ID. Although the ID capacity calculation and allocation is not the objective of this project, there is clear interlink with this project, and the topic will be addressed by the FB project. When after the DA, a CNE is congested, it implies that there is no margin left for any trade contributing to the loading of the line. All trades relieving the line loading can be allowed.
- Mats – FB poses some pedagogical challenges, especially with the four price zones in Sweden, and earlier communication on Swedish grid investments with the objective 'to eliminate the price differences between the Swedish bidding zones'.
- Set – Did you apply a sensitivity analysis on the examples presented (e.g. assuming a 1000 MW more wind in Denmark)? No, but it may certainly be interesting to do so. The stakeholders are invited, if deemed useful to do so, to provide some interesting hours for these purposes. Please note though, that this is not an easy exercise for the project / TSOs, as there are limitations on the use of order books / bid data.
- Pasi – How about the border FI-NO4? Under NTC there is no commercial capacity given to this border (it is reflected in the FI-SE1 capacity). Under FB, capacity is, and can be, given to this border.
- Andrea – Can we have aggregated / overview numbers as well, in addition to the hourly results presented. Unfortunately, the results are not of such a quality level yet. Indeed, sharing numbers at this stage may set a reference and/or level of expectation, that may not be met.
- Mats – As flows from high-price to low-price areas are extremely hard to explain, can you (for comparison purposes) use both the plain FB, and the FB Intuitive (i.e. the FB allocation with the intuitive patch applied in the allocation mechanism)? The

project will take suggestion on board.

5. Coffee break (11.00-11.20)

6. Presentation by the NRAs (11.20-11.30)

Objective: Presentation by Toril on the Capacity Calculation Methodology (CCM) proposal, that is expected from the TSOs.

Skipped; the presentation can be found in the slide deck though.

7. Presentation on the CNTC approach (11.30-12.00)

Objective: Presentation by Heini on the CNTC approach, that will be compared with the FB capacity calculation.

The following questions were raised, comments were made, during the presentation:

- Mats – If the CNTC is a constrained version of the FB, it will always provide a lower welfare. This should be a CON, as CNTC can never 'win' from FB.
- Andrea – CNTC has a benefit (PRO) in terms of pedagogy and understanding
- Set – You have to optimize the whole problem, not only the DA but the ID as well: ID capacity should be reserved when optimizing the DA market. *As a target, the CACM describes an optimized capacity calculation and allocation for both DA and ID. In this target situation, after the DA market, forecast grid models for the ID timeframe will be created for ID capacity calculation purposes. The uncertainty of the capacity calculation is covered by the FRM, an FRM that applies for the DA and one that captures the uncertainty linked to the ID timeframe. With the uncertainty growing smaller the closer we get to real time, this will automatically capture the level of uncertainty among the capacity provided to DA and ID, thereby indeed providing an approach where all the information available is used to optimize the market (at DA and ID).*
- Johan – CACM foresees the pricing of scarce ID capacity.
- Pasi – What will happen with unforeseen outages of power plants e.g.? *If the information is available before the capacity calculation starts, it will be taken into account. Otherwise, it needs to be dealt with as is, just like today.*
- Jens – Will the auction structure on the DA be changed? *No, it is at least not within the scope of this project.*
- Petteri – more optimal DA is a better starting point for ID, but how will you evaluate the ID capacity? *The FB project is currently working on this topic.*
- Mats – We want more capacity from low to high price areas.
- Hilde – Non-intuitive flows (that are at the expense of welfare) are induced in order to allow more intuitive flows (that are contributing to welfare).
- Pasi – Even though a solution may be optimal, small actors may withdraw due to the complexity
- Petteri – Can you please compare the both the FB and intuitive FB for with CNTC? *The project will take suggestion on board.*

8. Presentation on the impact assessment and CCM proposal (12.00-12.30)

Objective: Ulrik to present the impact assessment to be performed by the Nordic TSOs, and the resulting Capacity Calculation Methodology (CCM) proposal.

The following questions were raised, comments were made, during the presentation:

- Mats – Welfare numbers are required per area, and not only on a Nordic level. *The congestion income sharing mechanism is not fixed yet, and is under discussion by ENTSO-E. This implies that at least the congestion rent cannot be effectively split per area at this moment in time. To Mats and Andrea, although congestion rent is not shared per area at this moment in time, the welfare figures per area are important though, as it is linked to the tariffication structure in Norway and Sweden.*
- Andrea – Figures of price volatility and price spread are needed as well.
- Mats – One of the positive sides of FB is that there is a cost now on internal constraints.
- Andrea – Having internal CNEs provides potential ingredients for bidding zone delineation discussions as well. *Indeed, FB provides a more transparent congestion management methodology.*
- Johan – Svk has a commitment to DG COMP not to shift internal constraints to the border. If you now have internal CNEs (which is in line with CACM) in a FB system, how does this relate to the DG COMP case?
- Set – How should UMMs look like in a FB world? *Indeed, this is in scope of the project, but this issue has not been tackled yet.*
- Jens – We need numbers in order to provide reasonable feedback on what should be the content of a report comparing FB, CNTC, and NTC.
- Mats – Winner and losers cannot change from one day to another, e.g. by introducing FB.

Ulrik invites Set to draft a note on the ID concerns that he expressed. Set accepts the invitation, and will provide his input at the latest for the next meeting.

Ulrik suggested the possibility for the FB project to have bilateral discussions with e.g. energy associations. No concrete feedback has been received on this suggestion though.

9. Lunch (12.30-13.30)

10. Feedback from Stakeholders on the market information tool and set out actions (13.30-14.30)

Objective: Feedback from Stakeholders on the market information tool and set out actions

- *Summary of the wish lists received with regard to market information suggested to be provided under FB*
- *Set out next steps.*

The following questions were raised, comments were made, during the presentation:

- Mats – What is your measure to choose one GSK or another. *The FRM, being the measure of the uncertainty linked to the whole process of capacity calculation (incl GSK), is currently foreseen to be that measure. Indeed, the GSK that minimizes the FRM is the one that provides forecasts that are closest to what has been observed in real-time.*
- Mats - Big market actors do have a competitive advantage compared to smaller ones, as they have the means to figure out a model after some time. A discussion developed whether or not the detailed information on the CNEs is needed or not. All agreed that for market activities, the PTDFs and RAMs are sufficient. TSOs are bound by national legislation in terms of what can be published. The NRAs do receive all the information, for monitoring purposes.
- Mats – Mats suggests to take information from CWE rather than the Nordic stakeholders, as they do have experience. *As the*

discussion with stakeholders in CWE is also dynamic, their wishes are embedded in their evolving 'utility tool'. Furthermore, the Nordic situation is quite different from the CWE one, e.g. in terms of bidding zones. Of course the FB project does take the CWE experiences into account, but is more keen to hear your views.

- Johan – How will the NTCs be published when there are more NEMOs? TSOs provide their data to all NEMOs; it is up to them to publish it. As such, the stakeholders can get the data from that NEMO where they would like to take it from.

It has been agreed that stakeholders can provide feedback on the wish list before May 6; the information received at that point in time, will be used for an initial information tool.

11. Step-by-step walk through the FB and CNTC process (14.30-15.00)

Objective: Presentation by Martin of the FB and CNTC process in a step-by-step manner, as requested during the last Stakeholder Group meeting.

The following questions were raised, comments were made, during the presentation:

- Jens – With the prognosis made by the TSOs at D-2, Jens is wondering if ENDK - that currently makes use of the last wind prognosis in D-1 in the morning - will really do a step back by using D-2 data.
- Andrea – What is the level of detail of the IGMs? *The IGM has a full level of detail of the grid. The FB 'grid model' that will be provided to the PXs is only an excerpt of this detailed grid model, that is needed to properly manage the cross-border exchanges and maintaining the grid security.*
- Petteri – In essence you work on a more accurate forecast of the grid, followed by a capacity calculation, being either FB or CNTC. With CNTC, the capacities may vary from hour to hour like in the FB? *Yes, indeed.*
- Andrea – If the capacity calculation process takes so much time, did you consider how to do this in ID? *The options for ID are currently assessed.*
- Pasi – Does XBID provide the possibility for FB ID? *No, it does not at the time of go-live.*
- Set – Would it be possible to have FB on the balancing market (being even more important than the ID)? *This is currently not foreseen.*

12. Open discussion (15.00-15.30)

Objective: Share your thoughts, ideas, concerns.

During this item, Martin presented the ideas, within the FB project, to introduce an information platform.

The following questions were raised, comments were made, during the presentation:

- Andrea – Andrea supports the idea of the Q&A platform
- Pasi – Can everybody participate in the Q&A discussions? *Yes, everybody that has access to the Q&A forum can participate. It is foreseen to have the FB project moderate the Q&A, in order to make sure that the discussions do focus on the FB project.*
- Toril – NRAs would like to have explanations published, going along with the simulation results that will be shared/published on this platform.
- Stakeholders would like to have both FB and CNTC published for a sufficient amount of time for comparison purposes.
- Fallbacks are needed, e.g. when big events happen in the grid shortly before the allocation starts. These fallbacks need to be developed.
- Johan – Should second auctions be implemented in the Nordics? *The second auctions, applied on the continent, are mainly intended to provide a short time window to update the bids. The Nordic stakeholders are not in favor of this.*

The next meeting will be organized in roughly three months in Copenhagen. A Doodle poll will be initiated to find a proper date. The meeting materials, such as presentations, will be provided before the next meeting.

Action items

Description	Responsible	Due date
1. Initiate a Doodle poll for scheduling the next SG meeting	Project members	April 26
2. Provide input to the 'wish list' with regard to the market information tool	All stakeholders	May 6
3. Draft a note on ID concerns	Set	Next meeting

Open issues

1. Flows from high-price to low-price areas, and the intuitive patch in Euphemia
2. ID capacity
3. Stakeholder information, and Q&A, platform
4. Market information tool
5. Hedging