MARKET PARTIES PLATFORM

Linking Energy Markets

Transparency of the Flow Based capacity calculation

Discussion paper

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Introduction

This paper is to contribute to the discussion on transparency of network data in the flow based environment. It provides the starting point from a market perspective. MPP explains the reasons for the information required and proposes a set of data to be published with a proposal to enter into a dialogue for the details.

Why is transparency on network information important?

Market parties need to forecast market prices in order to take efficient short term and long term decisions (investments, maintenance scheduling, operational scheduling and dispatch). Making informed decisions results in a more efficient system and leads therefore to welfare gains.

The related market analysis is not only relevant for the day-ahead stage, but also for week, month and years ahead. This is related to operational planning, investment decisions and other market analyses.

Network information is part of the fundamental market information that impacts prices. Therefore network info needs to be published.

How is this need for network information transparency related to flow based?

The need for network information is changed because of the introduction of flow based instead of NTC-based approaches.

In the NTC-approach, TSOs apply rather stable choices in allocating XB-capacity over the different borders. In *theory*, TSOs are free to shift XB-capacity from one border to another border (depending on their expectation on the economic value of such shift), in *practice* such “continuous optimisation” did and does not take place. This means that market parties are able to model NTC values (or: to model TSO choices) with a sufficient level accuracy. Also the market models used by market participants are based on the NTC-approach.

In the flow-based approach, TSOs do not make direct choices on allocating XB-capacity over different borders. This will now be done by applying a detailed grid model, with the day-ahead order books. This determines the value of the XB-capacities for the different border and “automatically” results in lower XB-capacities on some borders and higher XB-capacities on other borders.

In conclusion: Market parties “model the TSOs in calculating XB-capacities”. In the NTC-approach this is a relative easy task. This task is much more complex in the flow-based approach. Therefore, market parties need much more detailed network information.

Network information is crucial for market parties to understand and predict prices in a flow based environment. With current unstable results of the parallel run and due to the lack of information, market parties are for the moment simply not able to build up experience in forecasting market prices.

What is needed, when and what for

Learning process
For the moment market parties are still at the beginning of a learning process and therefore it is difficult for them to assess which information they exactly need. That's why the required information is probably not complete and why the MPP proposes to continuously evaluate the transparency needs in an ad hoc expert group.

Longer term market analyses
These analyses are necessary for investment or divestment decisions in power plants and long term price forecast for long term contracts. For this market parties need to be able to make a load flow model of the grid. Therefore the information needed is the technical information of the grid components. Probably this is the information used by the TSOs to make their network development plan. Confidentiality doesn't play a role. In some countries this information is already in the public domain.

Another possibility is that "flow based scenario results" (comparable to the current parallel runs) are published for future situations, for example taking into account planned grid expansions.

Operational planning
Operational planning includes maintenance planning, price forecast for contracts but also price forecast to be used in the scheduling process.

Ideally, all network information shall be published. This includes the Common Grid Model (with all electrical characteristics of all network elements, allowing for load flow calculations), but also the GSK's (depending on the format because of risk of confidentiality and competition issues), FRMs, list of critical branches, base case assumptions and limits of imports/exports used by TSO's for grid stability reasons. Basically all data that determines the PTDF-matrices need to be published.

Partially, this information consists of "pure" network data, like grid topology and electrical characteristics. Like for the long term information confidentiality on such information does not play any role, and publication should be possible. There may however be limitations from practical point of view. The amount of data needs to be manageable by market participants. This requires a discussion between TSOs and

market participants to find a balance. This FBMC modeling issue could also be addressed in the ad hoc expert working group.

Another part of this information consists of non-pure network data, like generation availability and even on efficiency of power plants (which is needed for the GSK's). Confidentiality might be an issue for such data, but much information on planned outages is already published and fuel efficiency can be addressed as today.The information provided should allow market parties to mimic TSO behaviour in order to make the best forecasts for themselves. This will improve market decisions, market estimates, scheduling and bidding efficiency and leads to higher welfare.

Compatibility with intraday
Cross-border capacities made available in intraday should be consistent with what is allocated in day-ahead (ATC or Flow Based). The impact of counter-intuitive flows on intraday welfare should be assessed and the report should already be published during the external parallel run. A recalculation of the PTDF after day-ahead clearing should be performed as well.

NRA monitoring reports
NRA monitoring reports on GSK methodologies and remedial actions principles should be published, especially if it differs from one country to another. Market parties need to better understand how TSOs are defining rules for GSKs and on what principles TSOs are activating control actions to maximize the Flow Based domain.

Proposal for publication

What data	***When***	***Update frequency***	***What for***
Technical info of grid elements to allow for load flow calculations and planning of changes in that	Continuously	Any (planned) change	Di- and investment decisions and long term price forecasts
Network data (see previous point) and market assumptions for PTDFs (scenario's) in calculations for long term capacity allocation	2 months before long term auctions	Every auction	Price forecasts and bidding for long term capacity

What data	*When*	*Update frequency*	*What for*
D-2 network data and FRM, GSK (depending on the format because of risk of confidentiality and competition issues), BC, critical outages and critical branches for the PDTF calculations	After each PDTF calculation	Daily	Price forecasts and day ahead bidding
Historical FRM calculations with TSO assumptions and strategy	This should be logged after each change	Any change in FRM calculation	Market analyses in general, interpretation of past results.
Limits of imports/exports used by TSO for grid stability	After each PTDF calculation	Any change	Price forecasts and day-ahead bidding
D2CF	Continuously	Any change	Price forecasts and day-ahead bidding
Any network changes after D-2	Continuously	Any change	Intra-day bidding
Hours were a situation is intuitive or not	Continuously	Daily	More transparency on hours with non-intuitive situations

This proposal should be further discussed. The information stream should be manageable, not lead to an information overload and ensure confidentiality of market information.

Some more concrete ideas (not worked out nor exhaustive):

- TSOs publish grid info and scenario info they use for their network expansion plans
- TSOs and market parties organise joint methodology for planning scenarios and TSOs and PXs calculate the relevant flow based price forecasts (e.g.: publication of 25 scenarios with typical PTDFs)
- TSOs and PXs publish “best fit” ATC values (in relation to XB ID)

For parallel run (to get confidence in the system):

- TSOs and PXs publish the complete PDTF matrix with critical branches
- TSOs and PXs calculate sensitivity scenarios for certain days and with certain assumptions e.g. wind distribution, solar generation extremes, (un)availability of conventional generation in certain areas. The scenarios should be defined in close contact with the market.

Recommendation

The MPP is of the opinion that it would be in the interest of TSOs and all stakeholders to set up an expert working group to organise the dialogue and discuss and continuously assess the information needs of the market. This should start now, as the information is already relevant in the parallel run in order to gain confidence in the Flow Based methodology.

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Market Parties Platform

The Market Parties Platform is a cooperation of energy industry associations in the Central West European electricity market (including the Benelux, France, Austrian and German market). Main goal of this cooperation is to actively promote the forming of an integrated CWE electricity market and efficient coupling with the surrounding regions. This will increase efficiency of the market and will therefore bring benefits to the electricity consumers in this region. The work is strongly linked with Eurelectric.