MARKET PARTIES PLATFORM

Linking Energy Markets

Memo

Current secretariat:

Energie-Nederland

Lange Houtstraat 2

NL-2511 CW Den Haag

info@marketpartiesplatform.eu

www.marketpartiesplatform.eu

To	Pentalateral Energy Forum
From	MPP
Date	25 november 2016
Subject	Description of the intra-day capacity calculation process

This note describes the current process of capacity calculation for the Day Ahead and Intra-day timeframe, as understood by market parties. The purpose of this note is to analyse the possibilities for a recalculation of the flow based capacity calculation at the beginning of the ID market. Furthermore, it gives relevant issues to further develop the ID recalculations in the future through comments and questions.

1. DA capacity calculation (D-2 -> DA 10.30)

Input: D2CF (Day-2 Congestion Forecast) file for each hour of day D (incl. technical capability of transmission assets) + Generation Shift Key (GSK)

Process:

1) Compute Power Transfer Distribution Factors (PTDFs) and Remaining Available Margin (RAM) on each Critical Branch /Critical Outage (CBCO)

   This process is operational as of today. Relatively straightforward and automated process.

2) Look for insightful non-costly remedial actions (HVDC and phase shifter settings/network topology)

   As of today done manually and taking several hours, should be automated/optimized: objective should be to maximize the economic welfare = extension of the Flow-Based domain in the expected direction of market.

Output: Day-Ahead FB domain + reference setting for non-costly remedial actions

Comment: Market parties would appreciate a quantitative analysis on the sizing of FRM and FAV for the most constraining CBCOs. A cost benefit analysis on their downscaling, possibly even to negative values (this could lead occasionally to more corrective redispatching in the ID time frame but avoid systematic preventive limitation of XB exchanges) would be welcome.

2. Initial ID capacity calculation (DA 14.00?)

Input: DA FB domain and net positions resulting from DA market coupling and LT nominations

Process: Define the largest ATC-based domain included in the FB domain around the operating point resulting from DA market coupling by increasing equally the ATC-domain in unsaturated directions.

This is operational as of today. Relatively straightforward and automated process.

Output: NTC to be allocated through intra-day markets

Comments/Questions:
- Reference settings for non-costly remedial actions remain unchanged with respect to their final value in DA calculation.
- ID capacity allocation could theoretically start no later than DA at 14.00 hr based on the initial ID capacity calculation. This may be useful to address through market-based process DA events affecting the first hours of delivery.
- This process could be repeated several times in the ID time frame, even in absence of full capacity recalculation, by considering updated net positions of each bidding zones. TSOs recognized this option should be considered at the CCG in March.

3. Intra-day security analysis

Input: Day Ahead Congestion Forecast (DACF) or IDCF file based refreshed forecasts by TSOs

Process: *The process is operational as of today. However, there is no public documentation available describing how it is performed*

1. Identify potential congestions, incl. for N-1 situations
   (It is unclear which level of uncertainty on power flows through the constrained assets TSOs consider at this stage. Would it be relevant to consider a reduced flow reliability margin with respect to the DA FRM? What is the value considered in operational processes managed by TSCnet and Coreso?)
2. Where needed, look for non-costly remedial action to alleviate the constraints
3. Where needed, prepare or trigger costly remedial actions (incl. redispatching, countertrading, and if necessary load curtailment) to restore a sustainable operating point

In market parties' understanding this process is not fully coordinated and automated

as of today. The search for remedial action is performed manually. Coordination and automatization of the process would be welcome.

Output: Updated settings for non-costly remedial actions + set of costly remedial actions

Comments/Questions:
When TSOs trigger countertrading actions in the intra-day time frame, how does it impact ID cross-border capacity? Could you describe the process between TSOs and PXs regarding countertrading? How many times the security analysis is performed for a specific hour? What kind of constraints are considered (Thermal constraints? Voltage stability? Transient stability?)?

4. ID capacity recalculation

Input: DACF or IDCF file + updated GSK (based on DA results) + updated settings of non-costly and costly remedial actions

As those inputs are basically the same as in step 3, market parties tend to consider they could easily be gathered as of today. If not, can you detail what is challenging?

Process:
Assess the PTDFs, and RAM (considering no FAV and same FRMs as for the security analysis)

This is straightforward and automated process (same as DA)

Output: New FB domain, leading possibly to new NTCs (as long as ID market coupling does not handle FB allocation) along the principle of stage 2.

Comments:
- Market parties understand that remedial actions settings are updated through the intra-day security analysis. From this perspective, the ID recalculation process could be much more straightforward than the DA capacity calculation. Could you confirm this analysis?
- Why could such a module not be delivered by end of 2016?
- Potential new NTCs can be allocated to the market in the same way, as what is done since March 30th 2016 for capacity upgrades.
- Note intra-day security analysis and ID capacity calculation can be repeated multiple times. Ultimately intra-day security analysis should be run right after the Intra-Day Cross-Zonal Gate Closure Time.

Conclusion

The capacity calculation without search for new non-costly remedial action can be easily implemented in the same way as it is done for DA. Considering a refreshed reference point and reduced FRMs, this should lead to a significant increase of cross-border exchange capacities. Market parties consider such a process as a low-hanging fruit with high benefits that should be swiftly implemented.

During the call on September 8, TSOs claimed there could be difference in FRM for ID security analysis and ID capacity recalculation. This does not seem to be justified as these two processes rely on the same information and the potential congestion management solutions (cross-border capacity limitation or redispatching) should be considered on an equal footing.