

To Flow Based project
From MPP, EFET
Date 29 January 2015

Subject Flow Based Market Results: request of information

During the CWE consultative group on November 19, 2015, market parties presented a list of questions for which TSO agreed to prepare a written publication answering them in detail.

Aiming to foster market parties' trust in market coupling processes in the CWE region, this paper recalls and completes the following:

- First, questions from market parties related to the understanding of the flow-based domain computation process;
- Second, it provides a list of requirements in terms of transparency that market parties consider priority.

1. Practical questions

a. Details on past events:

Market parties presented a list of questions at the last CWE consultative group meeting. They are recalled (for those not addressed on November 19) or completed hereafter:

Q1. Market parties fear that the **capacity domain has decreased** since the launch of FB in comparison with the parallel run.

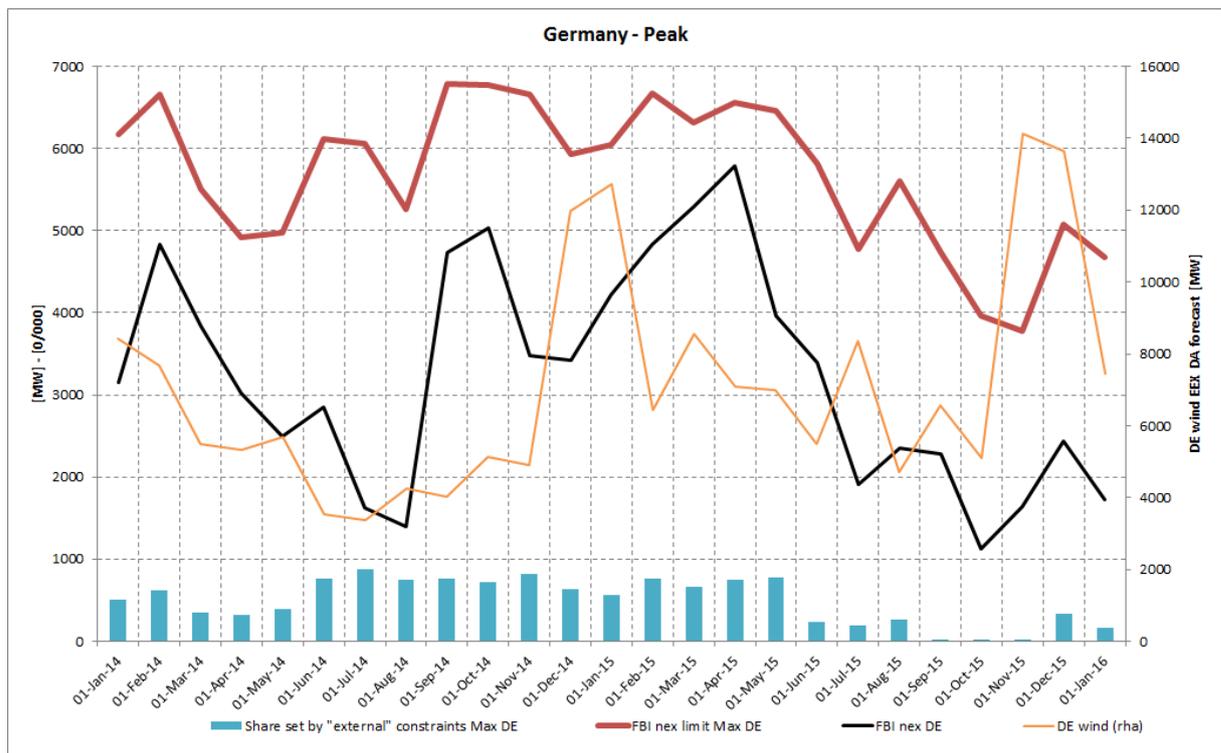
During the last CCG meeting, flow based project officers mentioned that the metrics used by market parties to assess the volume of the flow-based domain is not relevant.

- What would be a more relevant indicator of the Flow-Based Volume?
- If another indicator is more appropriate, what would be the trend since the launch of FB?
- Market parties have the feeling that the reduced volume of the FB domain might be linked to the increasing number of CBCO. Can you confirm this link?
- Otherwise, why has the volume decreased so much since May 2015?

Q2. Parallel run increased **German exports** with respect to ATC-based coupling, but live version decreases them (see figure below).

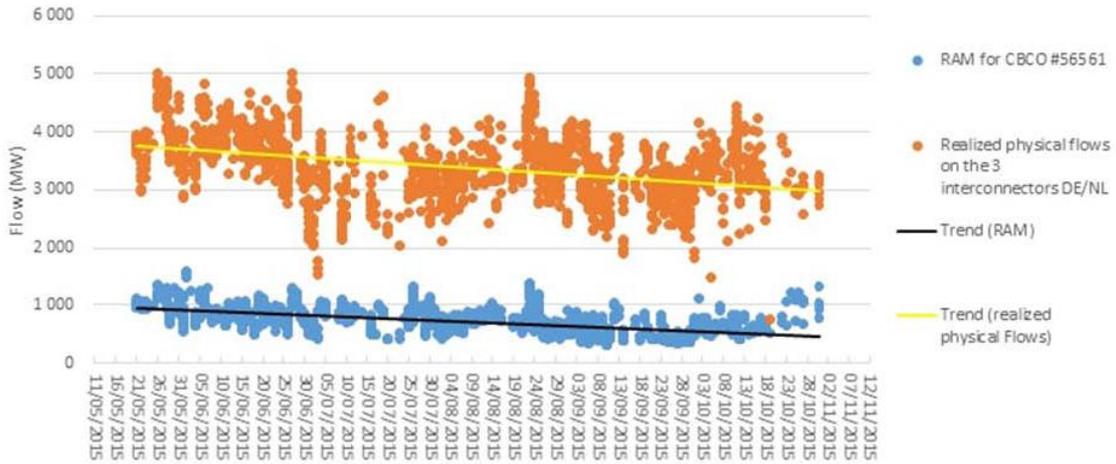
During the CCG meeting, TSO mentioned that a lot of offshore wind units were commissioned in Germany during last summer, leading to internal constraints in Germany limiting exchanges possibilities. However when looking at the figure shown in Q3, we see that limitations also appear on cross-border lines.

- Could you confirm this interpretation is correct to explain the decrease in German exports?
- What happened after go-live? Any change in the parameters?
- If yes, why were the parameter changes not communicated to the market?
- Why is the German max export constraint active so infrequently (compared to the parallel run)?
- It seems the German max export value does not vary significantly with time. Why not setting it daily, as it is done for other countries than Germany?



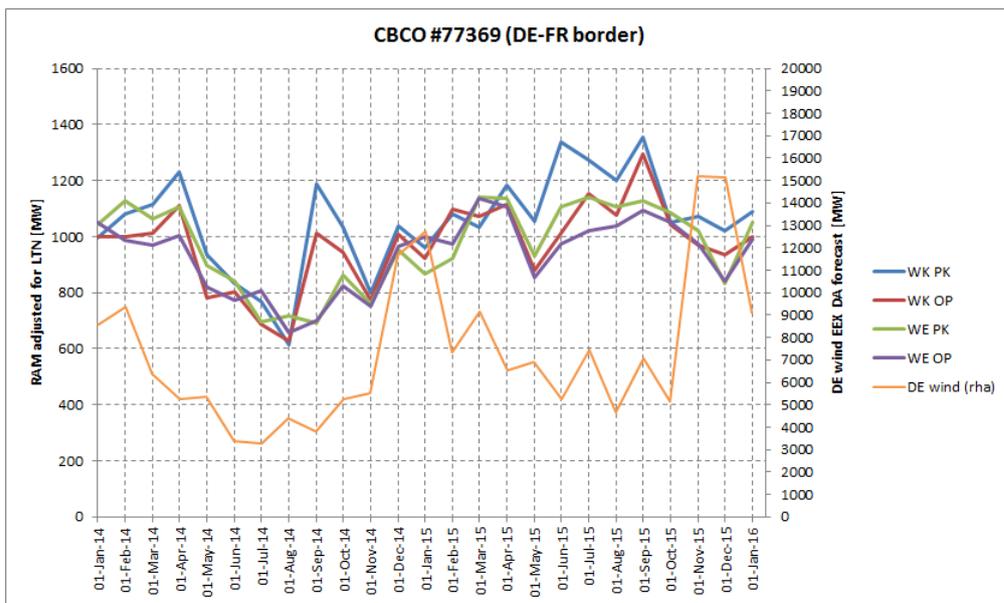
Q3. The **remaining available margin of the CBCO #1456561 (which has set the price approx. 30% of hours between go live and Oct 31)** has decreased significantly during summer 2015. However, when a XB CBCO between NL and Germany was effectively constraining the market coupling, the realized power flows on the corresponding border (Germany-Netherlands) also decreased in the same proportion, as illustrated in the figure below. From this perspective, the decrease in RAM could be considered abusive and leading to power flows much lower than what the corresponding transmission line constraining the market coupling is able to do (incl. during N-1 events).

Realized physical flows on the 3 interconnectors DE/NL Versus
RAM of CBCO #1456561



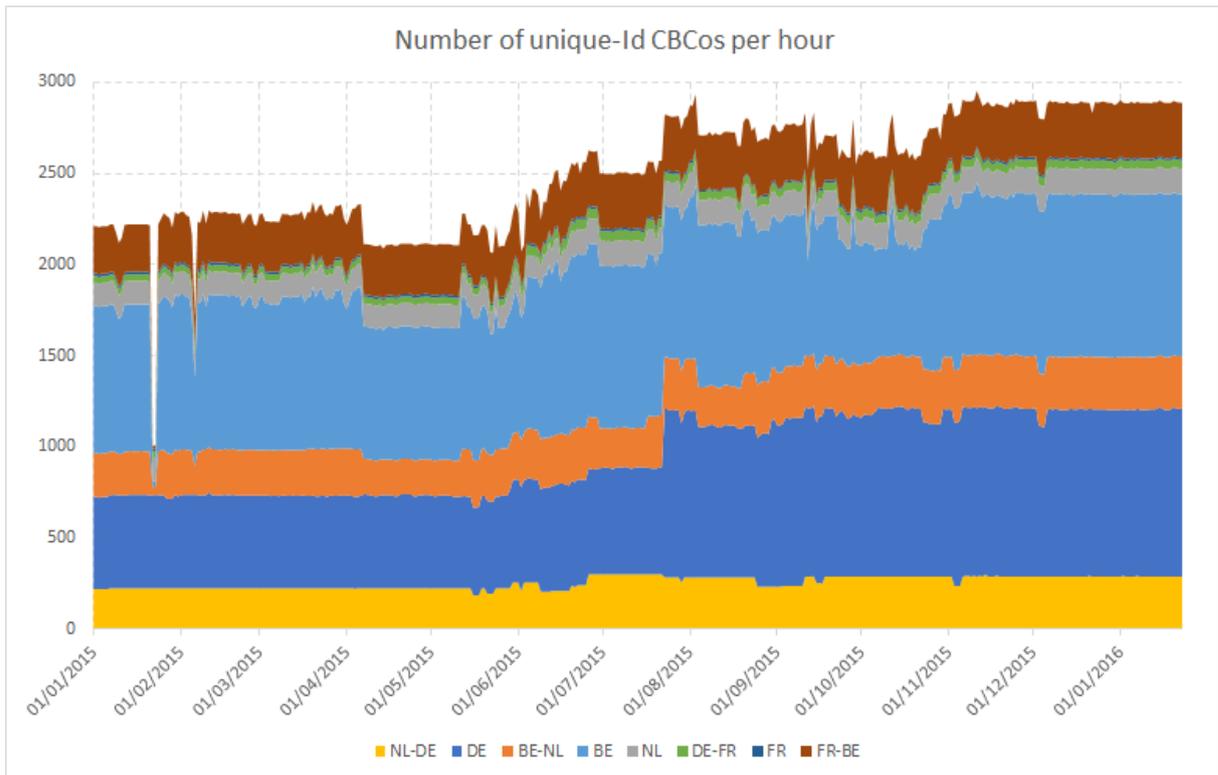
- Why was this RAM progressively decreased during Summer 2015 and then return to a more or less “normal” value in November 2015?
(for the avoidance of any doubt, we are talking about July and August 2015, not September and October which, we understand, were affected by the Zandvliet outage)
- How can you explain that the realized physical exchange between Germany and the Netherlands has decreased so much, when CBCO #1456561 is setting the price?

The same question could be asked about CBCO #1677369 (FR-DE border) whose capacity increased massively between summer 2014 and summer 2015. It was very often active in Summer 2014 (parallel-run), almost never in summer 2015 (despite france exporting often more than in the parallel-run).

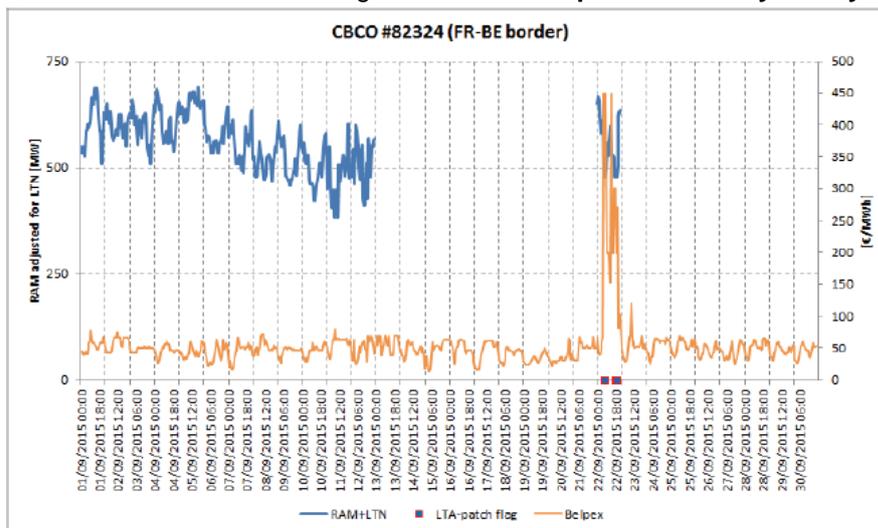


Q4. There is an **increasing number of CBCOs** (see figure below).

- Was any information circulated to the market about this?
- Why were new CBCOs added May 30th onwards, in particular approx. 300 CBCOs suddenly introduced on July 23rd?



Q5. Live flow-based is showing **extreme and unpredictable day-to-day volatility** in the Benelux.



- What is the explanation for removing/re-introducing this particular constraint?
- Was any information circulated to the market about this?

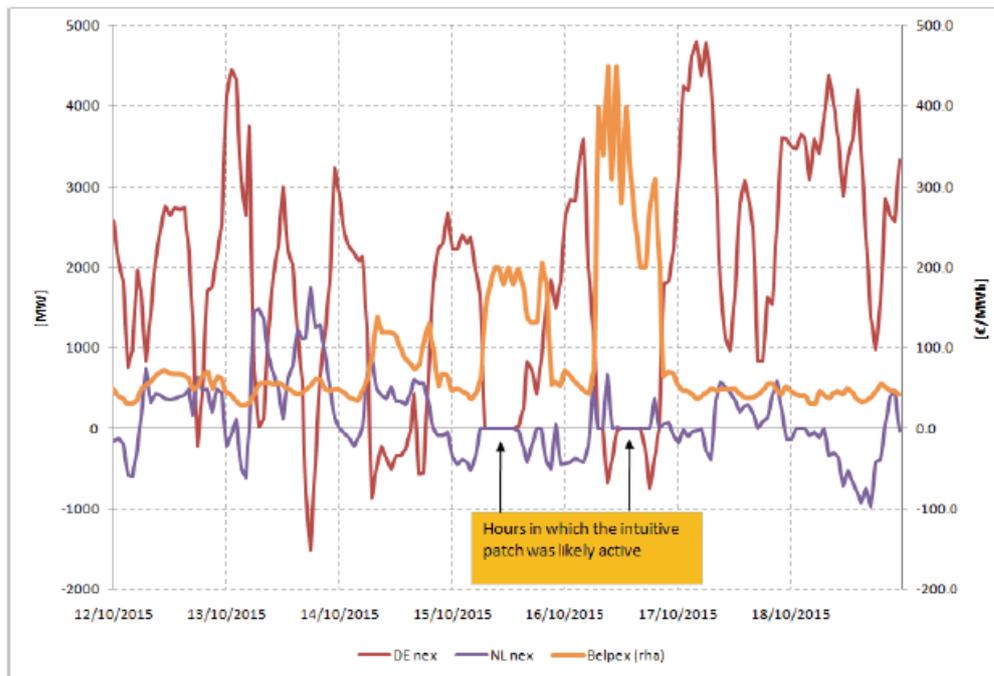
Q6. Considering the **announcements by Amprion of 3 CBCOS** to be removed and then re-introduced (on Dec 2, 2015).

- Why not disclosing explicitly the reference number of those CBCOs at the same time as the official notification?
- Why could they be considered to have no impact and then be reintroduced?

Q7. On **remedial actions**:

- What is the impact on the FB domain of remedial actions to allow more BE imports?
- What is the trigger for such remedial actions?

Q8. The “**intuitive**” patch seems to have a more significant impact on prices than during the parallel run.



- Why is that and how can we assess the real effect of the patch?
- Would a reform of FB intuitive and a move to FB plain still be possible?
- During CCG, PCR parties agreed to come back to market parties giving feedback on the possibility to publish FB plain results. Could you provide feedback?

Q9. **Impact of flow-based on intraday capacity** available to the market?

- What progress has been made on a post flow-based calculation of intraday capacity?
- Could you detail the outcomes of tests where improvements submitted to consultation by the end of 2015 in France and Belgium have been tested (Netherlands, Germany)?

- Two consultations were organized lately on re-calculation of intraday capacities. What are the next steps after these consultations? In particular, how will the potentially additional free capacity be released to the market?

b. Details on the methodology:

Market parties also formulated some questions on the principles of the methodology to compute the flow-based domain.

Q10. In market parties' point of view, it is highly valuable that the FB projects details in **a single document the overall process of flow-based domain computation, presenting the practices of each TSO at each step**. This documentation could be actualized when changes in the methodology are implemented. Could the FB project develop such documentation? MPs are aware that there is some material available on JAO, but regret there is not one single document explaining in a detailed way (including a case study) how the FB domain is computed (with all steps at each TSO level).

Q11. Assessment of max import/export constraints.

- Could you detail the rationale and methodology used in each bidding zone to compute max import/export values?
- If some of this constraints are related to technical limitations at the bidding zone level (for ex. max import with respect to stability criterion), why considering import/export with CWE borders only and not including all borders?
- If they are motivated by limiting the offset with the point of linearization for the PTDF computation, why are those constraints not systematically centered on the reference solution (which is the best proxy) and fitted hourly to the forecasted state?

Q12. On phase-shifter and HVDC settings.

- Could you detail the operational procedure to select phase shifters and HVDC settings in the reference solution (allowing assessing PTDFs).
- How are they considered in remedial actions?
- During CCG, TSOs agreed to provide pedagogical information on the workings phase-shifters (including quantitative studies). Could you make this information available?

2. Transparency requirements

Market parties consider three levels of transparency:

- a) Offline transparency on the methodology and ex-ante analysis of upgrades
- b) Ex-post periodical reports on key performance indicators of the coupling process
- c) Live information on indicators that have direct impact on the price formation

This section details further what market parties consider priority in order to reinforce trust that flow-based market coupling is delivering its full value. Market parties consider there is no reason to keep this information confidential and would appreciate that their request is addressed most shortly.

a. Adhoc consultations:

R1. Market parties consider that they should be able to understand how publications of TSOs concerning the transmission infrastructure will affect the shape and size of the flow-based domain. Otherwise, those publications mandated by REMIT are useless.

To facilitate this, the flow-based project should publish a report (see Q10) describing step by step the methodology used to assess the flow-based domain, illustrated with a realistic study case whose inputs could be fully disclosed.

R2. The flow-based project should furthermore develop a set of 20 to 50 likely hourly situations in addition to historical data, to cover the whole range of operation conditions in the CWE region, whose inputs could be fully disclosed.

This set of situations could then be used to perform studies comparing the outcomes of different versions of the flow-based domain computation, as it is done for example by the PCR project to compare the performance of different releases of the Euphemia algorithm.

Such case studies would certainly allow market parties to provide more constructive feedback on the potential interest of upgrades in the FB domain computation process.

MPs are welcoming the initiative to organize a dedicated workshop on this topic and are looking forward to the outcome of this expert meeting.

b. Periodic reports:

R3. Market parties would appreciate that quarterly reports on the performance of FB coupling w.r.t. to ATC-coupling, and specific costs of applying the intuitive and adequacy patches are periodically disclosed and presented to the CWE consultative group.

R4. On a more regular basis, market parties consider priority that the performance of FB market coupling is monitored and published shortly after real time (e.g. weekly publication).

In market parties' view, FB market coupling is efficient if assets setting the price (i.e. being an active constraint in the Euphemia algorithm) are operated closest to their technical limits, including N-1 situations and likely operational deviations related with changes in dispatch within the bidding zones. **A good performance indicator would thus be the realized (or simulated in case N-1 did not occur) power flow on assets corresponding to active CBCOs against their maximum limit.** The closer¹ to 100% this value, the higher the performance of FB computation. Note that reaching an max export limit aiming only to avoid having net positions of bidding zones to far from the reference solution could be considered a 0% performance, as they are not related with any technical limitation of the infrastructure.

¹ Of course this indicator would not reach 100% in average, as TSOs legitimately can operate with operational margins.

Market parties also need to be informed of intuitive patch activations, as well as for adequacy patch and remedial actions. In the latter case, ad hoc information should be provided to explain in detail which measures have been taken.

R5. Market parties reaffirm that they need to have a formal identification of assets today hidden behind a fixed ID. The CREG representative at the last CCG meeting seemed positive in this view. Therefore, we expect quick progress. Can you confirm this will be published soon?

R6. MPs also mentioned during CCG that they would like that for each CBCO, it is specified whether it is a CB or a CO. Could you provide feedback on this?

R7. It would also be relevant to break down RAM into Fref, FRM, FAV and Fmax value for each CBCO. At the CCG, TSO said that this would need to be requested by the NRAs. Could you provide feedback on this ?

R8: GSK harmonization and transparency: Market Parties would like more information (including a case study) on the way GSK are computed in each zone. During CCG, TSO said that the requested information was confidential information. Market Parties suggested that NRA clarify their position. What the feedback on this?

c. Ex-ante publications:

R9. Market parties would appreciate that significant change in the CBCO matrix is flagged and commented ex-ante. During CCG, TSO seemed reluctant to do so. However, this could also more transparently be linked with publications in the framework of REMIT obligations.

R10. Market parties consider that hourly forecasts of demand and generation levels for each technology per bidding zone used to define the reference solution should be revealed to market parties ahead of D-1 markets. During CCG, TSO mentioned that the purchase of information was subject to confidentiality contract. However we consider this information as price sensitive and we think it should hence fall under REMIT obligation.