

CWE Flow-Based Market Coupling Survey results: Executive Summary of answers

The online survey was available for Market Parties from 2nd May 2013 to 1st July 2013. In total, 25 Stakeholders (Market Participants and Associations) submitted their answer.

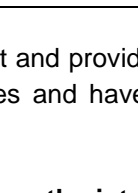
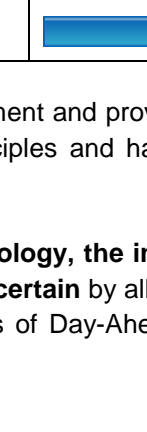
The public consultation process is anonymous therefore the identity of respondents will not be disclosed with the publication of this consultation's outcome. Please note that it was however disclosed to the CWE National Regulatory Authorities together with the complete responses.

Main market views and recurring comments have been summed up in this report. The CWE project partners wish to clarify that the contents of this document are intended to summarize the results obtained in the public consultation. This also means that the report should not be interpreted as the CWE project partners' position on the concerned topics. The CWE partners will do their best to reply to all comments and concerns. However before engaging in more in depth discussions within the project and with market parties, CWE project partners can't commit to comply with all reported concerns and requests.

I) Survey Questions

1.) Introduction

After studying the consultation document, do you have a clear view on the benefits of the implementation of Flow Based (FB)/ Flow Based Intuitive (FBI) market coupling?

Response	Total	% of responses	%
1 Yes	8		32 %
2 No, I'm missing the following information:	17		68 %

Although many market parties found the consultation document and provided explanations too complex and high level, some respondents do understand the FB principles and have a clear view on the theoretical benefits of FBMC.

However, **the practical consequences of the FB methodology, the interactions with other timeframes and impacts on market prices are still seen as rather uncertain** by all market parties.

That is why most of the respondents fear that the benefits of Day-Ahead FBMC might be outweighed by other drawbacks/negative effects:

- Allocation rules on the borders outside CWE
- Ancillary services
- Uncertainty about allocation of cross border capacity for Intraday markets
- Anticipation of forward capacities
- Overall decreasing predictability and risk of less efficient price forecasting

Therefore it **is feared by market parties that an inadequate implementation of the FB methodology in the overall trading environment may result in a decrease of welfare in other timeframes.**



Moreover, some market actors expressed doubts about the gains presented in the consultation documents as they are concerned about situations where FB can sometimes yield welfare losses compared to ATC. Market participants also wonder how to distinguish gains resulting from the FB methodology in comparison to those from other developments.

Many respondents also underlined their **lack of confidence in the approach and operational implementation** of FB considering the unsatisfying reliability of the current parallel run with about 25% of days missing.

Most of the surveyed market parties insisted on the fact that with the introduction of FB, the **market would require much more detailed network information** as input for a proper price forecasting. They also made following requests:



- Explanation of splitting of capacities on critical branches (CBs) between CWE and other regions
- Loop flows outside the CWE region which are imbedded into the CWE FB capacity calculation
- Additional information on the configuration of the algorithm model and mathematical description of the algorithm

Are the interests and motivations for the FB(I) implementation comprehensible for you?

Response	Total	% of responses	%
1 Yes	20		80 %
2 No, I'm missing the following information:	5		20 %

In general the motivations and interests to implement FB are comprehensible. More information about the influence of FB on other regions and more network information are needed though.

Are you convinced by the studies and experimentations performed so far and the results of the external parallel run?

Response	Total	% of responses	%
1 Yes	5		20 %
2 No, because...	20		80 %



Most of the surveyed market parties indicated they are not confident with the experimentations and results of the parallel run because of the following reasons:

- The parallel run was not yet long enough to judge (no summer period analyzed)
- Parallel run market simulation results are **not reliable and not stable enough** (errors, too many missing results and no clear improvement observed until now)
- **Lack of transparency with regard to the Common Grid Model**
- **Need for more information** in order to perform proper market analysis and price forecasting (network elements, detailed description of the algorithm, aggregated curves)
- External parallel run limitations: **no daily parallel publication of market results** yet, tools currently used are still prototypes and the **order books which are used for simulations are based upon ATC assumptions** of market parties

Some of the respondents also added that the current parallel run is very useful to start preparing and get a first flavor on FBMC. They however asserted that **they will only consider the real parallel run has started when FB results will be published on a daily basis, in a normal time process with clearly defined deadlines and fallback procedures, with proper tools and without any missing days.**

2.) Coordinated Flow Based capacity domain calculation

Is the capacity calculation method clearly described and understandable?





Response	Total	% of responses	%
1 Yes	7		28 %
2 No, the following could support a better understanding of the methodology:	18		72 %

Some respondents indicated that the capacity calculation method is very complex and not understandable for a non-TSO.

From the point of view of some MPs, the following elements could support market parties in a better understanding of the methodology:

- More transparency on the Common Grid Model (with all characteristics of all network elements, allowing for load flow calculations)
- More transparency about calculation and determination of every input parameter: base case assumptions, GSK, FRMs, list of critical branches, and limits of imports used by TSO for grid stability
- Explanation about why TSOs use different GSK methodologies

Which sections of the capacity calculation process should be more clearly described?

Response	Total	% of responses	%
1 Inputs (Basecase, GSK, CB, FAV, FRM,...)	18		72 %
2 Process	14		56 %
3 Output (PTDFs, RAMs)	16		64 %
4 None	4		16 %

Respondents raised numerous comments and questions about the capacity calculation under FB,

In terms of Inputs:

- Relevant parameters related to FB calculation (GSK, CBs, FAV, and FRM) should be publicly available. The base case and physical grid situation should be published. Generally, **“pure” network data should be published** (no confidentiality issue) and **publication of information such as generation availability and efficiency of power plants could be discussed between TSOs and generators.**
- CBs should be published ex-ante non-anonymously
- Coherence of critical branches selection under FB with the existing methodology (more conservative or less). More details needed about the critical branches selection and the 5% threshold as well as a **list and explanation of the rationale behind the virtual critical branches.**
- Which GSK method is used and is it the same for all grid operators? **NRA monitoring reports on GSK methodologies and remedial actions principles should be published and better described**, especially if different from one country to the other
- Cross border capacities made available in intraday should be consistent with day-ahead allocation: a **recalculation of the FB domain should be performed after day-ahead clearing to maximize the allocation of intraday cross border capacities.**

In terms of processes:

- A comparison between current ATC process and **FB process (with times and deadlines for each operational step and actions in case of detection of flaws)** would be useful

- PTDFs and all other relevant data should be published as early as possible to give market participants sufficient time for analysis:
- The historical PTDF matrices should be available via an ftp server additionally to via the utility tool

Additionally, worries concerning the capacity calculation process notably regarding significant loop flows through the CEE region and the mechanism for splitting capacities on critical branches between CWE and CEE have been expressed. It was asked how critical branches would be split between ATC and FB borders and when it was expected to connect the CWE region with CEE under FB capacity calculation method.

3.) The CWE Market Coupling Solution

What kind of issues / challenges are brought about by FB(l) implementation for you as a market participant? How can project partners help in this respect?



Most of the respondents highlighted that the main challenge faced by the market with the implementation of FB will be the **difficulty to anticipate available cross-border capacity. This will negatively impact their capability to understand price formation in CWE markets.** Available crossborder capacity is indeed a major input for short or long term market model and lower predictability brings greater uncertainty about prices and therefore also possibly lower liquidity on power exchanges.

- *For utilities* it is essential to **forecast market prices for efficient asset optimization** (hedging strategy, maintenance scheduling, operational scheduling, dispatch...) **and investment decisions.**
- *From large industrial actors' perspective,* it is also key to anticipate **possible price impacts of FB and to have visibility on the FB go-live date.** Indeed, those actors have to buy their baseload supply two years in advance and therefore struggle to decide when to buy these.

Market parties required that all data that determines the PTDF matrices should be published preferably as soon as possible. The justification given is that the **detailed grid model will be applied (setting the constraints, and with the GSK, setting the PTDF) to determine the full domain of possible cross border exchanges** (whereas beforehand TSOs applied rather stable choices in offering cross border capacity over the different borders).

In addition, the **publication of provisional PTDFs and RAMs in advance** would help some market participants to better forecast future prices as it is the case today with NTC up to one year in advance. Some respondents also suggest as solution to extend the parallel run period (up to 3 full years) in order to gain necessary confidence and have time to adapt their operational processes and train staff. Moreover, some respondents would like that even after go-live; a parallel publication of ATC values remains available, e.g. as backup to FB parameters.

Do you think that a « full member testing » (where market parties would submit dedicated orders) would be useful, not only to validate the operational process but also to complete the parallel run which is based on ATC order books? Would you commit to participate in order to secure representativeness of the results?

Response	Total	% of responses	%
1 Yes	15		60 %
2 No	10		40 %

If Yes, which requirements do you have to make such a full member testing useful?

Many respondents support the organization of a full member testing. Major requirements mentioned by market parties are:

- All or at least a **large majority of market parties should participate** by committing the resources and acting like in a live environment
- **All requested network data should be provided before and PTDFs should be published in advance** (earlier than 10.30)
- The **operational process is perfectly tuned on TSO side and there is a credible go-live date set**

Respondents agree that a full member testing should be seen as a final step before go-live (few weeks or month before go-live) and it was even suggested to make the participation part of the mandatory transition process in order to check that all market parties are able to trade in a FB environment.

4.) Fall-back arrangement for Market Coupling (capacity allocation)

From current planning, proceedings for the publication of ATCs used for Shadow Auctions and CASC gate closure remain the same as developed, practiced und further developed for ATC MC. Are there any general comments?



Market parties questioned if a **two steps fallback procedure** with first fallback to ATC MC (in case FB parameters could not be calculated before market coupling starts) and only as last resort fallback to **explicit shadow auction** (when market coupling fails) could be considered.

ATCs should be published as soon as possible, and especially in cases of a risk of failure in an early stage of the FB parameters calculation from MPs' point of view. More generally, respondents believe that a **parallel publication of ATC values on a daily basis (even without fall-back) would be desirable**.

If market coupling fails to deliver results, ATC shadow auctions are considered as a reasonable option. However the **timings are tight and need to be compatible with a more complex process** (10min reopening of order books for partial decoupling is unrealistic when switching from FB to an NTC fall-back).

5.) Roll-back to ATC MC



Would a roll-back activation period of 2 months be reasonable for you?

Response	Total	% of responses	%
1 Yes	11		44 %
2 No, I would recommend the following period:	14		56 %

Some Market parties stated that the **possibility to run ATC market coupling should be an enduring fall-back solution**. After a period of at least one year without any use of it, it could be passed out. The quicker activation of all roll-back systems within 1 day has also been raised.

6.) Economic Assessment

Do you have enough information to understand price formation under FBMC?




Response	Total	% of responses	%
1 Yes	6		24 %
2 No, I'm missing the following information:	19		76 %

Further information is needed on market participants' side:

- Detailed network information/input parameters: base case, interdependencies between critical branches and sensitivity of the PTDFs. It is important for MPs to **understand how PTDF are influenced and also useful in order to forecast prices and flows to be able to identify recurring patterns for CBs**
- **Full year of reliable results obtained through a proper industrial process**
- Publication of **resulting commercial flows instead of only net exchange positions**
- Aggregated curves and blocks as well as a clear mathematical description of the algorithm

7.) Intuitiveness

Are you in favor of plain or intuitive Flow-Based MC?

Response	Total	% of responses	%
1 Plain	9		36 %
2 Intuitive	2		8 %
3 I need more information to be able to judge	14		56 %

Why, or which extra information do you require?

The market views on intuitiveness seem to be rather indecisive.



Some respondents consider the difference between plain and intuitive FB as rather limited and therefore not key for the go-live decision, but indicate **starting with FBI could be important with regard to public acceptance**. They suggest FBI with a recalculation of the FB domain after day-ahead clearing in case ATC is used for Intraday. Anyway, it seems that **adverse flows within NWE will sometimes occur**, e.g. due to ramping constraints, so adverse flows within CWE would also be acceptable.

On the other hand, some market participants see FBI as critical and **fear that it opens the door for “policy driven” adjustments where unwished (regional) results could be excluded**.

For the majority of MPs more information is needed about the intuitive patch and the link between day-ahead FB and intraday should be better explained.

8) Publication of data



Do you have enough information regarding FBMC?

Response	Total	% of responses	%
1 Yes	9		36 %
2 No, I need the following additional FB-related information:	16		64 %

As respondents already stated above, additional information is still needed:

- Flows per border in addition to the net position per country
- Aggregated curves used for simulation
- Detailed network information (hourly break up of identified critical branches, early publication of FB parameters with estimates of future FB parameters) with the Common Grid model.



Does the publication concept for daily FBMC operation cover your business needs / your expectations?

Response	Total	% of responses	%
1 Yes	10		40 %
2 No, I need the following additional FB-related information:	15		60 %

Many surveyed market participants expressed worries regarding the tight deadlines. As FB parameters are much more complex to analyze than ATC, publication at 10.30 is considered as much too late in the process. **Provisional longer term PTDFs and RAMs should be published as today for NTCs, thus the parameters should not be published later than 8.00 on daily basis.**

Many market parties also underlined their willingness to get in closer dialogue with TSOs and power exchanges in order to discuss and continuously assess the information, the amount of data and the format needed.

Is a precise knowledge of the critical branches (names, locations) important for you in relation to your daily bidding strategy?



Response	Total	% of responses	%
1 Yes	22		88 %
2 No	3		12 %

Please motivate your answer.

- Certain stability in the system (constant FB parameters), such as the ATC system provides today, is required for market participants to be able to forecast prices.
- If this is not the case (notably with RES production which influences the network and therefore will influence the outcome of the FB calculation through the available capacity on critical branches) then all respondents would need fixed/identified CBs. Indeed the market should be able to **identify CBs in order to understand the day to day changes of FB outcomes.**

- Respondents also expressed worries about the CBs selection process as it would potentially be **possible for TSOs to label internal lines as “critical lines” and perform congestion management on internal lines to the detriment of day-ahead cross border trade and economic surplus**. Respondents understand that TSOs need pragmatic rules (“5%” threshold) but suggest an **enhanced regulatory oversight of TSOs and an annual ex-post assessment and review of this threshold**

Are the results of CWE FBMC easily to be retrieved?

Response	Total	% of responses	%
1 Yes	10		40 %
2 No	15		60 %

If No, what do you suggest to facilitate the retrieval?

Following main suggestions were made:



- **Database format** instead of weekly reports/files: PTDFs and all relevant data (with flows) to be retrieved in addition via a **ftp-server (including all historical data)**
- Addition of a **column or a sheet in the parallel run results indicating the hours when a situation was intuitive or not**

9.) Additional issues

What do you think could be improved in the external parallel run process?

- **Daily publication of parallel run results as soon as possible** is seen as an essential improvement step
- **Consistency and reliability of results:** once failure rate is close to 0% one full year of testing would be needed, interrogations about correlation between missing days and days with high renewable output, NRA approval should take into account the reliability of the final model
- Due to complexity of FB it would be useful to **publish the PTDFs earlier**
- **Clarity on operational processes:** publication of maintenances, handling of fall back and intraday capacities

Is the period of the external parallel run long enough for you to observe results and adapt your daily bidding strategy accordingly?

Response	Total	% of responses	%
1 Yes	3		12 %
2 No, this would be the ideal period from my point of view (in months):	22		88 %



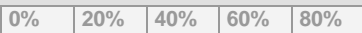
The ideal period of parallel run in respondents view varies from 6 months to 36 months. A consensus seems to arise towards a period of **minimum 12 months of full data to ensure consistency and representativeness of results**. Market parties would need at least a period including a summer and a winter once the flawless operation with industrialized software can be ensured.

What kind of studies / indicators / reports could help FB(l) implementation on the market side?

Market participants asked for release of following information/studies:

- **Impact assessment report on forward trading** (market indicators related to future availability of interconnection capacity according to the new FB methodology) **and intraday welfare**
- Report detailing the **impact of the interdependencies with neighbouring regions**
- **Flow per border instead of net exchange per country** as this is one of the main analysis variable used
- Studies detailing the calculation of PTFD and RAM on one year of normal conditions and highlighting the effect of weather sensitivity (especially RES production effect)

After NWE Go Live, is a period of 2 months of joint parallel run acceptable?

Response	Total	% of responses	%
1 Yes	8		32 %
2 No, because...	17		68 %
Total respondents: 25 Skipped question: 0			

Most of the market participants believe a period of 2 months is not enough as NWE price coupling needs to be observed in an NTC environment before switching to FB in the CWE region.

Respondents highlighted that the switch should not be rushed but there should be enough time (suggestions vary from a few months to 36 months) to assess PTFDs pattern during a winter and summer and that the parallel run will be much more meaningful after NWE go live.

Similar to the CWE ATC MC Go Live, the Project will have extensive internal Go Live criteria for the start of CWE FB MC. Please indicate – from your point of view – important Go Live criteria.

Most important Go Live criteria from the market perspective are:

- **Full disclosure of requested data** and easy access to FB parameters with automatic download
- **100% reliability of the final industrial model** (one day of shadow auctions could eliminate the welfare gain of FBMC of an entire year)
- **At least 12 months of parallel run results after NWE DA Go-Live** and consultation of MPs
- Clear benefits, high price convergence
- **Robust, reliable and transparent fall-back procedures**
- **Clarity on link with intraday / recalculation of FB domain after Day-Ahead clearing** to maximize Intraday capacities
- Public reports on **impact on forward trading and Intraday ATC welfare**
- At least period of 6 months between official decision and Go Live in order to minimize impact on forward trading