



Common position paper of CWE NRAs on the update of the Flow-based market coupling methodology

August 2018

Context

Flow-Based (hereafter FB) is a key element of the implementation of the target model for capacity calculation and allocation at day-ahead (hereafter DA) timeframe as described in the European Regulation on Capacity Allocation and Congestion Management (hereafter CACM Regulation)¹. Its implementation in the Central West Europe (hereafter CWE) region started on the basis of the Annex issued end 2006 of Regulation 1228/2003² repealed later by Regulation 714/2009³.

Its purpose is to improve the optimization allowed by Market Coupling (hereafter MC) based on a more precise capacity calculation which makes it possible to benefit from the interdependency between commercial flows on affected transmission network elements called “Critical Branches” (hereafter CB) by maximizing as much as possible their use by the most valuable exchanges. Commercial capacities do not have to be shared ex-ante between several borders as implemented with ATC⁴ methods, leading to potential inadequacy between the needed and the possible exchanges.

Since 2007, CWE parties have committed themselves to work toward the development of FB Market Coupling (hereafter FB MC). The CWE FB methodology (principles and details) has thus been developed by the project partners (TSOs and PXs) under the supervision of CWE NRAs.

The methodology has been tested through an internal parallel run in 2012 and two years of external parallel run in 2013 and 2014.

¹ CACM Regulation: Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management

² Regulation 1228/2003: Regulation (EC) N° 1228/2003 on conditions for access to the network for cross-border exchanges in electricity

³ Regulation 714/2009: Regulation (EC) N° 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) N° 1228/2003

⁴ Available Transfer Capacity

In 2015, the methodology was approved followed by go-live in May. However, at that time CWE NRAs recognized that there was room and a need for further improvements. These were summarized in a “Position Paper of CWE NRAs on Flow-Based Market Coupling”, published in March 2015. Therefore some CWE NRAs approved the methodology conditional to the improvements set out in this common position paper.

Today not all requested improvements have been fulfilled yet. The request for fulfilling the improvements linked to this paper remain valid and CWE NRAs monitor the progress on these improvements.

One of the major requests for improvement was the completion of a Critical Branch Critical Outage (hereafter CBCO⁵)-selection study to demonstrate the optimality of the 5% PTFD-threshold as CBCO selection criterion. End of 2017 this request had not been fulfilled. The need for an improved CBCO-selection methodology became however clear from the monitoring data, which indicated that cross-zonal exchanges were often strongly limited by the inclusion of CBCOs with low remaining available margin (RAM). Given the urgency to solve the problem of very low cross-zonal capacities, CWE NRAs agreed in December 2017 on the request for a minimum RAM requirement of 20% of the thermal capacity of the defined and applied CBCOs. This measure is operational since 26 April 2018 and is considered as a short-term solution awaiting a proper CBCO-selection study by CWE TSOs. CWE TSOs are still in the process of completing this study under the supervision of CWE NRAs. Therefore, it was agreed amongst CWE NRAs to meanwhile incorporate the so-called “20% minRAM” requirement in this updated CWE FB MC approval package.

Another main trigger for this updated CWE FB MC approval package is the request by E-Control and BNetzA to include their common bidding zone border in the CWE FB MC by 1 October 2018. The establishment of the DE/LU-AT border results in an additional bidding zone in the CWE FB MC. The Austrian bidding zone will be operated by the Austrian TSO APG who has been involved in the CWE FB MC from the early stage of the CWE processes by (1) inclusion of Austrian D2CF data into CWE Common Grid Model (hereafter CGM) in November 2014, (2) inclusion of Austrian Generation Shift Key (hereafter GSK) into CWE FB in December 2015 and (3) considerations of Austrian CBs in the FB process.

Upon request of E-Control and BNetzA, CWE NRAs agreed that CWE TSOs shall analyse the technical and economic impact of the inclusion of the German-Austrian bidding zone border into the CWE FB MC via the standard process to communicate on and assess the impact of significant changes (hereafter SPAIC). The principle of the SPAIC analysis is to, for representative days, compute as in real operations, the transmission capacity domain, and the resulting market outcomes. All these tests have allowed a better understanding and a greater confidence into the appliance of the methodology also on that border. After a positive outcome, TSOs prepared the inclusion of the DE/LU-AT border into the submission of the CWE FB MC approval package, in view on an implementation from 1 October 2018 on.

⁵ CBCO means “critical branch critical outage”. It corresponds to what is called CNEC (critical network element contingency) under the CACM Regulation

In order to prepare and transparently communicate the details of the inclusion of the DE/LU-AT border, meetings with market participants have been organized. The outcome of these meetings were made public⁶ and taken on board for further improvements. Moreover, since 1 July 2018, an external parallel run is performed.

Legal basis

The legal basis under which the CWE FB MC methodology was developed and submitted for approval is Regulation 714/2009 and its Annex 1 as well as Directive 2009/72/EC⁷. This legal basis remains unchanged for the proposed changes to CWE FB MC. The legal framework provided by the CACM Regulation, which entered into force on 14 August 2015, builds further upon Regulation 714/2009 and foresees the combination of FB DA and intraday (hereafter ID) MC with adequate bidding zones as the European target model. However, as the relevant process under the CACM Regulation is ongoing within the Core region, this should not prevent from any progress in the CWE region before the wider coordinated Core FB MC is implemented⁸.

These Regulations set out minimum harmonised rules for the single DA and ID coupling, in order to provide a clear legal framework for an efficient and modern capacity allocation and congestion management system. This shall facilitate Union-wide trade in electricity, allowing more efficient use of the network and increasing competition, for the benefit of consumers.

Description of the proposal

The updated CWE FB MC approval package includes the two main changes discussed in the Context section above, being:

- the inclusion of the DE/LU-AT-border; and
- the introduction of the 20% minRAM requirement.

⁶<http://www.jao.eu/support/resourcecenter/overview?parameters=%7B%22IsDEATBZBProject%22%3A%22True%22%7D>

⁷ Article 37(6) of Directive 2009/72 of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity provides that regulatory authorities shall be responsible for fixing or approving sufficiently in advance of their entry into force the methodologies used to calculate or establish the terms and conditions for access to cross-border infrastructures, including the procedures for the allocation of capacity and congestion management.

⁸ ACER decision n° 06/2016 of 17 November 2016 on the electricity transmission system operators' proposal for the determination of capacity calculation: *"the CACM Regulation does not prohibit the TSOs to propose the implementation of the requirements through a step-by-step approach and sub-regional projects, provided the latter are consistent with the common methodologies developed at regional level; the efforts and progress achieved already in the framework of the ongoing regional projects should actually foster the development of common methodologies at the level of the merged region"*.

On top, CWE TSOs indicate the following major changes, being:

- the proposal not to apply external constraints to the DE/LU bidding zone; and
- for the bidding zones where external constraints are applied, the proposal to apply external constraints on the global net position instead of the currently used external constraints on the CWE net positions.

These changes are incorporated in the CWE FB MC approval package that consists of three parts:

- the DA methodology: this methodology includes the 4 changes described above;
- the ID methodology; and
- the congestion income allocation (hereafter CIA) methodology.

The two latter documents are only impacted by the inclusion of the DE/LU-AT border.

Besides these major changes, CWE TSOs proposed some smaller updates. Some of them are included in the analysis.

Analysis of the proposal

The scope of this common position paper is the evaluation of the new elements in the updated proposal. The requests for improvements linked to the CWE NRA common position paper of 2015 are still valid and the monitoring by CWE NRAs on the progress on these requested improvements is ongoing in a parallel process and which will be the scope of a separate CWE NRA position paper.

Through the Long-Term Allocation (hereafter LTA) inclusion patch implemented in the CWE FB MC, the type and the amount of long term allocated transmission rights on CWE borders influence the flow based domain. The evaluation of the type and value of long term allocated transmission rights are part of the scope of the evaluation of the 2015 CWE NRA Common position paper.

Day-ahead proposal

Regarding the inclusion of the DE/LU-AT border

CWE NRAs acknowledge the introduction of the DE/LU-AT border in the CWE capacity calculation as of 1 October 2018. Despite the uncertainty regarding the SPAIC analysis (due to the need to forecast proportionate share of locational bidding information in the historical order books of the joint bidding zone DE/LU/AT), the SPAIC analysis showed that there will be no deterioration of the current performance of the CWE DA FB MC and, on the contrary, increased capacities are expected. CWE NRAs expect that the introduction of the DE/LU-AT-border will increase the CWE cross-zonal exchanges, especially for the exchanges that are currently limited.

Regarding the introduction of the 20% minRAM requirement

The minimum RAM requirement of 20% of the thermal capacity of the network element at CBCO-level is applied since 26 April 2018 following the conclusion made in December 2017 amongst CWE

NRAs. This represents an improvement and should be included as a temporary solution awaiting the result of the CBCO-selection study.

The CBCO-selection study is still ongoing. A first version was submitted by CWE TSOs in presentation format on 1 May 2018, and CWE NRAs deem that additional explanations and analysis were required. From the feedback received by CWE TSOs, CWE NRAs understand that CWE TSOs propose to first gather experience with the split of the DE/LU/AT bidding zone in order to be able to further conduct a CBCO-selection study for this new bidding zone configuration. CWE NRAs therefore ask CWE TSOs to provide a timeline which they deem reasonable for conducting the analysis and proposing an improved CBCO-selection methodology that duly addresses the feasibility and non-discrimination aspect. This timeline is binding to CWE TSOs and should not be longer than 30 June 2019. CWE NRAs keep open the possibility to use their powers of enforcement in case CWE TSOs do not provide a CBCO-selection study of the required quality. Whilst an improved CBCO-selection in CWE is legally independent of the Core FB MC, it may provide useful lessons and could possibly serve as a building block for the Core FB MC. In any case, CWE TSOs shall ensure a smooth transition towards the Core FB MC.

CWE TSOs shall timely and duly justify any derogation from the minimum 20% RAM requirement towards NRAs for monitoring and towards market parties for transparency (see *Transparency* section). Derogations should be exceptional and only when no other means to secure grid security are available.

Regarding the external constraints

Some CWE TSOs currently use external constraints on the CWE net position to address grid security issues linked to voltage stability or dynamic stability.

CWE NRAs welcome the proposal of German TSOs not to apply external constraints for the DE/LU bidding zone. As the external constraints applied today for the DE/LU/AT bidding zone have been found to frequently limit the CWE FB domain, the decision not to apply any external constraints after the DE/LU/AT bidding zone split is thus expected to improve the opportunities for CWE cross-zonal exchange as an external constraint by means limits trading capacity.

CWE NRAs acknowledge the proposal of CWE TSOs to apply external constraints on the global bidding zone net position instead of an external constraint on the CWE net position. Nevertheless, CWE NRAs repeat that external constraint by means always limits trading capacity. Therefore, the functioning of these external constraints on the global net position need to be better explained. To improve transparency on the functioning and justify the need for such a global net position constraint, CWE NRAs expect from the corresponding CWE TSOs a report including:

- (a) the justification for the applied value,
- (b) a description of how a global bidding zone net position is taken into account in the market coupling process and how this is coordinated amongst CWE TSOs,
- (c) a description on how the application is going to be coordinated among CWE TSOs and traced in the CWE FB MC transparency and monitoring data,
- (d) the date of the switching from an external constraint on the CWE net position to one on the global net position.

The report shall be submitted to the CWE NRAs before the application of these global constraints instead of the current constraints. After approval by the relevant CWE NRA(s) the paper shall be published on the JAO website as soon as possible.

Regarding the additional changes related to minor updates

CWE NRAs agree on the following and expect these remarks to be taken into account if an amended proposal is submitted at a later stage:

- Local Phase Shifting Transformer (hereafter PST) coordination: CWE TSOs specified that the PST coordination of Zandvliet/Vaneyck, Gronau, Diele and Meeden on one side and Tauern, Ternitz, Ernsthofen on the other side is done locally with the involved TSOs. CWE NRAs underline that all remedial actions with cross-zonal impact, including PST coordination, have to be coordinated with all CWE TSOs. Even if for practical reasons not all CWE TSOs are involved in this local PST coordination process, CWE NRAs request respective TSOs to always act in the maximum transparent manner.
- D2CF of Swissgrid: Inclusion of D-2 forecasts of the Swissgrid is expected to provide more accurate D-2 forecasts for establishing the base case than with the current practice, which is the inclusion of the Swiss DACF-files of the reference day. Also from the point of grid security, CWE NRAs consider it important that CWE TSOs continue their active cooperation with non-CWE TSOs from all neighbouring bidding zones as to guarantee grid security in a most efficient way.
- Use of dynamic GSKs: CWE NRAs take note of the intention expressed by APG to investigate the use of dynamic GSKs. CWE NRAs however understand that the determination of GSKs on an hourly basis requires historical data for data-learning and therefore ask APG to launch the data-learning process from the start and request other TSOs not yet applying dynamic GSK to follow the same path. CWE NRAs underline that the use of dynamic GSKs by all TSOs is required in order to obtain the most accurate representation of the market coupling results.
- Explicit mentioning of EPEX SPOT: CWE NRAs recognize the role of EPEX SPOT as CWE FB MC project partner and their role in the development of the methodology. However, CWE NRAs underline that this explicit reference to EPEX SPOT can in no way hamper the possibility for other power exchange companies being Nominated Electricity Market Operators (hereafter NEMOs) to join the MC in the CWE region or be a source of discrimination between NEMOs.

Regarding transparency requirements

On the transparency side, CWE NRAs notice that the table of published information does not reflect the current status of transparency level at CWE level. CWE NRAs also notice that CWE TSOs did not propose any update with further improvements. In May 2018, CWE NRAs shared a list of short-term expected improvements on transparency and expressed their support to the requests by market parties.

First of all, CWE NRAs urge for completeness of the published data with unique physical names and EIC-codes of both CBs and COs before 15 October 2018.

At the same time, CWE NRAs request:

- the publication of the full RAM-breakdown, i.e. Fmax, Fref, FRM, FAV and the Adjustment for Minimum RAM (AMR) which is currently proposed by CWE TSOs to implement the 20% minRAM,
- the inclusion of the reference program of all CWE and non-CWE borders of the involved bidding zones,

- in the case of derogation from the min 20% rule, publication of the justification
- the publication PTDF and RAM-values before and after LTA-inclusion,
- the timely publication of all outages considered in the market coupling,
- the publication of up-to-date static grid models.

The above list is non-exhaustive. In the case of an updated or amended proposal, CWE TSOs are asked to update the transparency table accordingly.

Regarding regional coupling

CWE NRAs understand that the current FB MC approval document is notably focused on the introduction of the DE/LU-AT border and that the CWE regional coupling is still included as this process remains applicable after the go-live of the DE/LU-AT border.

However, CWE TSOs intend to remove the CWE regional coupling, once the CWE MNAs are implemented, as it is planned not to share order books between the NEMOs active in CWE.

ID proposal

CWE NRAs note that it is currently not foreseen to apply the increase/decrease process at DE/LU-AT border, which has been applied on all other CWE borders since 3 May 2017. Having in mind recent developments in the ID capacity calculations, CWE NRAs recommend CWE TSOs to investigate whether an improvement in the upcoming months is manageable and possible and if yes, request CWE TSOs to implement the inclusion of DE/LU-AT border in the increase/decrease process.

CIA

CWE NRAs notice updates to the methodology to reflect the addition of the DE/LU-AT border. This is especially the case for the determination and repartition of the external pot. CWE NRAs acknowledge the remark from CWE TSOs, indicating that CWE TSOs will analyse the applied methodology once respectively 6 and 12 months of CIA results following the go-live of the DE/LU/AT split are available and will report CWE NRAs about the results. CWE NRAs also acknowledge the possibility of a reassessment of the methodology.

Conclusion

CWE NRAs acknowledge the introduction of the DE/LU-AT-border in CWE FB MC. CWE NRAs expect that the introduction of the DE/LU-AT border in CWE FB MC will increase the CWE cross-zonal exchanges, especially for the exchanges which are currently limited.

CWE NRAs acknowledge the introduction of the 20% minRAM requirement for all CBCOs included in the CWE FB MC and expect that it also increases the CWE cross-zonal exchanges. This is considered as a temporary measure awaiting an improved CBCO-selection methodology. CWE NRAs therefore ask CWE TSOs to provide a timeline which they deem reasonable for conducting the analysis and proposing an improved CBCO-selection methodology addressing both the feasibility and non-

discrimination aspect. This timeline is binding to CWE TSOs and should not be longer than 30 June 2019. CWE NRAs keep open the possibility to use their powers of enforcement in case CWE TSOs do not provide a CBCO-selection study of the required quality. Whilst an improved CBCO-selection in CWE is legally independent of the Core FB MC, it may provide useful lessons and could possibly serve as a building block for the Core FB MC. In any case, CWE TSOs shall ensure a smooth transition toward Core FB MC.

CWE NRAs acknowledge the decision not to apply external constraints at the DE/LU bidding zone level.

CWE NRAs expect the CWE TSOs who propose to apply external constraints on the global net position to improve transparency on these constraints and describe how these will be applied in the market coupling process. CWE NRAs expect from the corresponding CWE TSOs a report including:

- a) the justification for the applied value,
- b) a description of how a global bidding zone net position is taken into account in the market coupling process,
- c) description on how the application is going to be coordinated among CWE TSOs and traced in the CWE FB MC transparency and monitoring data,
- d) the date of the switching from an external constraint on the CWE net position to one on the global net position.

The report shall be submitted to the CWE NRAs before the application of these global constraints instead of the current constraints. After approval by the relevant CWE NRA(s) the paper shall be published on the JAO website as soon as possible.

CWE NRAs ask CWE TSOs to improve transparency and satisfy the transparency requirements as laid out in this common position paper. This includes amongst others the completeness of the published data, the publication of the RAM-breakdown, the EIC-codes of CBs and COs, the reference program of CWE and non-CWE borders and the PTDF and RAM-values before and after LTA-inclusion.

The comments of this position paper shall be taken into account if an amended proposal is submitted at a later stage.