



Questions and answers

December 2011



Content

I. FREQUENTLY ASKED QUESTIONS.....	4
A. Introduction : general background and key priorities for the CWE MC project :	4
1. What is the background of the project?	4
2. What are the other initiatives?	4
3. What are the key priorities in the CWE-Region?.....	5
B. Flow Based Market Coupling	5
1. Where can I find the CWE Enhanced FBMC feasibility report?	5
2. What does Flow Based mean?	5
3. Is Flow Based different from the existing CWE market coupling and why?	5
4. When will FB launch?	6
5. What are the advantages and risks of a Flow Based market coupling?	6
6. How can we compare the performance of an ATC based method and a Flow Based method?	6
7. Why did the implementation start using an ATC based method and not a Flow Based method?.....	7
8. Is Flow Based market coupling implemented somewhere in the world?	8
9. Flow Based: less or more capacity?	8
10. What is FB intuitive and why 2 definitions of FB intuitive?	9
‘Non intuitive’ situations can happen under the FBMC methodology as it aims at regional day-ahead market welfare optimization, and local counter flows (energy flowing from an expensive hub to a cheaper one) can be observed if they allow superior exchanges on other borders.	9
11. What is a GSK?	9
12. What is a PTDF?.....	9
13. The PTDF grid presentation represents a lot of data. How can this be managed by small parties? Will a simulation tool be provided to the market parties?	10
14. What are the pre-constrained cases?	10
15. What is the optimisation that is performed through FBMC, prices x volumes?	11
16. How long are we going to have parallel runs/simulations	11
17. Will there be any member testing before FB go-live	11
18. What are the links with NWE project + ITVC.....	11
19. How do/will you assess the quality of the FB model	11
20. Which indicators will be used to decide for the GO/NO GO decision on FB?	12
21. What are the criteria to control FBMC is performing well and that results are acceptable?	12
22. How will a request for quotes/second auction procedure be organised in CWE	12
23. What will be the operational daily schedule for FBMC?	12
24. What will be the fall-back solution for FB and the decision process? It is expected that the same fall-back solutions as under ATC based MC will be used, some minor changes are to be expected but these are currently under discussion. The final answers cannot be given yet since the project is currently in the preparation stage.	12
25. Will there be any contractual changes, and/or do we need to sign additional contracts?	12
26. Which data will be published by the partners?	12
27. Why are the published constraints anonymous?	13
28. How does the cosmos algorithm calculate the prices in FB?	13
29. Will the market liquidity increase?	13
30. What is the possible intra-day mechanism after the day-ahead FB market coupling implicit allocation?	13
II. QUESTIONS OF THE MARKET PARTIES	13
A. ATC market coupling – operational feedback	14
1. Can the CWE incident of the 27 th of March also occur within FBMC?	14
2. The time constraints of the fall-back procedures are very strong. At the moment of fall-back, there is not a lot of time and due to the simultaneous PX gate closure time, the fall-back today is a kind of „lottery“. In the past, the French PX was closed at 11h00 and the German PX at 12h00. Therefore, the market parties could lower their risks.	14
3. Can EMCC results be used in case of fall-back?	14



4.	How to avoid price divergence and adverse flows on EMCC in case of fall-back shadow auctions in CWE?	14
5.	How to avoid price spikes on certain PXs? Is there a check that all market parties are playing fair and offering their available generation capacity on the DAM?.....	14
6.	Is price convergence also an objective of the optimization program?	14
7.	What is the impact on block bids?	15
8.	Is it possible to publish NTC and/or ATC sooner?	15
9.	How large is the loss on social welfare on the 27th of March?.....	15
B.	Flow Based market coupling.....	15
1.	In the current CWE region, there are two small zones (i.e. Belgium and the Netherlands) and two large zones (i.e. France and Germany). Does this have an impact on the technical Flow Reliability Margins (FRM)?	15
2.	What about the prices zones and bidding areas?.....	15
3.	How much does this project costs?	15
4.	Why are the results of the CEE FB allocations less good compared to the CWE FBMC?	16
5.	What about the redispatch costs?	16
6.	What will be the fall-back solution for FBMC? Is it possible to calculate ATCs?	16
7.	Is the congestion on internal lines transferred to the borders and how does this fit in the regulatory framework?	16
8.	How many critical branches are included and which kind of critical branches did you include?.....	17
9.	The PTDFs are based on the working power plants and whether the power plants are working is based on the PTDFs?.....	17
10.	If internal congestion within the FBMC becomes more transparent, could this give a problem?	17
11.	How can the trader manage the PTDFs?.....	17
12.	Is the FBMC less transparent for traders? How do you avoid creating an un-level playing field between traders able to handle the complex information and traders not able to?	17
13.	FB may be too complicated and the gain in social welfare may be getting lost therefore?	18
14.	Can we get more information on the FB parameters? On a typical PTDF? On the typical equations used?	18
15.	How will the planning of the ITVC project and the CWE FB project be evaluated?	18
16.	Given that NWE MC and FBMC are now planned for 2013 is it not useful to investigate optimisation of the current ITVC?.....	18
17.	What will happen with the ID after the launch of FBMC?	18
18.	Does the CWE FBMC delay other projects such as Italy – Swiss?	18
19.	Will the UIOSI principle stay?	18
20.	FBMC is characterized by two solutions: either full price convergence or full price divergence. Is this also true in case of radial (non-meshed) zones?	19
21.	In the presentation of the FB technical forum is mentioned: “about 20 constraints per hour”. What does this mean?.....	19
22.	Would it not be possible to receive the full grid model, so that market parties can calculate their own PDTF-matrices? This could be relevant for future situations, long –term price forecasting. I assume that the utility tool focuses at the day-ahead stage.	19
23.	How are DC-lines and phase-shifting transformers handled in making the PDTF-matrix?.....	19
24.	How will FB-Day ahead MC interact with intra-day allocation? Should intraday also be FB after start of FBMC? If intraday remains NTC/ATC based, the security domain will suddenly shrink after the day-ahead phase, resulting in much less XB-intraday trade.	20



I. Frequently asked questions

A. **Introduction : general background and key priorities for the CWE MC project :**

1. **What is the background of the project?**

There have been several initiatives and declarations of intent.

- *Regulation (EC) No. 1228/2006 and the Congestion Management Guidelines (→ Action Plan)*
- *Regional initiatives*
The Regional Coordination Committee (RCC) and the Pentalateral Energy Forum (PLEF) wished to see Flow Based market coupling as applied solution.
- *MoU on Flow Based market coupling and Security of Supply*
The objectives of the MoU (chapter “Flow Based Market Coupling”) are to analyse, design and implement a Flow Based market coupling mechanism between the five countries of the CWE region.
- *Pre-existing market coupling in the region*
Trilateral market coupling (TLC) between France, Belgium and the Netherlands since November 21st, 2006.
- *CWE-price market coupling and CWE-Nordic region interim Tight Volume coupling*
Central West European price market coupling and the Central West European-Nordic tight volume coupling since November 9th, 2010.
- *Third Energy package and ACER responsibilities in writing the Framework Guidelines for 2014, including the part related to Capacity Calculation.*

The CWE MC project aims at optimising the allocation process of cross-border capacities thanks to a coordinated price formation mechanism, taking into account commercial bid and offers placed by the members of the different exchanges. MC sends the most relevant price signal for investment in cross-border transmission capacities and maximizes the social welfare.

2. **What are the other initiatives?**

- Central East Europe (CEE) FB allocation
- HAR: Harmonisation of the explicit auctions rules for LT capacity rights
- North-West Europe (NWE) day-ahead enduring solution project
- NWE intraday project
- Price Coupling of Regions (PCR): Power Exchanges’ initiative consisting in the delivery of a decentralized single price coupling solution.



3. What are the key priorities in the CWE-Region?

Key priorities are:

- Harmonization and improvement of long-term explicit auction rules
- Implementation of a day-ahead Flow Based market coupling
- Implementation of cross-border intraday trade
- Maximization of the amount and the utilization of cross-border capacities
- Transparency
- As well as Security of Supply (SoS)

(Source: ERGEG)

These are not the specific targets of the CWE-MC Project but the overall goals by the MoU and the regulators Action Plan.

Additionally, following the PLEF on the 22nd of March 2011, a clear priority has been made on CWE for the completion of the FBMC project for 2013.

B. Flow Based Market Coupling

1. Where can I find the CWE Enhanced FBMC feasibility report?

The report can be found on the websites of all members of the project.

2. What does Flow Based mean?

Electric energy always flows from a source (generation of power plants) to a sink (industry, households, ...). The flow patterns in the grid result from the infeed of all sources, the consumption at all sinks and the grid topology at any moment in time. Electricity transmission flows fan out across all available parallel paths in accordance with the laws of physics.

The Flow Based model is a methodology which describes the network in order to take into account the impacts of cross-border exchanges on network security constraints when optimizing the market flows (i.e. the match of offer and demand) for the concerned region, thus offering more capacity and maximizing the social welfare generated. More information is given in the CWE Enhanced FBMC feasibility report chapter 2. The latter document is available on each CWE partner (TSO or PX) website

3. Is Flow Based different from the existing CWE market coupling and why?

The CWE market coupling is operated with an ATC based methodology.

With Flow Based market coupling, the coupling algorithm takes into account a more sophisticated grid modelling in order to optimise



commercial flows on the electrical interconnections of meshed networks.

This is necessary for the CWE regional area with many cross-border interconnections and flows fanning in all directions. A pedagogical explanation of the Flow Based methodology can be found in the CWE Enhanced FBMC feasibility report chapter 2.

4. When will FB launch?

The FB planning recently forwarded to stakeholders foresees a go-live at mid-2013.

5. What are the advantages and risks of a Flow Based market coupling?

The Flow Based method allows a more detailed consideration of the transport limits of the electrical networks. This leads to an optimal use of available capacity and more freedom and transparency for the market, without jeopardizing grid security.

Flow Based makes more apparent which congestions cause limitations on market activity. Simulations showed so far that price volatility and price divergence are reduced when comparing ATC MC to a FBMC system. More simulations are required to have a more global view on the results.

The potential risks of using Flow Based model for the market coupling are occasional non-intuitive market results in spite of a higher welfare for the region as a whole. Since FB methodology aims at global day-ahead market welfare optimization (DAMW), local counter-flows (energy flowing from an expensive hub to a cheaper one) can be observed if they allow superior exchanges on other borders. The day ahead market welfare is the welfare computed by COSMOS. It is the sum of the buyer surplus, the supplier surplus and the congestion rent. It does not take into account the welfare linked to futures and to grid management and SoS costs. This indicator is usually called social welfare. Nonetheless, it is possible to implement a so-called Flow Based Intuitive Market Coupling (FBIMC) to enforce that the cheapest markets are exporting, though at the cost of regional DAMW. Indeed, preliminary simulations results show that there is not a large difference between the social welfare of the FBMC and the FBIMC. The price convergence increases for FBMC.

FB is a more transparent methodology which provides more detailed information to the market, and therefore requires good preparation.

CWE TSOs are working together with PXs and Market Parties to make sure that sufficient support will be provided to the market so as to ensure a proper understanding of FB constraints.

6. How can we compare the performance of an ATC based method and a Flow Based method?

A number of performance indicators have been designed in order to compare the two methodologies. The first category of indicators



concern the “pre-coupling” phase (i.e. computation of capacities) and enable a comparison of the volume of the capacity domain offered to the market. These indicators are described in the chapter 2.3.1 of the CWE Enhanced FBMC feasibility report.

The two methodologies have been compared according to this set of pre-coupling indicators along the FB experimentation from December 2009 until January 2011: the results of this comparative study constitute the section 2.3.3 of the CWE Enhanced FBMC feasibility report.

Another category of indicators is market oriented and aims at comparing the performance of the two methodologies in terms of social welfare, price determination and convergence, market resilience,... The full definition of these indicators, as well as the comparison of the two methodologies accordingly (on 2 periods of 2 consecutive weeks), constitute the third chapter of the CWE Enhanced FBMC feasibility report.

The Flow Based methodology is recognised to be more efficient than the ATC methodology in maximizing the global social welfare. It improves the security of the network, since it takes into account the constraints of the electrical networks in a more precise way and therefore enables more flexibility in the market coupling. When Flow Based market coupling is applied in a region, the market coupling optimisation takes into account, as an input, a detailed set of security constraints to be respected. These constraints are linked to the physical reality of electrical meshed networks and depend on the network topology and the repartition of power producers and consumers. An ATC based algorithm on the contrary will be constrained to respect the Available Transfer Capacities (ATC) pre-calculated on a daily basis for each bidding zone border by the concerned TSOs.

The first cycles of the parallel run show that the social welfare increases under FBMC. The comparative studies, according to the indicators mentioned above, can be found in the CWE Enhanced FBMC feasibility report. Further simulations will be performed so as to confirm these findings on an extensive period of time.

7. Why did the implementation start using an ATC based method and not a Flow Based method?

As an important step of the Market Coupling design phase, a comparison of both methods and an assessment of the simulated market results were done, based on 2007 data; during this study, the project parties developed a better understanding of the challenges and uncertainties associated to the Flow Based solution. However, the fact that capacity calculation and bidding behaviour of the simulation both stem from a quite different environment is expected to play an important role and Market Parties now believe that this comparison can only be addressed through a sustained period of parallel running.

Moreover, during the customer consultation meetings, jointly held in May 2008, a consensus emerged on the fact that Flow Based



methodology requires time to be fully understood in its practical consequences and for customers to adapt their business processes.

As a consequence, the project parties unanimously took on the responsibility to propose to the regulators to start market coupling with an ATC based solution, which will nonetheless deliver significant benefits for the region in this first stage, while continuing the development and assessment of the Flow Based solution. In full compliance with the MoU, it is still the firm intention of the project partners to introduce the Flow Based methodology once its implementation process are defined and shared between all stakeholders.

Since then, the FB methodology and operational procedures have been improved continuously. First parallel run results have been presented in the CWE Enhanced FBMC feasibility report.

Therefore, up to the FB market coupling go-live, Flow Based parameters will be produced according to the operational procedures that have been developed since 2009, and these parameters will be used to calculate the parallel market results for comparison with the ATC based MC. The order books of the ATC MC will be used, and are the most representative set of bids available, to calculate the market results under FBMC, although it must be clear that bidding behaviour will differ from what would be done in a real Flow Based surrounding.

Another advantage of this approach is to facilitate a better understanding of a Flow Based mechanism among market participants. For that purpose project partners will continue to share their information with market participants to help them better understand and get prepared for the Flow Based mechanism.

8. Is Flow Based market coupling implemented somewhere in the world?

No. But the implementation of Flow Based is recognised to be an interesting way forward to take into account network limitations for highly meshed networks. For the same reasons, in CEE (Central Eastern Europe), the project is studying the Flow Based allocation of transmission capacity via CAO (Central Allocation Office).

9. Flow Based: less or more capacity?

The aim of the CWE market coupling project is to allocate the day-ahead capacity in a more efficient manner. The Flow Based approach is a way to maximise the available capacity while keeping the needed grid security level. The aim is to facilitate the integration of the European electricity market, by effectively allowing more cross-border trading, in case the grid security allows it.

Both from theory and from the experimental results so far, the FB provides more capacity to the market than the ATC, with a comparable



level of security of supply. This is described in the section 2.3 of the CWE FBMC Feasibility Report.

10. **What is FB intuitive and why 2 definitions of FB intuitive?**

Under FB market coupling it is possible that a flow occurs from a higher price region to a lower price region if this increases the total welfare of the region. Under Flow Based intuitive market coupling this behaviour is suppressed to the detriment of welfare. Today, the simulations show that the difference between FBMC and FBIMC is moderated. This is described in the CWE Enhanced FBMC feasibility report.

‘Non intuitive’ situations can happen under the FBMC methodology as it aims at regional day-ahead market welfare optimization, and local counter flows (energy flowing from an expensive hub to a cheaper one) can be observed if they allow superior exchanges on other borders.

FB intuitive is an algorithm that suppresses this behaviour at the cost of welfare.

There are 2 definitions of intuitiveness:

- One definition that does not care of physical boundaries. In this case, non-intuitiveness is evaluated at the global level.
- The other definition takes into account physical boundaries. In this case, the non-intuitiveness of the situation in a given country can be evaluated by looking at its neighbour alone.

This is described in section 3.3 of the CWE Enhanced FBMC feasibility report. More information will be represented in an update of the CWE Enhanced FBMC feasibility report.

Practically, no differences were found during simulations. These two definitions exist because it is very difficult to find a firm theoretical ground to anchor the intuitiveness definition. Therefore, the discussion on intuitiveness is still ongoing.

11. **What is a GSK?**

Generation Shift Key: a set of factors describing a linear estimation of the most probable change in the generation pattern within a hub in relation to the change of the net position of this hub. If for instance we assume that 2 generation units are available in hub A (a1 and a2), a GSK A->B of (40%;60%) will mean that an increase of 100 MW of the exchange from A to B will be modelled as an increase of 40 MW and 60 MW of a1 and a2 respectively.

12. **What is a PTDF?**

A Power Transfer Distribution Factor quantifies the influence of an exchange between two hubs (say A and B) on a given grid element “L”. In this framework, a PTDF of 10% means that an increase of 100 MW



from A to B induces an increase of $100 \text{ MW} * 10\% = 10 \text{ MW}$ on the grid Element L. For the whole CWE area, the PTDF factors represent the variation of the physical flow on critical branches induced by the variation of the net position of each hub. The so-called “FB domain” is then deduced by considering the PTDF and the margins available on the most constraining elements (also called “Critical Branches”) of the CWE Grid.

The PTDFs are deduced from a common grid model with the use of GSKs by using a shared TSO load flow calculation functionality that is embedded in the so called “TSO Common System”.

13. The PTDF grid presentation represents a lot of data. How can this be managed by small parties? Will a simulation tool be provided to the market parties?

The non-redundant FB parameters containing PTDF factors and margins, associated with the relevant critical branches which actually limit the FB domain, will be communicated to the market before allocation.

Additionally, in order to ease the transition from ATC and to help market participants get a better grip on the FB domain; a simplified description of the FB domain will be supplied. It consists of figures representing maximum bilateral exchanges and net positions that are feasible within the FB domain.

A simulation tool will also be provided in order to check the simultaneous feasibility of given exchanges and/or net positions within the FB domain, but other functionalities can be studied. In general, please be assured that CWE project partners are fully committed to work with market parties in order to deliver the adequate standard of transparency.

14. What are the pre-constrained cases?

A precongestion occurs when the CWE net positions, as defined by the physical transmission rights nominations only, are outside the security domain defined by the FB methodology. Such a situation is not possible if the domain containing all programming authorizations is within the FB domain.

Up to now, no precongestions have been identified in 7 weeks of data, which was expected since in theory, when using the same data for network security analysis, the ATC domain is inside the FB one for the realistic corners.

However, TSOs might anticipate the occurrence of precongested situations: the line of conduct that is to be followed in case of precongessions cannot be detailed at this stage yet, as it is linked to ongoing analyses and discussions.



15. What is the optimisation that is performed through FBMC, prices x volumes?

The market coupling algorithm is in charge of performing a global optimisation taking into account various power exchanges' order books and the network constraints, which are calculated by the Transmission System Operators (TSOs) in a coordinated way.

The market coupling process, through this link created between power exchanges, thus simultaneously performs an implicit daily allocation of capacities on behalf of TSOs.

This global optimisation is a maximization of the total welfare which is defined as the sum of 3 components:

- Seller surplus
- Buyer surplus
- Congestion revenue (when congestion occurs)

The optimization performed by the Market Coupling System therefore follows the same principles as the current one in ATC MC, the improvement being in the search domain itself, since the FB methodology enables an optimization of capacity usage thanks to its finer description of the grid.

16. How long are we going to have parallel runs/simulations

Parallel run has already begun and will continue up to go-live.

External parallel run, where FB market coupling allocations will be simulated based on the ATC MC order books and published to facilitate a comparison with the operational ATC MC, will begin in 2012 (see planning, showed at the Florence forum and at the technical forum in Amsterdam for the timing).

17. Will there be any member testing before FB go-live

Yes, please refer to planning for the timing. Note that the interfaces to submit bids will not be affected by FB.

18. What are the links with NWE project + ITVC

If simulation results during the implementation phase show a lower quality of the coordinated clearing with Nordic countries, which is not acceptable for the market, FBMC project requires either:

- A unique price coupling solution implementing FB, which is the goal of the NWE project.
- An adaptation of ITVC so that it supports FB.

19. How do/will you assess the quality of the FB model

The SoS level is guaranteed by the procedures that guarantee that the same actions on the grid are implemented under FB as under ATC based MC.



All the indicators given in the CWE Enhanced FBMC feasibility report are used to evaluate the quality of the FB model during the parallel run. Note that, after the FB go-live, no ATC MC will be available for comparison anymore. The launch of FB go-live is however subjected to the satisfactory of FBMC simulations.

20. Which indicators will be used to decide for the GO/NO GO decision on FB?

All indicators of the CWE Enhanced FBMC feasibility report (sections 2.3 and 3) show improvements with FB. However, should it change in the simulations to come, welfare, price convergence, and transparency are the most important indicators.

21. What are the criteria to control FBMC is performing well and that results are acceptable?

After implementation, at a daily operational level, some High Level Properties (HLP) will be verified in order to check FBMC results. Today for instance, return of experience on the first months of ATC market coupling is based on price convergence, publication time of market results and ATC usage are being checked.

22. How will a request for quotes/second auction procedure be organised in CWE

As today under ATC based MC.

23. What will be the operational daily schedule for FBMC?

As today: no change expected. The final detailed procedural aspects and timings will follow after the completion of the preparation stage.

24. What will be the fall-back solution for FB and the decision process?

It is expected that the same fall-back solutions as under ATC based MC will be used, some minor changes are to be expected but these are currently under discussion. The final answers cannot be given yet since the project is currently in the preparation stage.

25. Will there be any contractual changes, and/or do we need to sign additional contracts?

This is not foreseen at the moment. The final answers cannot be given yet since the project is currently in the preparation stage.

26. Which data will be published by the partners?

The utility tool will give access to anonymous FB constraints during the parallel run and after the go-live. Operational results will also be published but the exact terms of this service are still under discussion.



27. Why are the published constraints anonymous?

With the Flow-Based methodology, all the non-redundant constraints (the so-called critical branches) will be published, but their names and locations will be encoded. Indeed, TSOs believe that publishing the full names of these critical branches could give advantage to some market players over other market players (for example the market players located close to a critical branch).

The list of constraints with their full names will of course be provided to Regulators.

28. How does the cosmos algorithm calculate the prices in FB?

Cosmos computes prices as under ATC MC: the goal is to maximize the total welfare. Only the capacity is modelled differently: under ATC, only exchanges between neighbouring countries are allowed and limiting. In FB, exchanges are allowed between any pair of country and an exchange uses part of the capacity of each critical branch. When all the capacity of the branch is used, congestion appears resulting in price differences.

29. Will the market liquidity increase?

Under FB it is expected that the occurrence of congested situations is decreased compared to ATC MC, resulting in a higher occurrence of full coupling (same price, no congestion) for the whole region and thereby increasing opportunity to match local orders on both side of the border thanks to available capacity. This has been already shown in the first weeks of parallel run (CWE Enhanced FBMC feasibility report chapter 3). This leads to more stable prices, which converge more over the whole region. It is predicted that the volume of the cross-border trades will increase. It is not to be predicted whether this increases or decreases the liquidity, this is up to the market participants' behaviour.

30. What is the possible intra-day mechanism after the day-ahead FB market coupling implicit allocation?

Discussions on intraday future mechanism are still ongoing, involving also regulators and market parties. The current mechanisms will probably still be in place at the launch of CWE FBMC. In any case, the FB methodology is compatible with the current ATC intraday allocation mechanism, as explained in section 2.6.2 of the CWE Enhanced FBMC feasibility report.

II. Questions of the market parties

The questions, represented in this section, are raised by the market parties during the CWE FB technical forum, the 1st of June 2011 in Amsterdam. The answers on these questions are formulated by the CWE project partners.



A. ATC market coupling – operational feedback

1. Can the CWE incident of the 27th of March also occur within FBMC?

The incident of 27 March was not related to the capacity calculation as such. Therefore a similar incident might have also occurred within the FBMC. However, the bug has been corrected so that this incident will not happen again in ATC MC nor in FBMC.

2. The time constraints of the fall-back procedures are very strong. At the moment of fall-back, there is not a lot of time and due to the simultaneous PX gate closure time, the fall-back today is a kind of „lottery“. In the past, the French PX was closed at 11h00 and the German PX at 12h00. Therefore, the market parties could lower their risks.

Improvements of the fall-back procedures are currently under investigation. It is difficult to implement sequential gate closure time due to nominations deadline in fall-back situations with explicit auctions.

3. Can EMCC results be used in case of fall-back?

The fall-back improvement task force is looking at this specific topic of fall-back improvement. In their final report, this specific subject will also be addressed.

4. How to avoid price divergence and adverse flows on EMCC in case of fall-back shadow auctions in CWE?

The fall-back improvement task force is looking at the general topic of fall-back improvement. In their final report, this specific subject will also be addressed.

5. How to avoid price spikes on certain PXs? Is there a check that all market parties are playing fair and offering their available generation capacity on the DAM?

In exceptional market circumstances price spikes may occur; due to for example extreme demand or other unusually situations. Similarly, negative prices may occur when the market is in a situation where high volumes are offered to the market. However, in order to ensure the operation of a fair and orderly market, power exchanges continuously monitor the market activities that take place on their trading platforms. Regulators can check that all available capacity had been offered on the DAM.

6. Is price convergence also an objective of the optimization program?

Price convergence is not an objective of the optimization program which aims at maximizing the day-ahead welfare (to the minor



exception mentioned below). If the capacity is not fully used, an additional constraint for price equality is implemented.

7. What is the impact on block bids?

The pure maximization of day-ahead welfare would sometimes lead to Paradoxically Accepted Blocks (PAB, block orders that are accepted whereas they are not in the money, i.e. higher than the price for sell orders and lower for buy orders). The design of the algorithm explicitly forbids PAB, according to exchange rules.

PAB are forbidden because it would mean that the bidder “loses” money on the corresponding transaction. The impact is limited: without the rule, it is estimated that there would be about 1 or 2 PAB each year. The impact on the welfare is negligible.

8. Is it possible to publish NTC and/or ATC sooner?

Publishing NTCs and/or ATC at 10h30 enables a smooth transition to publish FB parameters.

9. How large is the loss on social welfare on the 27th of March?

It is impossible to calculate the welfare loss as such, since a calculation would generally need detailed OTC information as well, which is not available to the CWE parties.

B. Flow Based market coupling

1. In the current CWE region, there are two small zones (i.e. Belgium and the Netherlands) and two large zones (i.e. France and Germany). Does this have an impact on the technical Flow Reliability Margins (FRM)?

The model quality / FRM assessment study will evaluate the quality of the model and especially of the security margins that need to be taken into account for capacity calculation; however, no specific study related to the impact of the size of the zones on the flow reliability margins is currently planned.

2. What about the prices zones and bidding areas?

This topic is currently under discussion with the CWE-regulators. This project will be launched at short term and aims to study the impact of the size of bidding zones. However, the change of the price zones is not included in the Memorandum of Understanding.

3. How much does this project costs?

The costs for the development and the implementation of ATC MC were adequate related to welfare gain during the next years. The costs



for the next step towards FB are much lower compared to the ATC project, since most of the infrastructure will remain unchanged. However, some costs are expected for market parties to adapt their systems. TSOs will have to change methodology and systems for capacity determinations etc. Costs on the PX side are expected to be low because the algorithm and procedures are already designed for FB.

4. Why are the results of the CEE FB allocations less good compared to the CWE FBMC?

It is not the purpose of the CWE project to assess the results of the CEE FB allocations. It is not that easy to compare the results in the two regions. Despite the fact that in both regions it is the Flow Based capacity calculation method that is under study, the capacity determined is applied (simulated) in two different allocation mechanisms: implicit allocation in CWE and explicit allocation in CEE. Generally implicit auctions are better compared to explicit auctions regarding welfare increase because of a better use of the trading options (using the whole Flow Based domain for optimization).

5. What about the redispatch costs?

In capacity calculation, considering the application of remedial actions in D-2 is a way to encompass all the operational gears available to guarantee maximum levels of safe capacities. The FB domain will be calculated from an up-to-date grid model, including topological remedial actions (preventive and curative, which are only applied in case of an outage) as well as the option of curative redispatching during operation.

6. What will be the fall-back solution for FBMC? Is it possible to calculate ATCs?

It is indeed planned to compute ATCs from the Flow Based domain if necessary, especially if an ATC fall-back (shadow auctions) is set up. As several different sets of ATCs are theoretically possible (corresponding to different ex-ante capacity splitting), respective details are still under investigation.

7. Is the congestion on internal lines transferred to the borders and how does this fit in the regulatory framework?

Following EU-legislation TSOs shall not limit interconnection capacity in order to solve congestion inside their own control area.

Due to this obligation, branches which are not significantly impacted by cross-border trade, are not considered as critical branches and consequently are not part of the Flow Based constraints in FBMC.



8. How many critical branches are included and which kind of critical branches did you include?

Roughly the same basic methodology is used for Flow Based as it is applied for the ATC, thereby taking into account the same critical branches. The Security of Supply level is at least the same but the Security of Supply domain is larger under Flow Based in the most likely market directions, due to the fact that there is no ex-ante capacity splitting among the borders.

9. The PTDFs are based on the working power plants and whether the power plants are working is based on the PTDFs?

Therefore PTDFs are computed with the best assumption available at the time of their computation. Such assumptions on running power plants (through GSK) are unavoidable under zonal Flow Based method, but any valuable information from market parties would be welcomed. Note that the PTDFs are based on the same base case as for ATC MC, meaning that the same assumptions are needed in both cases.

10. If internal congestion within the FBMC becomes more transparent, could this give a problem?

For the internal congestion please refer to the answers of question 7 and 8. The transparency provided by FB will give the opportunity to identify the hot spots in the grid linked to cross-border trade, allowing an enhanced use and development planning of grid infrastructure.

11. How can the trader manage the PTDFs?

The so called “utility tool” will be developed for traders. It will provide FB constraints to traders as well as tools to handle them (comparison of several periods, synthetic indicators like max net positions and max bilateral exchanges). It will be designed to present 24 sets of FB constraints per day, i.e. one per hour (1 set of FB constraints contains approximately 15 to 20 constraints).

12. Is the FBMC less transparent for traders? How do you avoid creating an un-level playing field between traders able to handle the complex information and traders not able to?

Some traders will directly use the PTDFs matrices in their tools. Some other will base their estimations on the variations of synthetic indicators. The goal of the CWE FB project is to allow traders to transfer their qualitative knowledge of the current ATC MC to FBMC. We are aware that it is a key point of the FBMC project and we are open to any suggestions of the traders to define useful functionalities of the “utility tool”.



13. FB may be too complicated and the gain in social welfare may be getting lost therefore?

On the one hand, the increase of day-ahead welfare in FBMC is very significant. On the other hand, FBMC is more sophisticated and will require market parties to adapt the internal procedures and systems. An adequate market preparation phase, with information sessions and provision of tools, and possible training/workshops has to be planned in order to prepare the market parties for FBMC, before the parallel run.

14. Can we get more information on the FB parameters? On a typical PTFD? On the typical equations used?

We will provide sufficiently in advance test data to the market parties to allow you to prepare for FB go-live. Additional information will be included in the update of the CWE Enhanced FBMC feasibility report which will be made available for the market parties.

15. How will the planning of the ITVC project and the CWE FB project be evaluated?

The target is to have a price coupling enduring solution launched before or together with FBMC in 2013. This is the vision of both projects. A back-up solution using ITVC will be studied.

16. Given that NWE MC and FBMC are now planned for 2013 is it not useful to investigate optimisation of the current ITVC?

Such an investigation is part of the planning, however it should be noted that the allocation of limited resources towards a contemporary introduction of FBMC and NWE-price coupling and not on interim-steps seems the better strategy and more efficient for major future steps.

17. What will happen with the ID after the launch of FBMC?

As described in CWE Enhanced FBMC feasibility report in detail FBMC is fully compatible with current and future ID approaches.

18. Does the CWE FBMC delay other projects such as Italy – Swiss?

CWE FBMC is feasible with the other projects. This should mean that the Italy-Swiss project should not have to be delayed.

19. Will the UIOSI principle stay?

It is foreseen to keep UIOSI. . Details regarding congestion rent sharing and the settlement of UIOSI-payments are discussed with the CWE-regulators.



20. FBMC is characterized by two solutions: either full price convergence or full price divergence. Is this also true in case of radial (non-meshed) zones?

Yes.

21. In the presentation of the FB technical forum is mentioned: “about 20 constraints per hour”. What does this mean?

On average, the number of CBs within CWE that could possibly limit the market on a given hour is 20

22. Would it not be possible to receive the full grid model, so that market parties can calculate their own PDDF-matrices? This could be relevant for future situations, long –term price forecasting. I assume that the utility tool focuses at the day-ahead stage.

No. This subject is dealt with at the ENTSO-E level (CACM (capacity allocation and congestion management code)). As a matter of fact, grid models or any input data are subject to confidentiality issues. Moreover, PDDF computation belongs to TSO expertise. In addition, please note that the utility tool topic will be addressed by the Flow Based User Group.

Like in the ATC MC, the market participants only receive the constraints that are computed by the TSOs and that could possibly limit the market positions in the MC. In the CWE FBMC, instead of 8 CWE ATC constraints, around 20 FB constraints will be published per hour.

23. How are DC-lines and phase-shifting transformers handled in making the PDDF-matrix?

Regarding the DC lines:

IFA: according to the tendency which is considered relevant by RTE, a stress on IFA is considered when defining the input parameters.

BritNed and Normed: FB methodology provides the most flexibility in market tendency, because a lack of information on d-2 TenneT cannot make assumptions on the cable tendency but will take into account critical grid situations and critical cable stress when defining the PDDF input parameters.

Note that if a DC cable is interlinking two market areas, one with FB and one with ATC, in the same price coupling mechanism, two options are discussed in detail in section 4.3 of the FB feasibility report on how to deal with this (including the DC cable).

Regarding the PST:

The tap positions are set in the base case according to SoS local policies, and can therefore be considered for remedial actions during capacity calculations.



24. How will FB-Day ahead MC interact with intra-day allocation? Should intraday also be FB after start of FBMC? If intraday remains NTC/ATC based, the security domain will suddenly shrink after the day-ahead phase, resulting in much less XB-intraday trade.

Compatibility with ID allocation is ensured in CWE FB day ahead, to this respect CWE TSOs propose (c.f. in the feasibility report in section 2.6) a method which splits in a fair and transparent way remaining capacities after DA market coupling. As a matter of fact, the capacity domain will not “suddenly shrink”, but according to the outcome of DA market coupling (i.e. the position of the DA clearing point in the capacity domain), more or less ID ATCs will be given to the CWE borders.

Please note that this method can be seen as preliminary stage which can lead, thanks to a step by step approach described in the feasibility report, to enhanced methods of ID capacities computation like ID FB for instance. However, this process is not part of the CWE FB DA project.