

On the 26th of June 2017, the Ministers of the Pentalateral Energy Forum, reviewed the implementation of the working programme set out in the Annexes of the Second Political Declaration of the Pentalateral Energy Forum of 6 June 2015:

Support Group 1 – Market integration

Achieved:

Day-ahead market coupling:

On 20 May 2015, the flow-based market coupling (FBMC) in the CWE-region came into operation. Since then, FBMC has proven its potential advantages compared to an ATC-based market coupling. A first indication was achieved during the parallel-run in the 12 months before go-live (June 2014-May 2015), where the (at that time) theoretical model of FBMC was compared with the real results of the ATC-coupling. The comparison had shown, that FBMC would have delivered a maximum price spread of < 5 €/MWh in almost 50% of the time and < 10 €/MWh in more than 60% of the time. The existing ATC-coupling only delivered a maximum price spread of <5 €/MWh in about 20% of the time and <10 €/MWh in about 40% of the time.

Since go-live, the values have hardly changed for the real results of FBMC, with a maximum price spread of < 5 €/MWh in more than 40% of the time and < 10 €/MWh in almost 60% of the time. Even though it is not known, which results a continued ATC-coupling would have delivered, the results for FBMC were at least in the range that could be expected based on the parallel-run. However, it should be noted that price convergence at such levels had also been achieved in previous years under ATC-coupling.

Furthermore, latest analysis of TSOs has demonstrated, that the electricity exchange between Penta-countries was in particular increased in the relevant market directions in many hours. That means, in many cases where general electricity exchange was directed towards one country, the volumes of exchange were increased by FBMC compared to ATC-coupling.

A number of improvements of the mechanism were implemented in the months since go-live, as requested by NRAs in their approval of the FB-methodology, e.g.:

- APG was fully integrated in the FBMC-processes since November 2016
- The transparency of FBMC for market participants was improved by an automatic and daily publication of understandable data by the TSOs as of end of May 2017. This step was very welcomed by the Market Parties Platform and should by and large satisfy their requested transparency requirements.
- The adequacy issue mentioned in the NRA-approval of the FBMC-methodology has been addressed by a technological solution implemented in the algorithm in April 2016.

Intraday market coupling:

The project to couple the intraday-markets based on ATCs in the Northwestern European Region (XBID) makes progress and is currently testing the developed IT-solutions. Almost all major contractual

relationships are finalised, and procedures have been set up how to integrate also other European regions in the coupling which have not been part of XBID yet. The go-live of the coupling at the first borders is currently expected for the first quarter of 2018.

Also, first incremental improvements have been implemented to increase the available capacities for cross-border intraday markets at the individual borders in the CWE-region. Furthermore, TSOs in the CWE-region continue to work on the development of a flow-based methodology for defining the available cross-zonal capacity for the coupling of the intraday markets in the region. Latest step was the finalisation of the flow based intraday capacity calculation methodology (FB IDCC) after consultation with NRAs and market participants, and the submission of the approval package to the CWE NRAs on the 9th May 2017.

To be achieved:

Day-ahead market coupling:

Next step for flow-based market coupling in Europe will be the (stepwise) expansion of FBMC in the CORE-region, which also includes the Eastern European states.

Furthermore, a number of tasks for TSOs to improve FBMC still remain:

- There are still some requirements from the NRA-approval of the FBMC in the CWE-region not finally answered by TSOs, including a study on flow-factor competition and the investigation of applied security margins.
- The latest improvements to increase transparency on FBMC need to be fully implemented by TSOs and evaluated by market participants.
- The latest issues with the so-called “LTA violations” which occurred particularly in the last winter need to be examined more in detail and appropriate solutions need to be developed and discussed in SG 1.
- In addition to that, it appears to be reasonable to start work on integrating Switzerland in the FBMC-algorithm. Latest experiences have demonstrated the need to integrate Switzerland in order to minimize unexpected outcomes in reality.

Intraday market coupling:

The XBID-project is still phasing a number of challenges before finalisation and go-live. Project partners still have to solve several technical issues, such as selecting and confirming the products for go-live. From a Penta-perspective, these products should reflect the Imbalance Settlement Periods in the respective participating countries (see SG 3). But also some contractual and cost sharing issues are still to be decided on.

For FBMC ID, parallel runs are currently foreseen for June-December 2017 (internal) and Q1 to Q3 (external). The go-live of the methodology is foreseen for the late second half of 2018.

Key findings/ recommendations:

Day-ahead market coupling:

- Penta-Ministers acknowledge and welcome the enormous efforts and progress being made to

improve the FBMC in the Penta-regions since go-live in May 2015.

- Many open questions on technical, analytical and transparency issues raised by NRAs and market participants have been solved.
- Penta-Ministers recommend to address and solve remaining outstanding issues with regard to the transparency requests by market participants and the requirements from the NRA-approval e.g. on flow-factor competition.
- Furthermore, TSOs are invited to set up a schedule to integrate Switzerland in the FBMC-algorithm.

Intraday market coupling:

- Penta-Ministers welcome the progress made in the XBID-project.
- Penta-Ministers welcome and support the decision by Penta-TSOs to continue their work on a flow-based methodology for intraday in the CWE-region (incl. Switzerland) and call on the TSOs to work towards an implementation by the end of 2018 at the latest

Allocation of cross-zonal capacity:

- Penta-Ministers agree to trigger a more in-depth discussion on how cross-zonal capacity should be allocated between the short-term market segments day-ahead, intraday and balancing, as consequence of the agreement in the Guideline Electricity Balancing to allow for the reservation of cross-zonal capacity to exchange balancing capacity.

Support Group 2 – Security of supply

Achieved:

- A non-paper on security of supply has been established defining a regional approach to risk preparedness, reliability standards and shared principles concerning the management of coincident crisis situations. Based on the non-paper a Memorandum of Understanding is being finalized to confirm the intention of the Penta ministers to maintain and strengthen their existing energy cooperation ;
- The methodology for the regional adequacy assessment is continuously improved and an updated assessment is currently being elaborated by the Penta TSOs for the horizons 2018/2019 and 2023/2024.
- Penta TSOs have finalized their study on cross-border participation in system adequacy mechanisms. This report is very good summary of the existing mechanisms and shows the possible impacts on neighboring countries. It represents a valuable input for future work on regional cooperation for security of supply.

To be achieved:

- The signing of a Memorandum of Understanding on security of supply will be the starting point of the definition of steps and procedures to ensure security of supply during crisis situations

which are built on principles of solidarity, mutual trust and shared responsibility and taken as an early implementation of the risk preparedness regulation;

Support Group 3 - Flexibility

Progress and recommendations:

Balancing

- The participation of Support Group 3 was opened to new stakeholders like DSOs, large consumer organisation, renewable producers and the Smart Energy Demand Coalition, in addition to the traditional participants (NRAs, TSOs, market parties, and power exchanges). Also, participants from the “electricity neighbours” group were occasionally invited to discuss the outcome of the expert meetings.
- The discussions on the balancing and Intraday markets were influenced by the European project XBID and the proceedings on the Guideline on Electricity Balancing (GL EB). Due to these parallel processes, the work load of the involved PENTA TSOs was on its limit and establishing separate projects and roadmaps for the PENTA region only was not been seen appropriate. The discussions within SG3 therefore were mainly used to find common ground on the actual situation and in defining priorities. The output of the expert groups has been presented in technical background papers as input for the discussions. After a two-year working period the Penta Coordinators draw the following conclusions:
- The harmonisation of the essential elements of the **balancing markets** is an important condition for enhancing market access for flexibility providers. The work on the Guideline on Electricity Balancing (GL EB), which finished with a positive vote in March 2017, includes the main features of requested harmonisation. The PENTA Countries have been heavily involved in the work-out of the GL EB and the PENTA TSOs have played a major role in the setting up of pilot projects. They are today building the nucleus of European balancing platform for Replacement Reserve (RR) and the Imbalance Netting (IGCC). Other pilot projects of the PENTA TSOs have provided important experience for the implementation of the platforms for Frequency Restoration Reserve (FRR) and will allow PENTA TSOs to play a leading role in the upcoming European implementation project. The PENTA TSOs have also introduced a project for common procurement of Frequency Containment Reserve (FCR). Even though it is not a compulsory requirement of the GL EB. It is expected to evolve in a European project.
 - The time scale of the implementation of the GL EB is ambitious and the Penta TSOs have shown commitment to take a leading role in the implementation process. To keep the momentum, the PENTA Forum shall **monitor and follow up** the progress, identify the need of political support at an early stage and identify early implementation in the identified key issues - **balancing products - gate closure times and pricing**.

Intraday

- Concerning the Intraday market, the focus has been set on the further alignment of the **Intraday markets**. A growing consensus could be reached on the need to harmonise (and shorten) lead times

and product durations in the medium term, as an important condition for the alignment of cross-border intraday market arrangements. The work on the European platform XBID impeded a separate regional roadmap for a faster progress in the region. The planned processes for an improved use of flexibility in the region will therefore remain on the working list for next period and we are convinced that we are able to proceed after go-live of the XBID project in first quarter 2018 with the following issues and define actions by end of 2018:

- the harmonisation of national and cross-border **lead times for intraday** in coherence with gate closure times for balancing, possibly on the basis of a feasibility study to be performed by TSOs and power exchanges,
- exploring the possibility of a **cross-border “intraday auction”**,
- exploring the introduction of 15 minutes as **lead time** for the cross-border Intraday markets as a local pilot between interested parties,
- the alignment of **product durations** in national and cross-border intraday markets in consistency with the imbalance settlement period (ISP).

Demand Side Response (DSR)

- On the topic of **Demand Side Response (DSR)** a separate expert group has worked on a report describing the actual situation in the PENTA region. The report focusses on the roles and responsibilities of new market players, such as aggregators, in each country of the region. It also gives an outlook of the planned country roadmaps. It was observed that the PENTA-countries, insofar frameworks are in place, have developed different models and solutions for DSR participation. The solutions in each country are tailor-made and take into account the specific (historical) situation and specificities of the national electricity markets. The report gives a good overview of these specificities. The main identified barriers are the following:
 - The market should be able to give price signals for explicit DSR, in order to reflect scarcity and give incentives for demand side response. Consumers should also be able to respond to prices through implicit DSR.
 - A clear market framework is needed for explicit DSR with non-discriminatory access to all markets, but the frameworks can differ between countries;
 - Long term signals will foster investments in new technologies allowing DSR participation.
- Consumer should also be able to valorise their flexibility. Many barriers and obstacles to the development of DSR in the Penta region still persist. The report shall be amended, dealing with the following issues by first quarter of 2018, leading to a proposal for removing the identified barriers.
 - Work on a **clear definition of roles and responsibilities** of different actors within the Penta region (including new players).
 - work on the removal of **the identified barriers** for the development of DSR. To be evaluated mid of 2018.
- The work in SG3 on the issues of flexibility were until now concentrating on the integration of flexibility into the market, strengthening and streamlining existing frameworks and looking for improvements with a focus on cross zonal aspects. However, the real strength of Penta is when it can act as a frontrunner and be a birth place for pilot projects, like it has been successfully in the past. To do so we need a more holistic approach to fuel the discussion on flexibility, increase

demand responsiveness on every segment of the market, increase storage and develop a common vision to the market integration of renewable energies. Therefore, we have the ambition to look for a liaison with DG ENERGY, Unit C2 “New energy technologies, innovation and clean coal”, to ensure a structural discussion with projects that will be selected under the **Horizon 2020** work programme 2018-2020 with a focus on testing and demonstrating innovative grid services through demand response, storage and small-scale (RES) generation.

- Due to the extensive discussion and preparation work on the flexibility issue within SG3, we can act as a mirroring group for the future projects where topics related to regulatory questions could be discussed between NRAs, TSOs and DSOs of the PENTA region not directly involved in the project. The regular information exchange with such projects looking at a holistic approach, would allow PENTA ministries being in the front runner position for future discussions on possible new political measures on national and/or European level with regard to DSR. We propose therefore the following new work stream within SG3.
 - Bring the relevant call(s) of the next Horizon 2020 programme to the attention of the PENTA stakeholders, and if possible, organise a workshop together with DG ENERGY C2 with interested parties (including PENTA stakeholders) and urge relevant stakeholders from the PENTA region to form a project team and to submit a proposal following the official call (timing to be confirmed, but probably late 2017 or early 2018).
 - If (a) proposal(s) that involves PENTA stakeholders is successful, SG3 will support the project team on the political level and set up regular information exchange workshops and reports to the ministries.
 - Reflect the findings in the project with other stakeholders of the PENTA region and identify early implementation measures applicable also to non-project members.