

## NATIONAL ENERGY AND CLIMATE PLANS (NECPs) AND REGIONAL COOPERATION

### COMMON PENTA CHAPTER FOR NECPs – FINAL

#### INTRODUCTION

The Pentalateral Energy Forum is a voluntary regional cooperation, since 2005, between Belgium, France, Germany, Luxembourg, the Netherlands and, since 2011, Austria, counting for more than one third of EU population and covering more than 40% of the electricity generation in the EU. Switzerland joined as a permanent observer in 2011 and contributes actively to the technical work and decision shaping. In close cooperation with the European Commission (on invitation), the Pentalateral Energy Forum enhances the cooperation between all relevant parties in order to create a regional electricity market as an intermediate step towards one common European electricity market.

The cooperation is led by the Ministers responsible for energy policy, who meet on a regular basis. The follow-up of the activities is ensured by the Penta Coordinators' and the Penta NECP Committee under the direction of the respective Directors General of the Pentalateral countries. The work programme is carried out by Transmission System Operators (TSOs), ministries, regulatory authorities (NRAs), the European Commission and market parties who meet on a regular basis in 3 Support Groups.

The major success over the past 15 years is that Penta countries have evolved from a purely national policy perspective on energy markets to the adoption of a regional approach. Concrete regional milestones are put in place in several dimensions which remain relevant today:

#### Internal electricity market/market integration:

The Penta Support Group 1 (SG1) focuses on the coupling of the electricity markets in the region. The SG1 fostered the flow-based market coupling (FBMC) of the day-ahead markets as an objective, and in May 2015 the FBMC was officially launched in the Penta region, as first of its kind in the European Union. Since then, the FBMC has been continuously improved to further increase its welfare gains and serves now as the basis for a fully EU entrenched FBMC for the day-ahead markets.

Moreover, in order to increase the available transmission capacity for cross-border trade on the intraday market, the SG1 fostered a coordinated intraday capacity calculation process after day-ahead flow-based market coupling for all borders in the region which has been implemented in March 2016 as a first step of the coupling of European intraday markets.

The Support Group has been a privileged witness of the drastic change in the electricity landscape and the governance of the electricity markets. Whereas in 2005 electricity operators still worked rather separately, the group has actively stimulated over the years the cooperation between stakeholders, which contributed e.g. to the regional grouping of TSOs in their associations, the merger of Power Exchanges or TSOs, and the emergence of new regional actors (TSCNet, Coreso, former CASC-CWE, SSC).

With a view to the new implementation plans that have to be prepared according to the Clean Energy Package, Penta countries will closely coordinate and explore joint action.

#### Internal electricity market/flexibility:

The Support Group 3 (SG 3) focuses on flexibility issues in the region. The work in the SG3 has until now been concentrated on balancing, intraday and the role of demand side response as three major fields for regional cooperation to improve the flexibility of our electricity markets. Various technical background papers have been delivered summing up the main barriers and obstacles towards an

enhanced use of flexibility in the Penta region. The participation of SG3 has been open to traditional participants (NRAs/TSOs) as well as other stakeholders like Distribution System Operators (DSOs), large consumer organizations and renewable producers.

Regarding balancing, assessments of current approaches and an exchange on good practices have been taken place within the Penta forum. In addition, Penta is playing an important role in the implementation process of the European Union Guidelines on Electricity Balancing. Regarding Demand Side Response (DSR) a separate expert group has worked on a report describing the actual situation in the Penta region with a focus on the rules and responsibilities of new market players in each country of the region. Regarding the further cooperation of Penta countries on hydrogen, a workshop has taken place, in order to define possible cooperation topics on this issue.

#### Security of supply:

The Support Group 2 (SG2) deals with security of supply issues in the region. There has been a Memorandum of Understanding among Penta countries on cooperation as regards security of supply (MOU), signed in June 2017. Based on this and in the light of the new EU regulation on risk preparedness, a crisis exercise ("PENTEX 2018") had been organised in 2018 in order to achieve a better mutual understanding of national concerns, identify potential relevant (cross border) crisis situations for the region and assess different measures to mitigate the effects of a crisis.

The 1<sup>st</sup> regional generation adequacy assessment (GAA) performed by the Penta TSOs and published in March 2015 constituted an important milestone. The methodology for the assessment used a probabilistic and chronological approach with an hourly resolution for the years 2015/2016 and 2020/2021 which represented a significant improvement in comparison to the existing deterministic approaches. Furthermore, the Penta TSOs used a common regional dataset based on the same scenarios and assumptions, such as a regional-wide temperature-sensitive load model and harmonised probabilistic hydrological data.

The governments of the Penta countries are convinced that these dimensions remain relevant. Next to a continuation on the above-mentioned areas, Penta countries will in the upcoming years use the Pentilateral Energy Forum to work on the following priorities:

#### ***DECARBONISATION OF THE ELECTRICITY SECTOR***

##### Common vision on decarbonised electricity in Penta by 2050:

Penta countries will exchange their visions for a decarbonised electricity system by 2050 (with intermediate steps for 2030 and 2040) as part of a highly energy efficient and highly renewables-based energy system, a stepwise phasing out of fossil generated power and by an efficient end-use of electricity. As a first step a comparison of national scenarios on how the electricity system 2050 could look like will be performed as well as the identification of common and diverging aspects across the scenarios and how security of supply would be guaranteed in these scenarios. This will create the basis for a common understanding of the expectations and challenges for building a future electricity system.

##### Start cross-border cooperation on renewable electricity:

Penta countries will work on voluntary basis towards developing a menu of common concepts covering different levels of cooperation, including exploring the possibilities for opening of national tendering schemes/cross-border tendering, common tenders for those Penta-countries which are interested and making increased use of the EU enabling framework for renewable energy and the existing cooperation

mechanisms, such as joint projects and statistical transfers (“cluster menu”) for those Penta-countries which are interested.

The Penta countries also support the ongoing work of the European Commission and the Member States on developing a European Union Renewables Financing Mechanism.

#### Integration of electro-mobility options and services without regional restrictions:

Penta countries will contribute to increasing the share of renewable energy in transport by promoting electromobility (including fuel cell options). They facilitate the integration/implementation of electro-mobility options and services without restrictions within the Penta region, by identifying and if needed removing barriers for the cross-border deployment of electro-mobility and charging services and by assuring interoperability.

#### Explore the options for carbon pricing and their cross-border impact on electricity prices

Penta countries that plan or consider to introduce a carbon price will on a voluntary basis exchange views on policy approaches for the introduction of a carbon price, its advantages and disadvantages in terms of CO<sub>2</sub> reduction, security of supply, price developments and a level playing field of their industries.

### INTERNAL ELECTRICITY MARKET

#### Market integration

Penta countries will further improve the monitoring of FBMC with a view to increase cross-border trade and social welfare and to optimize consumer benefit. Penta countries will make the monitoring more innovative, in view of translating it into the key common indicators to assess the evolution towards a fully decarbonized Pentalateral electricity market in 2050.

Penta countries will work together in the swift implementation of the Clean Energy Package and possible cross-border impacts for the energy market (e.g. further development and improvement of redispatch cooperation in the Penta-region).

#### Flexibility

Penta countries will focus on the impact of the implementation of flexibility options such as the role of demand side management, PtX and hydrogen, the role of storage, electric mobility and analyse concrete electricity related barriers for sector coupling.

Regarding the potential future role of increasingly renewables based hydrogen as an energy carrier in their energy system, Penta countries will examine possible common approaches for guarantees of origin, cross-border infrastructure, the respective role of TSOs and DSOs and standards for hydrogen blending, as well as exchange information and best practices on support schemes for hydrogen and innovation projects and the future role of hydrogen in general.

### SECURITY OF SUPPLY

Penta countries will continuously improve the Pentalateral Generation Adequacy Assessment by taking into account improved weather data, the latest figures and targets from the NECPs of Penta countries when determining the future energy mixes and some other sensitivity analysis. The third assessment is currently being elaborated by the Penta TSOs for the horizons 2021 and 2025 taking into account regional (based on national) storylines, improved Flow Based calculations and Demand Side Flexibility sensitivities.

In the frame of the Clean Energy Package (CEP), and more specifically in the context of regional cooperation and the risk preparedness regulation, discussions have been started with ENTSO-E, the Commission and other stakeholders to define rules for the cooperation between Member States in view of identifying potential regional crisis scenarios and of preventing, preparing for and handling electricity crises in a spirit of solidarity and transparency and in full regard for the requirements of a competitive internal market for electricity. Penta countries will work together to develop concrete regional measures in crisis situations.

#### *FINANCING INSTRUMENTS FOR THE ENERGY TRANSITION*

The Pentalateral Energy Forum will start to exchange on possible regional approaches to increase energy efficiency and the roll out of renewables for example by looking together with financial institutions such as EIB for joint approaches to reduce risks in both sectors and hence facilitate the achievement of Penta members' objectives.