



Concept design for the institutional set-up of the organised day-ahead market in North Macedonia

Borzen and South Pool

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Borzen



Technical assistance to FYR of Macedonia to establish Institutional Set-up for Organised Day-ahead market

Final report

**Concept design for the Institutional Set-up of the Organised Day-
ahead market**

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Abbreviations and definitions

- 4M MC – Four(4) Markets Market Coupling
- ANCA - All NEMO Cooperation Agreement
- ANDOA – All NEMO Day-ahead Operational Agreement
- ATC – Available Transfer Capacity
- CACM – Regulation 2015/1222 establishing a guideline on Capacity Allocation and Congestion Management
- CCP – Central Counter Party
- CZC – Cross-Zonal Capacities
- DSO – Distribution System Operator
- ECC – European Commodity Clearing AG
- EFET – European Federation of Energy Traders
- EMIR – European Market Infrastructure Regulation
- FB – Flow Based Capacity Calculation Methodology
- GCT – Gate closure time
- IBWT –Italian Borders Working Table
- INCA – Interim NEMO cooperation agreement
- MCO – Market Coupling Operator
- MIFID – Markets in Financial Instruments Directive
- MLA – Multilateral Liability Agreement
- MO – Market Operator
- MRC – Multi-Regional Coupling
- MRC DAOA – Multiregional Coupling Agreement
- NEMO – Nominated Electricity Market Operator
- NRA – National Regulatory Authority
- PCR – Price Coupling of Regions
- PX – Power Exchange
- REMIT – Regulation on Energy Market Integrity and Transparency
- SA – Shipping Agent
- TSO – Transmission System Operator

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Executive Summary

The Slovenian Electricity Market Operator Borzen together with the Slovenian Nominated Electricity Market Operator BSP Energy Exchange (“consultant”) are contracted as a Technical Assistance Provider by the Energy Community Secretariat (ECS) for the Electricity Transmission System Operator of Macedonia JSC Skopje (MEPSO, “beneficiary”) for the provision of Technical Assistance for draft solutions for national governance structures and institutional arrangements for the national day-ahead electricity market, fit for coupling with neighbouring markets in an optimal way.

This report covers the content of individual tasks given under the ToR (terms of reference) of this Technical assistance. Its focus is to provide a review of the existing situation, available options for the organization of the day-ahead market (power exchange) in Macedonia, a review of carried out interviews and consultations (including the workshop) and give a proposal for a concept for a day-ahead market organisation (including the rationale).

The report is structured into seven sections. The first two chapters in the **first section** set the scene by introducing the background and the scope of the concept design. The following chapter provides an overview of the key stakeholders and a high level summary of the current market situation on the Macedonian electricity market.

In the **second section** the first chapter outlines the key principles of the operation of power exchanges. The latter is followed by a chapter providing an overview of the power exchanges relevant for the project target in terms of ownership structure, organisation, operational market segments, market liquidity, trading platform usage, clearing and financial settlement model and market coupling arrangements.

Section three provides an investigation in the relevant EU legislation and status of translation into national law. Hence, the first chapter interprets the Commission regulation 2015/1222 (CACM regulation) in terms of NEMO nomination process, MCO function description and NEMO designation criteria. In the second chapter basic principles of market coupling are outlined together with Price Coupling of Regions (PCR) project, distinction between NEMO role and MCO functions and two options how to meet the technical requirement of CACM (Servicing vs Serviced PX concepts). In the third chapter Macedonian national legislation (new Energy law, Customs law, Public Procurement law, VAT legislation, law on Trade Companies and other relevant legislation) is reviewed and comments relevant to the objective of the report are provided.

Section four represents the heart of the concept design by outlining power exchange organization and operation models together with four models identified as possible organizational options for Macedonian day-ahead market. The first chapter describes four existing examples of operational PX models in EU. Based on the latter examples the second chapter outlines four possible models for the organisation of the day-ahead power exchange in Macedonia together with pertinent SWOT analysis. The section concludes with chapter which describes two possible PCR operation models.

Section five looks into the results of the consultation with relevant stakeholders about the possible models of the organisation of the day-ahead of the Macedonian power exchange market discussions and the results steaming from the discussions made during the first workshop organized by consultant with the relevant stakeholders in Skopje.

Section six provides in the first chapter a summary of consultant's recommendations for the process of establishment of the day-ahead power exchange market in Macedonia and finalizes this section with second chapter where the proposal for the institutional setup of the Macedonian day-ahead market is made.

Section seven gives the final conclusions.

The report is complemented by **four annexes**. The first annex consists of meeting minutes of the workshop held in Skopje, complemented by presentation given during the workshop in second annex. Third annex represents the questionnaire addressed to the stakeholders in Macedonia during the drafting of the concept design and fourth annex consists of meeting minutes of the consultations between consultant and relevant stakeholders in Macedonia.

This report should be read and interpreted together with the separate **concept paper** (as per the Terms of Reference of the Technical Assistance, Task 3.b). The paper lays out a detailed description of the proposal, including all necessary steps and timelines.

SECTION 1

Background and scope of the document

Current situation

The Western Balkan 6 Initiative aims to support the six Contracting Parties of the Energy Community (among them, Macedonia) in strengthening regional cooperation and implementations in the areas of energy, among others by establishing an organised day-ahead market in each Western Balkan country and their market coupling. The Western Balkan 6 Initiative tasked the Energy Community Secretariat to lead the development of the regional energy market and assist in the implementation of the measures.

The primary legislative framework needed for establishment of organized electricity market is in the process of adoption (the Draft Energy Law was reviewed in the process of the consultation¹). The new Energy Law together with the new Market rules will be the main regulatory framework covering the governance and organization of Macedonian electricity market operator, which shall be spun off from the Electricity Transmission System Operator of Macedonia JSC Skopje (MEPSO). The electricity market operator may, under conditions determined by the new Energy Law, be appointed as a nominated electricity market operator.

Pursuant to the Government's instruction, the Macedonian electricity market operator or by public tender selected (foreign) company shall have the task to establish an organized day-ahead market (power exchange).

The new Energy Law also requires the development of a number of secondary legal acts and methodologies related to the organization of electricity market in Macedonia to be adopted by governmental authorities and the national regulatory authority (ERC). In this regard, the pertinent report provides a set of high-level recommendations, taking into account both the current status in the Macedonian electricity sector and the best-practice market designs developed and implemented in Europe or in ECS Contracting Parties, aiming to provide a Macedonian target model for the electricity market that is consistent throughout all timeframes, compliant with Energy Community laws and compatible with local specificities.

Scope

The overall objective of the report is to find viable model for the organization of Macedonian day-ahead organized exchange market as a guidance to all involved stakeholders. The document is drafted by the key experts provided by the consultant in at least three stages following the Terms of References provided by the tender, as follows:

1. Task 1: identification of possible models of the organisation and operation of the day-ahead market to be supported under the legal framework
2. Task 2: evaluation of the possible solutions for the day-ahead market organisation and operation
3. Task 3: drafting the proposal of the institutional setup for a day-ahead market

4. Task 4: presentation of the overall outcome of the project

The proposed solution/s shall be fully compatible with the purpose and overall target of WB6, to enable adhering to an existing power exchange or an independent national power exchange either as sole company or embedded in i.e. electricity market operator, enabling smooth functioning of the wholesale market.

Macedonian electricity market

Macedonian market as such is small but very well interconnected with neighbouring systems. The Macedonian power system has interconnection lines with Greece, Bulgaria, Serbia and Kosovo and interconnection line with Albania under construction. Macedonia holds a strategic position between exporting and importing countries in SEE Europe. Bulgaria is mainly an exporting country and also Serbia in some intervals, while Greece mainly imports. With its transmission lines Macedonia has all possibilities to become a very important transitional country with many regional market players present on the market.

Ministry of Economy

Energy department as a part of Ministry of economy Initiates legislative changes to the government and performs other regulatory, supervisory and administrative activities.

Energy Regulatory Commission

Established in 2002, it provides the methodologies for the establishment of regulated prices, approves regulated prices established on the basis of these methodologies, issues licenses for performance of energy activities and approves grid codes.

ELEM

ELEM is the incumbent electricity producer in Macedonia holding approximately 75% of production with a license for generation of electricity as “Regulated Generator”, which is a producer of electricity for tariff consumers.

MEPSO

MEPSO is a state-owned company which holds licenses for Transmission System Operator and Market Operator. MEPSO is responsible for transmitting electricity and managing the high voltage transmission network, operating the electricity central dispatching system and implementing market operations and for providing ancillary services.

EVN

The private joint stock company EVN Macedonia, as part of the EVN Austria group, operates the distribution and supply of electricity in Macedonia via unbundled subsidiary EVN Elektrodistribucija. All household customers in the country and all non-household customers are connected to the distribution system of EVN Elektrodistribucija.

Main traders

For the Macedonian wholesale market, beside ELEM and EVN, the most important active traders in bilateral wholesale trading and thereof in position to actively support trading on Macedonian power exchange are the following companies:

- EFT-MAKEDONIJA DOOEL Skopje
- DANSKE KOMODITIS DOOEL Skopje
- GEN-I PRODAŽBA NA ENERGIJA DOOEL Skopje
- INTERENERGO MAKEDONIJA DOOEL uvoz-izvoz Skopje
- Petrol-Energetika DOOEL Skopje
- Energy Delivery Solution - EDS DOO Skopje

Market overview

A numerical overview of the market in 2017 is given in the table below.

Gross Consumption from production and import aspect (kWh)	Total
1. JSC ELEM - State owned	3.748.257.159
2. Renewables (feed-in tariff)	333.331.640
3. Independent producers	809.770.706
I. Sell by production companies (1+2+3)	4.891.639.820,00
II. Declared import	2.293.571.000
III. Declared export	311.026.000
Total (I + II -III)	6.874.184.820

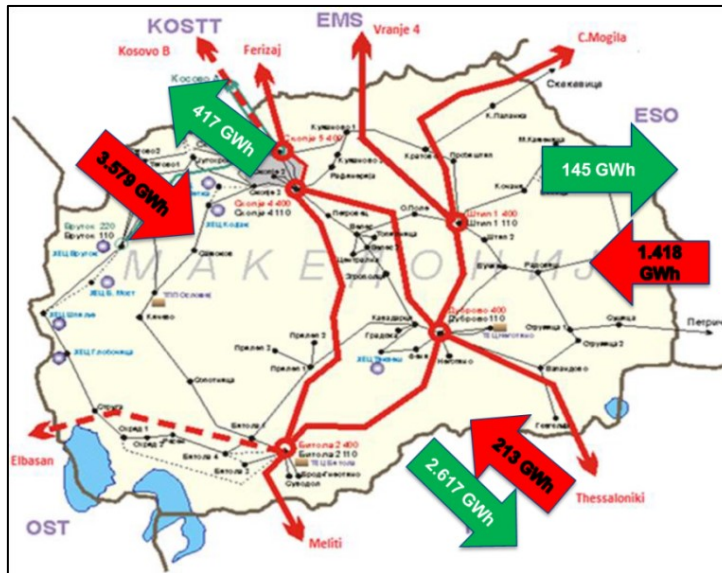
I. NET Consumption by trade transactions (kwh)	Total
JSC ELEM - Energetika (tariff, regulated consumers)	8.760.000
JSC EVN (tariff, regulated consumers)	4.075.416.984
Consumption (supply and registered big consumers)	1.914.955.836
Total	5.999.132.820
II. Losses (kwh)	
TSO – MEPSO	115.334.000
DSO EVN Distribution	750.958.000
DSO ELEM - Energetika	8.760.000
Total	875.052.000
Gross Consumption (I + II)	6.874.184.820

Table 1: Macedonian Market Overview 2017, source: MEPSO

The picture and table below give an overview regarding cross-border flows and capacity prices. In general, the flow is towards the Greek market, which is well reflected in yearly capacity prices, where the direction MK -> GR stands out.

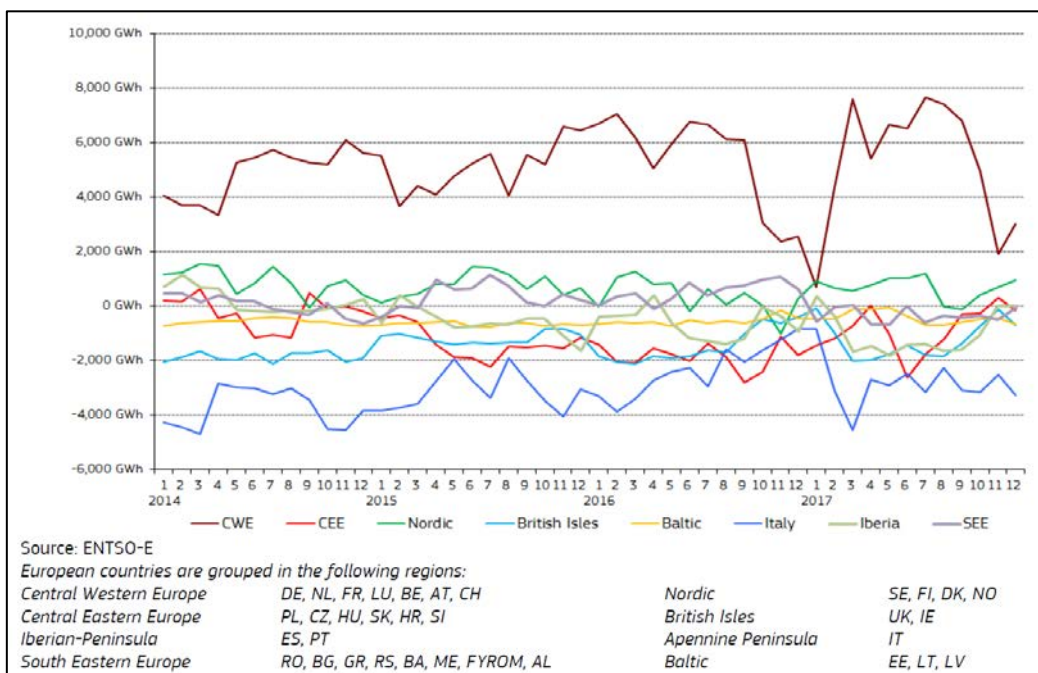
Direction (yearly auctions)	Price (EUR/MWh) – 2016	Price (EUR/MWh) – 2017
RS -> MK	0,80	0,80
MK -> RS	0,10	0,20
BG -> MK	1,60	0,90
MK -> BG	0,00	0,10
GR -> MK	0,00	0,07
MK -> GR	7,90	4,02

Table 2: Long-term (yearly) cross-border capacity prices, source: MEPSO



Picture 1: Scheduled exchanges per border in 2016, source: MEPSO

In terms of the whole region, SEE has been quite well balanced (judging from flows) during the past four years, as evident from the Picture below. This is a good prospect for intra-regional integration as well as an option to seek efficiency gains through connections to electricity deficient regions, such as Italy.



Picture 2: EU Cross border physical flows by region, source: European Commission based on ENTSO-E

SECTION 2

Power Exchange – organized market place

There are currently 15 organized market places (Power exchanges) across the European Union and one registered in Serbia. They are considered as one of the most important stakeholders of liberalization processes across Europe. Organized market places are recognized as a key factor of creating a competitive environment and are a driving force to increase the competitiveness of the electricity industry.

In terms of electricity trading, organized market places complement bilateral physical contracting, often called Over the Counter markets (OTC). OTC markets will always be larger in size, since market participants might always need to have tailor-made contracts and products. However, an organized trading place brings many advantages to the market as well as provides market participants with:

- reliable electricity price index,
- transparency offers more possibilities and higher security for investors,
- it enables a more efficient procurement or sale of electricity (compared to classic public procurement tendering),
- reduced counterparty risk and risk mitigation opportunities,
- a supplementary tool for managing trading risk (creation of a price signal allows operators to take economically rational decisions - buy/sell allowances, production modulation, choice of production),
- a key role in managing transmission system congestion,
- trading activities are more efficient because there is less work involved in closing deals over the trading platform compared to bilateral trading.

Generators selling energy through the Power Exchange are ensured of getting paid and suppliers are always sure of receiving the electricity contracted with the organized market place, provided that the Transmission System Operator is in a position to secure technical system reliability. Beside that organized market places are seen as low risk counterparty opposed to bilateral trading. A day-ahead trading place offers market participants a complementary opportunity to sell or buy at a fair market value and by creating a reference price this organized trading place stimulates the development of competition through transparent price signal. It should also help to increase the number and diversity of market participants.

Main principles of power exchanges

Liquidity

Power exchange liquidity is measured in the distribution of bids and offers provided by market participants and are reflected as resilience to a drastic price changes in case of increased market participants bids and offers volume. The liquidity is a key variable for small markets in development with one major producer where one can easily influence the price of electricity with overbidding other smaller market participants. Liquidity is provided to the power exchange market by an increased number of active market participants and with integration of neighbouring markets via the market coupling mechanism.

Competition and open market

A fully opened and liberalized electricity market is necessary for a successful “power exchange” market. If there are only one or two major market participants with special treatment by authorities the organized exchange market will be distorted. Large number of market participants, the market share of biggest two, three, four and absence of any special market fees and exemptions for privileged participants are important for successful power exchange operation and securing a reliable price index for the bidding zone.

Non-discriminatory treatment and anonymity

In comparison to bilateral power trading between trading companies directly, power exchange trading enables all market participants the non-discriminatory and anonymous access to trading platform where bids and offers are matched anonymously. Therefore all stakeholders are secured with transparent and non-distorted trading with transparent price formation which enables all stakeholders a secure business environment.

Clearing and financial settlement

All transactions between market participants on the organized power exchange market are cleared and settled by the central counterparty - either the power exchange itself or an independent entity performing clearing and financial settlement service on behalf of the power exchange. Central counterparty's core role is to become middle entity between seller and buyer. With robust clearing and financial settlement system design by utilizing different types of collaterals, market participants are always fully secured and the risk of late payment and insolvency of counterparty is reduced to a minimum.

Clearing and financial settlement services may be provided to exchange participants via two possible models:

- 1) Direct clearing, where exchange provides the clearing and financial settlement of transactions concluded on the energy exchange directly to the members executing day to day clearing and financial settlement services, collecting collaterals, performing risk assessment, etc.
- 2) Indirect clearing, where the Exchange is performing the organization of trading only and clearing and financial settlement are outsourced to an independent clearing house. Clearing and financial settlement services are provided by the clearing house indirectly via General Clearing Members (institutional banks, being members of CCP). General Clearing Members are in direct contact with exchange members' directly executing day to day clearing and settlement services, collecting collaterals, performing risk assessments, etc. In case of this model, the power exchange does not take any liability in case of its member default.

Power exchange liquidity

Beside the importance of the liquidity in the terms of price index resilience and market reliability, the liquidity, together with cost efficient operations, is the main factor for power exchange financial sustainability. Exchange liquidity can be provided and increased by different measures from purely internal to the external and international.

Non-obligatory contract based bidding of electricity on power exchange

There are two types of power exchange market participants:

- 1) “Non-commercial” institutional market participants, meaning entities performing public roles as transmission system operators, distribution system operators and market operators. All those entities are making commercial transactions on the electricity market, but with a different goal on the market. TSO, DSOs and MO are important especially at the beginning of formation of power exchange and day-ahead market, since the grid losses by TSO and DSO and, for example and if relevant, renewable energy production from MO can be the initial bid or offer on the power exchange where a small number of other market participants is present due to an early stage of day-ahead market opening process.
- 2) Commercial market participants, meaning any domestic or foreign production or electricity trading company, performing energy trading for a financial profit only. Their interest on the power exchange is resilient price index, high liquidity without and distortions and reliable and simple clearing design.

Market participants, especially those being present in the domestic market with major production units or consumption, can take a role of Market Maker or Liquidity provider, both helping power exchange and day-ahead market to increase liquidity. Both roles usually requests a specific terms for an exchange participation with reduced annual participation fee and trading/clearing fees.

A Market maker is a market participant that has a valid Market Maker Agreement with the exchange and is obliged to simultaneously act as the buyer and the seller of electricity within agreed market spread on the exchange market. Market Makers theoretically ensure greater price stability and improve liquidity on the day-ahead market by simultaneously holding buy and sell position (usually equivalent) on the tradable assets within the price spread defined in the Market Maker Agreement.

A Liquidity Provider is a market participant that has a valid Liquidity Provider Agreement with the exchange and is obliged to act either as the buyer or the seller of electricity on the day-ahead market. Liquidity provider theoretically ensures greater liquidity by selling or buying with Liquidity Provider Agreement specified quantities on a day-ahead market.

Obligatory legislation based bidding of electricity on power exchange

In the moment there are three bidding zones with wholesale electricity market organised as a mandatory pool:

- Greece with LAGIE as power exchange where wholesale market is designed as mandatory pool from the beginning of market opening process.
- Romania with OPCOM as power exchange where all market participants shall use one of the exchange’s platforms for wholesale electricity trades.
- Bulgaria with IBEX as power exchange where the adopted changes to the country’s energy law in end of 2017 obliged all producers with installed capacity above 5 MW to sell electricity only via the IBEX.

Bulgaria is the latest SEE country adopting mandatory trading on national power exchange with aim to increase liquidity on day-ahead market established only two (2) years ago. In the same time, in the beginning of 2016, also Croatia launched local power exchange CROPEX, the latter using the same

system provider Nord Pool as IBEX in Bulgaria. Nevertheless the liquidity and total traded volumes are very low (CROPEX day-ahead volume for 2016 is 0,26TWh, which represents 0,02% share of consumption). Croatia is for the time being not introducing mandatory trading on power exchange.

Market conditions

Beside power exchange and market participant voluntary measures with the aim to increase liquidity on day-ahead exchange market, national government, ministries and regulator can participate with additional legislative and regulatory measures to enable easy and cost efficient access to day-ahead exchange market for market participants. Such measures are:

- Abolishment of wholesale trading license requirement
- Abolishment of subsidiary requirement
- Clearing of transactions in EUR
- Common coordinated explicit allocation of cross-border capacities via auction office

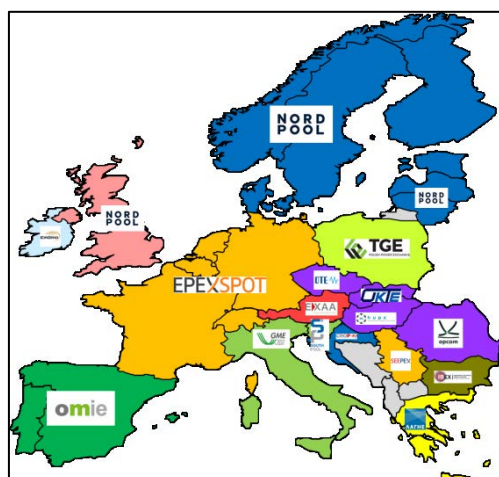
Market Coupling

Market coupling is a non-domestic mechanism which enables via integration of two or more markets increase of the liquidity since day-ahead capacities are traded together with energy on power exchange. Best measure for increase of liquidity is introduction of market coupling mechanism on highly congested border.

Overview of Power Exchanges

Currently, there are 15 power exchanges organizing spot markets in Europe. For the purpose of this document and the development of the Macedonian power exchange market, there are three groups of exchanges:

- 1) Power exchanges in the broader region with high liquidity, that are a reference for SEE electricity markets – BSP, HUPX, OPCOM
- 2) Neighbouring power exchanges important for Macedonia in the terms of market coupling – IBEX, LAGIE, SEEPEX
- 3) Major European power exchanges as possible strategic partners or service providers – EPEX SPOT, GME, Nord Pool

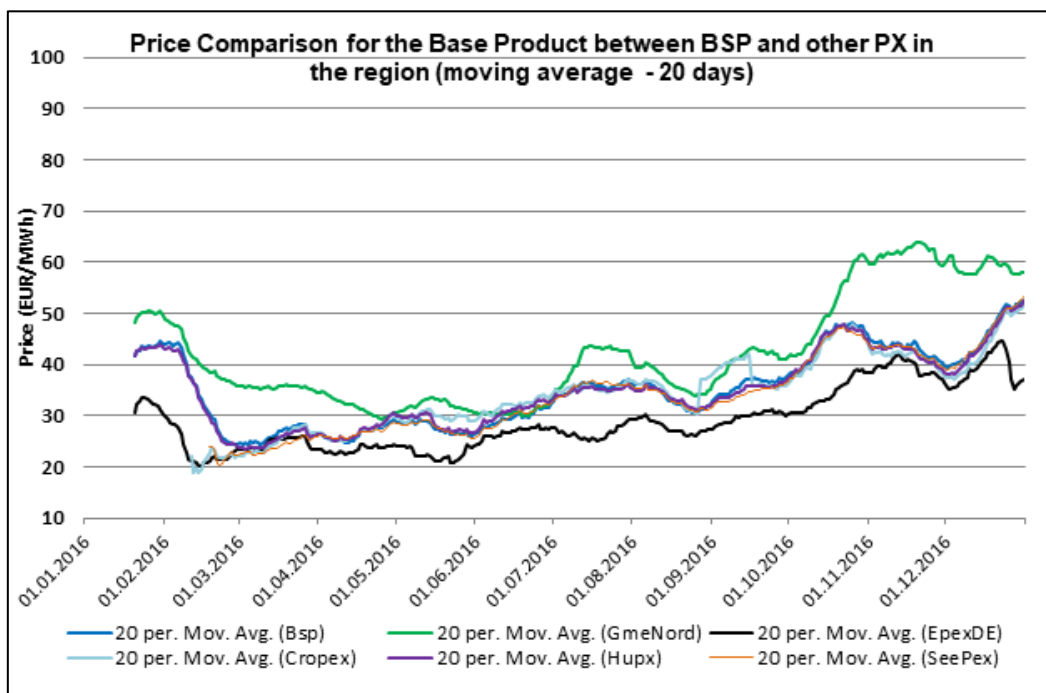


Picture 3: Power exchange overview in Europe

In the table below we give a more specific overview of key exchanges in the SEE region, as well as a price comparison (with BSP) in the picture, that follows.

PX	NEMO status	Ownership	Coupled	Clearing and settlement	Traded volume [TWh]	Consumption share [%]
BSP	Competitive	MO and TSO	Yes – MRC	Direct	6,6	47,8
HUPX	Monopoly	TSO	Yes – 4MMC	Indirect (ECC)	17,7	43,3
OPCOM	Monopoly	TSO	Yes – 4MMC	Direct	25,8	46,6
IBEX	Monopoly	Private	No	Direct	2,5	7,4
LAGIE	Monopoly	MO	No	Direct	51,3	100,0
SEEPEx	Monopoly ²	TSO and PX	No	Indirect (ECC)	0,53	1,4
GME	Monopoly	State	Yes – MRC	Direct	202,8	65,8
EPEX SPOT	Competitive	TSOs and PX	Yes – MRC	Indirect (ECC)	467,7	34,3
Nord Pool	Competitive	TSOs	Yes – MRC	Direct	499,8	66,3

Table 3: Overview of the major PXs in the EU in SEE region with their NEMO status, ownership structure, coupling status, type of clearing and settlement status and key trading and consumption share data in 2016



Picture 4: Price comparison for the base product between BSP and other PXs, source: PXs annual reports for 2016

Operating Power Exchanges in the SEE region

In this section we briefly describe the relevant power exchanges in the SEE region.

BSP

BSP Energy Exchange was founded in 2008 by Borzen, Slovenian Power Market Operator. In 2010 ELES, the Slovenian Transmission System Operator became a shareholder with a share of 50%. The company is entering the market under the trademark name BSP SouthPool. BSP provides market participants with high-quality, transparent and competitive services of organised electricity market.

BSP organizes the following electricity markets:

²SEEPEx holds monopoly status under local legislation in Serbia

- Day-ahead Market
- Intraday Market(incorporated with the Balancing Market) – a solution specifically designed with liquidity and efficiency in mind
- Day-ahead and Intraday OTC Registration Market
- Long-Term Auctions

Year	Production [TWh]	Consumption [TWh]	Day-ahead [TWh]	Consumption share [%]	Intraday [TWh]	Consumption share [%]
2010	14,4	12,5	0,2	1,6	-	-
2011	13,9	12,6	1,5	11,9	-	-
2012	13,6	12,6	4,4	34,9	0,03	0,24
2013	13,9	12,7	5,7	44,9	0,08	0,63
2014	16,3	13,2	6,2	47,0	0,13	0,98
2015	14,0	13,6	6,1	44,9	0,21	1,54
2016	15,2	13,8	6,6	47,8	0,27	1,96

Table 4: Production, consumption and exchange market data. Source: ENTSO-E, Statistical Factsheets and Annual reports

BSP is using the GME Euromarket Trading System as the auction system/trading platform, provided by GME.

BSP is also entrusted with the organisation of customised long-term auctions for the Slovenian TSO (ELES) and the Slovenian DSO (SODO). With such an auction, ELES selects suppliers for losses in the transmission network in the amount of 30 MW of long term base load product, or 0.26 TWh per year, while SODO selects suppliers for losses in the distribution network in the amount of 60 MW of the long term base load product, or 0.52 TWh per year.

After three years of isolated operation from 2008 to 2010, BSP implemented its first market coupling for Slovenian and Italian market on the relevant border. With coupling BSP migrated from continuous day-ahead trading platform to auction based day-ahead trading platform, provided by Italian power exchange GME.

BSP provides clearing and financial settlement of transactions concluded on the energy exchange, therefore using in-house direct clearing model, where Power Exchange is also performing CCP function directly to the members. With regards to cross-border clearing and financial settlement in the market coupling operations, BSP is acting as CCP and ELES is acting as Shipping Agent for Slovenian bidding zone.

To integrate the Slovenian exchange market into the single European market, BSP participated in the Italian Borders Working Table project (IBWT), where TSOs and PXs from Italy, Slovenia, Austria, Switzerland, France and Greece commonly designed and implemented common pre- and post-coupling procedures and PCR algorithm. On February 24th 2015 the former bilateral coupling on Slovenian-Italian border migrated to the pan-European Multiregional Market Coupling (MRC). On July 21st 2016 the Slovenian-Austrian border was also included in the MRC.

HUPX

The Hungarian Power Exchange (HUPX) was founded in 2010 with sole ownership of Hungarian transmission system operator. In 2011 HUPX established a subsidiary "Central Eastern European Gas

Exchange" (CEEGEX) for organization of spot gas exchange market and in beginning of 2018 also Hungarian Derivatives Exchange (HUDEX) for organization long term electricity and gas contracts.

HUPX organizes the following electricity markets:

- Day-ahead Market
- Intraday Market

Year	Production [TWh]	Consumption [TWh]	Day-ahead [TWh]	Consumption share [%]	Intraday [TWh]	Consumption share [%]
2010	33,8	39,0	0,4	1,1	-	-
2011	33,6	40,2	3,8	9,4	-	-
2012	31,9	39,9	6,3	15,8	-	-
2013	27,2	39,0	9,1	23,3	-	-
2014	26,1	39,5	12,7	32,1	-	-
2015	27,1	40,8	15,0	36,8	-	-
2016	28,1	40,9	17,7	43,3	0,01	0,00

Table 5: Production, consumption and exchange market data. Source: ENTSO-E, Statistical Factsheets and Annual reports

HUPX is using the EPEX Trading System as the auction system/trading platform, provided by EPEX SPOT.

HUPX provides clearing and financial settlement services for its members as an outsourced indirect clearing model, provided by the European Clearing House (ECC). With regards to cross-border clearing and settlement in the 4M MC operations, MAVIR is acting as CCP and Shipping Agent³ for Hungarian bidding zone.

After successful market coupling between Czech and Slovak exchange market on common border between both bidding zones in 2009, HUPX and MAVIR acting as entities in Hungarian bidding zone for the organization of electricity market started common trilateral project with aim to implement market coupling on Slovak- Hungarian border and extend the bilateral coupling to the Hungarian bidding zone. The go-live of 3 Market Market coupling (3M MC) started on September 11th 2012.

3M MC is using PCR assets (Euphemia algorithm and PMB system) for common price calculation and cross-zonal capacities allocation. The PCR assets and services are provided by OTE for Czech bidding zone and by EPEX acting as a PCR service provider for OKTE in Slovak bidding zone and HUPX in Hungarian bidding zone.

Following the completion of the 3M MC project, market coupling was extended to the Romanian-Hungarian border in 2014, as described in the following chapter (4M MC).

OPCOM

Romanian Market Operator and Power Exchange "Operatorul Pieței de Energie Electrică și Gaze Naturale" (OPCOM) was founded in 2001 with sole ownership of Romanian transmission system operator Transelectrica.

³[https://www.opcom.ro/uploads/doc/pg1/4MMC/Market%20Coupling%20CZ-SK-HU-RO%20\(4M%20MC\)_EN.pdf](https://www.opcom.ro/uploads/doc/pg1/4MMC/Market%20Coupling%20CZ-SK-HU-RO%20(4M%20MC)_EN.pdf)

Romania with OPCOM as power exchange adopted rule that market participants shall use one of the exchange’s platforms for wholesale electricity trades.

OPCOM organizes the following electricity markets:

- Day-ahead Market
- Intraday Market
- Electricity Balancing Market - BM
- Centralized Market for electricity Bilateral Contracts with Public Auctions (CMBC-EA)
- Centralized Market for electricity Bilateral Contracts with Continuous Negotiation (CMBC-CN)
- Centralized Market with double continuous negotiation for Electricity Bilateral Contracts (CM-OTC)⁴

Year	Production [TWh]	Consumption [TWh]	Day-ahead [TWh]	Consumption share [%]	Intraday [TWh]	Consumption share [%]
2010	56,6	53,4	8,7	16,3	-	-
2011	57,0	54,9	8,9	16,2	0,00	0,00
2012	54,3	54,4	10,7	19,7	0,00	0,00
2013	54,5	52,3	16,3	31,2	0,01	0,00
2014	60,7	53,3	21,5	40,3	0,06	0,11
2015	61,7	54,8	22,5	41,1	0,07	0,13
2016	60,7	55,4	25,8	46,6	0,13	0,23

Table 6: Production, consumption and exchange market data. Source: ENTSO-E, Statistical Factsheets and Annual reports

OPCOM is using a local trading system DAM E-Terramarket as its auction system/trading platform.

OPCOM provides clearing and financial settlement of transactions concluded on the energy exchange, therefore using an in-house direct clearing model, where the Power Exchange is also performing the CCP function directly. With regards to cross-border clearing and financial settlement in the 4M MC market coupling operations, Transelectrica is acting as CCP and Shipping Agent for the Romanian bidding zone.

After successful market coupling between Czech and Slovak exchange markets in 2009 and its successful extension to the Hungarian bidding zone in 2012, the trilateral market coupling (3M MC, as described in the previous section) was extended to Romanian bidding zone with OPCOM and Transelectrica as partners operation acting as entities in Romania. The go-live of 4 Market Market coupling (4M MC) started on November 19th 2014.

4M MC is using PCR assets for common price calculation and cross-zonal capacities allocation. The PCR assets and services are provided by OTE for the Czech bidding zone and by EPEX acting as a PCR service provider for OKTE in the Slovak bidding zone, HUPX in the Hungarian bidding zone and OPCOM in the Romanian bidding zone. After the go-live and OPCOM being successfully nominated as

⁴CMBC-EA, CMBC-CN and CM-OTC are organised long term markets and therefore not directly relevant for the scope of this document (day-ahead).

NEMO in Romania, OPCOM became full member of the PCR consortium and therefore co-owner of PCR assets and it is expected that it will start independent PCR operations in the near future.

Neighbouring Power Exchanges to Macedonia

IBEX

The Bulgarian power exchange “Independent Bulgarian Energy Exchange” (IBEX) was founded in January 2014 and was founded as a fully-owned subsidiary of the Bulgarian Energy Holding EAD and holds a 10-year license to organise the Power Exchange for electricity in Bulgaria. As of January 19th 2016 IBEX is operating Bulgarian day-ahead electricity exchange market and is planning to launch intraday market in 2018⁵. In February 2018 the ownership of the company was transferred by acquisition of shares to the Bulgarian stock exchange⁶.

Bulgaria with IBEX as power exchange adopted changes to the country’s energy law in end of 2017 obliged all producers with installed capacity above 5 MW to sell electricity only via the IBEX.

IBEX organizes the following electricity markets:

- Day-ahead Market
- Centralised market for long-term bilateral contracts

Year	Production [TWh]	Consumption [TWh]	Day-ahead [TWh]	Consumption share [%]	Intraday [TWh]	Consumption share [%]
2016	41,0	33,7	2,5	7,4	-	-

Table 7: Production, consumption and exchange market data. Source: ENTSO-E, Statistical Factsheets and Annual reports

IBEX is using the NordPool Trading System as the auction system/trading platform, provided by NordPool.

IBEX provides the clearing and financial settlement of transactions concluded on the energy exchange, therefore using the in-house direct clearing model, where the Power Exchange is also performing the CCP function directly.

Bulgarian electricity exchange market is operated by IBEX in isolated mode but respecting timings of MRC.

LAGIE

Greek Market Operator and Power Exchange "Λειτουργός Αγοράς Ηλεκτρικής Ενέργειας" (LAGIE) was founded in 2012 with sole ownership of Greek transmission system operator ADMIE.

LAGIE organizes the day-ahead market auction using its local trading system customized to specifics of Greek bidding zone, where in line with local legislation all traders have to participate in the organized power exchange market in a form of mandatory pool.

LAGIE organizes the following electricity markets:

⁵<http://www.ibex.bg/en/announcements/messages/registration-process-for-the-intraday-market-starts-20180206.html>

⁶<http://www.ibex.bg/en/announcements/messages/bse-sofia-acquired-100-of-the-capital-of-ibex-20180207.html>

- Day-ahead Market
- Registration of bilateral contracts - Energy Scheduling

Year	Production [TWh]	Consumption [TWh]	Day-ahead [TWh]	Consumption share [%]	Intraday [TWh]	Consumption share [%]
2012	50,5	52,1	52,1	100,0	-	-
2013	47,5	49,6	49,6	100,0	-	-
2014	40,8	49,3	49,3	100,0	-	-
2015	41,6	51,2	51,2	100,0	-	-
2016	42,5	51,3	51,3	100,0	-	-

Table 8: Production, consumption and exchange market data. Source: ENTSO-E, Statistical Factsheets and Annual reports

LAGIE is using a local trading system and also provides the clearing and settlement of transactions concluded on the energy exchange.

LAGIE as the monopoly NEMO nominated for the Greek bidding zone is part of the IBWT project (in the sense of adopting common operational procedures for market coupling go-live) and is also a signatory party to pan-European MRC cooperation. Due to a specific Greek domestic electricity market design, LAGIE together with the transmission system operator ADMIE was not able to be part of the initial IBWT go-live in 2015, since the market reform is a prerequisite for such an action.

LAGIE and Athens Stock Exchange agreed in 2017 to jointly set up an independent power exchange to organize day-ahead, intraday, forward and balancing electricity market⁷.

SEEPEX

Serbian power exchange South East Europe Power Exchange (SEEPEX) was founded in 2015 and is joint venture between a Serbian TSO JP “Elektromreža Srbije” (EMS) with 75% share and EPEX SPOT with 25% share.

SEEPEX organizes the following electricity markets:

- Day-ahead Market

Year	Production [TWh]	Consumption [TWh]	Day-ahead [TWh]	Consumption share [%]	Intraday [TWh]	Consumption share [%]
2016	42,2	38,8	0,53	1,4	-	-

Table 9: Production, consumption and exchange market data. Source: ENTSO-E, Statistical Factsheets and Annual reports

SEEPEX is using the EPEX Trading System as auction system/trading platform, provided by EPEX SPOT.

SEEPEX provides clearing and settlement services for its members as outsourced indirect clearing model, provided by European Clearing House (ECC).

The Serbian electricity exchange market is operated by SEEPEX in isolated mode.

⁷<https://www.reuters.com/article/greece-electricity-exchange/greece-plans-trading-exchange-to-help-reform-power-market-idUSL8N1G61EA>

Selected Power Exchanges in Europe

For the purpose of this document, the TA provider describes relevant European power exchanges, selected on the criteria that they already provide services for trading platform and clearing platform to other European power exchanges, which are able to offer such services to the future Macedonian power exchange. Other power exchanges operating one or more day-ahead markets are not listed due to the fact they are not providing services to other power exchanges (OMIE, OTE, TGE, BSP, EXAA).

GME

The Italian power exchange GestoredeiMercatiEnergetici S.p.A (GME) was founded in 2001 and is part of the larger parent group holding GestoredeiServiziEnergetici S.p.A (GSE), together with sister companies AcquirenteUnico S.p.A. (AU) and RicercaSul Sistema Energetico S.p.A. (RSE). Parent group holding GSE sole owner is the Italian State and governed via the Ministry of Economic Development (Ministero dello Sviluppo Economico) and Ministry of Economy and Finance (Ministero dell'Economia e delle Finanze). GME organizes electricity and gas markets in Italy.

GME organizes the following electricity markets:

- Day-ahead Market - MGP,
- Intraday Market - MI,
- Physical Forward Electricity Market - MTE,
- OTC Registration – PCE,
- Ancillary Services Market - MSD.

Year	Production [TWh]	Consumption [TWh]	Day-ahead [TWh]	Consumption share [%]	Intraday [TWh]	Consumption share [%]
2010	286,3	326,2	199,5	61,1	14,60	4,48
2011	289,0	332,3	180,4	54,3	21,90	6,59
2012	284,7	325,3	178,7	54,9	25,10	7,72
2013	276,0	315,9	206,9	65,5	23,34	7,39
2014	266,9	308,4	185,9	60,3	22,79	7,39
2015	269,8	314,3	194,6	61,9	24,92	7,93
2016	273,8	308,4	202,8	65,8	28,00	9,08

Table 10: Production, consumption and exchange market data. Source: ENTSO-E, Statistical Factsheets and Annual reports

GME is using the local trading system Euromarket as auction system/trading platform, which is also PCR certified and used for pan-European MRC coupling. GME provides the Euromarket auction trading platform and PCR operations as a service to the Slovenian power exchange BSP and Austrian power exchange EXAA.

GME provides clearing and financial settlement of transactions concluded on the energy exchange, therefore using the in-house direct clearing model. With regards to cross-border clearing and settlement in market coupling operations, GME is acting as CCP and Terna as Shipping Agent for the Italian bidding zone.

In 2011, GME in cooperation with BSP and transmission system operators from Italy (Terna) and Slovenia (ELES) launched the first market coupling in SEE region. Bilateral market coupling on the Slovenian-Italian border migrated to pan-European MRC when the Italian Borders Working Table project (IBWT), where TSOs and PXs from Italy, Slovenia, Austria, Switzerland France and Greece commonly designed and implemented common pre- and post- coupling procedures and the PCR algorithm.

EPEX SPOT

French-German power exchange "European Power Exchange" (EPEX) was founded in 2008 with merger of EEX German continuous spot market and Powernext French continuous spot market, with the two as owners of the exchange. With the development and implementation of market coupling projects in central-west Europe, transmission system operators became shareholders in the ownership structure. With its expansion plan EPEX opened Austrian and Swiss market zones (2010) and with acquisitions of APX Netherlands and Belpex Belgium (2015)it became a central-west European power exchange covering seven EU Member States. Current owners of the exchange are EEX (51%) and CWE TSOs (49% between Amprion, APG, Elia, RTE, Swissgrid and Tennet).

EPEX organizes the following electricity markets:

- Day-ahead Market - DA
- Intraday Market - ID

Year	Production [TWh]	Consumption [TWh]	Day-ahead [TWh]	Consumption share [%]	Intraday [TWh]	Consumption share [%]
2010	1.260,5	1.194,5	267,2	22,4	11,20	0,94
2011	1.228,1	1.155,5	296,3	25,6	17,60	1,52
2012	1.252,2	1.163,5	321,3	27,6	17,90	1,54
2013	1.283,2	1.184,7	321,0	27,1	23,04	1,94
2014	1.224,9	1.102,9	382,0	34,6	30,76	2,79
2015⁸	1.257,0	1.129,1	506,8	44,9	58,40	5,17
2016	1.459,3	1.363,6	467,7	34,3	61,60	4,52

Table 11: Production, consumption and exchange market data. Source: ENTSO-E, Statistical Factsheets and Annual reports

EPEX is using a local trading system "EPEX Trading System" as auction system / trading platform, which is also PCR certified and used for pan-European MRC coupling. EPEX provides the EPEX Trading System auction trading platform and PCR operations as a service for Hungarian power exchange HUPX, Slovak power exchange OKTE, Romanian power exchange OPCOM and EPEX Trading System auction trading platform for Serbian power exchange SEEPEX.

EPEX provides clearing and financial settlement services for its members as outsourced indirect clearing model, provided by European Clearing House (ECC). With regards to cross-border clearing and settlement in the MRC market coupling operations, ECC is acting as CCP and Shipping Agent for the bidding zones EPEX is operating.

⁸ After merger with Anglo-Dutch-Belgian power exchange APX, EPEX SPOT is covering two more countries (Dutch and Belgian bidding zone).

Organizing two of the largest European electricity markets, Germany and France, EPEX was from the beginning in the position to become a central part of market coupling initiatives. Starting in 2010, the first CWE market coupling was implemented by EPEX, APX and Belpex, with next steps in 2014 when CWE and NEW were coupled as first PCR operational implementation. Extended by SWE region (Spain, Portugal) in 2014 and CSE (Slovenia, Italy) in 2015 common pan-European multi-regional market coupling was formed.

NordPool

Scandinavian power exchange “Nord Pool” was founded in 1991 as an independent power exchange in Norway. During the next decade bidding areas covered whole the Nordic area (Norway, Sweden, Finland, Denmark) and extended also to the Baltic market areas during the years 2010-2013 (Lithuania, Latvia, Estonia). Current owners of the exchange are solely TSOs from respective bidding areas, Statnett SF (28,2%), SvenskaKraftnät (28,2%), Fingrid Oyj (18,8%), Energinet.dk (18,8%), Elering (2%), Litgrid (2%) and Augstspriegumatikls (2%).

NordPool organizes the following electricity markets:

- Day-ahead Market - DA
- Intraday Market – ID

Year	Production [TWh]	Consumption [TWh]	Day-ahead [TWh]	Consumption share [%]	Intraday [TWh]	Consumption share [%]
2010	726,1	743,7	324,8	43,7	2,20	0,30
2011	717,2	717,0	340,0	47,4	2,70	0,38
2012	743,9	730,8	467,2	63,9	3,20	0,44
2013	723,7	735,1	491,9	66,9	3,92	0,53
2014	773,3	734,3	496,6	67,6	4,90	0,67
2015	741,6	745,5	484,0	64,9	5,00	0,67
2016	736,2	753,8	499,8	66,3	5,10	0,68

Table 12: Production, consumption and exchange market data. Source: ENTSO-E, Statistical Factsheets and Annual reports

NordPool is using a local trading system as auction system/trading platform, which is also PCR certified and used for pan-European MRC coupling. NordPool provides the auction trading platform and PCR operations as a service for Bulgarian power exchange IBEX and Croatian power exchange CROPEX. Furthermore, NordPool is a consultant partner to OST and KOSTT for the establishment of the Albania/Kosovo power exchange APEX⁹.

NordPool provides clearing and financial settlement of transactions concluded on the energy exchange, therefore using an in-house direct clearing model.

NordPool is the first power exchange in Europe that implemented market coupling between its operated bidding zones. NordPool always calculates the so called “System Price”, the price for complete Nordic area. But since there are congested interconnectors between Nordic countries and even domestic congestions, NordPool operates five Norwegian bidding zones, two Danish bidding

⁹ https://www.energetika.net/si/file/download/1357_69bde9fbad7/Matias%20Peltoniem%20Pool%20&%20Elton%20Radeshi,%20OST.pdf.

zones, four Swedish bidding zones and four national bidding zones for Finland, Estonia, Lithuania and Latvia¹⁰. This in principle internal market coupling (also known as market splitting¹¹), was coupled with CWE market coupling operated by EPEX, APX and Belpex in 2010 via ITVC, operated by the European Market Coupling Company. This initiative migrated to the price coupling methodology in 2014 when CWE and NWE regions were coupled, using PCR Euphemias algorithm and PMB.

¹⁰ <https://www.nordpoolgroup.com/globalassets/download-center/rules-and-regulations/the-nordic-electricity-exchange-and-the-nordic-model-for-a-liberalized-electricity-market.pdf>.

¹¹ A similar internal zone model is operated by GME in Italy.

SECTION 3

Commission regulation 2015/1222 – CACM guideline

Commission regulation 2015/1222 on establishing a guideline on capacity allocation and congestion management (hereby CACM) was adopted on July 24th 2015 with the entry into force date August 14th 2015. The entry into force date is key date whereas all CACM deadlines are referring to and are important for implementation deadlines for all involved stakeholders.

The main purpose and objective of the CACM is to establish effective, secure, optimal, fair and competitive internal electricity market with equal treatment between all electricity market stakeholders. The core objectives of the CACM are¹² (CACM, Article 3):

- a) promoting effective competition in the generation, trading and supply of electricity;
- b) ensuring optimal use of the transmission infrastructure;
- c) ensuring operational security;
- d) optimising the calculation and allocation of cross-zonal capacity;
- e) ensuring fair and non-discriminatory treatment of TSOs, NEMOs, the Agency, regulatory authorities and market participants;
- f) ensuring and enhancing the transparency and reliability of information;
- g) contributing to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union;
- h) respecting the need for a fair and orderly market and fair and orderly price formation;
- i) creating a level playing field for NEMOs;
- j) providing non-discriminatory access to cross-zonal capacity.

With the main objective of this TA to deliver a concept for the establishment of a national, organised day-ahead electricity market, ready for coupling with its neighbouring markets, conditions and procedures for finding strategic partner and NEMO designation process in line with the CACM Guideline, the TA Provider will focus on CACM objectives regulating the establishment of day-ahead market and the criteria for NEMO nomination.

NEMO nomination process

According to the CACM article 4, paragraph 1; *“Each Member State electrically connected to a bidding zone in another Member State shall ensure that one or more NEMOs are designated by four months after the entry into force of this Regulation.* The deadline for the finalization of NEMO nomination by each Member State was finalized till the deadline December 24th 2015, when Member states utilized the NRAs or other government bodies to fulfil the first CACM requirement.

The result of the process is the following list of NEMOs nominated for the performing the single day-ahead coupling for the initial period of four years¹³:

¹²CACM Guidelines, article 3

¹³CACM Guidelines, article 4, paragraph 2

Country	NEMO	NEMO status	Designating authority
Austria	EPEX Spot SE	Competitive	E-Control (Austrian regulator for electricity and natural gas markets)
	EXAA AG	Competitive	E-Control (Austrian regulator for electricity and natural gas markets)
	Nord Pool AS	Competitive	E-Control (Austrian regulator for electricity and natural gas markets)
Belgium	Belpex SA	Competitive	Minister of Energy
	Nord Pool AS	Competitive	Minister of Energy
Bulgaria	Independent Bulgarian Power Exchange (IBEX)	Monopoly	EWRC (Energy and water regulatory commission)
Croatia	CROPEX Ltd	Competitive	HERA (Croatian Energy Regulator Agency)
Czech Republic	OTE a.s.	Monopoly	ERU (Energy Regulatory Office)
Denmark	Nord Pool AS	Competitive	DERA (Danish Energy Regulatory Authority)
Estonia	Nord Pool AS	Competitive	Estonian Competition Authority
Finland	Nord Pool AS	Competitive	Energiavirasto (Energy Authority)
France	EPEX Spot SE	Competitive	CRE (Commission de régulation de l'énergie)
	Nord Pool AS	Competitive	CRE (Commission de régulation de l'énergie)
Germany	EPEX Spot SE	Competitive	BNetzA (German Regulatory Authority)
	Nord Pool AS	Competitive	BNetzA (German Regulatory Authority)
Greece	LAGIE SA	Monopoly	Ministry of Environment and Energy
Hungary	HUPX Zrt.	Monopoly	MEKH (Hungarian Energy and Public Utility Regulatory Authority)
Ireland	EirGrid plc	Competitive	CER (Commission for Energy Regulation)
Italy	GME Spa	Monopoly	Ministero dello Sviluppo Economico
Latvia	Nord Pool AS	Competitive	PUC (Public Utilities Commission)
Lithuania	Nord Pool AS	Competitive	NCC (National Commission for Energy Control and Prices)
Luxembourg	EPEX Spot SE	Competitive	ILR (Institut luxembourgeois de régulation)
	Nord Pool AS	Competitive	ILR (Institut luxembourgeois de régulation)
Netherlands	EPEX Spot SE	Competitive	ACM (Authority for Consumers & Markets)
	Nord Pool AS	Competitive	ACM (Authority for Consumers & Markets)
Poland	Towarowa Gielda Energii S.A.	Competitive	President of the Energy Regulatory Office
	Nord Pool AS	Competitive	President of the Energy Regulatory Office
Portugal	OMIE S.A.	Monopoly	Portuguese Government
Romania	OPCOM S.A.	Monopoly	ANRE (Romanian Energy Regulatory Authority)
Slovakia	OKTE a.s.	Monopoly	URSO (Regulatory Office for Network Industries)
Slovenia	BSP Regionalna Energetska Borza d.o.o.	Competitive	AGEN (Agencija za energijo)
Spain	OMIE S.A.	Monopoly	Ministry of Industry, Energy and Tourism
Sweden	Nord Pool AS	Competitive	Ei (Energimarknadsinspektionen)
United Kingdom	EPEX Spot SE	Competitive	OGEM (Office of Gas and Electricity Markets)
	Nord Pool AS	Competitive	OGEM (Office of Gas and Electricity Markets)
	SONI Ltd	Competitive	UREGNI (Utility Regulator in Northern Ireland)

Table 13: List of nominated day-ahead NEMOs¹⁴

The authority responsible for initial NEMO nomination and later on for the additional nominations in the future is¹⁵:

- 1) national regulatory authority, responsible for the energy industry, by default
- 2) other authorities, designated by Member State, with the condition that such other authority shall have the same rights and obligations as the regulatory authority.

Based on above provided list of nominated NEMOs in the Table 13, we can observe that:

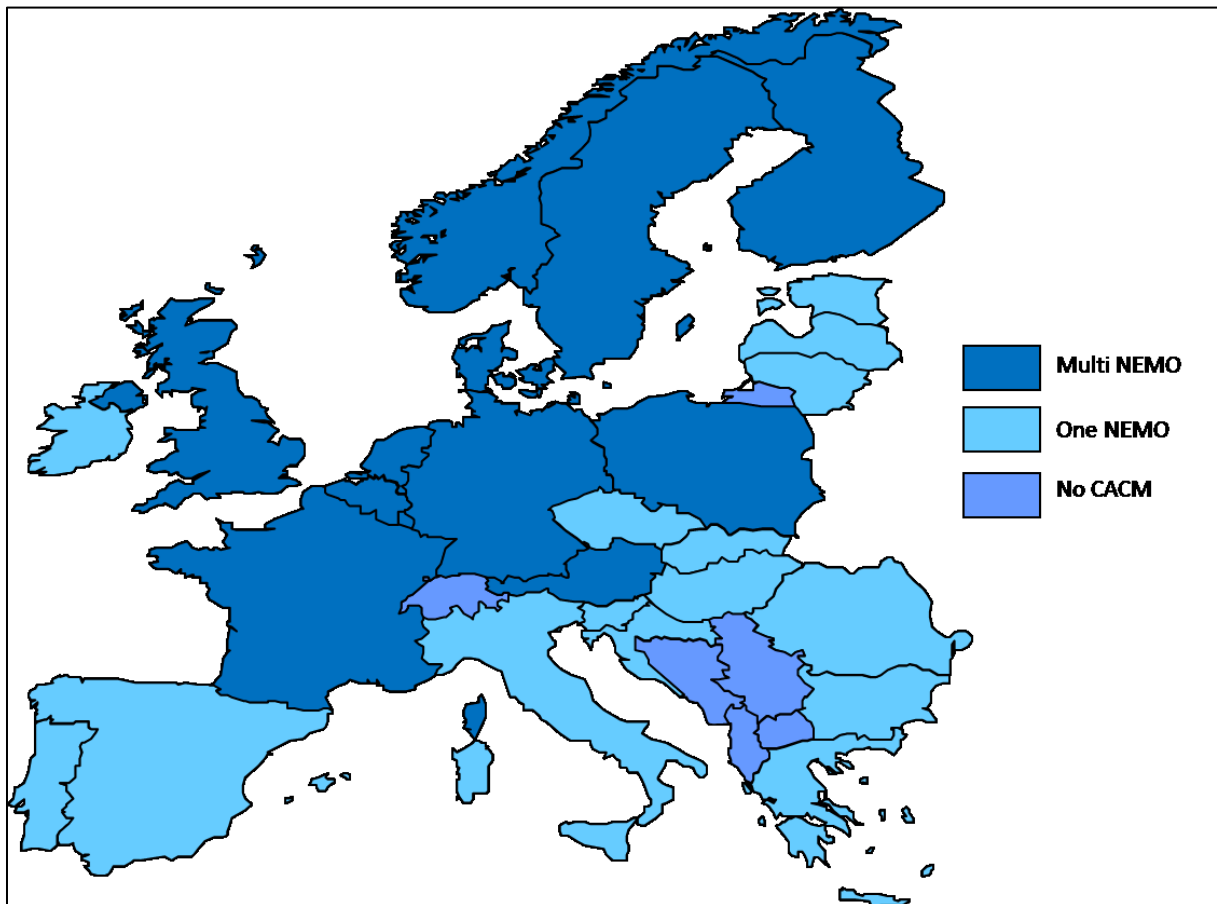
- the majority of Member States designated NRAs as the authority responsible for NEMO nomination,
- the minority of Member States (Belgium, Greece, Italy, Portugal and Spain) designated other national authority responsible for NEMO nomination, namely the national ministry, responsible for the energy industry.

For the purpose of daily continuous execution for day-ahead and intraday market, at least one (1) NEMO shall be designated for the initial term of four years. The legal status of nominated NEMO can thus be described as:

¹⁴ https://acer.europa.eu/en/Electricity/FG_and_network_codes/CACM/Pages/NEMO%20list.pdf

¹⁵ CACM Guidelines, article 4, paragraph 3

- competitive, where more than one NEMO may be nominated for each Member state and more than one NEMO can offer the day-ahead and intraday trading services for respective bidding zone or
- monopoly, where only one NEMO is nominated.



Picture 5: Graphic representation of NEMOs by its competitive/monopoly status

The authority, responsible for NEMO nomination, may refuse the nomination of more than one NEMO in case that at the time of the entry into force of the CACM regulation a national legal monopoly for day-ahead and intraday trading services exists and national legislation expressly excludes that more than one entity can organize day-ahead or intraday market¹⁶.

The authority, responsible for NEMO nomination, shall nominate the applicant which best meets the criteria for NEMO nomination, if there are several applicants to be designated as the only NEMO in the Member State.

Key differences between competitive and monopoly NEMO statuses are¹⁷:

- 1) Competitive NEMO may be nominated as NEMO in only one Member State and shall have the right to provide day-ahead and intraday trading in another Member State regardless of where the one was designated and can freely set up the level of trading and clearing fees.

¹⁶CACM Guidelines, article 5

¹⁷CACM Guidelines, articles 4 and 5

- 2) Monopoly NEMO is nominated in one (1) Member State only, based on the conditions set up in the CACM¹⁸ and the authority, responsible for NEMO nomination, shall fix or approve the NEMO fees for trading in the day-ahead and intraday markets. Other Member States may refuse the trading services by a NEMO designated in another Member State if such monopoly status exists.

Market Coupling Operator function

Market coupling operator (MCO) function is the core function of performing market coupling by NEMOs. The day-ahead MCO function includes development of the algorithm used for a day-ahead coupling, development of the systems, used for market coupling, operating the day-ahead market coupling using input data from market participants (bids and offers) and cross-zonal capacities from TSOs (ATC or FB values) and market coupling result management (provision and validation). Joint cooperation between NEMOs for development and operations of MCO function shall be based on the principles of non-discrimination and shall ensure that no NEMO, competitive or monopoly can benefit by participation in MCO function. This particular requirement is a key agreement enabling the Power Exchange to be nominated as NEMO and participate in day-ahead market coupling and in the same time have option to participate in the MCO function or delegate some of its MCO tasks to another NEMO, according to a bilateral service provision agreement.

All designated NEMOs submitted to the NRAs in each Member state a common document describing how NEMOs will jointly set-up and operate MCO functions. The document referred as MCO Plan was approved by all Member States NRAs on June 26th 2017¹⁹ adopting the Price Coupling of Regions (PCR) as the starting point for the DA MCO function for day-ahead market coupling.

NEMO designation criteria

Each applicant for NEMO status, regardless of the competitive or monopoly legal form, shall meet the NEMO designation criteria listed in CACM regulation, Article 6.

Each national authority, responsible for NEMO nomination, requested directly or by public tender from monopoly candidates or from competitive candidates for NEMO status to provide compliance evidence that they fulfil the requested NEMO designation criteria²⁰:

- a) it has contracted or contracts adequate resources for common, coordinated and compliant operation of single day-ahead and/or intraday coupling, including the resources necessary to fulfil the NEMO functions, financial resources, the necessary information technology, technical infrastructure and operational procedures or it shall provide proof that it is able to make these resources available within a reasonable preparatory period before taking up its tasks;
- b) it shall be able to ensure that market participants have open access to information regarding the NEMO tasks;

¹⁸ CACM Guidelines, articles 4 and 5

¹⁹ <http://www.bsp-southpool.com/news-item/items/national-regulatory-authorities-approve-nemo-proposal-to-establish-european-market-coupling-operator-functions-to-further-integr.html>

²⁰ CACM Guidelines, article 6

- c) it shall be cost-efficient with respect to single day-ahead and intraday coupling and shall in its internal accounting keep separate accounts for MCO functions and other activities in order to prevent cross-subsidisation;
- d) it shall have an adequate level of business separation from other market participants;
- e) if designated as a national legal monopoly for day-ahead and intraday trading services in a Member State, it shall not use its earnings from fees to finance its day-ahead or intraday activities in a Member State other than the one where these fees are collected;
- f) it shall be able to treat all market participants in a non-discriminatory way;
- g) it shall have appropriate market surveillance arrangements in place;
- h) it shall have in place appropriate transparency and confidentiality agreements with market participants and the TSOs;
- i) it shall be able to provide the necessary clearing and settlement services;
- j) it shall be able to put in place the necessary communication systems and routines for coordinating with the TSOs of the Member State.

Each national authority, responsible for NEMO nominations, provided a different set of assessment criteria to be met in order to fulfil NEMO designation criteria. Public tender documentation is available from Slovenian²¹, Finnish²² and Dutch²³ NRA.

Power exchange formation under CACM

Regulation 2015/1222 foresees two types of power exchanges being nominated as NEMO in the bidding zone with the following advantages and disadvantages:

- 1) Competitive NEMO status which enables the Power exchange to independently set up trading and clearing operations, choose service providers, set up market based price lists with level of yearly fee and trading/clearing fees and participate as NEMO also in other bidding zones. On the other hand, NEMO can face competition in the own bidding zone, where any other competitive NEMO can apply and operate day-ahead and intraday market without any influence of national interests.
- 2) Monopoly NEMO status which enables Power Exchange to run day-ahead and intraday markets without any domestic competition. On the other hand one cannot offer trading services in other non-domestic bidding zones and the level of yearly and trading/clearing fees are regulated and subject to approval by national regulatory authority.

At the moment, there are seven (7) power exchanges in the European Union with competitive status and eight (8) power exchanges in the European Union with monopoly status.

For a future Macedonian power exchange “competitive NEMO” the potential participation on non-domestic bidding zones is limited. There is no day-ahead market with CACM regulation in

²¹<https://www.agen-rs.si/documents/10926/65748/Razpis%20za%20imenovanje%20IOTEE>

²²<https://www.energiavirasto.fi/web/energy-authority/nemo-designation>

²³<https://www.acm.nl/en/publications/publication/14563/Power-exchanges-can-apply-for-participation-in-method-for-capacity-calculation>

Montenegro, Albania and Bosnia and Herzegovina thus trading services within these bidding zones are not yet possible. Other regional day-ahead markets in the SEE region (Greece, Bulgaria, Romania, Hungary and Italy) have all decided for monopoly NEMO and the Serbian power exchange SEEPEX is the only one having a license for organizing the day-ahead market in Serbia (which is also de facto monopoly, but without CACM status). Therefore, the closest bidding zones where Macedonian power exchange could compete with other NEMOs and may offer the day-ahead trading are Croatia and Slovenia and further to the west Austria and Germany, where EPEX and NordPool are operating already. At the same time, such competitive Macedonian NEMO will face potential competition in the Macedonian bidding zone from the beginning, when the day-ahead market opening process will start.

A future Macedonian power exchange “monopoly NEMO” will enable the power exchange to operate independently without foreign interests and operate the national day-ahead and intraday market which is an important fact when such small and closed market will be opened on the day-ahead level for the first time. In the EU and in Serbia all market openings on day-ahead level were established with only one power exchange operating it, only at a later stage when day-ahead electricity market is well developed, competition was introduced. On the other hand, being NEMO with monopoly status will cause overall regulation of power exchange pricelists which will be approved by the relevant authority.

Market Coupling

Basic principles

Main principle of the market coupling mechanism is that day-ahead cross-border capacities are allocated together with electricity traded at the power exchanges, cooperating in the market coupling. The difference between coupled and non-coupled bidding zones are:

- In isolated mode, bids and offers are matched only inside one bidding zone (which has no congestion and thus no capacities needed for delivery of such traded electricity between buyer and seller).
- In coupled mode, bids and offers are matched not only inside one isolated bidding zone, but also with bids and offers from the adjacent bidding zone, up to the quantity defined by cross-border capacity on the border between coupled bidding zones.

The data and systems needed are:

- In isolated market participants provide bids and offers, power exchange provides local algorithm and systems for trading and matching and provide local trading results in the terms of quantities and prices to market participants.
- In coupled mode participants from both bidding zones provide bids and offers, both power exchanges shall use same (one) algorithm with local systems for trading and matching and TSOs from both bidding zones shall coordinated provide cross-border capacity quantities in both directions. After calculation both power exchanges provide local trading results in the terms of quantities and prices to its own market participants and cross-border energy flows to its own respective TSO.

Since the key prerequisite to achieve the overall EU target of a harmonized European electricity market is a single implicit price coupling solution to calculate electricity prices across Europe and allocate cross border capacity at the same time on a day-ahead basis seven PXs started The Price coupling of Regions (PCR) project with goal developing single market coupling solution.

Price Coupling of Regions (PCR)

In order to integrate all bidding zones in European Member states and electrically connected countries, power exchanges formed a pan-European above national cooperation Price coupling of Regions (PCR) in order to develop common assets:

- Develop one single common algorithm Euphemia for day-ahead auction trading including all required market requirements in terms of trading products, restrictions, etc.
- Develop one single IT solution for the auction trading calculation PCR Matcher and Broker (PMB)
- Develop common day to day PCR operational procedures how to run the pan-European market coupling every day

PCR common assets are developed and owned by seven (7) power exchanges EPEX SPOT, GME, Nord Pool, OMIE, OPCOM, OTE and TGE and is used in Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and UK.

Three main principles of PCR cooperation are²⁴:

- 1) The common algorithm gives a fair and transparent determination of day-ahead electricity prices and a net position of a bidding area across Europe. The algorithm is developed respecting the specific features of the various power markets across Europe and the electricity network constrains. It optimises the overall welfare and increase transparency.
- 2) The PCR process is based on decentralised sharing of data, providing a robust and resilient operation.
- 3) The PCR Matcher and Broker service enables exchange of anonymised orders and electricity network constrains among the power exchanges to calculate bidding zone prices and other reference prices and net positions of all included bidding areas.

CACM implication in market coupling

Until the adoption of Commission Regulation 2015/1222 on August 14th 2015 market coupling projects were based on regional initiatives between power exchanges and regulated locally by national legislation of Member State covered by coupled bidding zones. Several different non-coordinated market coupling projects were in operations in Europe using different algorithms to calculate price, positions and allocate cross-border capacities.

Since the market coupling mechanism is a cornerstone of European electricity Internal Energy Market and shall therefore for successful implementation of the latter require common cooperation of all power exchanges operating in bidding zones to be coupled, European commission drafted and

²⁴<https://www.epexspot.com/en/market-coupling/pcr>

Member States adopted Commission regulation 2015/1222 in order to set common rules and requirements for cooperation between all involved stakeholders (power exchanges, transmission system operators and NRAs) with aim to integrate all Europe into Internal Energy Market.

As detailed in CACM there are several roles for successfully running market coupling mechanism in future single European market, related to power exchanges:

- Nominated Electricity Market Operator (NEMO) means the role of interface between local markets, market participants and TSOs including collecting and delivering orders, results and allocated cross-border capacities and the Market Coupling Operator(s)
- Market Coupling Operator(s) means the role of Matching Orders for all Bidding Zones, taking into account Allocation Constraints and Cross Zonal Capacity and thereby implicitly allocating capacity for the Day Ahead and Intraday timeframes

All designated NEMOs submitted to the NRAs in each Member state the common document describing how NEMOs will jointly set-up and operate MCO functions. The MCO plan was approved by all Member States NRAs on June 26th 2017 adopting the Price Coupling of Regions (PCR) as the starting point for the DA MCO function for day-ahead market coupling.

Serviced and servicing NEMO

In order to perform all the roles and responsibilities according to the MCO plan, each NEMO shall acquire sufficient financial, IT, technical, human and operational resources for operation of single day-ahead coupling. Since this may be in contradiction with other NEMO requirement to perform NEMO function in cost efficient way, NEMOs decided that there are two options how to meet the requirement of CACM:

- Serviced NEMO meaning that NEMO may delegate some of its MCO tasks to another NEMO, according to a bilateral service provision agreement. In any case the Serviced NEMO shall remain responsible for the performance of the MCO Function.
- Servicing NEMO meaning NEMO who shall be a DA MCO Function Asset Co-Owner (PCR co-owner), acting in the name and for the account of a Serviced NEMO in the delegated tasks, according to a bilateral service provision agreement.

There are eight (8) nominated NEMOs being serviced by three (3) servicing NEMOs, who are EPEX, GME and NordPool. Furthermore there are four (4) NEMOs which are Co-owners of PCR assets, but are at the time being not offering services to other NEMOs. Those are TGE, OPCOM, OMIE and OTE.

The following options are viable for future Macedonian power exchange:

- 1) If one would like to become DA MCO Function Asset Co-Owner than first step is to acquire auction based trading platform with algorithm for calculation of results which is the prerequisite for isolated power exchange operation. Such trading platform shall be upgraded in the second step to the PCR trading platform enabling market coupling with adjacent exchanges.
- 2) If one would like to become became servicing PX than the selection process for service provider shall take place where most suitable and cost efficient PCR compatible trading

solution will be selected and in the later stage with market coupling upgraded to the fully PCR operational solution.

Macedonian national legislation

When reviewing legislation it is useful to start with the opinions of end users – in this case energy traders, of course if such opinions are available. In June 2017 the European Federation of Energy Traders (an association representing the interests of energy traders) published a list of “market inefficiencies / trading barriers” pertaining to various countries from the European Union as well as the Energy Community²⁵.

The following table list the – in the opinion of EFET – market inefficiencies or trading barriers in the Republic of Macedonia.

Trading Barrier/Market Inefficiency	Responsible Institution or Body	Impact on Market	Proposed Solution of EFET	Update by MEPSO
Licensing regime for wholesale trading.	Ministry, Regulator	Barrier to entry the market for the companies legally established in EU member state or countries of ECS.	Abolish this requirement	
Requirement for a local establishment (taxable presence).	Ministry, Regulator	Bureaucratic and burdensome requirements. Barrier to entry the market for the companies legally established in EU members or ECS countries.	Abolish this requirement	
Only licensed parties can sign the contract with the TSO, only required for the MK-BG border.	Regulator	Bureaucratic and burdensome requirement.	Market participants without a license should be enabled to sign contract with the TSO for MK-BG border.	MEPSO disputes the accuracy of this claim and points out: »This information is not accurate. Every market participant first needs to be registered at the Market Operator and for that it must have a licence. The contracts they sign with the TSO are for participation on the yearly and monthly auctions on the MK-RS and MK-BG border.«
Total turnover percentage based license fee.	Regulator	Market participants are charged on the basis of their turnover. It gives the wrong signals to the market. If MPs traded more volume with the lower spread, even though contributed to liquidity are charged more.	Abolishment of transaction based fees.	MEPSO clarifies that: »There is a so called “market tariff”, paid by the suppliers and traders on behalf of the final consumers and only for the electricity they sell to end consumers. For traders, this is electricity they sell to the registered big consumers that are registered participants to the bilateral electricity market. This tariff is per kW and is paid to the EMO (market operator).

²⁵ <http://www.efet.org/Files/SEE%20EC%20market%20distortions%20EFET%20compendium%20Part1.pdf>

Transparency Discrimination Language barriers	Regulator TSO	Market participants lack the market information on prices, availability of plants, demand forecast, etc. Complexity due to non-harmonised rule and procedure, price formation. No information on the use of congestion rent. Formal communication and submission of documents in local language.	Need for regular bilingual public announcements of short-term and long-term historical data, as well as projections related to: real-time energy balance (supply vs. demand), electricity generation capacities information, about planned unavailability and outages, electricity prices (wholesale/retail).	
No intra-day (except intra-day on SER-MK) capacity allocation.	Regulator TSO	Limited possibilities for cross-border trade. No liquidity. Limited possibilities for short term optimisation.	Intraday capacity allocation process should be developed on all borders.	
No short term liquidity and no efficiency.	Regulator TSO	No short term liquidity and no efficiency.	Development of short term market. Possibility for intra-day nomination.	MEPSO points out that event though there is no short term market, »There is intra-day nomination. Participants can deliver their schedules to the System Operator and Electricity Market Operator not latest than 2 hours before physical delivery«
No wholesale reference price.	Regulator TSO	No efficient allocation of resources. Causes flows in the opposite direction with the congestion.	Publication of wholesale prices and development of centralised trading.	

Table 14: Market inefficiencies in the Contracting Parties of the Energy Community” – Macedonia June 2017²⁶

The available information regarding existing legislation and legislation in the procedure of adoption, relevant for the organisation of the entity operating the day-ahead electricity market in Macedonia, was analysed.

Customs law

The unofficial consolidated text of the Customs Law²⁷, provided by MEPSO, was analysed, as well as the customs tariff²⁸. No issues hindering the establishment of an organised electricity market were found. No issues on this topic were included in the EFET review. Judging from the information on the Customs Office website²⁹, there are also no excise duties on electricity.

Public procurement law

The draft consolidated³⁰ text of the Law on Public Procurement, provided by MEPSO, was analysed. Regarding the establishment of an organised day-ahead market (power exchange) one of the most

²⁶ <http://www.efet.org/Files/SEE%20EC%20market%20distortions%20EFET%20compendium%20Part1.pdf>

²⁷ Based on the text of the Customs Law (Official Gazette of the Republic of Macedonia No. 39/2005, 4/2008, 48/2010, 158/2010, 44/2011, 53/2011, 11/2012, 171/12 and 187/2013), a Decision by the Constitutional Courts of the Republic of Macedonia U no. 251/2008 of 29 April 2009 (Official Gazette of the Republic of Macedonia No. 62/2009) and U no. 251/2008 of 29 April 2009 (Official Gazette of the Republic of Macedonia No. 62/2009) and U no. 1/2009 of 16 September 2009 (Official Gazette of the Republic of Macedonia No. 117/2009) and the Law Amending the Law on the Customs Tariff (Official Gazette of the Republic of Macedonia No. 35/2010)

²⁸ <http://www.customs.gov.mk/index.php/en/biznis-zaednica-mk-2/presmetka-na-davacki-en/carinska-tarifa-mk>

²⁹ <http://www.customs.gov.mk/index.php/en/biznis-zaednica-mk-2/akcizi>

³⁰ The text encompasses: the Law on Public Procurement (“Official Gazette of the Republic of Macedonia” No. 136/2007), amendments published in the following Official Gazettes of the Republic of Macedonia: No. 130/2008, No. 97/2010, No. 53/2011, No. 185/2011, No. 15/2013, No. 148/2013, No. 160/2013, No. 28/2014, No. 43/2014, No. 130/2014, No. 180/2014, No. 78/2015, No.192/2015, No. 27/2016, No.120/2016.

interesting aspects is the potential participation of “contracting authorities” (i.e. those bound by the Law on Public Procurement). For example, the possibility of the TSO or DSO to purchase grid losses on the power exchange and thus provide additional liquidity.

In general, the establishment of a power exchange is fully in line and support the basic principles of the law (Article 2: “This Law shall in particular ensure: - competition among economic operators; - equal treatment and non-discrimination of economic operators; - transparency and integrity in the process of awarding public contracts; and - rational and efficient use of funds in the contract award procedures.”)

Regarding the TSO/DSO example, the current Macedonian law already provides an exception – Articles 192 and 182 are most relevant and are copied below.

Article 192

*This Law shall **not apply** to contracts the subject-matter of which is the supply of electricity or fuels for the production of electricity if awarded by a contracting authority carrying out a covered activity referred to in Articles 182 or 188 of this Law.*

Article 182

*Covered activities, within the meaning of Article 176 paragraph (1) indent 2 of this Law shall be the **installation and operation of fixed networks** intended to provide public services in connection with the production, transport or distribution of gas, heat or electricity, or the **supply** of gas, heat or **electricity to such networks**.*

Despite these provisions, a recent study³¹, commissioned by the Energy Community Secretariat mentions that “The new amended Market rules (as amended in October 2016) that will apply from July 2017 provide that public procurement rules shall apply to procurement for ancillary services and to covering of losses.” These issues (whether or not the Article 182 provides an exemption for public procurement of losses) should be cleared up – judging from available information there could be a potential conflict between the Law and Market Rules. MEPSO disputes the conclusions of this study by pointing out that “According to Article 80 Paragraph 3 of the amended Market rules: *The overall reserve for tertiary regulation shall be provided on an open call under market conditions in a transparent, non-discriminatory and competitive manner where the registered participants on the balance-market market submit their offers for each balance unit specially expressed in the day / MW. TSO is obliged to complete the procedure according to the open invitation no later than October 15.* There is no change in the procedure of covering losses. They are not subject of a public procurement law.”

The aforementioned study also directly handles the issue of purchasing electricity from power exchanges or other organised markets. Beside the general observation about this being a “complex legal issue” where “appropriate interpretation is required”, the study authors find the following: “*The first question is whether a specific power exchange allows direct participation of contracting authority/entity or only brokers/traders may participate. If the first is the case, a procedure applicable on power exchanges should be sufficient and no additional [public procurement] procedure would be*

³¹Rokas Law Firm et al: Study on extending the Energy Community Treaty to include the rules on public procurement, February 2017 (https://www.energy-community.org/dam/jcr:2477db21-a0ac-4657-8a55-5fc5802c6695/Rokas_PP_2017.pdf)

required or possible. This is supported by a recital (61) third paragraph of the Utilities Directive³² which states “Finally, a procurement procedure is not useful where supplies are purchased directly on a commodity market, including trading platforms for commodities such as agricultural products, raw materials and energy exchanges, where the regulated and supervised multilateral trading structure naturally guarantees market prices”. However, there is no an explicit provision in the Utilities Directive in this respect. On the other hand in case a contracting authority/entity procures from a trader the energy which was purchased on a power exchange, there may still be a difference among the offers of two or more traders to such contracting authority. Article 50 of the Utilities Directive regulates the use of negotiated procedure without prior call for competition, limiting the cases in which this procedure may apply. One of the cases is “for supplies quoted and purchased on a commodity market”. Although this provision does not specify whether the procurement from a power exchange would be direct or indirect (through a broker) it should, in our view be interpreted to regulate indirect procurement only, as is the case with direct procurement there is no possibility for negotiation. Subsequently, our interpretation of Article 50 is that in case of energy purchased on a power exchange by brokers, a contracting authority should at least apply the negotiated procedure by inviting (even without publication) one or more brokers, depending to the circumstances, to provide an offer.”

There are two more aspects of the public procurement law that may impact the establishment and operation of the day-ahead market for electricity (power exchange):

1. The issue of how the power exchange is established, and
2. The issue of whether the power exchange is a contracting authority or an “economic operator” (i.e. whether it is bound by the law).

Regarding the first issue, Article 10 states that “This Law shall not apply when awarding public service contracts to another contracting authority or legal entities established by one or more contracting authorities, in case they have an exclusive right published in an official gazette to provide such services.” If the power exchange is established as an “exclusive right” then this has also an impact on possible services rendered, notwithstanding the provisions of Article 192 in connection to Article 188.

Regarding the second issue, it is important to bear in mind Article 4, which is copied below for easier reference.

Contracting authorities

Article 4

(1) Contracting authorities shall be:

a) state authorities, local self-government units and the City of Skopje;

b) legal entities established for a specific purpose for meeting the public interest needs, which are of non-industrial or non-commercial nature, and which are mainly financed by the contracting authorities referred to in paragraph (1) point a) of this Article or by other such legal entities, or which

³²Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC

are subject to control of their operations by the contracting authorities referred to in paragraph (1) point a) of this Article or by other such legal entities, or in which more than half of their managerial or supervisory board members are appointed by the contracting authorities referred to in paragraph (1) point a) of this Article or by other such legal entities;

c) associations established by one or several contracting authorities referred to in paragraph (1) points a) and b) of this Article;

d) public enterprises, joint stock companies and limited liability companies wherein the contracting authorities referred to in paragraph (1) points a), b) and c) of this Article have dominant direct or indirect influence through ownership, i.e. if they hold the major share of the company's capital, have majority vote of the stockholders or appoint more than half of the managerial or supervisory board members of the enterprise or the company, and which carry out one or more activities referred to in Chapter IX Section 1 of this Law, in the cases when they award public contracts or conclude framework agreements for the purpose of carrying out appropriate activities; and

e) any legal entity, other than those referred to in paragraph (1) points a), b) c) and d) of this Article, which carries out one or more activities referred to in **Chapter IX Section 1** of this Law **on the basis of a special or exclusive right**, in the cases when it awards public contracts or concludes framework agreements for the purpose of carrying out appropriate activities.

(2) The Government of the Republic of Macedonia (hereinafter: the Government) shall determine an indicative list of contracting authorities as referred to in paragraph (1) of this Article.

VAT legislation

VAT legislation shall support the role of Central Counter Party (CCP) in the terms of:

- enabling CCP to implement reverse charge mechanism between CCP and Market Participants, if registered abroad
- enabling CCP to implement reverse charge and avoid double taxation for cross-border clearing and settlement when performing market coupling cross-border clearing

The consolidated text³³ of the VAT law, provided by MEPSO, was taken into account. Recently (August 2017) a study, commissioned by Energy Community Secretariat, regarding VAT in the ECS, was published³⁴. Regarding Macedonia, the study mentions the following issues: *“Concerning the definition of chargeable event and chargeability, the definitions don't actually match the ones in VAT Directive. The VAT Law describes specific events when the tax debt will occur while the VAT Directive uses a more general rule, which implies partial alignment. The definition of the place of transaction is partially in line with the VAT Directive, but the VAT Law contains the third category of mixed supplies. The last amendments of the VAT Law introduced the new regulation regarding the allocation of interconnection capacities. According to the new amendment, providing access to the electricity network in case of congestion is taxable at the place where the recipient of services is established or*

³³ CONSOLIDATED TEXT »Law on Value Added Tax« (Official Gazette of the Republic of Macedonia Nos. 44/1999, 59/1999, 86/1999, 11/2000, 8/2001, 21/2003, 19/2004, 33/2006, 45/2006, 101/2006, 114/2007, 103/2008, 114/2009, 133/2009, 95/2010, 102/2010, 24/2011, 135/2011, 155/2012, 12/2014, 112/2014, 130/2014, 15/2015, 129/2015, 225/2015, 23/2016 and 189/2016). Decisions of the Constitutional Court of the Republic of Macedonia U. no. 154/1999 dated 1 November 2000, published in the “Official Gazette of the Republic of Macedonia” no. 93/2000 and U. no. 189/2003 dated 24 March 2004, published in the “Official Gazette of the Republic of Macedonia” no. 17/2004. Law on Registering Cash Payments (“Official Gazette of the Republic of Macedonia” no. 31/2001). Law on the Tax Procedure (“Official Gazette of the Republic of Macedonia” no. 13/2006)

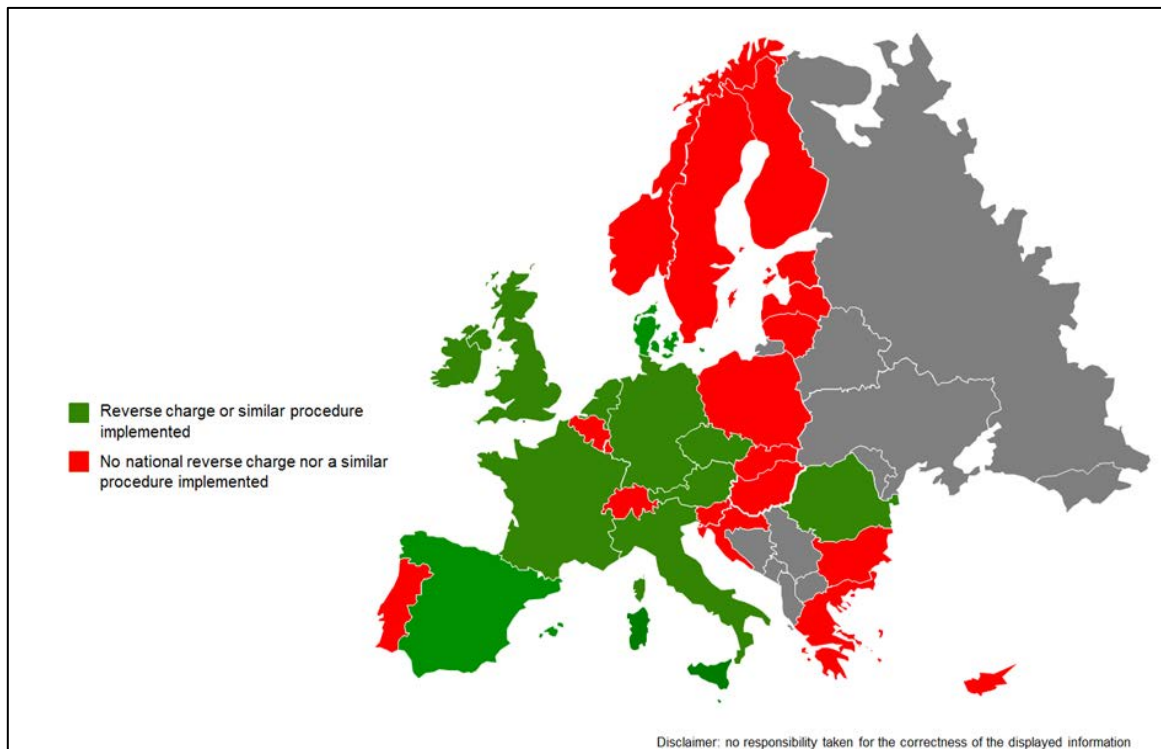
³⁴ EIHP: Study on examining the implementation of EU acquis on Value Added Tax in the Energy Community legal order, August 2017 (https://www.energy-community.org/dam/jcr:984a0187-1988-423c-b08b-0d0d7f576ce5/EIHP_2017_acquis_VAT.pdf)

has his permanent address. Even though this provision resolves the issue of access to interconnection capacity, we believe a more general definition of place of supply of services should be used.”

The last mentioned issue probably refers to point 11 of Article 14 para 3: “Provision of access to the electrical energy network in the case of congestion of the respective allocation unit when allocating to the cross-border transmission capacities of the interconnection transmission lines.” Save for the general standard provisions, which are included in the law (e.g. Article 3(2) – electricity deemed as a good, Article 13 – place of supply for electricity is the place where the good is received) two issues regarding VAT are central in relation to the establishment of a power exchange:

1. Possible presence of the reverse charge mechanism (domestic and between countries)
2. Liquidity issues connected with the VAT system

The reverse charge mechanisms is an important fraud-prevention (so called VAT carousel or “missing trader” problem) tool and also has an impact on liquidity. Europex, the Association of European Energy Exchanges, has repeatedly³⁵ – alone and in cooperation with other associations – called for the use of this mechanism and the extension of the EU derogation enabling its use. As shown in the picture below this mechanism is not implemented even in all EU member countries. Reverse charge aside, the VAT system as mentioned needs to be taken into account also regarding liquidity. Delay in refunds and associated costs of financing may have an impact (depending on the regime) – assessment based on expected trading directions, volumes and prices.



Picture 6: Reverse charge mechanism (domestic) coverage for electricity and gas in the EU, source: Europex

³⁵ For more information see <https://www.europex.org/consultation-responses/vat-fraud-a-persisting-threat-to-gas-electricity-and-emissions-trading-need-for-a-prolongation-of-existing-derogation-and-an-extension-to-all-member-states/> and https://www.energy-community.org/dam/jcr:1a8f7779-69d0-490e-a9cb-0d91196b84a9/WSVAT_201704_Europex.pdf

The ECS also explicitly points out “that the notion of taxable dealer has to be introduced and taxation at place where he is established, no taxation of network energy at import, place of taxable transaction is the place where the customer is located; for services the place of taxable transaction to be place where service recipient is established.”

Law on Trade Companies

The consolidated text³⁶ of the Law on Trade Companies, provided by MEPSO, was reviewed.

This law is relevant for the establishment of a power exchange both in relation to the type of company incorporation (usually limited liability company or joint stock company) or – even more importantly for smaller markets – in relation to the mode of participation of foreign companies. In this respect, the following Articles are most relevant:

Article 580 lists the attribution criteria.

Article 580

(1) In terms of this Law, the trade company which has a head office, according to the articles of association, that is the statute, outside the Republic of Macedonia, shall be attributed to the state in which its head office is located.

(2) When the head office of the company according to paragraph (1) of this Article is not located in the Republic of Macedonia, the company shall be considered as domestic when it is actually managed from a location in the Republic of Macedonia or when it is engaged in commercial activities, which are fully or mostly carried out in the Republic of Macedonia.

(3) The trade company, whose head office is not determined in the articles of association, that is the statute, shall be attributed to the state where the place of actual management is located.

Since the situation described in Article 580 para 2 is less likely, Article 581 given below is more important.

Article 581

*(1) The foreign companies and the foreign sole proprietors shall operate according to the requirements determined by law and shall have equal treatment in their operation with the domestic natural persons and legal entities on the territory of the Republic of Macedonia, **unless otherwise determined by an international agreement or by law regulating special types of companies and foreign sole proprietors with specific scope of operation.***

*(2) The foreign trade company or a foreign sole proprietor shall be **obliged to establish a subsidiary for the purpose of conducting the activity on the territory of the Republic of Macedonia**, provided that it has a registered head office, central administration or head office for conducting the activity in other country whose law requires from the trade companies or the sole proprietors entered in the trade register to organize a subsidiary for the purpose of performing the activity on its territory.*

³⁶ Official Gazette of the Republic of Macedonia Nos. 28/2004, 84/2005, 25/2007, 87/2008, 42/2010, 48/2010, 24/2011, 166/2012, 70/2013, 119/2013, 120/2013, 187/2013, 38/2014, 41/2014, 138/2014, 88/2015, 192/2015, 6/2016, 30/2016 and 61/2016). Decisions of the Constitutional Court of the Republic of Macedonia U. no. 177/2005 dated 24 May 2006, published in the “Official Gazette of the Republic of Macedonia” no. 71/2006, U. no. 177/2008 dated 14 January 2009, published in the “Official Gazette of the Republic of Macedonia” no. 17/2009, U. no. 153/2008 dated 11 February 2009, published in the “Official Gazette of the Republic of Macedonia” no. 23/2009, U. no. 75/2010 dated 12 January 2011, published in the “Official Gazette of the Republic of Macedonia” no. 8/2011, and U. no. 169/2010 dated 09 February 2011, published in the “Official Gazette of the Republic of Macedonia” no. 21/2011.

According to Article 581, at least in certain cases (“provided that ...”) the establishment of a subsidiary is required by law. This can be a deterrent for some foreign traders, impacting the competition level on the market. This requirement may be also listed in other documents, such as Market Rules or requirements of the Regulator (link “subsidiary – licence”). In principle, this can be solved via the *lexspecialis* doctrine by implementing additional provisions in the Energy Law.

Macedonian Energy law³⁷

The Energy law is of course very important for the operation (and possibly also establishment) of the power exchange. It regulates the design and operation of the wholesale and retail electricity market and should adopt the Commission regulation 2015/1222 principles, where in the terms of organizing the exchange market, the decision about the governance of NEMO shall be taken between two options:

- 1) competitive, where more than one NEMO may be nominated for each Member state and more than one NEMO can offer the day-ahead and intraday trading services for respective bidding zone
- 2) monopoly, where only one NEMO is nominated.

In the case of option 1, there should be no reference regarding who will operate the electricity exchange market in Macedonia, only the required designation criteria, provided by secondary legislation acts. In case option 2 is implemented, there should be a direct reference to the monopoly status of the power exchange (via concession or any other national status) with an option which energy entity is responsible for it (TSO, Market operator, Ministry, etc.)

The Energy law together with the Market rules are the main regulatory text covering the governance and activity of each domestic or foreign trading company on the Macedonian wholesale electricity market. The utmost priority should be to support market participants’ entry and operation on organized exchange market which can build up liquidity.

The translated text of (part) of the Draft Energy Law was reviewed (versions 13. 2. 2018, 28. 2. 2018 and 25. 4. 2018). Some highlights (related to the topic and focus of this document) with recommendations are listed below.

Definitions

The “Operator of electricity market” is defined (13. 2. 2018) as *“a legal entity responsible for operating an organized and centralized trading of electricity for physical delivery, which implies receiving bids for purchase or sale electricity for a defined period of time by members of the organized market to an impartial, a clear and anonymous way, which determines the final price of the concluded sales and can independently perform clearing of concluded sales transactions, on entire territory of Republic of Macedonia.”* This is effectively a definition of a power exchange. A comment included by MEPSO suggests that the definition should be applied to the term “Operator of organized electricity market” (power exchange), to distinguish it from the “Operator of electricity market” (market operator). In a newer version of the law (28. 2. 2018), the definition is slightly different: “The

³⁷Since many versions of the (draft) Energy Law were sent by MEPSO, version dates (receipt dates) are noted in brackets next to comments.

electricity market operator shall be a company, established by the operator of the electricity transmission system, which performs the activities related to the organization, the efficient operation and development of the organized electricity market.” In relation to the NEMO issue, Article 86 para 2 states: “The electricity market operator may, under conditions determined by this Law, be appointed as a nominated electricity market operator.” The 25. 4. 2018 draft version of the law keeps two terms – “electricity market operator” (Article 88) and “operator of an organised electricity market” (Article 90). The latter meaning power exchange.

CAPTION ON DEFINITIONS: NEMO, market operator, power exchange

In the EU and also other electricity markets there is a lot of confusion when using the term “market operator”. While terms such as “Transmission system operator” (TSO or “system operator”, with sub-variant ISO (independent system operator) and others – related mostly to the ownership of assets) and “Distribution System Operator” (DSO) are clear and mostly uniform in meaning, the meaning of “market operator” is clearly not.

*The term “**market operator**” mostly refers to an entity which performs certain “system” roles in the electricity market, which may not even exist in every country (usually tasks performed by the TSO). Although not universal it is quite common³⁸. Examples (as a separate legal entity) include Borzen (Slovenia), ELEXON (UK), SEMO (Ireland), APCS (Austria), HROTE (Croatia), OKTE (Slovakia), OTE (Czech Republic), OPCOM (Romania) – and others (e.g. COTEE (Montenegro)).*

*With the adoption of CACM which introduced the term “**nominated electricity market operator**” (NEMO), meaning de facto a power exchange in connection to market coupling, additional confusion arose, especially since traditional “market operators” were not recognised in EU legislation.*

While the NEMO is obviously always an exchange, some “market operators” might be as well: examples are OKTE, OTE and OPCOM who are also NEMOs; “market operators” in some other market (US, Australia, New Zealand etc.) as also usually associated with exchange-like functions on central-dispatch style markets (e.g. PJM).

*In the Network Code on Electricity Balancing and the Network Code on Emergency and Restoration the functions of traditional “market operators” were recognised as “third parties”. While in the Clean Energy Package, which is currently in the procedure of adoption, they have been recognised in the Council’s General Approach (Recital 7a; Art. 2(2)ff; Art. 3(1); Art. 5(10)) as “**delegated operators**”. The definition of delegated operators (also called third-party market operators) and their role in the electricity market is an acknowledgement of existing arrangements in certain Member States, whereby specific tasks, such as imbalance settlement, are assigned or delegated to a non-TSO third party by a Member State or a Transmission System Operator (TSO).*

Recommendation: *To avoid confusion it would be sensible to refer to the power exchange by explicitly using the term “exchange”. Provided the power exchange is a separate entity.*

Organisation of the market

Based on Article 68 (13. 2. 2018), part of the market (balancing market) is organised by the TSO (Article 68 para 4). A thing to consider would be that segmentation on a small market might be a problem for liquidity, insofar as the “balancing market” is intended in the “replacement reserves” sense (energy) and not in any broader, ancillary services sense.

³⁸For more information, see for example a communication from Europex on this matter: <https://www.europex.org/position-papers/the-essential-tasks-of-third-party-market-operators-in-the-electricity-market/>

Licences

Licences are still envisaged. It would be sensible to consider whether they do bring added value or are just an administrative burden. Article 71 para 5 (13. 2. 2018; in the 28. 2. 2018 version – Article 71, para 1, point 4) effectively means that the “market operator” (in the 13. 2. 2018 definition actually a power exchange) cannot be the TSO (*“The legal entity that holds a license for performing the activity of electricity transmission and management of the electricity transmission system cannot have licenses and cannot be involved in the performance of the activities of production, organization and management of the electricity market, distribution, trade with electricity, electricity supply, universal service for electricity supply or supply of electricity in the last case.”* Or in the newer version *“it does not perform and is independent of the performance of other activities in the power sector determined by this Law”*) In the 25. 4. 2018 version the separation of activities is kept (Article 89). Paragraph two of Article 89 further mandates that if the MO is owned by the TSO, the latter should ensure its independence. Judging from Article 90 paragraph 5, licences are still kept. At least for the PX (Article 90, “operator of an organised electricity market”) this makes little sense, since: both the Regulator and the TSO are involved in the PX nomination process, the government prescribes the operations and conditions (Article 90(3)) and the Regulator confirms both the fees and the rules. Based on this, the licences seem superfluous.

TSO provisions

Two interesting provisions relating to TSO task are contained in Article 76 (13. 2. 2018):

- to encourage cross-border exchange of electricity by applying **implicit** auctions for short-term allocations of capacities and integration of balancing and reserve mechanisms,
- to procure electricity for covering the losses in the electricity transmission network and electricity for own needs and compensation in order to ensure reliable and reliable operation of the electricity transmission system, in a **market environment, in a transparent, non-discriminatory and competitive manner**, (similar provision for the DSO in Article 90 para 3)

And another in Article 85 (13. 2. 2018): *“The electricity transmission system operator may sell the surplus electricity that it has purchased pursuant to Article 76 paragraph (2), items 22 and 23 of this Law³⁹, on the organized electricity market or on the balance energy market and for each such sale shall be obliged to notify the Energy Regulatory Commission.”* A similar provision for the DSO is in Article 96.

Market Operator

Judging from Article 86 (13. 2. 2018)(*para 1: “The electricity market operator shall be a legal entity established by the electricity transmission system operator performing the activities related to the organization, the efficient operation and development of the organized electricity market. A license for the performance of the energy activity in organizing and managing the organized electricity market in the Republic of Macedonia can be granted only to one legal entity.”*); or in the 28. 2.

³⁹The reference may be wrong since these two items are: 18) to encourage cross-border exchange of electricity by applying implicit auctions for short-term allocations of capacities and integration of balancing and reserve mechanisms, 19) to publish data and timely provide information from the operators of the adjacent transmission systems for the available transmission capacities of the interconnection lines in order to provide non-discriminatory, objective and transparent access and use of the electrical energy transmission system.

2018version: “The electricity market operator shall be a company, established by the operator of the electricity transmission system, which performs the activities related to the organization, the efficient operation and development of the organized electricity market.”), the intention is to set-up the market operator as a monopoly, but since the definitions are not clear, it is hard to say whether the intention is for the market operator or the power exchange. The current set-up is that the market operator would be separate from the TSO (see also Article 71 and Article 87 para 2: “In the event that the electricity market operator is owned by the electricity transmission system operator, the electricity transmission system operator shall ensure its functional independence from the electricity market operator in terms of the legal form, organization and decision-making in accordance with the program Article 72”) and would incorporate also power exchange tasks. As already mentioned, these two terms are kept also in the 25. 4. 2018 version.

Electricity Market Rules

Article 89 (13. 2. 2018) assigns the task of adopting the Market Rules to the Regulator. It is not clear though if such rules would also go into detailed power exchange rules. It might be sensible for the Regulator to approve rather than adopt these (general) rules. Technical rules should be delegated. In the 28. 2. 2018version of the draft (Article 90), the contents are laid out and are not very detailed (technical). The 25. 4. 2018 version clearly separates the general market rules (Article 92) and the PX rules (Article 90, para 2, point 4). The latter need confirmation by the Regulator, while the general market rules (Article 92) are still to be adopted by the Regulator (in cooperation with the MO and the TSO). Interestingly, point 4 in paragraph 1 requires that the general market rules should deal with procurement of electricity of “regulated energy entities”. If the TSO and DSO are meant as “regulated energy entities” then it is not clear what the goal of this provision is, since – as stated in this report and confirmed in interviews with MEPSO and EVN – the current provisions in the public procurement legislation should suffice. If such Market Rules provisions should be in conflict with existing public procurement legislation, then a problem could arise.

NEMO

Based on Article 88 of the 28. 2. 2018 draft version of the law, it seems that the choice is towards the monopoly option (exclusive right, regulated fees, etc.). In terms of who actually is the NEMO, two options are given in Article 88, para 8: “8) The Government may, upon previously received opinion from the Energy Regulatory Commission, make a decision on the appointment of the electricity market operator referred to in Article 86 of this Law for a nominated electricity market operator or it may take a decision on the commencement of tender procedure by means of a public call for selection of a nominated electricity market operator referred to in paragraph (1) of this Article.” The 25. 4. 2018 version also clearly emphasises, that the “Operator of an organised market” has “the exclusive right to establish and manage this market”.

Other legislation

Judging from the information obtained at project meetings there is currently no Commodity Exchanges Law in Macedonia or immediate plan to enact such a law. Coming back to the EFET “market inefficiencies” list, some suggestions are linked to possible legislative changes. Foremost the suggestion to abolish licences and local subsidiaries, which needs to be balanced against protecting the market from the threat of fraudsters. Other suggestions are more technical (intraday capacity

allocation) or procedural (transparency, language barriers). The part of the acquis which is applicable to the Energy Community parties does not yet contain the CACM code⁴⁰.

WB6 initiative

According to the Addendum to the Western Balkans Summit in Vienna⁴¹ in 2015 and Western Balkans 6 Memorandum of Understanding on regional electricity market development⁴² in 2016 national soft measures for Macedonia were agreed. The deadlines foresaw the establishment of a liquid national day-ahead market without major obstacles for energy trading with an operating power exchange in 2016 and coupling with at least one neighbouring country in 2017. According to the Roadmap for a Regional Electricity Market for the Western Balkan 6⁴³ the delay in the establishment of one or more SEE power exchanges for spot trading is a main reason for missing progress in SEE. WB6 countries must submit draft proposals when to couple which markets and how to establish/select power exchange until January 2017.

The TA Provider will deliver the consultation document supporting the Beneficiary, together with national stakeholders in Macedonia. The establishment of an operating power exchange will take at least one year from the moment the company is established and the selection procedure for service providers will start until first trades are concluded. The agreement on how, when and where the Macedonian organized day-ahead market will be coupled is not a Macedonian domestic decision only but is connected to the development status of neighbouring country's day-ahead market and agreement between all involved stakeholders (at least power exchanges, transmission system operators, joint allocation office and NRAs).

The latest available WB6 Monitoring Report (October 2017)⁴⁴ provides the following additional information:

- In March 2017, the government adopted a decision on establishment of an organised electricity market in Macedonia and an action plan, according to which the power exchange will be operational by the end of 2018. (This TA is meant as a support for this)
- The Regulator is supposed to have tools to increase liquidity provided in the draft Law. (But they were not evident from the reviewed draft)

⁴⁰ <https://www.energy-community.org/legal/acquis.html>

⁴¹ https://www.energy-community.org/dam/jcr:07167fef-a8e2-48fe-b241-7648246dae90/WB6_VIE_2015_Annex1.pdf

⁴² <https://www.energy-community.org/regionalinitiatives/WB6/MoU.html>

⁴³ https://www.diplomatie.gouv.fr/IMG/pdf/paris_package_compiled_lowres_2_cle434d8b.pdf

⁴⁴ https://www.energy-community.org/regionalinitiatives/WB6/Monitoring_EL.html

SECTION 4

Power exchange organization and operational models

Based on the above described operating power exchanges and legislation framework in the European Union and neighbouring countries, there are **several options how to establish and operate the power exchange in the terms of regulation, ownership, partnership and provision of trading and clearing services.**

Before deciding between different options, the ownership structure, strategic partnership selection, if any, service provider selection, if any, government and involved stakeholders shall discuss and answer the following question.

From the point of view of decision makers: What is the purpose of the power exchange and what will be the measure for its success?

- 1) Is it only fulfilling the requirements of European Union, regulatory authorities, Energy Community and Western Balkans 6 obligations / commitments?
- 2) What is the key objective that the power exchange has to achieve? Is there an interest of having an institutional owner with the aim to organize secure market place, help the economy to grow or strategic partner or financial investment entity looking for investment and return on capital?
- 3) Should the power exchange also be a Central counter Party and thus an intermediary with high credit rate and trust standing between buyer and seller in environment with higher credit and payment risk?

The Macedonian electricity market is small and a net importer with production around 5 TWh and consumption around 7 TWh. On the other hand, it is in the middle of transport flows towards higher priced areas like Greece, Turkey and Italy.

Day-ahead market organized by domestic power exchange

Power exchanges operating only local domestic day-ahead market and there are different ownership structures present. There are six (6) power exchanges in European Union acting in the same time as Market Operator (organizing electricity market) and power exchange being nominated also as NEMO. This organization model inevitably means that those NEMOs being Market Operator and power exchange at the same time are also nominated as monopoly NEMO. Therefore same advantages and disadvantages from monopoly NEMO status apply also for this organizational model.

Day-ahead market organized in cooperation with strategic partner

Some of the power exchanges operate more than one bidding zone. EPEX started with two bidding zones, Germany/Austria and France, and recently also Netherland Belgium and UK. NordPool started with Norway when established and expanded the operations gradually to Sweden, Finland, Denmark and Baltic countries recently. Both of them established local members' administration functions and also regional operational control (e.g. EPEX with market operations located in Paris, Leipzig and Amsterdam).

With the adoption of CACM regulation in 2015, activities in one or more than one bidding zone are regulated. As already described in paragraph “NEMO nomination process” above, only NEMOs with competitive status may offer trading services in different bidding zones, since other Member States may refuse the trading services by a NEMO designated in another Member State as monopoly⁴⁵.

The possible models for foreign power exchange to organize Macedonian day-ahead market are:

- 1) To implement monopoly NEMO status in Macedonian legislation and via public tender select one of the foreign power exchanges as monopoly NEMO in Macedonia⁴⁶
- 2) To nominate one or more foreign power exchanges as competitive NEMOs in Macedonia, all able to provide trading services for day-ahead market

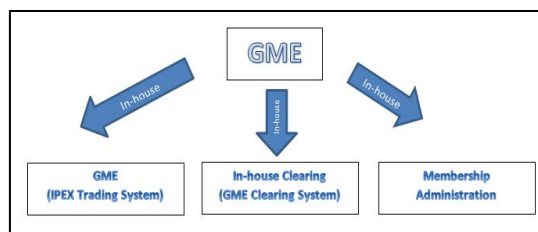
System development and power exchange roles

Key roles and therefore also systems for the power exchange to operate are:

- 1) Membership administration
- 2) Trading system with trading algorithm
- 3) Clearing system

Currently there are four different models used for the organization of exchange. The representation will cover GME, BSP, EPEX and HUPX since one of these models is used by any known power exchange in Europe:

1) Full in house development - GME

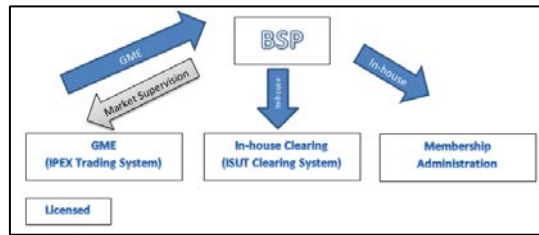


GME organizational model foresees direct involvement in an exchange operation, the exchange itself. All exchange roles are performed by the exchange itself and also systems provided are in-house developed. Clearing model used is direct clearing, where exchange provides the clearing and financial settlement of transactions concluded on the energy exchange directly to the members, being entity between buyer and seller and therefore takes the liability risk in case of any member default.

⁴⁵ CACM Guidelines, article 4

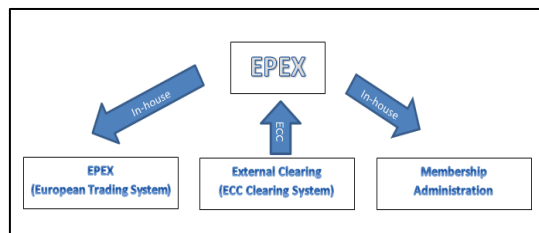
⁴⁶ CACM Guidelines, article 5

2) Trading platform outsourcing – BSP



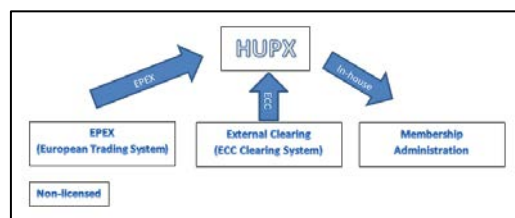
The model used by BSP foresees that one of the systems, the trading system, is outsourced to the other power exchange providing the service. BSP maintains the internal role of market supervision and market operations (overview of traders activities, management of products, maintenance of accounts, etc.) and the Clearing model used is “direct clearing”, where exchange provides the clearing and financial settlement of transactions concluded on the energy exchange directly to the members, being entity between buyer and seller and therefore takes the liability risk in case of any member default.

3) External clearing – EPEX



The model used by EPEX foresees outsourcing of clearing services, provided by any other entity. In case of EPEX, it is ECC. The model used by ECC is indirect clearing, where clearing and settlement services are provided by clearing house indirectly via General Clearing Members (institutional banks, being members of CCP). In case of this model, power exchange does not take any liability in case of its member default. EPEX trading system is in-house developed and EPEX also maintains control on complete market operations.

4) Full systems and roles outsourcing – HUPX



HUPX is outsourcing two out of three roles and systems for power exchanges, while maintaining internal membership administration, HUPX is outsourcing the trading platform, provided by EPEX, and also market operations where overview of traders activities, management of products, maintenance of accounts, etc. is provided by EPEX. Clearing services, provided by any other entity, in case of HUPX it is the same model used by EPEX, to

outsource clearing service to ECC with an indirect clearing model. HUPX does not take any liability in case of member default.

Possible organisation models of day-ahead power exchange in Macedonia

Based on the options how to organize the day-ahead market described in the previous chapter, we identified the following four possible organizational models for day-ahead power exchange.

Model 1

This model of power exchange organization is based on the organizational model of Italian power exchange GME or Iberian power exchange OMIE. The basic principles of such model are:

- Domestic power exchange, owned by one owner (e.g. MEPSO) or more local owners (e.g. Ministry, ELEM, etc.). GME and OMIE are owned directly or indirectly by respective national government (see chapter with detailed power exchange description above)
- direct involvement in an exchange operation, the exchange itself
- full in-house development of trading system
- full in-house development of clearing system
- direct clearing, where exchange provides the clearing and financial settlement of transactions concluded on the energy exchange directly to the members, being entity between buyer and seller and therefore takes the liability risk in case of any member default

Macedonian power exchange will be entirely responsible for setting up, design and implementation of day-ahead market, together with end-to-end development and implementation of all IT systems, operation of day-ahead market in five or seven work day regime, members sales and support services, relationship with the stakeholders, etc.

Strengths	Weaknesses
<ul style="list-style-type: none"> - direct and full control on incomes, costs, priorities and PX' strategy - full control on design, functionality and scalability of PX and IT systems - Local clearing development according to the local legislation 	<ul style="list-style-type: none"> - exposure to large number of service providers - lack of local providers with limited knowledge and services - local governance issues and resource limitations - larger operational team - local clearing rules development - no collateral pooling
Opportunities	Threats
<ul style="list-style-type: none"> - local decision on most suitable service provider for Macedonian market - acquisition of specific knowledge and local resources development - clearing and settlement requirements fine-tuned according to the local market players 	<ul style="list-style-type: none"> - hiring large number of new staff with limited experience - prolongation of development and implementation due to a large number of change requests - limited business model after the market set-up and integration are finalized - liquidity issue (VAT) - cross-border collaterals issues

Table 15: the SWOT analysis is subject to the inputs provided by relevant providers regarding the costs and timeline for provision of services. Therefore the actual strengths, weaknesses, opportunities and threats can be identified only when offers are acquired from the potential service providers.

Model 2

This model of power exchange organization is based on the organizational model of Slovenian power exchange BSP. The basic principles of such model are:

- domestic power exchange, owned by one owner (e.g. MEPSO) or more local owners (e.g. Ministry, ELEM, etc.). BSP is owned directly by system operator and market operator (see chapter with detailed power exchange description above)
- direct involvement in an exchange operation, the exchange itself
- trading system provided by service provider
- full in-house development of clearing system
- direct clearing, where exchange provides the clearing and financial settlement of transactions concluded on the energy exchange directly to the members, being entity between buyer and seller and therefore takes the liability risk in case of any member default

Macedonian power exchange will be entirely responsible for setting up, design and implementation of day-ahead market, together with operation of day-ahead market in five or seven work day regime, member’s sales and support services, relationship with the stakeholders, etc. The IT services will be provided by the selected service provider on the level of software licenses and hosting, where service provider will be responsible for developing the trading platform and its provision to the hosting environment (together with all maintenance and support services).

<p>Strengths</p> <ul style="list-style-type: none"> - high-end software provision and services - no or limited initial investment in IT systems and business process design - local clearing development according to the local legislation 	<p>Weaknesses</p> <ul style="list-style-type: none"> - no commitment by service provider for long-term cooperation - dependency on outsourcing service provider - limited local resources development - larger administration team - local clearing rules development - no collateral pooling
<p>Opportunities</p> <ul style="list-style-type: none"> - local decision on most suitable service provider for Macedonian market - acquisition of specific knowledge and local resources development - clearing and settlement requirements fine-tuned according to the local market players 	<p>Threats</p> <ul style="list-style-type: none"> - changing the platforms in operational phase - limited influence on software development and priorities - disruption of services - liquidity issue (VAT) - cross-border collaterals issues

Table 16: the SWOT analysis is subject to the inputs provided by relevant providers regarding the costs and timeline for provision of services. Therefore the actual strengths, weaknesses, opportunities and threats can be identified only when offers are acquired from the potential service providers.

Model 3

This model of power exchange organization is based on the organizational model of Hungarian power exchange HUPX. The basic principles of such model are:

- domestic power exchange, owned by one owner (e.g. MEPSO) or more local owners (e.g. Ministry, ELEM, etc.). HUPX is owned directly by system operator (see chapter with detailed power exchange description above)
- no involvement in an exchange operation by power exchange
- trading system provided by service provider
- clearing system provided by service provider
- indirect clearing where the exchange is performing the organization of trading only and clearing and financial settlement are outsourced to an independent clearing house where services are provided by the clearing house indirectly via general clearing members (institutional banks, being members of CCP). General Clearing Members are in direct contact with exchange members' directly executing day to day clearing and settlement services, collecting collaterals, performing risk assessments, etc. In case of this model, the power exchange does not take any liability in case of its member default.

Macedonian power exchange will be entirely responsible for setting up, design and implementation of day-ahead market, together with members' sales and support services, relationship with the stakeholders, etc. The IT systems, trading and clearing services and operation of day-ahead market in five or seven work day regime will be provided by the selected service provider under the brand of the Macedonian power exchange.

Strengths	Weaknesses
<ul style="list-style-type: none"> - high-end software provision and services - skilled and experienced professionals with resources for market set-up without capital investment - standardized implementation with systems and business services included - lower financial risk - no investment in clearing systems 	<ul style="list-style-type: none"> - no commitment by service provider for long-term cooperation - extremely high dependency on outsourcing service provider - limited local resources development - large administration team - problem with adoption of local legislation and specifics for clearing implementation - cost of clearing service
Opportunities	Threats
<ul style="list-style-type: none"> - recognized trading platform and services - known environment for trading participants - well known and established clearing house benefit for foreign traders as trusted institution with already established clearing links 	<ul style="list-style-type: none"> - changing the platforms in operational phase - limited influence on software development, priorities - disruption of services - foreign entity is controlling the flow of money in clearing process - payment cycle timings (t+1 payments) - focus on other foreign PX activities and delay in Macedonian market integration

Table 17: the SWOT analysis is subject to the inputs provided by relevant providers regarding the costs and timeline for provision of services. Therefore the actual strengths, weaknesses, opportunities and threats can be identified only when offers are acquired from the potential service providers.

Model 4

This model of power exchange organization is based on the modified organizational model of EPEX with specific elements. The basic principles of such model are:

- foreign power exchange, owned by large number of international owners (see chapter with detailed power exchange description above)
- power exchange is operating centrally with several trading zones where no local representation is assured
- exchange operation is centralized
- trading system provided by foreign power exchange being co-owner of Macedonian PX
- clearing system provided by foreign power exchange being co-owner of Macedonian PX
- indirect clearing where the exchange is performing the organization of trading only and clearing and financial settlement are outsourced to an independent clearing house where services are provided by the clearing house indirectly via general clearing members (institutional banks, being members of CCP). General Clearing Members are in direct contact with exchange members’ directly executing day to day clearing and settlement services, collecting collaterals, performing risk assessments, etc. In case of this model, the power exchange does not take any liability in case of its member default.

Due to a fact that Macedonian Law on trade companies requests local subsidiary to be established (see section on Macedonian local legislation above) pure foreign power exchange operating Macedonian day-ahead market as a zone is not possible. Therefore any foreign power exchange operating local Macedonian market shall establish local office as strategic partner with local stakeholders (MEPSO, market operator, etc.). Local entity will be responsible for members’ sales and support services, relationship with the stakeholders, etc., while strategic partner will provide design and implementation process, the IT systems, trading and clearing services and operation of day-ahead market in five or seven work day regime under the brand of service provider.

Strengths	Weaknesses
<ul style="list-style-type: none"> - no capital investment - high-end software provision and services - skilled and experienced professionals with resources for market set-up without capital investment - standardized implementation with systems and business services included - lower financial risk - no investment in clearing systems 	<ul style="list-style-type: none"> - limited local resources development - challenges with adoption of local rules and legislation - problem with adoption of local legislation and specifics for clearing implementation - cost of services
Opportunities	Threats
<ul style="list-style-type: none"> - participation in recognized international power exchange with large membership portfolio - recognized trading platform and services - known environment for trading participants - well known and established clearing house benefit for foreign traders as trusted institution with already established clearing links 	<ul style="list-style-type: none"> - limited role in joint organization governance structure - small local team with no or limited responsibilities - foreign entity is controlling the flow of money in clearing process - payment cycle timings (t+1 payments) - focus on other foreign PX activities and delay in Macedonian market integration

Table 18: the SWOT analysis is subject to the inputs provided by relevant providers regarding the costs and timeline for provision of services. Therefore the actual strengths, weaknesses, opportunities and threats can be identified only when offers are acquired from the potential service providers.

PCR operation for Macedonian market integration

Based on successful implementation of isolated domestic day-ahead market, the market integration shall be implemented as market coupling with neighbouring power exchange markets. For the operation of market coupling the provision of PCR services is the key prerequisite (as described above in the document).

PCR owner/full member

The option to become full member of PCR consortium and therefore become DA MCO Function Asset Co-Owner is possible only in case of model 1 is selected since other models foresee service providers for the provision of trading platform/trading operations.

<p>Strengths</p> <ul style="list-style-type: none"> - independently run market coupling as operator 	<p>Weaknesses</p> <ul style="list-style-type: none"> - higher costs in compare to Serviced PX - local requirement for PX are extremely high - IT environment certification by other PXs - personnel certification - language certifications
<p>Opportunities</p> <ul style="list-style-type: none"> - option to offer PCR services to other exchanges 	<p>Threats</p> <ul style="list-style-type: none"> - timely implementation - no benefit for small markets with limited or no complexity

PCR serviced PX

In case of model 2, 3 or 4 are selected; the Macedonian power exchange will become Serviced PX where the service provider of trading platform/trading operations would also provide PCR services as servicing PX.

<p>Strengths</p> <ul style="list-style-type: none"> - quick implementation - lower cost of implementation and operation - suitable for PXs with smaller number of employees and simple IT environment 	<p>Weaknesses</p> <ul style="list-style-type: none"> - PX is unable to offer PCR services to other PXs - possible non-compatibility with local legislation, if applicable (for some PXs acting as MO it is mandatory to own the assets used for electricity market)
<p>Opportunities</p> <ul style="list-style-type: none"> - quick implementation - limited or no effort with PCR consortium 	<p>Threats</p> <ul style="list-style-type: none"> - high dependency on external cost of service and on individual change request cost

Table 19: the SWOT analysis is subject to the inputs provided by relevant providers regarding the costs and timeline for provision of services. Therefore the actual strengths, weaknesses, opportunities and threats can be identified only when offers are acquired from the potential service providers.

SECTION 5

Consultation with interested stakeholders

The Task 2 under the TA contracted between ECS and consultant foresee the consultations between consultant and interested stakeholders in order to get feedback from stakeholders regarding the opinion about the establishing the organized exchange day-ahead market and all identified models from Task 1. Before the workshop, consultant provided via e-mail to all interested stakeholders written Questionnaire, which is available in Annex 3.

Meeting minutes from consultations mentioned above are included in the Annex 4 of this document.

Analysis of solutions stemming from interviews / consultations

In this chapter we give an overview of the solutions proposed by various stakeholders during the interviews / consultations. The analysis is given separately for key market actors (ELEM, EVN) and the others (Team, preparing the Energy Law, Ministry, Cabinet of Vice Prime Minister).

Market stakeholders

Market stakeholders are aware about the current draft of the law. They generally welcome the introduction of the PX in Macedonia, since they see added value in a clear and transparent price signal as well as the options the PX could give them regarding adjusting positions, risk management and trading options in general.

They are generally positive regarding their active participation on the PX, yet could not give precise commitments. When explicitly asked whether they would propose a particular solution (alternative) at least regarding the basic options in the decision-making process (e.g. market-based vs monopoly; entity and ownership; first coupled border preference) they were not forthcoming. On the contrary, ELEM explicitly would like a solution to be proposed by the Consultant before commenting further.

Other stakeholders

In terms of the institutional set-up other (state-related, “system”) stakeholders leaned towards the monopoly option. This view seems to be shared both by the Ministry / Cabinet (and the team preparing the Energy Law), as well as the Regulator. There is however no consensus, whether this monopoly should be carried out by the MO (once spun out of MEPSO, which was presented as a given fact in the new draft law) or whether there was to be a tender (for this monopoly role). When asked by the Consultant about the details of such tender, it was explained by the team preparing the law that the default option was the MO assignment and that the eventual tender details would be defined in a governmental Decree. There was no consensus regarding the status of the PX subject regulatory oversight, although the opinion of the team, preparing the law (as well as the Regulator), is that it would and should be regulated.

There was no clear position regarding trading operations and clearing set-up, although all stakeholders seem to be aware that an efficient solution would require outsourcing part of the activity and particularly procuring relevant platforms.

Regarding market coupling, there seems to be a preference to start with the Bulgarian border (which is also in line with current WB6 plans).

No other clear proposals (solutions) regarding PX establishment were presented during the discussion.

SECTION 6

Summary of key questions and consultant's recommendations

1. The Government shall decide by proposing the final version of the Energy law the following:
 - Will the power exchange be market-based or will it be set-up as a monopoly by law?
 - Is there a need to establish a local entity or can the power exchange be directly operated by a foreign entity? If there is a local entity, what is its ownership structure (local / foreign element)?
2. MO or PX, when established, shall decide about the following options:
 - Are trading operations run in-house or outsourced (in terms of software as well as actual operations)?
 - Does the power exchange use the direct clearing model (full in-house or partially outsourced) or indirect clearing model?
 - Will the power exchange be a PCR co-owner or a serviced PX?
3. In the decision process either to establish a local power exchange or select a foreign power exchange to operate the Macedonian exchange market the status of MEPSO as owner/shareholder is requested. This constitutes good practice in the EU (EPEX, NordPool, BSP, HUPX, OPCOM, etc.) and enables the TSO to have an insight into PX operations, while this is important when the Macedonian market will be integrated with other markets and PX will allocate short term capacities. The Macedonian Energy Law (25. 4. 2018) is compliant with this, provided the MO (which is to be established by the TSO) is allocated also the PX status. In the event of a tender, this would need to be included in the conditions.
4. A general choice of the model needs to be made beforehand - it would not be sensible to fit all possible options into the law (e.g. in the Slovenian law you have only a minor mentioning of PX, since at the time this was considered a "market based" activity). In the past PXs were less regulated in national laws but today the EU starts to regulate power exchanges (i.e. CACM, influence of MIFID, possible influence of REMIT revision) and this impacts how much you put in your local law.
5. When preparing the necessary legislation one has to be careful that there is no stipulation in a provision of owning the assets for operating the market (unless you have a very strong reason), since the impact on costs is major, as this would require the entry into the PCR consortium as a full member and become co-owner and the option to outsource PCR services for market integration would become obsolete.
6. The Consultant's opinion is that regulators must play a role and – given CACM as well as the monopoly issue – that regulation is inevitable. This is particularly true for the MCO function of the PX (e.g. recent Nord Pool announced reorganisation in relation to the interplay between market (competitive) and regulated functions).
7. However, regarding rules, it would be sensible to delegate their preparation directly to the MO / PX, with the regulator having to approve them before taking effect.
8. The Consultant gives the recommendation that investing the time and resources by the MO to establish a PX and implement all the criteria for the PX to be designated as NEMO under the regulation 1222/2015 shall be done after the tender is published and the MO is designated as the one carrying out the PX activity (and later NEMO). Otherwise the MO (and MEPSO as owner) will have to take into account the risk not being designated as monopoly

PX/NEMO in Macedonia and therefore spent the resources for setting up PX without the result. In general, the monopoly option is fine, given the circumstances, and if the MO is spun out of MEPSO, then it is sensible for it to be directly allocated the PX task as well. If the Macedonian stakeholders decide to keep the tender option in the Energy Law, then one of the key issues to solve is what the participant will actually tender, since the fees are subject to approval by the Regulator (Energy Law draft 25. 4. 2018, Article 90(2), point 5).

9. Other relevant legislation (VAT, public procurement, Law on Trade Companies) seems to be – based on available information – suitable for the PX to operate. Regarding VAT, a full reverse charge mechanism is advisable, yet many EU PX operate fine even without it. The same is true regarding the establishment of subsidiaries. On public procurement, the legislator needs to be careful to allow the TSO and DSO to procure losses via the PX – a very important step for initial liquidity establishment, together with the sale of RES electricity. The 25. 4. 2018 draft Energy Law contains a provision (Article 92 para 5 and 6) regarding the inclusion of purchase of electricity from regulated entities and purchase and sale of RES electricity in the Market Rules. If the intent is just to clarify the procedures on channelling this energy on the PX, then this is fine and even advisable– but attention needs to be paid not to come in conflict with the Law on Public Procurement.
10. Licences should be kept only when they bring added value. For example: For the PX (Article 90, “operator of an organised electricity market”) this makes little sense, since: both the Regulator and the TSO are involved in the PX nomination process, the government prescribes the operations and conditions (Article 90(3)) and the Regulator confirms both the fees and the rules. Based on this, the licence seems superfluous.
11. Regarding definitions, the Consultant recommends that the terms “market operator” and “energy (or electricity) exchange” are used for the MO and PX respectively. This will avoid confusion.
12. Since major producers can easily influence the price of electricity with overbidding other smaller market participants, their role is the most important one for building a liquid and stable day-ahead electricity market. The Consultant proposes to include an optional provision in the Energy Law to require mandatory participation on the PX. Such a provision could be used for procurement as well. It needs to be stressed, that the Consultant only proposes to include an option in the Energy Law, which could be activated later on based on regulatory or governmental assessment and approval.
13. Linking the timeline of establishing the PX (operational go-live) and go-live of market coupling is not efficient, since local go-live might be already ready. From another point of view, it is beneficial to have local isolated market operating before market coupling (even with small and limited liquidity), since this will enable all involved parties to perform simulations of market coupling and analysis of the output data, which is beneficial for the decision process which border to couple first. This is a further argument to pay attention to the initial sources of liquidity, such as procurement of grid losses, sale of RES electricity and liquidity provider or market maker agreements with key players on the Macedonian market, like ELEM.

Proposal of concept for a day-ahead market organisation in electricity

In this chapter we propose a concept for a day-ahead market organisation in Macedonia, focusing on the key elements (status, entity, trading operations, clearing, market coupling). **This proposal is expanded and fully developed in a separate concept paper** (as per the Terms of Reference of the Technical Assistance, Task 3.b).

The purpose of the organized electricity market (PX) is the delivery of a reliable electricity price index with transparent and reliable trading operations and acting as a supplementary tool for managing trading risk with reliable and efficient clearing operations. Together with market coupling the liquid local PX shall enable more efficient procurement or sale of electricity and offer incentives for investors for long term investment in the Macedonian economy.

Based on concluded interviews and discussion with the Beneficiary and all involved stakeholders, the Consultant identified the following facts:

- a) The Market Operator will be spun out of the TSO into an independent entity.
- b) The PX will hold an exclusive right to organize the Macedonian day-ahead and intra-day exchange market.
- c) The PX will not offer services to other PXs outside Macedonia.
- d) The PX will enforce the energy policy of Macedonia.
- e) The PX should be efficient both time and cost-wise.

The consultant would like to emphasize that some of the identified facts are still in the drafting phase (in the moment considered as preliminary).

Based on the outcomes listed above the consultant proposes the following organizational model for establishing the PX in Macedonia below.

The PX should be small, with a thin company structure, with domestic institutional ownership without foreign capital interest (at establishment) and with a cost effective service provider.

Therefore, we propose that the Beneficiary follows the current proposal in the Energy law with the setup of Market Operator established by MEPSO and including the functions of PX with monopoly status.

To achieve efficient implementation and operation we propose that MO/PX procures via public tender one of the existing trading platforms while retaining local trading operations.

Local trading operations will be combined with local clearing and financial settlement operations (direct clearing) where the MO/PX can find the synergies for clearing system with the owner (TSO) or to outsource part of IT related to clearing platform to an external service provider.

The selected trading platform shall be PCR compliant, since this will enable the Macedonian PX to couple with neighbouring markets. The key condition for market coupling is the provision of PCR operation for PX where we propose the “Serviced PX” approach as the most suitable in terms of both cost efficiency and timeline adequacy.

For the sake of efficiency, we propose also that the provider of the trading platform is linked to the provider of the PCR Serviced PX services (in the tender).

In terms of operations, the utmost priority shall be focused on activities to enable and ensure that system actors (TSO, DSO) use the PX for procurement (grid losses) and sale (RES) of energy in order to attract other actors as well. Furthermore, other key local players should participate in liquidity set-up via market maker / liquidity provider agreements. If need be, such provisions could be mandated within the law (e.g. by giving the option to the government to introduce mandatory participation).

SECTION 7

Conclusion

This document presents possible models of the organisation and operation of the day-ahead market in Macedonia, reviewing also the existing and potential legal framework and the WB6 framework.

It also relays the requirements of CACM and outlines the main benefits and drawbacks of various alternatives.

It proposes a model for the establishment of the day-ahead market (PX) in Macedonia, taking into account also current international and national legislative and regulatory efforts.

Given the perceived intent of the legislator (grasped through the review of various versions of the Energy Law), as well as various meetings and interviews with various stakeholders, the proposed model has the following main characteristics:

- 1.) The PX has a monopoly status. Particularly in bundled with the MO, this seems a sensible solution given all the circumstances (market size, possible liquidity procurement sources, etc.).
- 2.) If the MO is spun out of the TSO, then it is sensible to bundle the PX with the MO, particularly given its monopoly status.
- 3.) Given the small market size, the PX should strive for efficiency, yet it should retain core operations in-house. It is sensible to tender for a trading software solution and possibly also the clearing solution (as a service, retaining the flow of money through the local market).
- 4.) Particular attention should be paid to get all the relevant stakeholders on board from the beginning. An initial local liquidity is necessary, irrespective of market coupling. To this end four points are central: 1. Procurement of (part of) the grid losses through the PX; 2. Sale of (part of) the RES energy through the PX; 3. Agreements with key players (liquidity provision, market making) and 4. Option for mandatory participation.

Annex 1: Report on Task 1 Workshop (13 March 2018)

Disclaimer

The authors of this document strive to report meeting discussion as accurately as possible. It is however possible that certain misunderstanding could have arisen. The statements or questions attributed to specific subjects could therefore not be precise.

Participants:

MEPSO:

- Simon Shutinoski
- Zoran Gjorgjievski
- BrankaVasik
- Nikola Stojanov
- ElizabetaGiovska

Macedonian Energy Regulator:

- Anastasija Stefanovska

Macedonian Ministry of Economy:

Elena Markova Velinova Energy Community Secretariat:

- Simon Uzunov

Consultant:

- BorutRajer (Borzen)
- Miha Pregl (BSP)
- AnžePredovnik (BSP)

Content

The Power point presentation used in the workshop is an annex to the Task 1 report. Below we present a short summary of the matters discussed.

Short overview of PXs in Europe

At the moment there are 15 different PXs in Europe, all of them nominated as NEMOs. The western part of the EU has more competitive PXs and in SEE more monopolies are present. From the perspective of volumes we have four big power exchanges. They cover 80% of total EU volumes.

The consultant proposes to decision-makers to either establish a local power exchange or select foreign power exchange to operate the Macedonian exchange market, where the requirement of MEPSO as co-owner/shareholder is requested. This is a good practice in EU (EPEX, NordPool, BSP, HUPX, OPCOM, etc.) and enables TSO to have an insight in PX operations, while this is important when the Macedonian market will be integrated with other markets and PX will allocate short term capacities.

Power exchange key roles

Three key roles are:

- membership administration,
- trading operations (back-end systems, trading platform), and
- clearing platform.

Membership administration

Normal IT environment is enough for support of this role, but the key element to get liquidity to PX is the handling of market participants (bilateral discussions, membership, activity on exchange, sales, marketing, etc.; details are defined in contracts and PX Rules). This is important in terms of Market Maker/Liquidity Provider agreements, recognition of opportunities for trading companies.

Systems used for membership administration (basic IT software as MS Windows and MS Office usually suffice) are sales support systems, marketing/design software, training software etc. If you decide for the foreign PX option it is important to get them engaged on the Macedonian market with local representation (example of EPEX local offices in Austria and other countries was pointed out). The costs of local representation are subject to the arrangement with the selected foreign PX operating the Macedonian market.

Trading operations

First of all, there is the trading platform and its management/running, market supervision, trade limits, defaults, communication with participants, handling of recalls and closing of the market.

To operate the market you have to make a decision what kind of trading and back end system you will use (to be expanded under Task 3). Trading system is your window to the world in terms of user friendly app, easy upload, wide usage, etc. On the other hand you have - hidden from the world - back end system, which includes the algorithm, product development, you have scalability and performance issues (this becomes an issue when you couple with other market - adding together different products can be an issue when introducing coupling between two countries in terms of performance) and connectivity to capacity management modules and clearing system.

You have several options to acquire trading system (to be expanded under Task 3). You can either do in-house development or lease it. In-house development means local design, hiring of employees to develop IT, risk of long development and high cost CR - but on the other hand you have high flexibility for local specifics with your in-house development. The other option is collection of offers for trading system from different service providers (outsourcing) and maybe you use some more time to do this properly and you get the right thing for your market.

Generally, PXs rely on IT developers such as Soops BV, Indra, etc. In terms of lease you can decide for non-PX providers (i.e. OPCOM and Alstom, EXAA and Smart Technologies) or for lease from other PX (i.e. GME, EPEX and NordPool).

Clearing and financial settlement

The last core role is the clearing and financial settlement role. You have two options to decide - either direct clearing or indirect clearing (where PX outsources this role to e.g. ECC, Keller, etc.).

Direct clearing is applicable to markets where you have local specifics and you can fine tune clearing design to these specifics - you have a high scale of possible customization. But you have to do everything by yourself - need of local clearing rules development, need of system development, cost of employees, VAT issues, cross-border collaterals and issue of no pooling of collaterals (traders like pooling since it reduces their costs, but on the other hand your direct service is more flexible). You have to analyse how many market players will drop out due to high entry requirements, if you decide for in-direct clearing versus the option that you offer direct clearing and with that lower and more tailor made entry requirements.

Pros of indirect clearing are no investment in the systems, no VAT and collateral issues, lower cost of employees, foreign traders like to rely on known and established clearing houses reducing their risk assessment costs, etc.

Cons can be problems with adoption of local legislation, high threshold for smaller trading companies, cost of service, a foreign entity controlling the flow of money, synchronization of payment cycle timings (example of GME T+68 payment cycle).

	Pros	Cons
Direct clearing	<ul style="list-style-type: none"> - Local development according to the local legislation - Requirements fine-tuned according to the local market players - Customization 	<ul style="list-style-type: none"> - Need of local clearing rules development - Need of system development - Cost of employees for performing the action - Liquidity issue (VAT) - Cross-border collaterals issues - No collateral pooling
Indirect clearing	<ul style="list-style-type: none"> - No investment in systems - No VAT and collateral issues - Lower cost of employees - Well known and established clearing house benefit for foreign traders as trusted institution with already established clearing links 	<ul style="list-style-type: none"> - Problem with adoption of local legislation and specifics - High threshold may be issue for smaller trading companies - Cost of service - Foreign entity is controlling the flow of money - Payment cycle timings (t+1 payments)

ECS question: What about the reliability of the clearing house?

The question is on the table - some trading company might divert from market entry if they face an unknown (unproven) clearing house. But it is easier to regulate ID and DA market (100% guarantees) so direct clearing can be handled compared to derivatives where MIFID and EMIR strictly regulate this business segment. MIFID and EMIR as EU regulations are setting rules on investment services and derivatives contracts and are important for clearing house to be compliant with such regulation

if clearing house is performing clearing of long term financial products or derivatives, where in contrary to DA and ID market, only partial collaterals are used.

ECS question: In the region, how much does local demand participate in the PX and how much from the trade comes from abroad?

You never know if the trade is for local use and how much it is for cross border trade. From PX data you cannot extract this information. But we could estimate that up to 20% is local demand and the rest is cross border trading.

Coming back to clearing: Like with trading system you have back end and front end systems. Users in this segment are back office employees. They want to see trade limits, balance on the accounts, invoices, trade reports etc. At the back end you take care preparing off-set reports and invoices, issuing of invoices, connection to on-line banking platforms, cross-border clearing and congestion rent calculation and collection (and its distribution to TSOs).

We noticed that due to local specifics clearing systems are commonly developed from scratch with support of local IT. In respect of local legislation, clearing process might be similar for different electricity market segments, like day-ahead, intraday, OTC or balancing market. Therefore same system can be used for all above mentioned markets. If one or more such markets are operated by different entities (TSO, MO or PX) some synergies might be found if one entity is outsourcing clearing system to another.

Market coupling

The most important consideration regarding market coupling is that coupled PXs must use the same algorithm and same back end system for matching bids and offers. If you develop you own IT systems you must (at the time of coupling) align it with neighbouring markets. In Europe, this was handled by the PCR project. They developed the Euphemia algorithm covering all specifics form 28(27) member states (as examples, PUN in Italy and Iberian Peninsula specifics were mentioned). At the back end there is a PCR Matcher and Broker.

To gain access to PCR assets you have two options. Either you become their co-owner or you lease the service form one of the PCR asset co-owner, thereby becoming a so-called “serviced PX”.

So you can either have your own trading system and you make it compatible with PCR assets or you lease it.

	Pros	Cons
PCR owner/full member	<ul style="list-style-type: none"> • Option to offer PCR services to other exchanges • Independently run market coupling as operator 	<ul style="list-style-type: none"> • Higher costs in compare to Serviced PX • Local requirement for PX are extremely high <ul style="list-style-type: none"> • IT environment certification by other PXs • Personnel certification • Language certifications • Timely implementation

	Pros	Cons
PCR serviced PX (outsourcing)	<ul style="list-style-type: none"> • Quick implementation • Lower cost of implementation and operation • Suitable for PXs with smaller number of employees and simple IT environment 	<ul style="list-style-type: none"> • PX is unable to offer PCR services to other PXs • Possible non-compatibility with local legislation, if applicable (for some PXs acting as MO it is mandatory to own the assets used for electricity market) • High dependency on external cost of service and on individual change request cost

Pros of PCR co-ownership is that you can offer your system as service to other PXs and you run independently your market as the market coupling operator. The cons are (considerably) higher costs in comparison to the Serviced PX option.

If you lease the service (Serviced PX) then your pros are quick implementation, lower cost of implementation and operation. Therefore, such an approach is suitable for PXs with smaller number of employees and simple IT environment. The cons are that you are unable to offer your system as a service to other PXs, possible non-compatibility with local legislation and high dependency on external cost of service and on individual change request cost (you are dependent both regarding the time of implementation as well as the cost). So you have to consider, what your specifics are. Do you need something that is not there yet (in the PCR) and what costs are you willing to cover.

MEPSO question: In the case of market coupling, what are the operational tasks?

In the PCR one PX is running the market and then after two weeks this role is rotated. There is also one acting as the so-called “hot back up” – if there is a problem, they are ready to step in immediately (parallel calculations). Other full members can run their market on their own if they want to. The serviced PXs just receive the results afterwards. This was the main principle outlined in the decentralized approach to develop PCR.

MEPSO question: Have you thought about becoming a full owner?

Today for NEMOs there is little difference between being serviced or full members. Due to CACM we have similar rights as other full PCR member NEMOs.

ECS question: Can we conclude something for the Macedonian case and – taking into account the CACM – what would be the decision?

We think co-ownership of PCR assets and CACM are not directly related. The main factors are: Do we have an ambition to offer commercial services elsewhere? Do we have a requirement from regulations/legislation to own it? Are we prepared to spend a certain, non-negligible amount of money for asset co-ownership to cover some local specifics? When you answer these questions you know if you need to be co-owner or not.

ECS question: Maybe it's pragmatic to start on small scale with serviced PX and when you build something you can jump into the next phase?

You have also OPCOM option that you become PCR co-owner but you are still serviced - for a transitional period. You have to be aware that in this case you “double” the costs, at least for the transitional period.

ECS statement: We push/propose to EU Commission to start the process of CACM adoption on the Ministry level in Energy Community contracting parties. Till the end of this year this motion should be adopted on the Ministry level and then maybe in two/three years it can become part of national legislations.

CACM is sensible in terms of boundaries - it will not be the same case with the boundaries in the EU and the boundaries among ECS contracting parties. But we have a mechanism to control that. The EU Commission feels comfortable, that the critical points are interpreted in the same manner for CACM parties and ECS contracting parties. To support successful Macedonian market integration into EU common market the CACM regulation shall be fully adopted by Macedonian legislation ensuring equal level playing field for all involved TSOs and NEMOs.

To conclude this part, you have decision to make - presented summary slide (copied below) - no comments regarding the slide.

PX org. options – decision making process

- **1: INSTITUTIONAL SET-UP:** market-based vs. monopoly
- **2: ENTITY + OWNERSHIP:** local / foreign
- **3: TRADING OPERATIONS:** in-house vs. outsourcing (incl. SW platform)
- **4: CLEARING:** direct (full in-house or partially outsourced) vs. indirect
- **5: MARKET COUPLING:** PCR co-owner, serviced PX

National legislation

The legislation has a two-fold impact - direct and indirect. The direct relates to establishment of PX and its tasks - we already saw some coverage of this in the Macedonian Energy Law proposal. Beside the direct aspect you also have an indirect one, which boils down to: How easy are you making the life of traders?

A general choice of the model needs to be made beforehand - it would not be sensible to fit all possible options into the law (i.e. in Slovenian law you have only a minor mentioning of PX, since at the time this was considered a “market based” activity). In the past PXs were less regulated in national laws but today the EU starts to regulate power exchanges (i.e. CACM, influence of MIFID, possible influence of REMIT revision) and this impacts how much you put in your local law. You have to be careful that you don't put in a provision of owning the assets (unless you have a very strong reason), since the impact on costs is major, since this would require the entry into the PCR consortium as full member and become co-owner and the option to outsource PCR services for market integration would become obsolete.

From the draft of the Macedonian Energy Law we gather the national approach is towards monopoly – but the issues of establishment and governance of Macedonian PX, its tasks (serviced PX), financing etc. still need to be addressed.

The indirect aspect concerns the environment within which the PX operates; ease of access must be taken into account (licences abolishment, local seat requirement abolishment, trade in EUR if possible....) If you are a small market, such as Macedonia is, you need to take into account that maybe traders will not be willing to go an extra mile to enter your market if they will face difficulties. Even minor things like translations of the documents can make a lot of difference.

Regarding public procurement it is very important that legislation adopts that PX can be used as an alternative to cumbersome PP procedure - this will facilitate on-start liquidity (procurement of losses TSO/DSO and sale of FIT RES electricity were utilized in this sense in Slovenia). This might be even better trigger than Market Maker agreements which might be very volatile in their substance. Our view is that the current legislation covers this adequately (regarding procurement of losses). This is confirmed by MEPSO but disputed by a relatively recent ECS-financed study on the subject of PP.

Two main VAT issues - fraud prevention (missing trader - but not so much in electricity but for example in emission coupons trading - mentioned the French fraud case) and big liquidity issue for cross-border (coupling) transfers (the cycles when you get your money back from your government and collect it from traders might differ and you have to be prepared to finance that).

Ease of access - licences. It has to be debated what is their purpose - sometimes they can be void of any true meaning. But this does not mean that companies should not register on your market - you can manage the later thorough the balance scheme registration/administration.

Regarding the local seat we understand that it is required, unless a company is from a country that does not require the same for Macedonian companies. For example, a local company is still required in Slovenia but it is recognized that if a company is from an EU country it is treated as a local company and so this issue is solved. You could do *lexspecialis* exemptions on the topic in the Energy law to relieve foreign companies of the burden of local subsidiary specifically for the energy market.

It needs to be however emphasized, that none of the aforementioned indirect issues prevent the establishment and operation of the PX. It is just a matter of weighing the benefits and costs – related not only to PX, but also to other issues outside the scope of this report.

Public procurement

Article 182 and 192 were presented which support that losses procurement may be excluded from PP procedures – this is disputed in a recent ECS-funded study, but according to consultation responses losses procurement is already in practice excluded from PP procedures – both the TSO and the DSO procure it otherwise (e.g. EVN stated that they operate a dedicated platform). MEPSO stated that it is not the case that Market Rules require a PP procedure for the procurement of losses (as mentioned in the study). (Comment: later confirmed also by EVN, who purchases DSO-level losses).

Liquidity

In terms of setting up the initial liquidity we understand that MEPSO is in a position to trade on the PX market and you also have flexibility to bring RES energy to PX market. This is an important trigger for initial liquidity setup and a positive signal for market participants when PX will start operations.

VAT fraud prevention

We debated VAT fraud prevention measures beforehand (French case) and their importance. But to sum up it is important to align interstate VAT regulation as much as possible in order to ease trading (reverse charge mechanism is a clear solution for this). On the other hand, do you need local reverse charge implemented to start PX operations? No. Even in the EU, this is not the case in all countries, but if implemented it would relieve the Macedonian PX from some financing burden.

Other issues

Definition of PX shall be as clear as possible.

TSO provisions: Obligation of reporting to regulator on PX sales (Comment: later cleared up with the team preparing the Energy Law, that it is not meant as getting approval – but just periodic (monthly) reporting, connected with TSO cost control; Suggested that the wording be adjusted, but possibly only an issue of translation.)

Market Rules: it is related to this project if you say that Market Rules contain also PX rules.

MEPSO comment: In the final provisions of the law it is stated that in 6 months new Market Rules shall be drafted, but this is a general statement and does not directly refer to PX rules.

PX rules are independent documents, responsibility of each PX and are usually not approved by the NRA, if the PX market is running in isolated mode. If in the PX rules are included also provisions of market coupling (where the CZCs are allocated), the part with CZC allocation might become subject of NRA approval (it depends from national legislation).

If you look in the direction on monopoly then it should be stated in the Energy law that PX rules are to be drafted by Market Operator (since the Market Operator is foreseen to operate PX and MO will be spun off from the TSO. If this decision is changed, the PX rules shall be drafted by the entity operating PX role) and that regulator is the one reviewing and approving them - this should be pointed out to Macedonian regulator and Ministry. This holds also for the Market Rules in general.

Balancing market

We saw in the law that you have clear differentiation of market segments and to whom they belong. ID and DA market to PX and the Balancing Market to TSO. But it might be considered that the energy for replacement reserve trading is linked to intraday trading - in our case the trading of energy for replacement reserve was connected to intraday trading - it is proven that this is a good pooling of liquidity mechanism for both segments. The Rules for Balancing Market are drafted by Borzen, but the TSO has the veto rights. On the operation side some years ago it was decided that due to similarity of trading platform characteristics it makes sense to trade replacement reserve needs and intraday power on the same platform. A clear distinction could be made in the law (the balancing market is only a segment of the wider ancillary services) although this does not necessarily impact the PX business – it might give a boost to the intraday market (which is usually developed in a second step) if the procurement of (part of) the balancing energy is made by the TSO under the same platform.

The later topic can be discussed with the regulator and responsible ministry on upcoming individual interviews.

Conclusions

The trend is towards monopoly - through the NEMO functions, CACM and other regulatory requirements. PXs are moving in the direction of the “regulated” world, at least for a segment of their operations.

In terms of entity/ownership - in our view you should have a local entity and the TSO should be involved in the ownership share due to allocation of cross-borders capacities, passed onto the PX, which effectively takes over some TSO tasks.

Trading operations - you need to decide how much you want to do on your own and how much you will outsource. From our point of view, taking into account the costs and usability/recognition of trading system by traders it might be the right choice to lease the platform.

Clearing platform - you need to consider whether peculiarities/special circumstances of the local market make direct clearing approach a better and within direct clearing to do it entirely in-house or outsource some part of it.

Market Coupling - you need to link the choice of trading platform to the market coupling process - to move quicker with the implementation you should consider lease of services (Serviced PX model) in order to be able to couple with neighbouring markets as soon as feasible. At later stage you can change to PCR co-owner model (following Polish (TGE) example). The trading platform need not be the same used by the PX offering the “Serviced PX” services, as long as it is PCR-compatible.

Annex 2: Power point presentation for Task 1 Workshop.



**Technical assistance to Macedonia to
establish the Institutional Set-up for
Organised Day-ahead Market**

**WORKSHOP – Task 1.d
Annex to T1 document**

**Borut Rajer, Borzen
Miha Pregl, BSP
Anže Predovnik, BSP**

MEPSO, 13. 3. 2018

Annex 3: Questionnaire sent to stakeholders before Task 2

Introduction and objective of the Questionnaire and consultation

The Slovenian Electricity Market Operator Borzen together with the Slovenian Nominated Electricity Market Operator BSP Energy Exchange (“consultant”) are contracted as a Technical Assistance Provider by the Energy Community Secretariat (ECS) for the Electricity Transmission System Operator of Macedonia JSC Skopje (MEPSO, “beneficiary”) for the provision of **Technical Assistance for draft solutions for national governance structures and institutional arrangements for the national day-ahead electricity market, fit to coupling with neighbouring markets in an optimal way.**

The aim of this questionnaire is to gather views of relevant stakeholders regarding possible models of the organization and operation of the day-ahead market.

INSTITUTION: Click here to enter text.

NAME AND SURNAME: Click here to enter text.

DATE: Click here to enter a date.

Q1: *What is your (institution’s) view regarding the current state of operation of the Macedonian electricity market? What are the main challenges? How do you see the role of the day-ahead market within the Macedonian electricity market?*

Click here to enter text.

Q2: *How should the day-ahead market in your opinion be organised (please refer to the consultation document)? Should there be a separate power exchange in Macedonia? What are the main challenges in your opinion to set-up (organized, exchange-based) day-ahead trading in Macedonia?*

Click here to enter text.

Q3: *Regarding the power exchange: who should set it up and who should be the owner? Should it be a monopoly or competition based NEMO (nominated electricity market operator) (please refer to the consultation document)?*

Click here to enter text.

Q4: *Do you think that a purely national power exchange is viable? If not, do you believe an implicit market coupling mechanism should be implemented from the start or would it suffice to set it up at a later stage?*

[Click here to enter text.](#)

Q5: *Which coupling direction (border) do you see as a priority and why? Could you please elaborate on all possible borders.*

[Click here to enter text.](#)

Q6: *How do you see the role of your institution in setting up the (exchange-based) day-ahead market in Macedonia?*

[Click here to enter text.](#)

Q7: *Beside your institution, how do you see the roles of others? Who are the key stakeholders? What changes need to be made and by who?*

[Click here to enter text.](#)

Q8: *Would you like to let us know anything else on these topics, that was not covered in the consultation document or the questionnaire?*

[Click here to enter text.](#)

Annex 4: Meeting minutes from consultations with interested stakeholders

Consultation with the Macedonian Ministry of Economy, Cabinet of Vice Prime Minister and the team preparing the new Energy Law (13 March 2018)

Participants

TEAM PREPARING THE ENERGY LAW:

- Samir Latif (team leader)
- DarkoJanevski
- MarijaJoševa
- Slave Ivanovski
- AtanaskoTunevski

MEPSO:

- Simon Shutinoski
- Zoran Gjorgjievski

Macedonian Ministry of Economy:

- Valentina Stardelova

Cabinet of Vice Prime Minister of Macedonia:

- NatašaVeljanovska

Energy Community Secretariat:

- Simon Uzunov

Consultant:

- BorutRajer (Borzen)
- Miha Pregl (BSP)
- AnžePredovnik (BSP)

Content

The consultant gave a quick overview regarding the Task 1 consultation document and the issues discussed at the workshop (including presenting the summary slide, included also in this document). The ECS pointed out, that the main goal is to prepare the law in a manner that would not need changes in the near future. Then the following main topics were covered:

1. MANNER OF PX ESTABLISHMENT

The team preparing the law outlined that they considered whether the TSO should be separated (fully unbundled) from the MO. They concluded that the TSO ownership was not a problem. Regarding PX establishment two options are given: MO as PX or tender for a PX (NEMO) – as a monopoly NEMO. It was said that the most likely option is the direct MO nomination and that the

tender is just a back-up option. It was also debated, who should set the fees and whether the NEMO is regulated.

The consultant argued that regulators must play a role and – given CACM as well as the monopoly issue – that regulation is inevitable. When asked by the consultant whether the MO would be spun out even if a tender for the NEMO would be chosen, the answer from the team preparing the law was yes. They also said that the MO and PX would have distinct rules.

Since the decision to spin out the MO from the TSO is final and confirmed also by the drafting team, the consultant will implement this decision in the delivered documents and include it in the final proposal.

2. TERMINOLOGY

The team preparing the law argued that the market operator term stems from US practice years ago. They separately defined the MO as well as the NEMO.

The consultant suggested that for the sake of clarity, the PX term should be directly used, or to simply describe the PX by the tasks it performs, without using an explicit term. The team preparing the energy law said that the term “energy exchange” was not warranted due to the fact that it might have negative associations. (see also the CACM segment)

3. CACM IMPACT

ECS explained that it is possible the CACM will become relevant for Energy Community countries already in 2018, with implementation within 2-3 years. Regarding the law and the issue of terminology.

The consultant pointed out that since CACM is still not relevant for Macedonia, it need not be directly included into the law. If – for example – a local monopoly is set, when CACM becomes applicable, this could transition into a monopoly NEMO (directly through CACM). The team preparing the law also asked the ECS whether the CACM would override some provisions in the law. The ECS responded that certainly provisions in the law must not be contrary to CACM. The legal sector of the ECS should also have a look at the law. The consultant again pointed out that since CACM is not yet relevant it possible need not be directly mentioned, since it would be directly applicable, when in force for Macedonia. MEPSO also pointed out that the same approach was used in the Croatian and Bulgarian law.

4. LEVEL OF DETAIL IN THE LAW

The team preparing the energy law is aware, that the law should not be too detailed. They argued that a lot is delegated to subsidiary acts already. Here again CACM issues came up. The Ministry of Economy asked, whether the PX establishment would be possible if it is at all not included (mentioned) in the law. The consultant replied that this was of course possible but the CACM would nevertheless apply (once in force). Another issue would be that in such a case once the CACM were in force, the monopoly option was not possible anymore.

5. MARKET RULES

The consultant pointed out that it would be sensible to delegate the preparation of rules to the MO (and the PX for PX rules), while for the general market rules (and also PX, pertaining to CACM) the regulator should review and approve (but not draft such rules). This recommendation was also backed by the ECS as general “good practice”. The team did not respond regarding this, but pointed out that there have been some problems regarding rules adoption in the past. The general market rules and PX rules need to be separated also because of the tender option (for the PX/NEMO). The consultant also pointed out, that technical details should be delegated as much as possible – to allow for quick changes.

6. OTHER ISSUES

The consultant inquired about the scope of the “balancing market” and proposed a possible link to the intra-day segment. The team preparing the law also explained that the TSO needs only report to the regulator about its activity on the PX periodically (since losses are covered by the grid fee). It needs not get approval for each action on the market.

The consultant inquired about licences and the team preparing the law replied that they will be removed (at least for trading). There are no envisaged changes regarding the local seat requirement or VAT issues. The public procurement law is again under review (based on information from the team preparing the energy law). There was general agreement that it is important to keep the exemptions regarding losses in view of PX liquidity.

Consultation with MEPSO (13 March 2018)

Participants

MEPSO:

- Simon Shutinoski
- Zoran Gjorgjievski
- BrankaVasik

Energy Community Secretariat:

- Simon Uzunov

Consultant:

- BorutRajer (Borzen)
- Miha Pregl (BSP)
- AnžePredovnik (BSP)

Content

MEPSO outlined that there are some internal disagreements about certain roles that are outside of scope of this project (market operator roles, scheduling) but regarding the PX there are no open disputes.

MEPSO feels that if the market operator is spun out of the TSO then it is sensible for the list of tasks to be wide and to include the PX tasks. . **Since the decision to spin MO out of TSO was drafted in the**

Energy law and confirmed by the drafting team as final, the consultant will implement this decision in the delivered documents and include it in the final proposal⁴⁷.

MEPSO also pointed out that they made an internal assessment and that they find the most feasible border to start with Market Coupling is the Bulgarian-Macedonian border due to the fact that on the other side there is an operational PX willing to couple with the future Macedonian PX (precondition for that is the adoption of CACM principles in Macedonia).

MEPSO understands the need for losses procurement and RES feed-in- tariff energy sale on PX as initial liquidity boost.

Consultation with the Macedonian Energy Regulator (14 March 2018)

Participants

Macedonian Energy Regulator:

- Marko Bislimovski
- Anastasija Stefanovska

TEAM PREPARING THE ENERGY LAW:

- Samir Latif
- Slave Ivanovski

MEPSO:

- Zoran Gjorgjievski
- BrankaVasik

Cabinet of Vice Prime Minister of Macedonia:

- NatašaVeljanovska

Macedonian Ministry of Economy:

- Valentina Stardelova

Energy Community Secretariat:

- Simon Uzunov

Consultant:

- BorutRajer (Borzen)
- Miha Pregl (BSP)
- AnžePredovnik (BSP)

Content

⁴⁷ See the meeting minutes with the drafting team above

Firstly, some issues brought up at the meeting with the team preparing the energy law were again discussed (including some minor changes in the text of the law) – with conclusions as reported in the first meeting. The consultant additionally asked about the following scenario: the MO is spun out and it included the mandate to operate the PX; the MO then sets up the PX (thereby investing resources); then a tender is published. How do you factor in the possible sunk costs of the MO. **Consultant gives the recommendation that investing the time and resources by the MO to establish a PX and implement all the criteria for the PX to be designated as NEMO under the regulation 1222/2015 shall be done after the tender is published and MO is designated as NEMO. Otherwise the MO (and MEPSO as owner) will have to take into account the risk not being designated as monopoly NEMO in Macedonia and therefore spent the resources for setting up PX without the result.**

It was explained by the team preparing the law that if such a tender would take place, it would take place before the PX is established. The regulator commented that in a few (e.g. 3) months after the law is adopted, it will be known who the NEMO is or will be. The consultant pointed out that the current wording of the law regarding the MO performing PX functions is that it “may” – irrespective of the tender. The consultant inquired where the details of the tender will be determined (also considering CACM requirements – Article 6). The team and the regulator replied that the details will be laid out in a Government Decree and that the logic of the tender was to give the Government another option. The consultant pointed out that the issues in the Decree will be crucial and that it will probably be a relatively complex tender – as this would be a regulated monopoly. The consultant also pointed out that even in the case of the MO being the PX/NEMO, there will still be tenders involved (e.g. trading system, serviced PX, clearing etc.) – but would be within the MO domain (and under PP rules).

The consultant also noted that it is highly unlikely to establish the PX as well as MC in one step – you need a working national arrangement at least for a transitional period – and setting up a coupling requires about two years. Therefore this should also be a clear focus of attention – how to acquire the basic liquidity until the first MC is implemented. The market coupling process with the design and implementation project includes not only local Macedonian TSO and PX but at least parties from the neighbouring country (if market coupling project is implemented on a regional scale even more parties are involved). Therefore the process and timeline of the project is not full controlled by domestic TSO and PX but also by foreign entities. **As such this means that linking the timeline of establishing the PX (operational go-live) and go-live of market coupling is not efficient, since local go-live might be already ready. From the other point of view it is beneficial to have local isolated market operating before market coupling (even with small and limited liquidity) since this will enable all involved parties to perform simulations of market coupling and analysis of the output data, which is beneficial for the decision process which border to couple first.**

The consultant again asked the regulator about the procedures regarding rules. The regulator confirmed that:

- They wish to retain the task of drafting the market rules
- That the PX rules will be separately drafted by the PX and approved by the regulator.

The cabinet of the vice prime minister inquired why the regulator should have any say on PX rules. It was they explained by the regulator and others that this would be a regulated monopoly and that in

the CACM context regulators have a say on at least part of the rules even for “market-based” NEMOs.

Consultation with ELEM (largest Macedonian producer, with interests also in supply; 14 March 2018)

Participants

ELEM

- Antonio Ivanovski

MEPSO:

- Zoran Gjorgjievski

Energy Community Secretariat:

- Simon Uzunov

Consultant:

- Borut Rajer (Borzen)
- Miha Pregl (BSP)
- Anže Predovnik (BSP)

Content

ELEM pointed out the following issues regarding PX establishment:

1. They are in favour of establishing the PX in order to be able to optimize their production and portfolio daily.
2. They do not have any strong opinions regarding how the PX should be established (see summary slide of workshop) but rather expect the consultant to provide a draft solution that they would review.
3. ELEM is aware of the importance of a local price index. It was explained that currently even HUPX pricing is used, since it is the nearest liquid PX.
4. After the consultant explained what a “Market Maker Agreement” is, ELEM said they would consider this option. They explained that they are currently pretty tied down due to provisions in the law that reserve capacity for the regulated segment of the market – this is expected to be relaxed with the new law.
5. They are against “pool-type” approaches regarding PX establishment.
6. Regarding grid losses procurement they would prefer a separate procedure / tender – as is the case now, instead of the PX approach.
7. They do not have a priority regarding which border should be coupled first, once the PX is established.

8. They pointed out that they already provided some responses on similar topics to ECS – the ECS representative said, that he will forward them to the Consultant.

9. When asked about other problems on the market ELEM pointed out the VAT issue – they would like that a reverse charge mechanism to be applied.

Consultation with EVN (DSO and supplier, with interest also in production; 14 March 2018)

Participants

EVN

- Sašo Satirovski
- Nikola Ushinov

MEPSO:

- Simon Shutinoski
- Zoran Gjorgjievski

Energy Community Secretariat:

- Simon Uzunov

Consultant:

- Borut Rajer (Borzen)
- Miha Pregl (BSP)
- Anže Predovnik (BSP)

Content

EVN pointed out the following issues regarding PX establishment:

1. They see a need for a PX – to establish a reference price and reduce risks.
2. They understand that establishing proper liquidity is key.
3. They see a trend that TSOs and MOs are involved in the ownership of PXs. They are also aware about the trend of PX activities going under the umbrella of regulated activities.
4. They are not in favour of obligatory trading on PXs.
5. As DSO they procure losses – pending the agreement of the regulator they see no problem in procuring at least part of the losses through the PX. They are also involved in part of the regulated market, which is expected to diminish with the new law – therefore they expect competition to increase.
6. When asked about other possible important actors on the market (beside of course them, ELEM, MEPSO) they point out TETO (CHP producer) as well as suppliers without a production base. They point out that they also have some production facilities (40MW – small hydro), outside the support system.

7. They see a need for small steps when establishing the market. They have their own platform to procure energy. They could see a way to combine the PX with this platform, with the latter focusing on more long term products.
8. They currently procure some “flexible” products (the quantity can be adjusted +/-). They understand this has an impact on the price and that the PX would be beneficial.
9. When asked about other possible problems on the market impacting the PX establishment, they do not see anything else that was not already dealt with in the Task 1 consultation document. They do however point out that the clearing or financial aspect of the PX must not be neglected.
10. When asked about a possible amount regarding losses, they replied that the total DSO losses were approximately 700 GWh on a yearly level – about 10-15% could be procured short term (day-ahead and intra-day), through the PX.

Borzen



Technical assistance to FYR of Macedonia to establish Institutional Set-up for Organised Day-ahead market

**Concept design for the Institutional Set-up of the Organised Day-
ahead market**

Ljubljana, 24 May 2018

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Abbreviations and definitions

- 4M MC – Four(4) Markets Market Coupling
- ANCA - All NEMO Cooperation Agreement
- ANDOA – All NEMO Day-ahead Operational Agreement
- ATC – Available Transfer Capacity
- CACM – Regulation 2015/1222 establishing a guideline on Capacity Allocation and Congestion Management
- CCP – Central Counter Party
- CZC – Cross-Zonal Capacities
- DSO – Distribution System Operator
- ECC – European Commodity Clearing AG
- EFET – European Federation of Energy Traders
- EMIR – European Market Infrastructure Regulation
- FB – Flow Based Capacity Calculation Methodology
- GCT – Gate closure time
- IBWT –Italian Borders Working Table
- INCA – Interim NEMO cooperation agreement
- MCO – Market Coupling Operator
- MIFID – Markets in Financial Instruments Directive
- MLA – Multilateral Liability Agreement
- MO – Market Operator
- MRC – Multi-Regional Coupling
- MRC DAOA – Multiregional Coupling Agreement
- NEMO – Nominated Electricity Market Operator
- NRA – National Regulatory Authority
- PCR – Price Coupling of Regions
- PX – Power Exchange
- REMIT – Regulation on Energy Market Integrity and Transparency
- SA – Shipping Agent
- TSO – Transmission System Operator

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Executive Summary

The Slovenian Electricity Market Operator Borzen together with the Slovenian Nominated Electricity Market Operator BSP Energy Exchange (“consultant”) are contracted as a Technical Assistance Provider by the Energy Community Secretariat (ECS) for the Electricity Transmission System Operator of Macedonia JSC Skopje (MEPSO, “beneficiary”) for the provision of Technical Assistance for draft solutions for national governance structures and institutional arrangements for the national day-ahead electricity market, fit for coupling with neighbouring markets in an optimal way.

This concept paper covers the content of task 3.b given under the ToR (terms of reference) of this Technical assistance. It is **complemented by the final report for the Technical Assistance and builds upon its content.**

The focus is to provide a proposal for a concept for a day-ahead market organisation - a detailed description of the proposal, including all necessary steps and timelines, together with Consultant’s recommendations and a legislative overview.

Consultant's recommendations

The consultant gives the following recommendations, based on the analysis carried out in the Final Report as well as from information gathered from stakeholders:

- In the decision process either to establish a local power exchange or select a foreign power exchange to operate the Macedonian exchange market the status of **MEPSO as owner/shareholder** is requested. This constitutes good practice in the EU (EPEX, NordPool, BSP, HUPX, OPCOM, etc.) and enables the TSO to have an insight into PX operations, while this is important when the Macedonian market will be integrated with other markets and PX will allocate short term capacities. The Macedonian Energy Law (version received 25. 4. 2018) is compliant with this, provided the MO (which is to be established by the TSO) is allocated also the PX status. In the event of a tender, this would need to be included in the conditions.
- A **general choice of the model needs to be made beforehand** - it would not be sensible to fit all possible options into the law (e.g. in the Slovenian law you have only a minor mentioning of PX, since at the time this was considered a “market based” activity). In the past PXs were less regulated in national laws but today the EU starts to regulate power exchanges (i.e. CACM, influence of MIFID, possible influence of REMIT revision) and this impacts how much you put in your local law.
- When preparing the necessary legislation one has to be careful that there is **no stipulation in a provision of owning the assets for operating the market** (unless you have a very strong reason), since the impact on costs is major, as this would require the entry into the PCR consortium as a full member and become co-owner and the option to outsource PCR services for market integration would become obsolete.
- The Consultant's opinion is that **regulators must play a role** and – given CACM as well as the monopoly issue – that regulation is inevitable. This is particularly true for the MCO function of the PX (e.g. recent Nord Pool announced reorganisation in relation to the interplay between market (competitive) and regulated functions).
- However, **regarding rules, it would be sensible to delegate their preparation directly to the MO / PX, with the regulator having to approve them before taking effect.**
- The Consultant gives the recommendation that investing the time and resources by the MO to establish a PX and implement all the criteria for the PX to be designated as NEMO under the regulation 1222/2015 shall be done after the tender is published and the MO is designated as the one carrying out the PX activity (and later NEMO). Otherwise the MO (and MEPSO as owner) will have to take into account the **risk not being designated as monopoly PX/NEMO in Macedonia** and therefore spent the resources for setting up PX without the result. In general, the monopoly option is fine, given the circumstances, and if the MO is spun out of MEPSO, then it is sensible for it to be directly allocated the PX task as well. If the Macedonian stakeholders decide to keep the tender option in the Energy Law, then one of the key issues to solve is **what the participant will actually tender**, since the fees are subject to approval by the Regulator (Energy Law draft 25. 4. 2018, Article 90(2), point 5).
- **Other relevant legislation (VAT, public procurement, Law on Trade Companies) seems to be – based on available information – suitable for the PX to operate.** Regarding VAT, a full reverse charge mechanism is advisable, yet many EU PX operate fine even without it. The

same is true regarding the establishment of subsidiaries. On public procurement, the legislator needs to be careful to allow the TSO and DSO to procure losses via the PX – a very important step for initial liquidity establishment, together with the sale of RES electricity. The 25. 4. 2018 draft Energy Law contains a provision (Article 92 para 5 and 6) regarding the inclusion of purchase of electricity from regulated entities and purchase and sale of RES electricity in the Market Rules. If the intent is just to clarify the procedures on channelling this energy on the PX, then this is fine and even advisable– but attention needs to be paid not to come in conflict with the Law on Public Procurement.

- **Licences should be kept only when they bring added value.** For example: For the PX (Article 90, “operator of an organised electricity market”) this makes little sense, since: both the Regulator and the TSO are involved in the PX nomination process, the government prescribes the operations and conditions (Article 90(3)) and the Regulator confirms both the fees and the rules. Based on this, the licence seems superfluous.
- Regarding definitions, the Consultant recommends that the **terms “market operator” and “energy (or electricity) exchange” are used for the MO and PX respectively.** This will avoid confusion.
- Since major producers can easily influence the price of electricity with overbidding other smaller market participants, their role is the most important one for building a liquid and stable day-ahead electricity market. The Consultant proposes to **include an optional provision in the Energy Law to require mandatory participation on the PX.** Such a provision could be used for procurement as well. It needs to be stressed, that the Consultant only proposes to include an option in the Energy Law, which could be activated later on based on regulatory or governmental assessment and approval.
- Linking the timeline of establishing the PX (operational go-live) and go-live of market coupling is not efficient, since local go-live might be already ready. From another point of view, it is **beneficial to have local isolated market operating before market coupling (even with small and limited liquidity),** since this will enable all involved parties to perform simulations of market coupling and analysis of the output data, which is beneficial for the decision process which border to couple first. This is a further argument to pay attention to the initial sources of liquidity, such as procurement of grid losses, sale of RES electricity and liquidity provider or market maker agreements with key players on the Macedonian market, like ELEM.

Legislative overview

The table below gives a legislative overview – providing also a basic info on advisable changes. A more thorough review is given in the Final Report, that complements this Concept Paper.

AREA	RESPONSIBLE INSTITUTION	ISSUE / PROPOSAL
Customs Law	Ministry, Parliament	No particular issues were detected.
VAT Law	Ministry, Parliament	A full reverse charge mechanism would be advisable (fraud prevention, liquidity issues), but it is not a necessary condition for the PX to operate efficiently. Many European PXs operate quite fine without it.
Public procurement Law	Ministry, Parliament	The Public procurement Law is important both for the set-up of the PX (procurement of services, such as trading software etc.) and the option of guaranteeing the initial liquidity. Based on review of the law as well as from information gathered from the TSO (MEPSO) and DSO (EVN), the current law already enables (part) of the losses to be procured via the PX. It is thus important not to change this but to rather complement it by clear procedures within the Market Rules (also to avoid potential conflict of interest regarding the sale of RES energy).
Law on Trade Companies	Ministry, Parliament	No particular issues were detected. The abolishment of the subsidiary requirement would facilitate access to the market, yet this is not a major issue (and the current law already provides this – on the condition of reciprocity).
Energy Law	Ministry, Parliament	Key proposals: - no stipulation of owning the assets for operating the market (status version 25.4.: no such provision detected in available texts), - delegate rule preparation to MO / PX (Regulator has to approve!) - avoid licences with no added value, - use clear terms and definitions – market operator / power (or electricity, or energy) exchange, - if the MO is spun out of the TSO, it is sensible to bundle the PX and MO tasks – no resources can be committed towards PX establishment until the task (local monopoly) is clearly allocated.

Table 1: Legislative overview

Proposal of concept for a day-ahead market organisation in electricity

The purpose of the organized electricity market (PX) is the delivery of a reliable electricity price index with transparent and reliable trading operations and acting as a supplementary tool for managing trading risk with reliable and efficient clearing operations. Together with market coupling the liquid local PX shall enable more efficient procurement or sale of electricity and offer incentives for investors for long term investment in the Macedonian economy.

Based on concluded interviews and discussion with the Beneficiary and all involved stakeholders, the Consultant identified the following facts:

- 1) The Market Operator will be spun out of the TSO into an independent entity.
- 2) The PX will hold an exclusive right to organize the Macedonian day-ahead and intra-day exchange market.
- 3) The PX will not offer services to other PXs outside Macedonia.
- 4) The PX will enforce the energy policy of Macedonia.
- 5) The PX should be efficient both time and cost-wise.

The consultant would like to emphasize that some of the identified facts are still in the drafting phase (in the moment considered as preliminary).

Based on the outcomes listed above the consultant proposes the following organizational model for establishing the PX in Macedonia below.

The PX should be small, with a thin company structure, with domestic institutional ownership without foreign capital interest (at establishment) and with a cost effective service provider.

Therefore, we propose that the Beneficiary follows the current proposal in the Energy law with the setup of Market Operator established by MEPSO and including the functions of PX with monopoly status.

To achieve efficient implementation and operation we propose that MO/PX procures via public tender one of the existing trading platforms while retaining local trading operations.

Local trading operations will be combined with local clearing and financial settlement operations (direct clearing) where the MO/PX can find the synergies for clearing system with the owner (TSO) or to outsource part of IT related to clearing platform to an external service provider.

The selected trading platform shall be PCR compliant, since this will enable the Macedonian PX to couple with neighbouring markets. The key condition for market coupling is the provision of PCR operation for PX where we propose the "Serviced PX" approach as the most suitable in terms of both cost efficiency and timeline adequacy.

For the sake of efficiency, we propose also that the provider of the trading platform is linked to the provider of the PCR Serviced PX services (in the tender).

In terms of operations, the utmost priority shall be focused on activities to enable and ensure that system actors (TSO, DSO) use the PX for procurement (grid losses) and sale (RES) of energy in order to attract other actors as well. Furthermore, other key local players should participate in liquidity set-

up via market maker / liquidity provider agreements. If need be, such provisions could be mandated within the law (e.g. by giving the option to the government to introduce mandatory participation).

Detailed concept proposal

Operational set-up

The PX in Macedonia shall be established as a monopoly operator with exclusive right to operate organized day-ahead electricity market in Macedonia. Beside the obligation to fulfil the Regulation 2015/1222 and Western Balkan 6 initiative objection, the main goal of the power exchange in Macedonia shall be:

- providing a reliable electricity price index,
- offering transparency with more possibilities and higher security for investors,
- enabling a more efficient procurement or sale of electricity,
- reducing counterparty risk and providing risk mitigation opportunities,
- being a Central Counter Party and thus an intermediary with high credit rating and trust standing between buyer and seller,
- key party to design and implement market coupling on Macedonian electricity borders and
- perform the Congestion Income Collector role.

Procedural, contractual and operational arrangements

PX shall be organized as an activity within the MO (provided that the MO is allocated this task; as mentioned: until the decision regarding the tender or MO allocation is made, it would be difficult to commit resources to PX establishment), having in mind that being part of the MO will enable power exchange to find and exploit the synergies between the supporting roles used by different departments in the MO.

Organizational arrangements

PX shall have the following structure with respective support of human resources:

Governance

If the PX is organized as an activity within the MO, the governance and foremost human resources structure shall enable adequate operations and decision making, since it will also be involved in different international cooperation, like NEMO cooperation, Price Coupling of Regions, XBID, regional market coupling cooperation, etc.

A default possibility is to enclose PX operations within a department.

The separate accounting shall be implemented from the beginning of the power exchange operations (due to, for example, cost recovery in coupling projects). When the Market Operator will apply for NEMO status under Regulation 2015/1222, one of the NEMO designation criteria is separate internal accounting to prevent cross-subsidisation¹.

¹Regulation 2015/1222, Article 6, point "c"

Organizational structure

As a part of MO, the PX shall have at least the following functions in terms of operations:

- Position responsible for sales, key account management and marketing
- Position responsible for development, market coupling and international cooperation
- Position responsible for market operations, responsible for day to day market operations, market surveillance and technical implementation of IT solutions. Before starting daily operations, the following decisions shall be taken:
 - Will the trading be operated five (5) or seven (7) days per week. If five, the market participant’s bidding shall take place for Saturday, Sunday and Monday already on Friday. If such decision is taken, one shall be aware that five day regime is only possible when PX will be operated in isolated mode. When the first coupling will occur, the operations will have to be organized in a seven day regime. The decision about the five or seven day regime shall be consulted with market participants.
 - Based on the decision whether to operate the market in five or seven day regime, the number of market operations staff shall be advisable:
 - Five day regime – the minimal staff for operation of five day regime is two, while the recommended number is three.
 - Seven day regime the minimal staff for operation of seven day regime is three, while the recommended number is four.
- Position responsible for clearing and financial settlement, responsible for daily settlement of PX transactions between exchange members and also for the cross-border clearing when market coupling will be implemented.

Clearing and financial settlement process is performed five days per week, excluding bank holidays. For the operation of clearing and financial settlement role, a reasonable number of staff is two. This could be integrated within the general MO finance and accounting.

The general recommendation by the Consultant is that in order to secure day to day robust operation, key operation roles should be clearly designated. Other roles such as clearing and financial settlement, finance and accounting, legal, administration and IT can be pooled within the MO. Certain roles, such as PX clearing, may even be (partly) outsourced.

Contractual arrangements

Contractual arrangements are a key element before the PX can start operational management of day-ahead market. In general, we these are the main topics:

- 1) General contracts for PX set-up
- 2) PX market and clearing and financial settlement contractual arrangements
- 3) Special contractual arrangements
- 4) Contractual arrangements for market integration

General contracts for PX set-up

Under these contractual aspects we include the general agreement between stakeholders to establish a company with required institutional setup (establishment of Market Operator, the list of roles performed, etc.), contracts with employees, etc.

PX market, clearing and financial settlement contractual arrangements

1) Power exchange rules

Power exchange rules govern the line of business, applicable laws relevant for the PX operation, relevant PX bodies (such as Members Chamber, Market Committees and Exchange Arbitration), membership admission/cease of membership procedures, types of membership (regular PX member, Market Maker, Liquidity Provider), general PX trading and clearing support procedures, limitations of liability and dispute resolution measures.

2) Market rules

Market rules set forth trading segments and their characteristics. They define manners of trading and how pertinent trading algorithms are run (auction trading and continuous trading), gate closure times, products, submission of orders and trade cancellation terms, procedures for resolving technical difficulties, rollback measures regulating cases of market defaults and physical rights/obligations reporting requirements.

3) Clearing and financial settlement rules

Clearing and financial settlement rules define different cash accounts (settlement account, deposit account, business account, financial guarantee provision terms (calculation of the guarantee value, margining principles, types of accepted guarantee, calculation of trade limit), settlement provisions (elements of Invoice and Offset report, timings for the issuing of Invoices and Offset reports, financial settlement deadlines) and measures in case of default/non-payment of outstanding obligations by market participants.

4) Contracts for participation at power exchange

Contracts for participation at PX govern type of admission to the PX market (direct/affiliate membership), admitted market segments, issuing of the invoices (VAT legislation obliged elements of the invoices and special conditions such as that PX acts as buyer and seller counterparty towards market participants), financial guarantee management, authorizations given to PX to operate and transfer provided funds by market participants in the time of clearing and financial settlement operations and general terms such as liability, duration, cancellation policy, etc.

Special contractual arrangements

1) Market maker agreement

The main objective of the Market Maker Agreement is that by this agreement a market participant is obliged to simultaneously act as the buyer and the seller of a particular asset within agreed market spread on the PX market. The agreement sets the quantity and price terms within which a market participant has to simultaneously hold buy and sell position (usually equivalent to buy position) on the tradable assets within predefined price spread.

2) Liquidity provider agreement

The main objective of the Liquidity Provider Agreement is that by this agreement a market participant is obliged to act either as the buyer or the seller of a particular asset on the PX market. The agreement therefore sets only the quantity terms which market participant has to either buy or sell the tradable assets on the PX market.

3) License agreement for trading platform

The agreement sets terms and conditions under which the service provider shall provide the license and the related installation and maintenance service of the Trading platform. Against payment of license fees the service provider is providing license to exploit the processing functions of the trading platform software, load, run, access and employ the software or display, make available and exploiting the information processed by the software for management of cross zonal capacities and bids for the purposes of the relevant local markets or market coupling projects, together with running tests and analysis, within the limits and specifications provided under the agreement.

Contractual arrangements for market integration

• Multiregional Price Coupling Agreement – MRC DAOA

The MRC DAOA agreement sets the rights and obligations of the operational parties in respect of the cooperation in order to coordinate the operational phase of the Multiregional Price Coupling, as regards roles and responsibilities in respect of operations, governance and decision making, and the facilitation of price coupling with other areas, in particular in order to:

- enhance security of supply;
- increase competition in electricity wholesale markets;
- preserve and enhance a fair and orderly market including fair and orderly price formation;
- enhance more efficient use of cross-border interconnections by objective, implicit, market based, non-discriminatory and transparent methods of allocation of available Cross-Zonal Capacities;
- provide fair and non-discriminatory access to the Multiregional Price Coupling to any third party European transmission system operator or power exchange;
- facilitate the coupling with adjacent markets and regions and thereby contribute to the integrated European energy market with a goal to increase economic efficiency.

The Parties shall treat in good-faith and in a non-discriminatory manner any request of any third party power exchange wishing to adhere to the agreement.

In the moment of the delivery of this document under the TA to the Beneficiary, the MRC DAOA is under the revision by all TSOs and all NEMOs involved in the MRC operations, all 4MMC TSOs and NEMOs and all interested third parties outside of the European Union. The aim of this revision is to agree on amended agreement which will be in line with the provisions of the Regulation 2015/1222 and will act as master agreement governing the

design, operation and amendments of Single Day-ahead Market Coupling in European Union. Therefore consultant is stating that in the time when Beneficiary or PX will adhere to this agreement or any successor the purpose of the agreement and conditions to grant Observer status or adherence process might be different.

- PCR Serviced PX agreement

The PCR Serviced PX agreement sets the terms and conditions under which:

- the PCR services shall be performed by Servicing PX to Serviced PX,
- all the relevant information flows shall be exchanged between the above mentioned PXs,

The term PCR services are defined as performance of the activities which are provided by Servicing PX in order to include the bidding Area of Serviced PX in PCR operations, consistently with the PCR agreements. In other words, Servicing PX provides Serviced PX with the calculation of market results and the management of data in input (collection from Serviced PX and transfer to PCR) and output (collection from PCR and transfer to Serviced PX). In order to provide such a service, the operational procedures are described in the agreement.

- Multilateral Liability Agreement - MLA

The purpose of the agreement is to establish appropriate waivers of liability between on the one hand each Serviced PX and on the other hand the Servicing PX with respect to:

- the use by a Serviced PX of the PCR Assets, and
- carrying out of PCR operations in accordance with the terms of the PCR Agreements.

The Agreement shall ensure that the specific liability scheme between PCR Parties is also applicable reciprocally towards and between all PXs involved in the PCR Market Coupling.

- All NEMO Day-ahead Operational Agreement – ANDOA

The Agreement sets the main principles of the cooperation between the Parties in respect of DA MCO Function Operations and DA MCO Function Assets development, consistently with the CACM Regulation and the MCO Plan, the terms and conditions under which The Single Day Ahead Market Coupling shall be implemented, performed and operated and the relationship between the Parties and the DA MCO Function Asset Co-owners as well as the Third Party Service Providers of the DA MCO Function Assets.

Any Power Exchange, having its operations within or outside the EU, may, following a written request to the NEMO DA Steering Committee, be granted by a NEMO DA Steering Committee decision the status of Observer, for the purpose of acceding at a later stage to the Agreement. The exact conditions for acquiring the status of Observer are listed in the agreement and are available to the Beneficiary after the access to the agreement via sufficient confidentiality declaration in signed.

- Interim NEMO cooperation agreement – INCA

The agreement between all designated NEMOs with the purpose to establish an interim framework to facilitate the necessary cooperation between designated NEMOs with respect

to the performance of all common tasks that need to be performed in connection with the following:

- the development and submission of the MCO Plan in accordance with article 7, paragraph 3 of the CACM Regulation;
- the development and submission of such other appropriate terms and conditions and/or methodologies in accordance with article 9 paragraph 6 of the CACM Regulation;
- the development of the enduring cooperation agreement;
- any additional tasks as may be agreed unanimously by the NEMOs.

The Agreement is open to accession of any legal person designated as a NEMO pursuant to the CACM Regulation. A designated NEMO which intends to adhere to the Agreement shall address to the secretary of the Committee a written request.

The exact conditions for acquiring the status of Observer or adherence to the agreement are listed in the agreement and are available to the Beneficiary after the access to the agreement via sufficient confidentiality declaration in signed.

In the moment of the delivery of this document under the TA to the Beneficiary all designated NEMOs are cooperating under this interim cooperation model. When MCO plan and CACM requirements will be developed and implemented and thus the process finalized, the cooperation between all NEMOs will be governed by All NEMO cooperation agreement – ANCA. Therefore consultant is stating that in the time when Beneficiary or PX will adhere to this agreement or any successor the purpose of the agreement and conditions to grant Observer status or adherence process might be different.

Procedural arrangements

Under procedural arrangements we collect all operational, procedural, technical and IT requirements for setting up and operation of day-ahead market in Macedonia.

Liquidity

Power exchange liquidity is measured in the distribution of bids and offers provided by market participants and are reflected as resilience to a drastic price changes in case of increased market participants bids and offers volume. The liquidity is a key variable for small markets in development with one major producer where one can easily influence the price of electricity with overbidding other smaller market participants. Liquidity is provided to the power exchange market by an increased number of active market participants and with integration of neighbouring markets via the market coupling mechanism.

Non-obligatory contract based bidding of electricity on power exchange

There are two types of power exchange market participants:

- “Non-commercial” institutional market participants, meaning entities performing public roles as transmission system operators, distribution system operators and market operators. All those entities are making commercial transactions on the electricity market, but with a different goal on the market. TSO, DSOs and MO are important especially at the beginning of formation of power exchange and day-ahead market, since the grid losses by TSO and DSO

and, for example and if relevant, renewable energy production from MO can be the initial bid or offer on the power exchange where a small number of other market participants is present due to an early stage of day-ahead market opening process.

- Commercial market participants, meaning any domestic or foreign production or electricity trading company, performing energy trading for a financial profit only. Their interest on the power exchange is a resilient price index, high liquidity without and distortions and reliable and simple clearing design.

Market participants, especially those being present in the domestic market with major production units or consumption, can take a role of Market Maker or Liquidity provider, both helping power exchange and day-ahead market to increase liquidity. Both roles usually requests a specific terms for an exchange participation with reduced annual participation fee and trading/clearing fees.

A Market maker is a market participant that has a valid Market Maker Agreement with the exchange and is obliged to simultaneously act as the buyer and the seller of electricity within agreed market spread on the exchange market. Market Makers theoretically ensure greater price stability and improve liquidity on the day-ahead market by simultaneously holding buy and sell position (usually equivalent) on the tradable assets within the price spread defined in the Market Maker Agreement.

A Liquidity Provider is a market participant that has a valid Liquidity Provider Agreement with the exchange and is obliged to act either as the buyer or the seller of electricity on the day-ahead market. Liquidity provider theoretically ensures greater liquidity by selling or buying with Liquidity Provider Agreement specified quantities on a day-ahead market.

Gate Closure Time

The decision on the Gate Closure Time has to be made before the go-live of the isolated or coupled market and consulted with the market participants. The GCT shall be defined for the isolated mode with the respect of other non-MRC isolated markets (4MMC, SEEPEX) and SEE CAO, since the key advantage of the isolated exchange market is to enable arbitrage between isolated markets. For the efficient trading also the explicit allocation results for cross-border capacities shall be available.

The status of GCT in the region is:

- 4MMC GCT – 11:00 CET
- SEEPEX – 10:15 CET
- SEE CAO – 9:30 CET

Since the results from daily explicit allocation results for cross-border capacities for Macedonian – Greek border are available at 9:32 CET² (final results at 10:00 CET), for Macedonian – Serbian border at 9:45 CET³ and for the Macedonian – Bulgarian border at 10:00 CET⁴, the consultant propose the

²SEE CAO Rules for explicit Daily Capacity Allocation on Bidding Zone borders serviced by SEE CAO available at http://www.seecao.com/sites/default/files/documents/document/2_SEECAO_Daily%20Allocation%20Rules_final_0_0.pdf

³Daily Auction Rules for the MK-RS border
https://www.ems.rs/%2Fmedia%2Fuploads%2F2018%2FPravila%2FMKRS%2FENG%252002%2520MK-RS%2520DailyAuction%2520Rules%2520for%25202018_09112017_clean.pdf

⁴ Daily Allocation Rules of Cross Zonal Capacities on the border between the Bidding Zones ESO and MEPSO
<https://aukcijaatc.mepso.com.mk/PublicPage/AuctionRules.aspx#AuctionRules2018>

GCT for Macedonian PX market not sooner than 10:05 CET, based also on the input of (key) market players.

After the implementation of regulation 2015/1222 and implementation of market coupling on any Macedonian interconnected border, the GCT shall be set to the 12:00 CET⁵.

Clearing and financial settlement

A PX member should be also a member of the PX clearing system, which is acting as CCP and provides the invoicing and financial settlement of transaction concluded on the PX, and in this respect:

- the calculation of a particular member's financial liabilities and claims,
- the determination of a particular member's margin after the offsetting of mutual liabilities and claims,
- the payment of financial liabilities, and
- the financial settlement of concluded transactions.

In the clearing process CCP appears as the counter-party in every transaction concluded, either as a buyer to the seller or as a seller to the buyer. Members transfer all their financial liabilities and claims to CCP as the new creditor or debtor. After assuming all financial liabilities and claims, CCP offsets all the financial claims from a particular member assumed under the clearing rules.

CCP guarantees the fulfilment of financial liabilities for transactions concluded on the PX, and members of the PX must therefore provide the required financial guarantees for financial liabilities deriving from their involvement on the market. Members can provide financial guarantees in prescribed form (such as a bank guarantee payable upon first call or a cash deposit). Should any member fail to make the payments arising from concluded transactions, CCP uses the financial guarantee funds of the defaulting member in question to fulfil its liabilities to other members arising from the transactions.

For the clearing and financial settlement process, the most important element is the decision of payment cycle for net creditors and net debtors. The most common payment cycles are:

- T+1 payment cycle meaning the payment or receivable by PX as CCP towards market participants or cross-border CCP shall be done one day after trading day.
- T+2 payment cycle meaning the payment or receivable by PX as CCP towards market participants or cross-border CCP shall be done two days after trading day.
- T+1 and T+2 payment cycle meaning the payment by PX as CCP towards market participants or cross-border CCP shall be done two days after trading day and receivable to PX as CCP towards market participants or cross-border CCP shall be done one day after trading day.

Current standard by the CCPs operating under the MRC is cross-border payment cycle in T+1.

⁵CACM Guidelines, article 47

Products

Consultant proposes to start the organized market with hourly products only and offer the block products in the later stage, if the market participants will request it and if the liquidity of the market allows it.

Trading platform

Based on the feedback provided by involved and relevant stakeholders during the provision of Task 2, consultant proposes to select the service provider of the trading system via selection procedure. The modalities and form of the selection procedure e.g. closed internal procedure or public tender governed by the public procurement law shall be defined by the newly established market operator.

The selected trading platform shall be PCR compliant, since this will enable the Macedonian PX to couple with neighbouring markets. The day-ahead auction trading system and corresponding matching algorithm shall enable:

- 1) to run day-ahead market in isolated mode for one bidding zone
- 2) uniform (marginal) pricing,
- 3) the following list of products (once the CACM is in force, the list of products is defined in the MCO plan and relevant methodology)
 - a. simple hourly energy offers/bids,
 - b. linear pricewise bids and offers
 - c. regular Block Orders
 - d. profile Block Orders
 - e. linked Regular Block Orders
 - f. linked Profile Block Orders
 - g. flexible Hourly Orders
- 4) negative prices
- 5) minimum/maximum price setting (once the CACM is in force, the minimum/maximum price setting is define din MCO plan and relevant methodology),
- 6) prices shall be expressed in MKD/MWh with an accuracy of up to two decimal points,
- 7) quantities shall be expressed in MWh with an accuracy of up to three decimal points,
- 8) Macedonian calendar of business days, weekends and holidays shall be deployed,
- 9) time schedules for the operations of day-ahead market shall be adjustable so that Market Operator can determine them,
- 10) interfaces of trading system must be in Macedonian and English language,
- 11) trading reports must be in Macedonian and English language,
- 12) trading system must comply with the requirements of the relevant ENTSO-E regulatory frameworks, use standard communication protocols, and not require the use of specialized software from market participants,
- 13) all databases (main, test and reserve) must be made available in such format that they can be replicated/stored in Macedonia,
- 14) trading system should allow Market Operator to administrate market participants, necessary changes in product types, time schedule, reports without significant development and additional costs,
- 15) trading system shall support various types of access (web access, tokens, etc.).

It shall be also pointed out that the vendor shall provide to the Market Operator support for software and its upgrade and that it should supply templates of market rules, member agreements and other legal documentation related to set up and operation of trading system and related day-ahead market.

Furthermore, the consultant proposes that the provider of the trading platform is linked to the provider of the PCR Serviced PX services.

PCR operations services

Service provider of trading platform shall include in offer of the trading platform optional service for the PCR implementation and service provision for the Service PX with the purpose of Macedonian PX to implement market coupling in shortest possible time to selected neighbouring market. The offer shall be based on current model for serviced PX by service provider, supported with at least one reference in the perimeter of European Union under the regulation of CACM.

The PCR services shall be performed by Servicing PX to Serviced PX directly with all the relevant information flows shall be exchanged between the above mentioned PXs, respecting that the term PCR services are activities provided by Servicing PX in order to include the Bidding Area of Serviced PX in PCR operations with Servicing PX providing Serviced PX with the calculation of market results and the management of data in input (collection from Serviced PX and transfer to PCR) and output (collection from PCR and transfer to Serviced PX).

Service provider shall offer backup services for isolated market in case of different errors or decoupling situations (trading platform error, Euphemia error, connectivity issues, full decoupling scenario etc.) and possible services for operating the isolated bilateral market coupling after complete or partial decoupling of pan-European Market coupling.

Clearing platform

Clearing platform can be shared between Market Operator and PX, since they are supportive roles and without direct impact on independence and transparency of PX.

The clearing platform, internally developed or outsourced to the service provider, shall enable:

- 1) import of trade files in a predefined format from trading systems for preparation of invoices and offsets reports,
- 2) prepare invoices and offset reports by each individual market participant,
- 3) export invoices and offsets report in following formats (.xls, .pdf, .doc, xml.) by each individual market participant,
- 4) automatically forward invoices and offsets reports by email to each individual market participant,
- 5) administrate each individual market participant in the clearing system (new entry, modification of existing one, etc.),
- 6) prepare reporting sheets for each individual market participant by traded quantity or traded amount for the specified delivery period,
- 7) enable individual market participants to access clearing system in order to download its invoices and offsets reports in various formats,
- 8) maintain the daily and monthly statements depending on the contract type,
- 9) use API interface for communication with external systems/users,

10) reports, invoices and offset reports have to be in the Macedonian and English language

Risk management system

The Risk management system, internally developed or outsourced to the service provider, shall enable:

- to check payments and outstanding statements,
- to check (net) positions of market participants per market segment,
- manage collaterals in a way that collaterals can be entered per settlement account,
- set the operating value of collaterals per market participant,
- set warning limits in order to prevent unsecured bids/offers to enter the market,
- calculate margins (initial margin, additional margin, price spikes margin),
- use API interface for communication with external systems/users,

Other issues – related market and services and capacity allocation

The day-ahead market set-up may be closely linked to other markets and services. Regarding the former, intraday and balancing markets are mostly relevant (due to oncoming RES power plants, for example). In terms of platform procurement, the intraday market support may be included in the tender as well. For the balancing market the law currently gives this task to the TSO. An option to consider would be to link the functioning of the intra-day and the balancing market. Once the Guideline for Electricity Balancing⁶ would enter into force, the classic balancing market would be limited to the final 15 minutes. The TSO may of course be active on all segments of the market, but the weight of its activity will increase when approaching the gate closure (and delivery).

Once the PX is coupled the TSO effectively delegates part of its capacity allocation to the PX. This is another argument for (as per one of the Consultant's recommendation) have the TSO as a shareholder / owner in the PX.

⁶ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R2195&from=EN>

Detailed action plan

Adoption of the new Energy Law

Standalone Market Operator Company

The Market Operator shall be spun out of the TSO into an independent entity based on the current proposal of the Energy Law. PX is supposedly an activity within the MO.

Option for mandatory sale of RES and losses with the decision of government

Liquidity is a key variable for small markets in development with one major producer where one can easily influence the price of electricity with overbidding other smaller market participants. Therefore the consultant proposes RES and grid losses are sold and purchased on the PX to establish initial liquidity and show support to the organized market place as institutional market participant. Depending on the quantity and profile of RES energy, the MO might sell the entire quantity on the PX or combine long-term (e.g. yearly) auctions with the day-ahead (and possibly at a later stage, intra-day market). For the purchase of grid losses, the responsible entity is the TSO and the DSO. As mentioned in the Recommendations chapter, the 25. 4. 2018 draft Energy Law contains a provision (Article 92 para 5 and 6) regarding the inclusion of purchase of electricity from regulated entities and purchase and sale of RES electricity in the Market Rules. If the intent is just to clarify the procedures on channelling this energy on the PX, then the details on sale / purchase modalities could be regulated in the Market Rules.

Otherwise, the provision of liquidity by the TSO, DSO and MO (RES) may be voluntary and agreed between involved stakeholders, but the Consultant proposes to formalize this process (Rules, or at least Contracts). As far as the MO is concerned, this is particularly sensible since (and if) the PX activity is within the MO, a potential conflict of interest arises⁷. The problem is avoided by clearly defining procedures in the Market Rules that are at least confirmed (or even drafted – last seen Energy Law draft) by the Regulator.

Option of mandatory sale by incumbent producer / purchase by major supplier with the decision of the government / regulator

Since major producers can easily influence the price of electricity with overbidding other smaller market participants, their role is the most important one for building a liquid and stable day-ahead electricity market. The Consultant proposes to include an optional provision in the Energy Law to require mandatory participation on the PX. Such a provision could be used for procurement as well. It needs to be stressed, that the Consultant only proposes to include an option in the Energy Law, to be used as a “last resort” alternative.

Establishment of PX

PX as department included in organizational structure of Market Operator

MEPSO shall establish the limited liability company with sole ownership of the TSO and shall foresee that the PX activity is appropriately organised.

⁷Linked also to CACM, Article 6 (points »d« and »f« - adequate level of business separation from other market participants; treat all market participants in a non-discriminatory way)

Employment of responsible persons

Market Operator shall establish a process to employ or designate already employed human resources from MEPSO or outside to the newly established MO/PX. The key roles to be designated to employees as soon as possible are the position responsible for sales, key account management and marketing, the position responsible for development, market coupling and international cooperation and the position responsible for market operations. The position of responsible for clearing and financial settlement may be at least temporarily allocated to the employees of the MO.

Drafting phase

Exchange rules, Market rules and Clearing and Settlement rules shall be drafted in order to set-up basic governance and institutional infrastructure for the PX operational phase. For the sake of efficiency the consultant proposes to include special consultant services for the drafting phase in order to speed up the initial process and have the basic ground prepared before start with implementation of technical and operational solutions.

Approval phase

National regulatory Agency shall be part of approval phase of Exchange rules, Market rules (or even the one to draft these)and Clearing and settlement rules.

Agreement of market maker and liquidity provider role

Agreement with ELEM and EVN about the role of the market maker and liquidity provider.

Selection of service provider

Prepare the internal or open public tender for the selection of service provider of trading platform and clearing platform, if applicable. The procurement of the trading system is a given fact, while the clearing issue depends on the possible synergies with other MO activities. Given Article 89 of the 25. 4. 2018 Energy Law possible synergies with the TSO are limited. Given these facts, the tendering for clearing services seems sensible, given the fact that it seems the MO will not be responsible for the financial settlement of imbalances but just calculate the results (Energy Law, 25. 4. 2018, Article 88(2)). Such a tender is not necessarily bundled with the trading system tender, yet the data flow from the trading system must be guaranteed.

Public presentation and discussion with main traders

When drafting the main principles of market rules (GCT, result publication, procedures) and clearing and financial settlement rules (payment cycle, VAT reverse charge, invoice procedures, etc.) the public consultation shall be organized where all stakeholders including major traders, EFET, etc. shall be invited to give feedback.

Involvement in international cooperation bodies for market integration

Apply for Observer status in the Multi-regional Coupling initiative – MRC

To start activities for the market integration, both the transmission system operator and PX shall acquire the status of Observer under the MRC DAOA (or its successor) in order to start the process of first go-live of market coupling. Beneficiary signed the MRC adherence form on October 12th 2017

and is already observer to the MRC. The newly established MO/PX shall follow the same process, when the company is set up and legally established.

Status of observer under the INCA and ANDOA

To start activities for the market integration MO/PX shall start the process to acquire the status of Observer under the INCA (or its successor) and ANDOA. This process shall be in line with the process of adoption of regulation 2015/1222.

Establishment of bilateral/regional market coupling projects

In line with provisions of the MRC DAOA all interested parties for the market coupling go live shall prior the MRC go-live agree on the bilateral or regional implementation project for market coupling. In order to start the activities for market integration, MO/PX shall, in cooperation with Beneficiary, enter into the project with parties from neighbouring countries (TSO and PX) in order to start bilateral project for coupling between Macedonia – Bulgaria, Macedonia – Greece or Macedonia – Serbia or any other wider regional implementation projects with more than four parties.

Adoption of regulation 2015/1222

PX designation process for NEMO status

After the adoption of regulation 2015/1222 in line with the Energy Community adoption process, PX shall implement all the regulation' requirements for NEMO designation and prepare application for the required process by the NRA or other designation entity. Consultant proposes that all the implementation processes in the PX are from the beginning in line with the NEMO requirements from the regulation 2015/1222 since this will enable cost and time efficient implementation and designation.

Designation of Market Operator as NEMO by the Ministry and NRA

The authority responsible for initial NEMO nomination and later on for the additional nominations in the future is⁸:

- national regulatory authority, responsible for the energy industry, by default;
- other authorities, designated by Member State, with the condition that such other authority shall have the same rights and obligations as the regulatory authority.

⁸ CACM Guidelines, article 4, paragraph 3

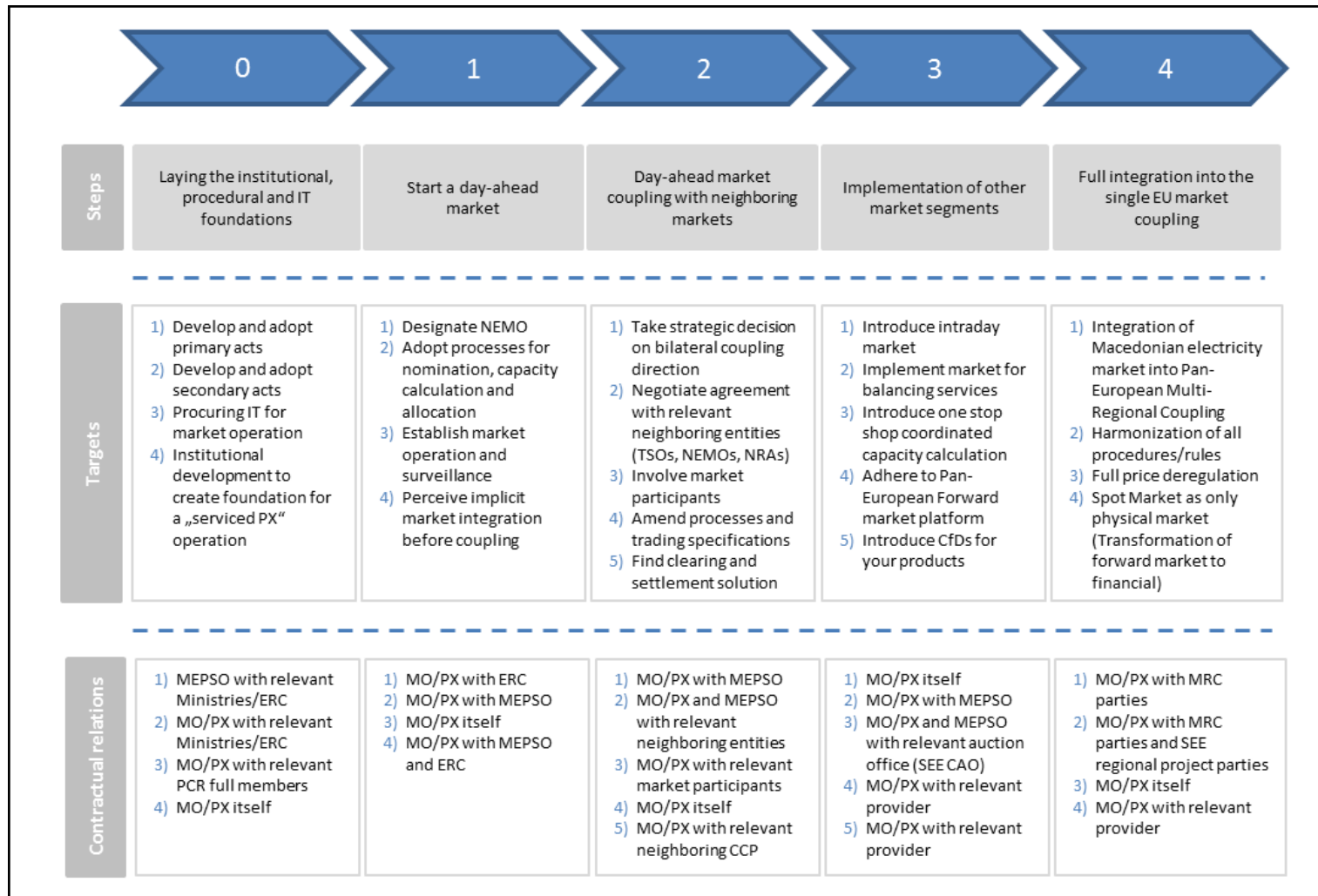
Action plan elements with stakeholder's actions

Action	Stakeholder	Time
Governmental decree for organized electricity market	Government	6 months
Standalone Market Operator Company establishment	MEPSO	3 months
Adoption of Market Rules	Regulator, Market Operator	3 months
Establishment of PX (bundling with MO assumed)		
PX as an activity in the organizational structure of Market Operator	Market Operator	3 months
Employment of responsible persons	Market Operator	4 months
Documents Drafting phase (Rules, agreements, clearing, internal procedures, etc.)	Market Operator	4 months
Approval phase	NRA	3 months
Preparation of Terms of Reference for selection of Service providers	Market Operator	2 months
Selection of service providers (trading application, clearing)	Market Operator	4 months
Technical implementation by service provider	Market Operator	6 months
Set-up of financial settlement (bank accounts, procedures, etc.)	Market Operator	6 months
Internal testing and testing with market participants	Market Operator, Stakeholders	2 months
Agreement of market marker and liquidity provider role	Market Operator	2 months
Public presentation and discussion with main traders	Market Operator, Stakeholders	1 month
Involvement in international cooperation bodies for market integration		
Apply for Observer status in the Multi-regional Coupling initiative – MRC	Market Operator	1 month
Status of observer under the INCA and ANDOA	Market Operator	2 months
Establishment of bilateral/regional market coupling projects	Market Operator, MEPSO	2 months
Adoption of regulation 2015/1222		
Designation process for NEMO status	Market Operator / NRA / Government	6 months
Designation of Market Operator as NEMO by Ministry and NRA	NRA / Government	6 months

Table 2: Action plan

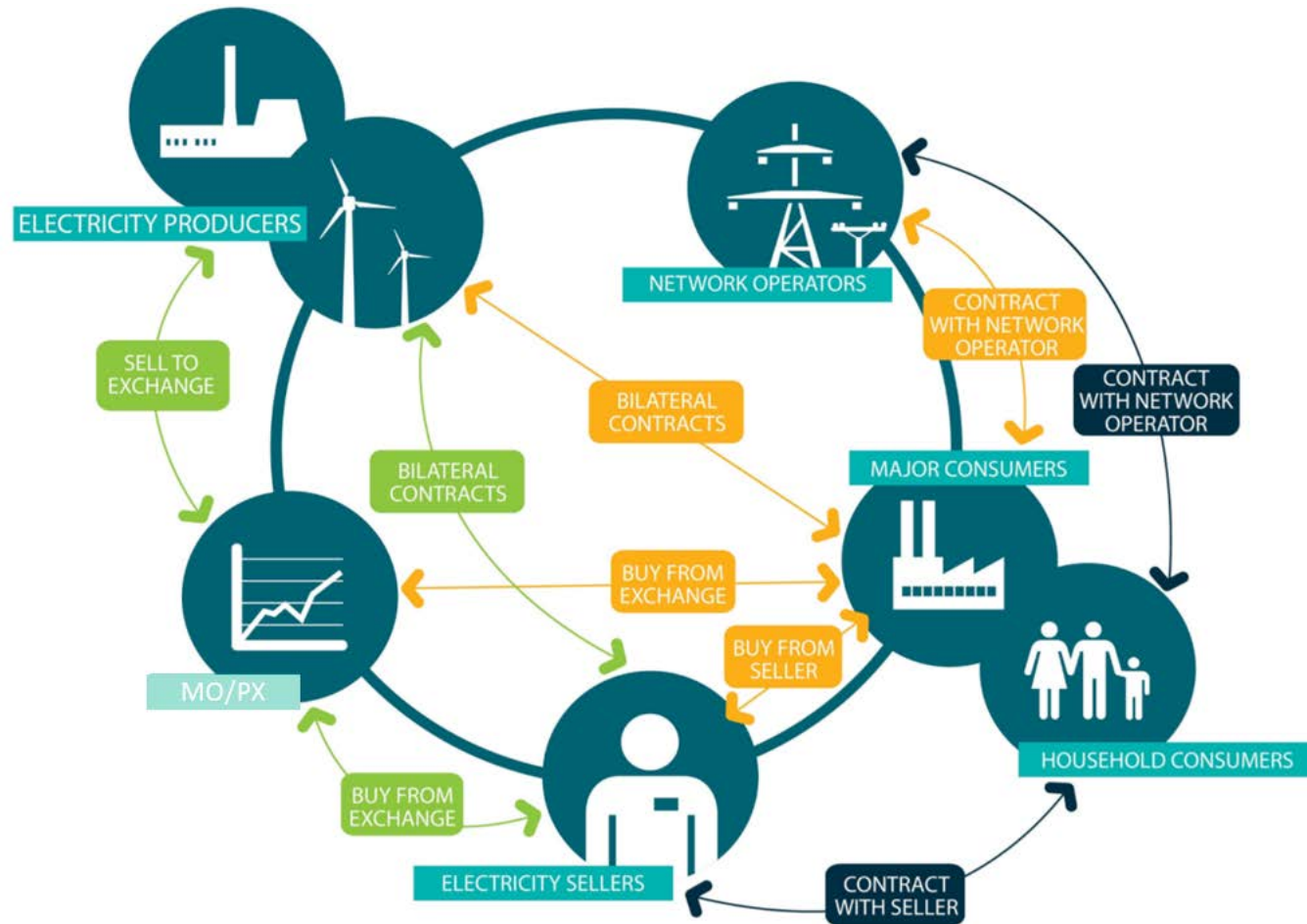
The actual timings are dependent primarily on the stakeholders involved.

Graphical representation of the (extended) road map



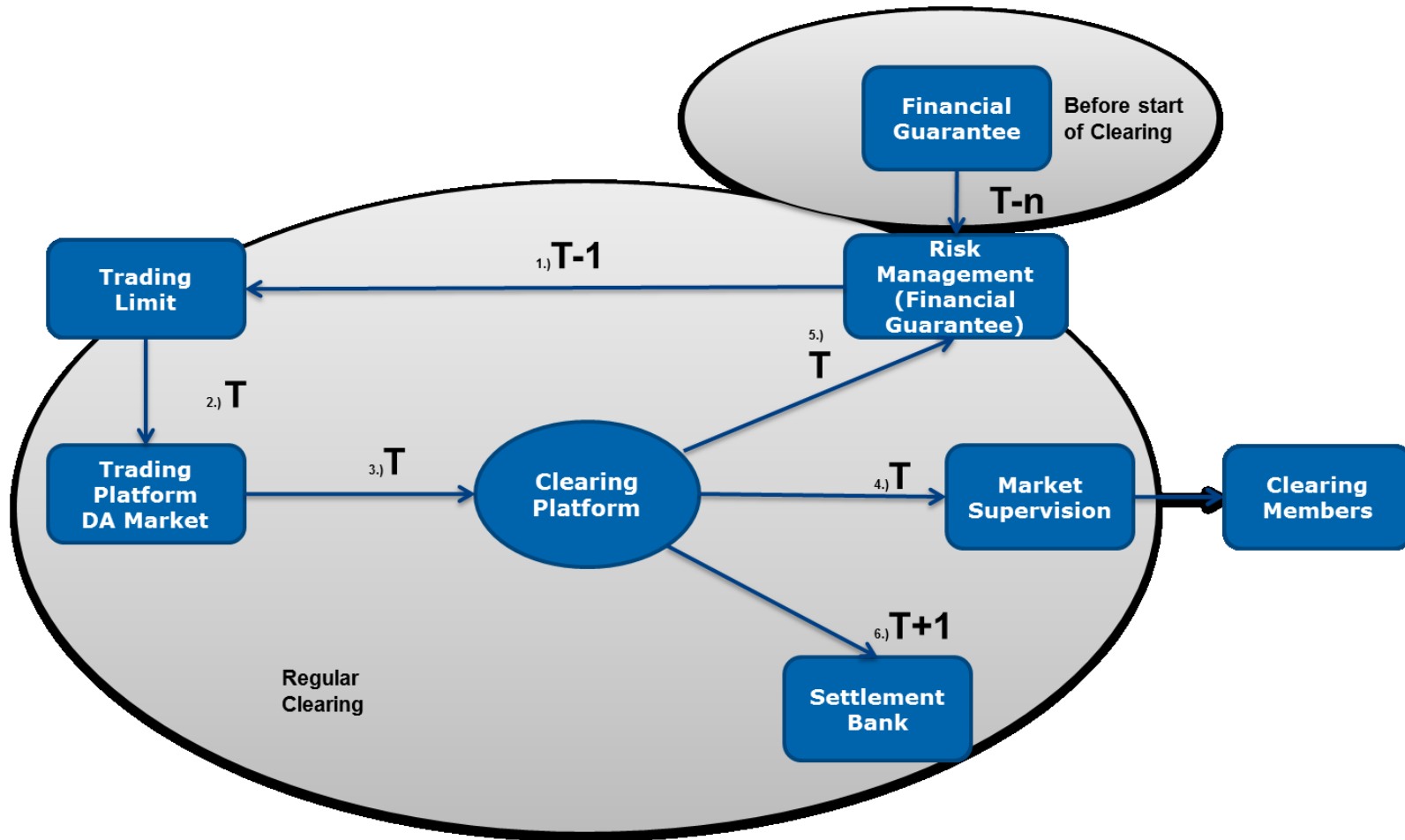
Picture 1: Graphical representation of the (extended) road map

Graphical representation of the basic market structure



Picture 2: Graphical representation of the basic market structure

Graphical representation of the (financial) clearing process



Picture 3: Graphical representation of the clearing process

Institutional set-up

The existing and proposed domestic legislation shall support the proposed institutional and organizational model.

Domestic legislation

The relevant legislation (VAT, public procurement, Law on Trade Companies) seems to be – based on available information – suitable for the PX to operate.

Regarding VAT, a full reverse charge mechanism is advisable, yet many EU PX operate fine even without it. The same is true regarding the establishment of subsidiaries.

On public procurement, the legislator needs to be careful to allow the TSO and DSO to procure losses via the PX – a very important step for initial liquidity establishment, together with the sale of RES electricity. The 25. 4. 2018 draft Energy Law contains a provision (Article 92 para 5 and 6) regarding the inclusion of purchase of electricity from regulated entities and purchase and sale of RES electricity in the Market Rules. If the intent is just to clarify the procedures on channelling this energy on the PX, then this is fine and even advisable– but attention needs to be paid not to come in conflict with the Law on Public Procurement.

Licences should be kept only when they bring added value. For example: For the PX (Article 90, “operator of an organised electricity market”) this makes little sense, since: both the Regulator and the TSO are involved in the PX nomination process, the government prescribes the operations and conditions (Article 90(3)) and the Regulator confirms both the fees and the rules. Based on this, the licence seems superfluous.

Regarding definitions, the Consultant recommends that the terms “market operator” and “energy (or electricity) exchange” are used for the MO and PX respectively. This will avoid confusion.

Since major producers can easily influence the price of electricity with overbidding other smaller market participants, their role is the most important one for building a liquid and stable day-ahead electricity market. The Consultant proposes to include an optional provision in the Energy Law to require mandatory participation on the PX. Such a provision could be used for procurement as well. It needs to be stressed, that the Consultant only proposes to include an option in the Energy Law that could be activated later on based on regulatory or governmental assessment and approval.

CACM implementation

If the legal and regulatory procedures in Macedonia are implemented promptly, the PX (either in the MO, or the tender based entity) will be set-up as a monopoly by the time the CACM enter into force for Macedonia. The designation procedure should then be followed. As mentioned in this section, it is sensible to strive to be CACM compliant even before it enters into force as it will facilitate the transition, as well as ease the implementation of market coupling.

Conclusion

This document presents possible models of the organisation and operation of the day-ahead market in Macedonia, reviewing also the existing and potential legal framework and the WB6 framework. It also relays the requirements of CACM and outlines the main benefits and drawbacks of various alternatives.

It proposes a model for the establishment of the day-ahead market (PX) in Macedonia, taking into account also current international and national legislative and regulatory efforts.

Given the perceived intent of the legislator (grasped through the review of various versions of the Energy Law), as well as various meetings and interviews with various stakeholders, the proposed model has the following main characteristics:

- 1.) The PX has a monopoly status. Particularly in bundled with the MO, this seems a sensible solution given all the circumstances (market size, possible liquidity procurement sources, etc.).
- 2.) If the MO is spun out of the TSO, then it is sensible to bundle the PX with the MO, particularly given its monopoly status.
- 3.) Given the small market size, the PX should strive for efficiency, yet it should retain core operations in-house. It is sensible to tender for a trading software solution and possibly also the clearing solution (as a service, retaining the flow of money through the local market).
- 4.) Particular attention should be paid to get all the relevant stakeholders on board from the beginning. An initial local liquidity is necessary, irrespective of market coupling. To this end four points are central: 1. Procurement of (part of) the grid losses through the PX; 2. Sale of (part of) the RES energy through the PX; 3. Agreements with key players (liquidity provision, market making) and 4. Option for mandatory participation.