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# Enhancing market coupling of SEE Region

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## Introduction

In summer 2016 the Board of ENTSO-E commissioned a project to explore ways to enhance market coupling in two regions: Central-East and South-East Europe. The project manager (author of this report)<sup>1</sup> was hired to carry out the task with the support of the Secretariat.

This report deals with the SEE part of the work. The SEE electricity markets are fragmented. National markets are small and in different stages of maturity. In most countries markets are not very developed in EU standards and rely still much on bilateral contracts. Most markets have regulated segments and incumbent utilities in dominating position. Markets also lack reliable price signals.

To make the market work, legal and other changes are needed in most countries. But also, a lot of positive development is underway in the region. This report provides a status of each country together with a gap analysis about what legal and other elements are still missing and when expected to be in place.

Building on the above, a tentative road map is given for the market coupling between countries towards a regional market. Finally, the report discusses the preconditions and the ways to ensure coordination and compatibility among numerous national/bilateral initiatives to achieve a regional SEE market and its integration to the rest of Europe.

The focus in this report is on the day-ahead market development. It is clearly the most important first element that needs to be in place nationally. Then it is possible to ensure relevant price signals to other product markets such as intraday and balancing, and to start integrating markets cross-border.

For the purpose of this report, the covered SEE region include the 3 EU countries Bulgaria (BG), Croatia (HR), Greece (GR), and the 6 Western Balkan countries (WB6) Albania (AL), Bosnia and Herzegovina (BA), Kosovo<sup>2</sup> (KS), FYR of Macedonia (MK), Montenegro (ME) and Serbia (RS). The other countries, which borders are also part of SEE Capacity Calculation Region (CCR), 10th CCR according to the relevant ACER decision<sup>3</sup>, or will be part of SEE CCR once that CCR is extended to WB6 countries in line with „all TSOs“ proposal<sup>4</sup>, are not studied here because they have already implemented market coupling, each with at least one of its neighbours<sup>5</sup>.

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<sup>1</sup> Mr. Juha Kekkonen, JK Energia Oy

<sup>2</sup> Designation to Kosovo is without prejudice to positions on status, and is in line with UNS CR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

<sup>3</sup> Decision of the Agency for the cooperation of energy regulators No 06/2016 of 17 November 2016 on the electricity transmission system operator's proposal for the determination of Capacity Calculation Regions

<sup>4</sup> Annex 1 “Future composition of CCRs including various non-EU bidding zone borders” of the “Explanatory document to all TSOs’ proposal for CCRs in accordance with Article 15(1) of the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a Guideline on Capacity Allocation and Congestion Management” (dated 29 October 2015) submitted by “all TSOs” to “all NRAs” for information purposes only)

<sup>5</sup> These include Austria, Hungary, Italy, Slovenia and Romania

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## 1. Summary and recommendations

### Summary

#### Gaps

The status update of this study confirms the known fact that the SEE countries continue to be at very different stages of market development. In most countries, there are positive processes underway to introduce legal frameworks and other required elements, even if the progress is often slow due to political and other reasons. In some countries, the basic framework is already completed.

*Picture 1: Region of South East Europe (as defined for the purpose of this report)*



Bulgaria, Croatia and Serbia are characterized by advanced level of market implementation. The legal basis is already in line with EU energy legislation, even in non-EU Serbia. This applies also to relevant non-energy rules (VAT, financial, etc.). The power exchanges are up and running, as well. Even if there is a need to further improve DA market functioning, these markets can be considered technically ready for coupling with suitable neighbors.

Several countries are expected to complete the market requirements during 2018. Greece will be ready for coupling when the current market model will be reformed in order to be compatible with target model requirements. In Albania, Kosovo and Montenegro, the 3<sup>rd</sup> EU package is transposed to national law and some of the required secondary legislation is ready, as confirmed by respective TSOs and EnCS<sup>6</sup> reports. The remaining rules are in various stages of preparation or partly still not started.

As to establishment of PX, Albania has a project on-going, Greece has a NEMO already designated, Kosovo plans to join the Albanian PX and Montenegro is about to decide on the concept. For Kosovo, however, all depends on settlement of the RS/KS political dispute. This should unlock implementation of a Connecting Agreement and for KOSTT to fully control its grid and cross-border development.

<sup>6</sup> Energy Community Secretariat, based in Vienna.

For FYR of Macedonia and Bosnia and Herzegovina quite some homework still remains. MK has only quite recently started its market reform and this may speed up with the new Government, once it is set up. BA has an advanced balancing market while progress for the rest of market framework has been slow. However, preparations for an organized day-ahead market is about to start. . Prudent estimate for these countries to have DA markets reformed will be around 2019.

Regarding balancing markets, they are still rather undeveloped in most countries, except BA and RS. The proper rules are or will come in place soon but lack of competitive supply of balancing services keeps the markets partly or fully regulated. Cross-border exchange would be easiest way to increase the offering. Some arrangements are implemented or planned (BA/HR/SI, RS/HU, RS/ME, BG/MK, AL/KS) but none of them is really market-based yet. A new balancing market has to be established in Greece after market reform completion.

### Road-map

From the ongoing and potential market coupling initiatives, a tentative road map has been drawn to illustrate how the current fragmented SEE market could possibly integrate regionally and with the rest of Europe. Even if such a road map is highly uncertain and subject to constant planning changes, some observations emerge.

First wave of SEE market couplings could take place in 2018 in the northern part of the region bordering 4MMC<sup>7</sup> and/or MRC<sup>8</sup>. (HR/HU, HR/SI, RS/HU+RO, possibly also BG/RO). One coupling can materialize inside WB6 (ME/RS).

With rising preparedness in all countries, the year 2019 will be busy and can see some 6-8 borders coupled. This would reach, even if 1 year late, the WB6 target to get every country coupled with at least one of its neighbors. In fact, a several countries would then already have coupling with more than one neighbor.

After 2019 every country is already part of the same bigger market via one way or another, not only within WB6 or SEE but together with 4MMC and Italy/MRC It is reasonable to expect that coupling of the remaining borders will follow soon.

All the above couplings will be NTC-based in the first phase. In line with CACM, the flow-based allocation needs to be implemented later. This has not been studied in this work.

### Regional coordination

Even if the small size of SEE market would justify it, no centralized market structures (e.g. 1 PX) are realistic at short term. The process will build on many national/bilateral initiatives which should lead later to an integrated regional market. There is a need to ensure that different projects don't choose incompatible solutions which hamper further integration. This is especially important for WB6 area which lacks obligatory coordination and endorsement procedures of EU.

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<sup>7</sup> Day-ahead electricity markets of the Czech Republic, Slovakia, Hungary and Romania are coupled under 4M MC cooperation. It comprises the following TSOs: CEPS, SEPS, MAVIR and Transelectrica.

<sup>8</sup> Multi Regional Price Coupling, covering currently NW and SW Europe plus Italian borders.

The WB6 Initiative could do the coordination and steering if adequately organized and resourced. As the resources are the key limiting factor in the region, EnCS should support financially the work through its Technical Assistance-program.

Recent CESEC initiative in the electricity sector (CESECe) by European Commission to enhance market development in the SEE and the surrounding EU is still not clearly defined.<sup>9</sup> It could at best strengthen the political commitment and better incorporate EU and non-EU market development compared to current WB6 setup. But it is necessary to ensure coordination and alignment between existing and new initiatives, in order to avoid overlapping and inefficiency.

Most SEE TSOs (but not all) coordinate their cross-border capacity allocation through a joint auction office SEE CAO<sup>10</sup>. Cooperation on capacity calculation is being developed through two separate sub-regional initiatives of Regional Security Coordinator.

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<sup>9</sup> In September 2016, a regional initiative Central and South Eastern Europe Gas Connectivity (CESEC) decided to broaden its mandate beyond gas and include other key areas such as: electricity trading and market coupling; the coordinated planning and development of power grid infrastructures; and renewable energy and energy efficiency. CESECe states that there is a clear need for a single "South-Eastern Europe" market coupling region encompassing EU and Western Balkans 6 partners and it is seen as a physical requirement, as many EU interconnectors in the South-East run through Energy Community Contracting Parties. In February 2017, the EC started negotiations on a Memorandum of Understanding related to this initiative. No concrete outcomes of the EC are known at the time of finalisation of this report.

<sup>10</sup> Coordinated Auction Office in South East Europe Podgorica d.o.o. (SEE CAO)

## Recommendations

1. The report identifies concrete gaps in the market framework of the analysed SEE countries. Closing these gaps is necessary to progress towards DA MC. EnCS provides with useful support but it could be more hands-on and at-site.
2. Coupling of SEE markets can realistically happen only in steps and through decentralised structures. Attention needs to be paid to how to ensure the future sustainability of this structure with relatively small entities and potentially high unit costs.
3. MRC model for contracts and governance in market coupling should be followed as applicable to pave the way to SEE/MRC integration.
4. To restrict arbitrage, all the new national DA markets should from the start apply the same gate closure time (12.00 CET) as foreseen in CACM regulation.
5. The WB6 process should be better resourced at the working level to ensure regional coordination and compatibility between national/bilateral initiatives. An external PMO financed by EnCS could be an option. The CESECe initiative can add positively to this process but should be carefully aligned with the existing activity to avoid overlapping.
6. Even if the current unclarity in some aspects of Network Code implementation within EnC does not block the market coupling process, ENTSO-E should encourage EC and EnCS to sort out the situation.
7. While waiting for FB coupling with MRC, the 4MMC (Czech Rep., Slovakia, Hungary, Romania) should initiate the market coupling projects with Croatia, Serbia and Bulgaria, respectively subject to the possibility of such interim projects in parallel with the FB coupling.
8. As a condition for any market coupling, Bulgaria should abolish its border tariff for export.
9. All the relevant parties should more proactively contribute to the Croatian-Slovenian coupling project to ensure its timely accomplishment.
10. The involved parties should work hard to implement the Serbia/Kosovo agreements where a deadlock unduly delays regional development such as cross-border market cooperation by KOSTT, the operation of the new 400 kV line Albania-Kosovo completed in June 2016 and potentially adhesion of Serbian EMS to SEE CAO.

## 2. National market development– status and gap analysis

### 2.1 Albania



#### Wholesale market framework

Albania has a highly centralised and foreclosed electricity sector with an incumbent state-owned producer (KESh) and a bundled distributor (OShEE) dominating the market. Only a small number of independent generators and larger end-users act in a competitive wholesale environment.

Government has initiated a process towards a market liberalisation with clear milestones. Primary energy legislation (Power Sector Act) has been finalised and it entered into force in June 2015. Its implementation will though require a comprehensive set of secondary legislation to be put in place as well as infrastructure for the market opening. The primary legislation foresees a stepwise liberalisation of the internal market up to January 2018.

The first key piece was the so-called Market Model which was adopted by the government in July 2016. It lays down a target market structure and requirements for more detailed market rules. In this context, road maps were adopted for e.g. price deregulation and establishment of an organised day-ahead market. This package decision foresees also measures to ensure a smooth transition from a regulated structure to sufficiently well-functioning deregulated and coupled market, mainly by removing contractual dependencies between players and by imposing obligations for incumbents to contribute to liquidity.

The power exchange is being prepared under a project steering group chaired by the ministry. The project has faced some delays, the target date for go-live is Q1/2018. The plan is that OST will establish the Albanian PX company together with Nord Pool which would also support its operations as well as clearing and settlements. No agreements have been signed to that end, yet.

When the PX and other prerequisites are there, the plan is to serve also Kosovo by offering co-ownership for KOSTT from the day one. So-called import/export areas are contemplated as an interim method to improve allocation of cross-border capacities and market spread of in the region.

A PX alone would not make the wholesale market work without other preconditions to be in place, too. Perhaps the most critical is the development or amendment of over 50 secondary acts. This extensive work is mainly in hands of the regulator. The work has been delayed (partly because the Market Model decision came late) and can miss the deadlines set in the primary Act.

Other important areas include e.g. deregulation of generation and supply prices, and development of switching rules, where little progress has happened up to now. Unbundling of the distributor OShEE has not moved ahead either, but the unbundling and certification of TSO seem to be well on track.

According to EnC, energy market suffers also from deficiencies in some cross-cutting (non-energy-specific) authority functions such as competition enforcement and state aid control.

## Balancing market

There is no national balancing market in Albania at a moment. OST procures ancillary services from KESh based on regulated contract and price. Balance responsibility doesn't apply to most players, yet.

Power Sector Act and Market Model lay down basic terms for the real time balancing and the balance responsibility. But here again more detailed rules are needed to make those happen. According to current plan, balancing rules should be prepared by June 2017, and OST, after a dry run period, to kick-off the market in September 2017. OST is implementing a software with which it could start procuring ancillary services from open market in the same timeline.

Cross-border cooperation in balancing is required by law. OST has together with KOSTT developed a mechanism for exchange and sharing of secondary reserves (not yet operational due to pending RS/KS Connection Agreement). It has discussed cooperation also towards FYR of Macedonia, Montenegro and Serbia for tertiary reserves.

## Prerequisites still needed

So, the main political decisions have been made but a lot of building blocks remain to be implemented. The key elements needed soon include the following:

Task	Responsible	Date	Comment
Market rules	regulator	April 2017	sent for approval
Balancing/ancillary services rules	regulator	End 2017	under preparation
Transmission code	regulator	End 2017	
Distribution code	regulator	End 2017	
Metering code	regulator	End 2017	
Establishment of a power exchange	ministry, OST	first half 2018	working group underway in charge of project
Removal of contractual obstacles	regulator		
Price deregulation at least at wholesale level	regulator		
Measures to ensure market liquidity at start-up phase	MIE, OST, regulator		

## 2.2 Bosnia and Herzegovina



### Wholesale market framework

Some 10 years ago, Bosnia and Herzegovina used to be a forerunner in market reform in the region and is still quite advanced as far as balancing is concerned. Also, an independent system operator (NOSBiH) and a separate Transco have been long there, since the year 2005.

Market with a third-party access was opened in 2015. Basically, all end-users are eligible to choose their supplier but the switching rate is still low. Currently 27 companies have license in supply business. The incumbent three utilities, largely owned by State institutions, are dominant with around 89 % market share.

Transposing of EU acquis to national legislation faces challenges in BiH due to the complex constitutional structure. Some parts are to be transposed at state level while other parts at the level of two Entities (FBiH, RS) in mutually harmonised way. This explains to some extent why implementation of the Third package and relevant network codes has taken more time in BiH than perhaps in some other SEE countries.

Areas which require further regulatory actions and are partly under preparation include e.g. the following. Remaining price regulations, mainly on small consumers, need to be removed in both Entities. In distribution, establishing and unbundling of DSOs wait for completion. The draft law amendment to finalise ownership unbundling of TSO and to allow its certification needs to be adopted. VAT rules and policies shall be harmonised with those of the EU. Law on public procurement shall be revisited to allow exemption for ancillary services.

The key issue from the perspective of this report is to get an organised day-ahead market in place. There is not yet any designated project to that end in BiH. However, NOSBiH has offered itself to take the responsibility of establishing a PX and waits for decision by the BiH Government during spring 2017. Target date for a PX becoming operative would then be end-2018.

Apart from PX, detailed market rules need to be developed to lay down legal framework for a DA market to function properly and also to later couple it with neighbouring markets.

### Balancing market

A regulated balancing regime has existed for many years but it didn't secure sufficient balancing resources due to inadequate incentives for players. In the beginning of 2016 a more market-based concept was launched by NOS BiH. It provides for procurement of reserve capacity and balancing energy for secondary and tertiary control while contribution to primary control remains mandatory for the connected generation units. The mechanism covers also operating of balancing market and imbalance settlement. It is much in line with EU targets and has brought encouraging results. Some of its elements need still tuning regarding e.g. applied price caps and penalties of unavailability.

Current market rules allow for cross-border exchange of balancing reserves. NOS BiH has developed together with HOPS and ELES a mechanism within their SHB control block and it is up and running.

### Prerequisites still needed

Summarising from above

Task	Responsible	Date	Comment
Removal of remaining price regulations	Entities	?	
Unbundling of DSOs	Entities	?	
Unbundling/certification of ISO	State	?	
Harmonisation of VAT rules	State?	?	
Establishment of day-ahead market	ISO	Dec 2018	
Market rules for DA market and coupling	Regulator?	Mid 2018	

## 2.3 Bulgaria

### Wholesale market framework



Bulgaria is a country with excess of electricity generation compared to domestic demand in most of the year and has traditionally been one of the biggest exporters in the SEE Region and Europe. Stagnated demand and lowering prices both in domestic and export markets have hit the sector financially. Other destabilising factors include significant emergence of RES, stranded costs of conventional plants and government policy to keep consumer prices down.

Bulgarian wholesale market has some 10 generators and 70 traders. However, the state-owned utility NEK is still the dominating player. It acts as a single buyer from the power generators on the high voltage grid for the regulated market segment (approximately 40 % of whole demand) and its end-suppliers. Moreover, NEK has the legal obligation to purchase electricity produced by CHP plants, renewables and industrial producers at regulated prices.

On the demand side, there is a rapidly growing number of customers, who have switched the supplier (over 30 000 by end-16). This includes part of retail customers without AMR, which are now increasingly registered with load profiles. Up to now, switching of supplier at retail level has not been very attractive due to low regulated prices and lacking smoothness of switching process.

Within EU, Bulgaria was perhaps late in starting to deregulate its market but has been catching up in the last years. The necessary primary legislation to meet the 3<sup>rd</sup> Package was enacted in 2013 and large part of secondary legislation to implement it is in place.

Implemented milestones include new balancing market which started in 2014, TSO ESO certification 2015 (ITO model) and launch of an organised day-ahead market by IBEX in early 2016. The platform for bilateral contracting (physical forwards) was implemented in October 2016 but with low liquidity in the first months of operation.

Planned next steps include introduction of the ID market by end-17 (both national and cross-border), competitive procurement of network losses and a more market-based support of RES and PPA contracts. There is still some streamlining needed in the Bulgarian market framework, notably

- price deregulation
- removal of excessive PSOs (e.g. single buyer)
- unbundling of DSOs
- smoother supplier switching rules.

Bulgaria has most of the legal and technical preconditions in place for day-ahead market coupling. One concern is the still existing export fee in the grid tariff. It is discriminatory and should be removed prior to any coupling.

The most obvious first direction of coupling would be Romania/4MMC followed by Greece and FYROM when markets are ready there. As an interim solution ESO and MEPSO are currently considering import/export zones to improve the efficiency.

## Balancing market

The new balancing mechanism, launched in June 2014, is largely in line with EU in terms of competitive procurement, equal balance responsibility, operation of balancing market and imbalance settlement. It has some 80 listed BRPs, mainly groups of several players each.

There are some concerns of insufficient competition. ESO buys balancing reserves mainly from NEK. Regulator has therefore imposed price caps to bid pricing. To increase offering, ESO is working to attract flexible loads to balancing. The mechanism foresees possibility of cross-border exchange but no arrangements are in place yet.

## Prerequisites still needed

Summarising from above

Task	Responsible	Date	Comment
ID Market rules amendments	Regulator	June 2017	The proposals from ESO and IBEX are sent for approval
Balancing rules amendments	ESO, Regulator	End 2017	
New market design principles	Ministry, Regulator	March 2017	
Amendments in the Energy Law and secondary legislation	Ministry, Regulator, Energy companies	End 2017	
Removal of export charge from the grid tariff	Regulator	2018 at latest	Condition for any coupling
Market coupling project involvement/export-import zone as interim step	ESO, IBEX, Regulator	Start February 2017	The trilateral agreement between IBEX, ESO and MEPSO is in a process of coordination

## 2.4 Croatia



### Wholesale market framework

Croatian power market is fully open even if retail competition is still limited. The incumbent state-owned utility HEP dominates the market with over 80 % share in production and retail. There is increasing number of new (private owned) producers mainly in RES segment and suppliers, with rather small market shares still. Some 20 players are active in energy trading.

Croatia is in the final phase of process of deregulating the market. The EU acquis were transposed by adopting in 2012 an Energy Act (with amendments in 2014 and 2015) and in 2013 a new Electricity Market Act (with amendments in 2015).

Implementation through new or amended numerous acts of secondary legislation is underway with particular focus at network codes & guidelines implementation (mostly removing obstacles and constraints for their full implementation).

As regards secondary legislation, affecting wholesale/retail, two main pieces of legislation already implemented include Electricity Market Rules – covering wholesale DA and ID - and the Electricity Balancing Rules.

Supplier switching rate is still low, with HEP Elektra as the last resort supplier for both residential and commercial customers.

HEP Elektra is established in 2016 as separate company in HEP Group, separated from HEP DSO. Croatian transmission system operator (HOPS) is unbundled according to ITO model in 2013 and certified in accordance with EU Third package in early 2016.

The Croatian power exchange CROPEX started in February 2016 by introducing an organised day-ahead market based on PCR/MRC solution. An intraday market will go live in end-April 2017. The PX is still in its early phase of development with 12 members and a small market share compared with total Croatian consumption.

HOPS and Slovenian ELES together with involved PXs BSP and CROPEX have initiated a project to couple Croatian and Slovenian day-ahead markets under regional IBWT (Italian Borders Working Table) umbrella. The aim is to get this ready by Q1/2018 allowing Croatia to become part of MRC market. Some preliminary discussions are taking place about potential follow-up coupling projects on the Croatian other borders (HU, BiH, RS).

### Balancing market

The real time system balancing is performed by HOPS and imbalance settlement is performed by Croatian Market Operator (HROTE). Most parties are BRPs since 2006 although RES producers are exempted till end 2017. According to the new Balancing rules, all market participants must be members of a balance group, whose leader is responsible for the deviations of whole balance group.

Croatian balancing regime is currently limited by a lack of competition on a BSP side and a true balancing market is not yet there. For ancillary services, balancing energy and imbalance pricing and settlement a rather regulated approach and methodology are applied by regulator HERA and HOPS.

In line with new Electricity Balancing rules, HOPS is now taking actions to open procurement of balancing services for competition. A standard contract on their web site is a first step in this. Cross-border cooperation regarding ancillary services is expected to develop within the SHB control block (composed from Slovenia, Croatia and Bosnia-Herzegovina), where already a FCR agreement exists. For medium term, implementation of Electricity Balancing Guidelines will provide for more enduring solutions.

### Prerequisites still needed

Task	Responsible	Date	Comment
ID market go-live	CROPEX	April 2017	Relevant rules already published
Implementation of BSR also for RES producers	Government / Ministry	End of 2017	Full implementation of RES Act (passed in 2015) is needed
Launching Market Coupling DA Projects on HR-HU/4MMC, HR-BA and HR-RS, respectively	CROPEX and , HOPS (with neighboring and 4MMC TSOs and PXs)	End of 2017	Optionally with introducing import/export zones as interim solutions in order to facilitate projects development <sup>11</sup>
HR-SI Market Coupling DA Project Finalisation	CROPEX, HOPS, ELES, BSP	Q1 / 2018	

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<sup>11</sup> Such option has not been yet discussed with HU or 4M MC Parties

## 2.5 Greece



### Wholesale market framework

The power supply in Greece is still dominated by the incumbent PPC, although it has seen its market share gradually declining due to IPPs by other investors and a substantial influx of RES. Market share is still high (almost 90%) but a political target is to go under 50% by 2020.

The wholesale market has been organised as a mandatory pool since 2005. It is a 24-hour power unit-based model using a centralised algorithm to co-optimize the whole market, energy and capacity reserves (primary/secondary/tertiary) taking into account the technological characteristics of power units.

Since 2012, the market operator LAGIE runs the day-ahead market and RES sales contracts. Greek system operator IPTO (certified ITO, subsidiary of PPC) is in charge of grid operations, real time system balancing and settlement of imbalances.

The market model is not compatible with the EU target model. That's why Greece is not coupled with Italy even if it has participated in the work of IBWT.

A market reform is underway. A new market law was adopted in September 2016 and the regulator issued the market Guidelines at the end of February 2017. According to this LAGIE (now designated NEMO) will be responsible for Forward, Day Ahead and Intraday markets. IPTO will run the new Balancing Market and will be responsible for the settlement of the imbalances.

More detailed market codes are still needed. A contractor is going to be selected till the end of May and the market codes are expected till the end of September 2017. Then the new IT infrastructure should be established.

Coupling of day-ahead market with neighbours is possible only after completion of the above work, which is foreseen by mid-2018. Most obvious steps would be coupling with Italy over the cable first and later with Bulgaria.

### Balancing market

The current balancing mechanism is an integrated part of the overall market optimisation model. IPTO runs the same algorithm based on same unit bids as in DA market to establish a dispatch schedule (DS) for next day. This is complemented with real time dispatch (set points to power units every 5 minutes according to their day ahead offers).

The new system will approach the EU requirements in stages. The market will continue to have the current characteristics of unit based and central dispatch. IPTO will procure the required capacity (MW) and BSPs will provide their balancing energy bids. In the first phase IPTO will run the same real time dispatch. In a second phase IPTO will try to fulfil the Balancing Code requirements for balancing energy exchanges.

## Prerequisites still needed

Summarising from above

<b>Task</b>	<b>Responsible</b>	<b>Date</b>	<b>Comment</b>
Detailed Market Design	IPTO -LAGIE	SEP '17	Under Preparation
Market Code Forward Market	LAGIE	SEP '17	Under Preparation
Market Code DA	LAGIE	SEP '17	Under Preparation
Market Code ID	LAGIE	SEP '17	Under Preparation
Market Code Balancing	IPTO	SEP '17	Under Preparation
Market Code Interconnection Congestion Management	IPTO	SEP '17	Under Preparation
IT platforms development	IPTO-LAGIE		Summer 2018

## 2.6 Kosovo



### Wholesale market framework

Kosovo has a largely regulated power sector with the dominant parties being the producer KEK, the supplier KESCO and the distribution company KEDS. Market reform is underway and in some areas Kosovo is quite advanced while lags behind in some others.

A new Energy Law was adopted in July 2016 transposing the 3<sup>rd</sup> Package as required. Kosovo is forerunner in unbundling of network companies: KEDS is a fully independent network distribution operator being unique in the region. Ownership unbundling of TSO is outlined by law. The work has started to prepare the unbundling and certification process of KOSTT.

Secondary level rules are in preparing process. Regulator ERO has issued the guideline for market liberalisation with the aim to remove extensive price regulations in wholesale level. ERO has also adopted switching rules and a methodology for imbalance price calculation.

ERO is in the process of tariff review and from April 2017 will deregulate generation prices. Network losses will be purchased in the market. It is expected that new licensed supplier will start operation in Kosovan market during the year.

The law requires to establish a power exchange function, but the service can be organised from another country. Kosovo's joining to the forthcoming Albanian PX is under discussion.

In a small country like Kosovo it is not feasible to get market liquid without cross-border participation. Political disputes between Serbia and Kosovo have blocked implementation of the key document in this respect, the so-called Connection Agreement with ENTSO-E. Situation prevents KOSTT to be in charge of its control block and to develop cross-border cooperation.

Apart from this dispute, Kosovo could assume readiness for market coupling in 2018. That with Albania would be the first step.

### Balancing market

The new law provides a framework for a balancing market in Kosovo but it is not yet operative. KOSTT has started dry-run implementation of balancing mechanism and real implementation and operation of balancing mechanism is planned to start on March 2017.

The limited size of the country and balancing reserves would require cross-border cooperation. KOSTT and OST have developed a mechanism for procurement of secondary reserves. Here again, its implementation waits for implementation of the Connection Agreement.

## Prerequisites still needed

Summarising from above

Task	Responsible	Date	Comment
Procedure for procuring services and transmission losses	KOSTT	April 2017	
Support scheme for procurement of RES generation by MO	Regulator	April 2017	
Balancing rules	KOSTT		proposal by TSO exists
TSO unbundling, certification	regulator		Process has started
Adherence to PX	Ministry, KOSTT, ERO		depends on Albanian PX kick-off
Implementation of the Connection Agreement			depends on political settlement RS /KS

## 2.7 FYR of Macedonia



### Wholesale market framework

The FYROM power market is largely foreclosed and dominated by the incumbent generator (ELEM) and supplier of last resort (EVN) both with excessive public service obligations. Larger-size users are eligible. Somewhat surprisingly, the open market segment turns over higher volumes than in most other WB6 countries and the incumbent player hasn't the largest market share there.

In terms of legislative framework, FYR of Macedonia is lagging much behind in practically all areas of market opening. The Third Package is still not transposed to national law (even if a draft exists), not to mention the required secondary rules. There are however recent signs of change and notably after the general elections in December 2016 things are expected to start progressing.

The key topics that need to be addressed in the primary and secondary legislation include eligibility of customers, limiting the scope of public service obligations (PSOs), removal of price regulation and development of the market rules for organised day-ahead and balancing markets. Unbundling of transmission company MEPSO has to be done whereas that of distribution company EVN is progressing thanks to the law amendment adopted in October 2016. VAT rules have to be harmonised as they hamper electricity trading.

Detailed Study and Action Plan are being prepared about opportunities to establish own organized electricity market in FYR of Macedonia or to join one in the neighbourhood. Depending on the choice of solution, amendments to the primary and secondary legislation will be prepared. MEPSO prepared an action plan for establishing a National PX, by order of the Government of Macedonia.

Taking into account the amount of work still to be done, any market coupling of FYR of Macedonia with neighbouring countries would be possible in 2019 at earliest. First steps could be with RS and BG due to interconnectors and existing PXs. Using import/export zones between MK/BG are discussed as a possible interim solution.

### Balancing market

Balancing mechanism is rather underdeveloped. MEPSO has obligation to procure balancing services under competitive conditions (potentially even cross-border). But currently it can only buy them from ELEM who has a PSO to supply them at regulated price.

Balance responsibility exists but applies only to eligible customers who also cover the costs. For some reason the current law exempts parties with PSOs from balance responsibility meaning that the biggest players (ELEM, EVN) are not BRPs.

New market rules were adopted in late 2016 and will be applicable in July 2017. The new mechanism will impose balance responsibility to all parties, including regulated market segment. Establishment of renewed balancing market is underway. Procurement of

balancing services will be fully market-based including also cross-border exchange of those services.

### Prerequisites still needed

Summarising from above (not fully checked with MK sources)

Task	Responsible	Date	Comment
Adoption of the primary Energy Law	Government		draft existing
Development secondary legislation	Regulator		No clear plans yet
Decision on DA market model and	Government	First half 2017	proposal exists
Launch implementation of DA market	Regulator, market operator MEPSO	end-2018	
Adoption on balancing market rules and kick-off the market	Regulator	July 17	proposal exists

## 2.8 Montenegro



### Wholesale market framework

In Montenegro the power sector has been pretty much in hands of one company EPCG responsible for generation, distribution and supply. Only a small number of eligible customers and a supplier have been active in open market. But this is going to change.

ME is medium-advanced within EnC as to implementing of prerequisites for open electricity market. Required primary laws were put in place during 2016 (2 new laws: Energy, Cross-border exchanges). This brings ME in line with the 3<sup>rd</sup> Package.

There is still a lot to be done in developing secondary legislation. This includes areas like new rules on balancing market and organised day ahead market legislation as well as unbundling of TSO.

Some concrete implementing steps have been taken though:

- a legally unbundled distribution company has been established (CEDIS) even if functional unbundling not yet achieved,
- price regulation is being removed basically from all market segments but still with price caps set by regulator
- all customers became eligible in 1 Jan 2017.

A number of non-energy-specific rules affect power market and require attention in ME, too. Cross-border financial transactions are cumbersome and need streamlining. VAT rules work for capacity exchange but are not fit for cross-border energy trade.

In line with requirements by the Energy law, a project was launched by market operator COTEE, TSO CGES and the incumbent producer, to establish an organised day-ahead market. A project company is being established as a first step – formal registration is expected by the end Q1/2017. There shall be a legal entity in the country to serve local players but probably in close partnership with one of the established European PXs. Target date for go-live is January 2018.

Having DA market in place, a coupling with neighbours becomes feasible right away. Coupling with Serbia is seen as the most natural first step and could materialise in late 2018.

### Balancing market

Balancing market does not function in competitive manner, yet. There is only one BSP and pricing of balancing services is regulated. Energy Law sets the guidance for how the reserve procurement, balance responsibility, balancing market and imbalance settlement should look like, including cross-border exchange. The problem is that new secondary legislation is needed to make a more competitive market happen.

Inside a small system, competition is often limited. CGES together with Serbian EMS have created a procedure for exchanging of secondary reserve cross-border. It is up and running

since spring 2016. To be truly market-based however, price regulation should be removed on both sides of border.

### Prerequisites still needed

Task	Responsible	Date	Comment
CACM transposition	CGES, Government	Q3/2017	Since ME is non-EU country, CACM is not directly applicable. Per national law, it will be transposed by national regulation transferring CACM in the maximal possible extent
Establish organised day-ahead market	COTEE, CGES	Q1/2018	
New balancing rules	COTEE, regulator, CGES	2018?	
Streamline financial regulation and Removal of taxation obstacles	Ministry of finance, Ministry of Economy, PX	During 2018?	

## 2.9 Serbia



### Wholesale market framework

Serbia is the most advanced within the EnC in market deregulation. Large part of required energy legislation and even secondary implementing rules are in place since 2015. Also, VAT and financial legislation has been aligned with EU regulation to facilitate trading, foreign participation and clearing/settlement.

There are over 40 active suppliers in wholesale market. All large and medium-size customer are obliged to choose their supplier in competitive market. Smaller customers, even though eligible, have right to stay in the regulated segment and the incumbent utility EPS acts as their guaranteed supplier.

A power exchange SEEPEX was successfully launched in early 2016. It is a voluntary market place as no obligations are posed to players to participate. For an early phase, the results are encouraging in terms of number of players, trading volumes and credibility of market price. However, most of the active players come from abroad while liquidity from the domestic side is still not sufficient enough. Currently efforts are made to attract local/regional incumbent producers to participate on SEEPEX spot market.

There are still pending issues to complete the basic market framework. Price regulation prevails in retail market, not by strict law but due to perceived insufficient level of competitive supply. Non-competitive regulated prices and cumbersome switching procedures are said to discourage customers to move to open market. There is an action plan by the regulator and ministry to assess during 2017 possibilities to remove the remaining price controls.

Market rules have been amended in December 2016 by EMS (TSO) to comply with the new day-ahead market environment. Rules for publishing key market data have been issued by EMS and approved by the Regulatory Agency also in December 2016. In case of introduction of market coupling additional amendments of Market Rules are needed.

Unbundling and certification of EMS has not advanced as planned. It is not just an administrative process by the regulator but requires changes to several laws on state governance and public enterprises. The distribution company is legally unbundled from EPS but functional unbundling needs to be finalised.

With a view to coupling of day-ahead market with neighbouring countries, Serbia has almost full technical preparedness. Currently the gate closure time is set at 10:15, allowing PX members a possibility of arbitrage between SEEPEX and 4MMC/MRC markets. Market coupling to the single coupling will require change of GCTas well as some additional amendments to Market rules. As a coupling partner, 4MMC (HU&RO) is the first choice from Serbian perspective. Market coupling with Montenegro is also recognized as an interesting early step.

## Balancing market

Market rules provide since 2013 a basis for functional balancing market and non-discriminatory imbalance settlement. There is currently only one BSP and therefore EMS buys from it all the secondary and tertiary reserves (capacity) at regulated prices. The price of activated balancing energy (and the imbalance price) is determined via market based balancing mechanism (based on hourly bids).

Rules allow for cross-border exchange of balancing services. As mentioned, EMS and Montenegrin CGES have an exchange mechanism for balancing energy where both EMS and CGES put available unused bids to the other TSO. To make such system more market-based and to extend it to all the balancing services would require deregulation of prices in both countries.

Serbia has no obstacles for foreign companies to participate in the balancing market. This has not been materialised yet. There are some other options under preliminary discussion, such as going for imbalance netting within the SMM control block (ME, MK, RS) and exchange of balance services between RS and HU.

## Prerequisites still needed

Task	Responsible	Date	Comment
Removal of remaining price controls	ministry, regulator		no timetable available
Amending market rules to allow market coupling	EMS	Sep 2017	
TSO certification	ministry, regulator	March 2017	
DSO functional unbundling	regulator	end 2017	
Market coupling with 4MMC and/or ME	EMS, SEEPEX		-1 yr from 4MMC decision - once ME market ready

## 3. Progress towards regional market – Road Map

### 3.1 Potential bilateral market coupling initiatives

#### 4MMC

The coupled group of 4 countries (CZ, SK, HU and RO) is not part of SEE but can play a role in coupling development in the region (also due to the fact that one external 4MMC border belongs to the SEE CCR while two additional external borders will be part of SEE CCR once that CCR is extended to WB6 countries, see footnotes No.3 and 4). The initiative to have an interim NTC-based coupling between 4MMC and MRC (on 4M-DE/AT borders) was dropped in December 2016 and the CEE parties (under Core CCR) continue now to work solely on a flow-based coupling. This may take many years and allows in the meantime to turn the focus to other coupling opportunities.

The so-far uncoupled 4MMC borders to South include RO-BG, RO-RS, HU-RS and HU-HR. Now 4MMC has a different gate closure time (11.00 CET) from all its neighbors (10.15 in RS, 12.00 in BG and HR). It should be harmonised to 12.00 CET, at latest when coupling with MRC takes place.

From legal perspective, a 4MMC coupling with another EU-country shouldn't pose any problems. Both Bulgaria and Croatia have implemented the required EU rules. For WB6 countries, there are challenges to transpose certain elements of the CACM Regulation which was not designed with a view to Energy Community. Transposing is doable to large extent as the Serbian case shows, but the legal set-up overall is not fully clear. ENTSO-E has urged EnCS and EC to sort out the situation what are the legal preconditions (incl. non-electricity related ones as well) to become a non-EU market part of the operational single European coupling. 4M MC as well as Croatian parties are analyzing their possibilities for the next steps while they are fully committed to the implementation of the flow-based market coupling under Core CCR.

#### Croatian borders

SL: HOPS and ELES (together with market operators CROPEX and BSP) started 2015 a project to couple Croatian DA market with the Slovenian one and through it to the MRC. It is based on NTC allocation and carried out in the framework of IBWT. Adherence of Croatian Parties to IBWT was finalised in March 2017, with formation of IBWT dedicated Implementation Project Team in charge of defining Road-map and coupling go-live date which is expected be Q1 2018. This may be a challenging target in the light of a relatively slow progress so far in the project.

BA: HOPS, CROPEX and NOS BiH have preliminary looked at ways to proceed in DA market integration. A more structured project is envisaged to start around Q2/2017. The undeveloped stage of DA market in BiH does not allow any quick results in this area but there are ways (e.g. CROPEX introducing import/export zones on the BA border) that can facilitate developments.

HU: HOPS is discussing possible coupling and analyzing the preconditions for it with 4MMC parties. There is no project on it yet but the changed situation of 4MMC may enhance the development. Introducing import/export zones on HR-HU border could be an interim solution which has not yet been discussed with HU or 4M MC Parties.

RS: Capacity on HR-RS border is relatively weak (compared to other Croatian borders. It would make more sense to couple via BiH benefitting from all the interconnectors between three neighbors. However, if HU-HR and HU-RS will materialize soon, then HR-RS becomes more interesting (even as one “package”).

### Bulgarian borders

RO/4MMC: As discussed above, there are no legal nor technical obstacles for Bulgaria to couple with Romania/4MMC (except the current BG grid fee on export). ESO has sent to Transelectrica an invitation to initiate a project but no concrete negotiations are ongoing in the matter. This may change as 4MMC is now contemplating its next steps.

MK: ESO and IBEX are looking with MEPSO at chances to stepwise integrate their respective markets. The first step could be a use of import/export zones. The most immediate problem is the FYR of Macedonian VAT rules which have to be harmonized. But for a true coupling, the national MK day-ahead market set-up shall be there first and the work hasn't properly started. Prudent date estimate for the full coupling would be rather sometimes in 2019 than 2018.

GR: Bulgaria is interested to couple with Greece in due course. This would happen after the GR/IT coupling, perhaps closer to 2020.

RS: No particular interest for market integration seems to prevail on either side of the RS/BG border.

### Serbian borders

ME: Montenegro/Serbia-border is often considered as the first candidate for coupling inside the WB6 region. Timing depends largely on the internal work in ME including a decision on the market model and implementing rules and other prerequisites for a day-ahead market. Realistic estimate for a coupling to go-live is sometimes late 2018.

4MMC (HU+RO): Serbia sent in early 2016 a proposal to the 4MMC parties to initiate preparations for a coupling. The 4MMC didn't take position to it as long as the interim MRC coupling was on table but has now started to analyse the matter.

MK: For FYR of Macedonia Serbia (or Bulgaria) would be the first partner to couple with. It takes however a lot of work to get the FYR of Macedonian DA market working along the EU design.

### Albanian borders

KS: The plan is that Kosovo will couple with the Albanian market once the Albanian PX is operational and Kosovo has all the prerequisites established. The PX may be there in early

2018 but no timetable can be given for Kosovo now due to the unsolved political dispute between RS and KS. Once it is solved, some 6-12 months are needed to join the two markets. As an interim step, Albanian PX will introduce import/export zones on the KS border to increase the efficiency of capacity allocation.

ME: For Albania, Montenegro would be a natural next step. This may wait the ME/RS coupling to take place first, but not necessarily. Here again introduction of import/export zones on the AL/ME border is a realistic first step.

FYROM: Coupling with FYR of Macedonian market becomes relevant when the new interconnector Alb-Mac is completed (planned in first half of 2019).

GR: There are no plans in this path for the time being. Albanian PX is expected to introduce import/export zones on the GR borders to increase the efficiency of capacity allocation.

### Montenegrin borders

RS: For Montenegro/Serbia-coupling, see above chapter on Serbia.

IT: The forthcoming new interconnector between IT and ME is expected to be ready in end-2018. It offers opportunity to couple Italy with ME and thereby with RS, potentially during 2019. It would support the original rationale of the cable investment. It would also open the first coupling of WB6 countries to the MRC area.

AL: Once the above is done, the natural next step could be a ME coupling with Albania, possibly sometimes in 2019.

### Greek borders

IT: Coupling of Greece with Italy has been long on planning table based on the existing submarine cable between the countries. This awaits still the redesign of the Greek DA market. Coupling could follow somewhat later, perhaps in beginning of 2019.

BG: BG/GR coupling could be around 2020.

## **3.2 Tentative road-map to regional SEE market**

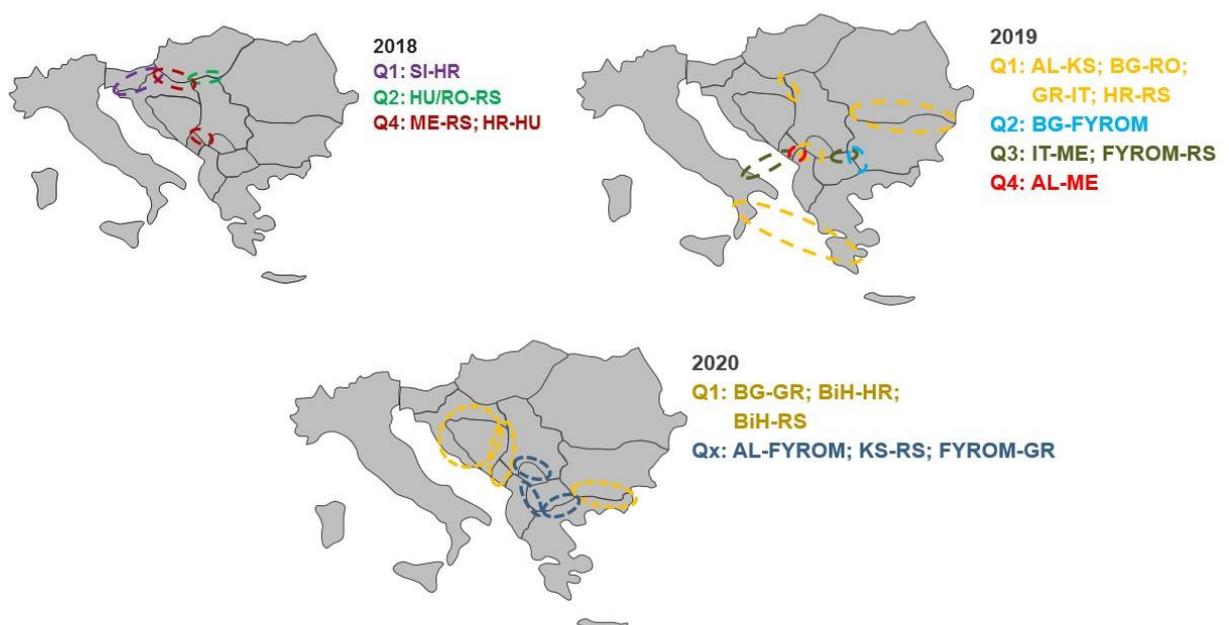
The above described integration efforts allow to draw a tentative road map showing possible sequence and timing of the steps towards a regionally coupled market. Every step involves many tasks and parties, with inherent uncertainties and risks of delays. Smooth integration requires also clarification of some legal EU conditions, as mentioned above and support from the already coupled part of European market (MRC). Therefore, roadmaps like the one below can adequately represent current expectations but needs to be updated along the road.

From the road map one can conclude:

- The year 2018 could mean a good opening towards the SEE market integration, notably to the North over the borders of 4MMC/Core.
- Apart from one coupling inside WB6 (ME/SR), the target to get every WB6 country coupled with at least one of its neighbors by 2018 seems to drift to 2019
- 2019 can be a busy year with some 6-8 new borders coupled
- Chances exist to get the rest of the borders coupled by end-2020

Border	Target date (Q/yr)	Remarks
Croatia-Slovenia	I/2018	first SEE/MRC coupling
Hungary/Romania-Serbia	II/2018	first SEE/4MMC coupling
Montenegro-Serbia	IV/2018	or III/2019 together with Italy-Montenegro
Croatia-Hungary	IV/2018	
Albania-Kosovo	I/2019	if RS/KS political issue settled on Connection agreement
Bulgaria-Romania	I/2019	
Greece-Italy	I/2019	
Croatia-Serbia	I/2019	
Bulgaria-FYROM	II/2019	
Italy-Montenegro	III/2019	new interconnector in construction
FYROM-Serbia	III/2019	
Albania-Montenegro	IV/2019	
Bulgaria-Greece	I/2020	
BiH-Croatia	I/2020	
BiH-Serbia	I/2020	
Albania-FYROM	2020	new interconnector in construction
Kosovo-Serbia	2020	
FYROM-Greece	2020	
RS-BG, AL-GR	?	no clear expectations on timing

Picture 2: Tentative roadmap to regional SEE market



## 4. Ensuring regional coordination

### 4.1 Technical TSO coordination

Allocation of cross-border transmission capacities is coordinated in an important part of SEE. A regional allocation office SEE CAO was established in 2015 with a seat in Podgorica ME. The shareholders include TSOs from AL, BA, GR, HR, KS, ME, MK and TR. The SEE CAO auctions capacities yearly, monthly and daily on the borders between its members (except KS borders at a moment). Serbian EMS has applied to join SEE CAO but no agreement has been reached yet. Bulgaria is not part of SEE CAO and has separate bilateral auctions on its RO, RS and GR borders.

Another area of emerging cooperation is that of system security. There are two separate initiatives in SEE to establish a regional security coordinator (RSC) which has the capacity calculation as one task. The TSOs of BA, ME and RS founded in 2015 a coordination centre (SCC Belgrade) which is already performing several RSC functions. Another initiative aims at a similar centre (Thessaloniki) with TSOs of AL, BG, GR, KS, MK and TR as signatories, but it is not operative yet.<sup>12</sup> One could discuss whether it is effective to have two centres in a small region like SEE.

### 4.2 Need for compatible market rules

Several national and bilateral initiatives are on-going in the SEE region with the purpose to develop day-ahead markets and to integrate each, at first stage, with that of the closest neighbour. It is not realistic to expect a big-bang move to one centralised SEE structure (like 1 PX). Rather it is about stepwise bilateral coupling projects around those few countries with a proper PX function and then convergence to a multilateral regional market.

The current bilateral initiatives are carried out under separate regimes. The concern is that different projects can adopt different solutions, which are incompatible with each other. Potential mismatch may hamper further integration.

This risk is bigger among EnC (WB6) countries than EU countries. In EU, even if the network codes don't give detailed solutions they set obligations, processes and deadlines to the parties to jointly develop, decide and implement them.

EnC doesn't have similar rules to binding cooperation and thus a more voluntary approach is to be applied, at least until legal implementation of network codes in EnC is assured. EnCS is entitled to supervise the EU acquis transposition to national legislations in consistent manner. But this doesn't help to coordinate the NC-level details which are more a business of the TSOs and PXs – and the regulators. A structure to do this coordination is needed to combine professional expertise with sufficient political backing.

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<sup>12</sup> In addition HR and HU are service users and shareholders of TSCNET Services GmbH (Munich, Germany) from its establishment while RO is about to start using services from that RSC.

### 4.3 WB6 Initiative – a potential platform for coordination

The answer to the above need for coordination can be the so-called Western-Balkans 6 (WB6) Initiative which was launched in 2015 at high political level. The consequent MoUs were signed a year later, one for day-ahead and another for balancing markets. Since then several EU neighbours have also adhered to the MoU.

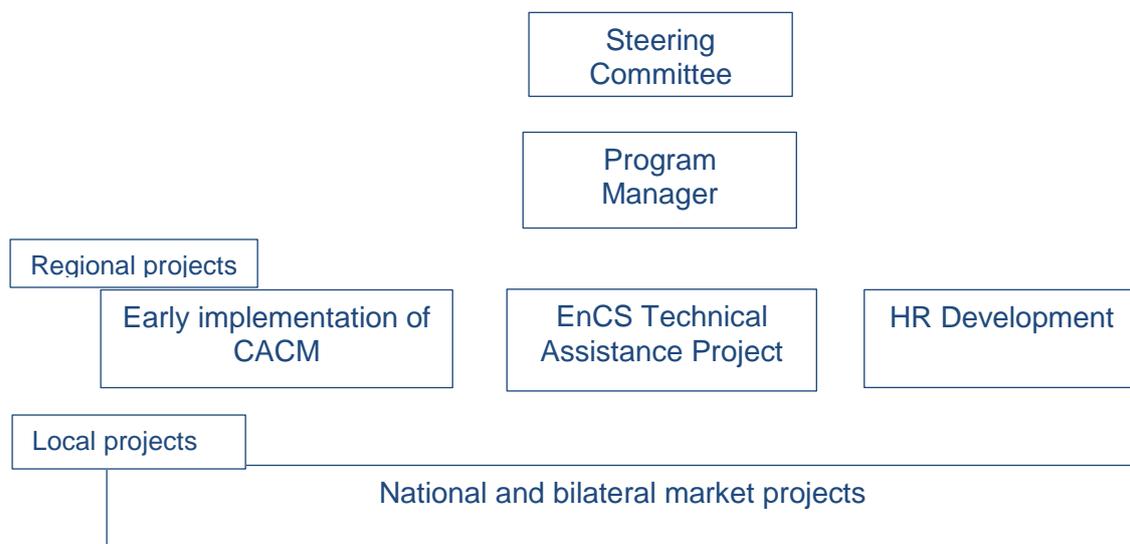
The initiative aims at providing a working process and a political commitment for establishment of a regional power market. It involves ministries, NRAs, TSOs and PXs. The main work load seems to be on the shoulders of few TSOs.

EnCS has monitoring and facilitating role. It produces progress reports on national implementation and has means to finance consultants to help in the work.

This process has started a bit slowly. WB6 is still constituting itself and is defining its working structure and contents.

The structure for DA market will have a layer of the on-going local/bilateral projects. This is mainly for an information purpose as the WB6 has no mandate to steer those projects. Three regional projects form another layer with the most important project focusing at implementation and coordination of CACM and related matters.

Picture 3: Structure of the WB6 day-ahead project



The challenge is to get this project organised, resourced and really working. A more-or-less full time PMO, financially supported via EnCS assistance programme, could be a solution.

#### 4.4 CESECe

The European Commission has proposed a new structure to promote e.g. electricity market integration and RES development in SEE region, by extending the model of gas cooperation to that of electricity (Central and South Eastern Europe Gas Connectivity CESEC). A MoU and action plan are proposed to be drawn separately for market and RES/efficiency issues.

At the time of writing this report, it is not clear how CESECe would go together with existing market activity within WB6 and what value-added it would bring. Some positive aspects could be to strengthen the political commitment and to better incorporate EU and non-EU market development compared to current WB6 setup. However, it is necessary to ensure coordination and alignment between existing and new structures to avoid overlapping and inefficiency.

#### 4.5 Governance around market coupling

Market coupling requires contractual arrangements between the involved TSOs and PXs/NEMOs to define contents and terms of the operative cooperation.

MRC has set up a model for this. It has basically one main contract for the day-ahead coupling, the Operational Agreement (DAOA) and a structure for organising the work and making decisions.

For all practical reasons, the SEE countries should apply this same approach to extent applicable in their bilateral couplings. It would pave the way to ultimate integration with MRC.

All the SEE TSOs (except OST and KOSTT) have signed a NDA and got a right to see the DAOA. They also can become observers in MRC (like HOPS and ESO already are), if they wish.

In addition, there are in MRC more specific regional operational agreements (such as IBWT) to define detailed procedures, cost sharing rules etc., not covered by the DAOA. The regional agreements are tailor-made for local purpose and do not follow any common format.