



Final Report: Assessment of national balancing markets of beneficiary countries (Task 1)

EKC and IMP

March 2019

This report is a deliverable under the **Technical Assistance to Connectivity in the Western Balkans, Component 2: Regional Energy Market**.

www.energy-community.com



This project is supported by the European Union. The contents of this publication are the sole responsibility of the Energy Community Secretariat and can in no way be taken to reflect the views of the European Union.





Technical Assistance to the Implementation of Cross-border Electricity Balancing

Task 1: Assessment of national balancing markets of beneficiary countries

Final Report

March 2019



Project Team		
Zoran Vujasinović	EKC	Project leader
Dušan Vlaisavljević	EKC	Author
Dragana Orlić	EKC	Author
Nebojša Jović	EKC	Author
Ognjen Vuković	EKC	Author
Branko Leković	EKC	Author
Goran Jakupović	IMP	Software development
Nikola Stojanović	IMP	Software development
Digna Eglite		Legal expert



Contents

1.	Introduction.....	5
2.	Requirements of EBGL/SOGL.....	6
2.1	General provisions	6
2.2	Functions and responsibilities/ European platforms	6
2.3	Procurement of balancing services	8
2.4	Cross-zonal capacity for balancing services	10
2.5	Settlement.....	10
3.	Status of beneficiaries balancing markets and legal gap analysis	14
3.1	Serbia	14
3.1.1	Current state of balancing market.....	14
3.1.2	Summary of gap analysis	18
3.2	Albania	23
3.2.1	Current state of balancing market.....	23
3.2.2	Summary of gap analysis	26
3.3	Kosovo*	34
3.3.1	Current state of balancing market.....	34
3.3.2	Summary of gap analysis	37
3.4	FYR Macedonia.....	44
3.4.1	Current state of balancing market.....	44
3.4.2	Summary of gap analysis	47
3.5	Montenegro	53
3.5.1	Current state of balancing market.....	53
3.5.2	Summary of gap analysis	57



Task 1 – Current state and gap analysis

3.6	Bosnia-Herzegovina.....	65
3.6.1	Current state of balancing market.....	65
3.6.2	Summary of gap analysis	68



1. Introduction

Having in mind that one of the objectives of this study to develop consistent and feasible roadmap towards regional balancing market, purpose of this chapter is to firstly exam essential EB GL/SO GL requirements and to give brief overview of current state of balancing markets in WB6 region and then on that basis to give comprehensive gap analysis between EB GL/SO GL and beneficiaries legislative. As outcome of this chapter, proposal for changes followed by concrete amendments in legal framework of every WB6 parties are given.

In the **first subtask**, only essential and most relevant EB GL/SO GL requirements are given, based on which a summary of gap analysis between regulations of WB6 parties and EB GL/SO GL was made. These requirements are subdivided into following chapters:

- General provisions
- Functions and responsibilities/ European platforms
- Procurement of balancing services
- Cross-zonal capacity for balancing services
- Settlement

Purpose of this subtask is to have clear reference on the requirements based on which the summary of gap analysis was made.

Focus of **second subtask** will be on areas of relevance for cross-border cooperation, such as:

- Balancing market
- Balancing capacity procurement scheme
- Balancing products and prequalification for BSPs
- Balancing energy procurement process, activation and pricing
- Settlement of balancing energy between TSO and BSPs
- Imbalance settlement and cost recovery

Outcome of this subtask is overview of current practices for the procurement, activation, pricing and settlement of balancing services and imbalances in beneficiary parties.

In the **third subtask**, comprehensive legal gap analysis between all relevant EBGL/SOGL requirements and legislation of projects beneficiaries, which usually is consisted of the primary legislation (Energy law) and the secondary legislation (Market code, Network Code). Having in mind size of this gap analysis, in final report only summary for each WB6 parties is given, with



reference to EBGL/SOGL requirements from the first chapter, as already mentioned. Entire analysis is given in Annex 1 of this report.

The potential adaption of the EB GL/SO GL to the institutional framework and specificities of the Contracting Parties of the WB6 region when incorporating the Guidelines into the Energy Community acquis was not taken into account in this gap analysis, as it is unknown at the moment of compiling this report. Hence, this gap analysis refers to the transposition of the integral text of the EB GL/SO GL into national legislation without taking into account any such adaptation.

Outcome of this gap analysis are identification of level of compliance of current legal/regulatory framework of WB6 region and mentioned EB GL/ SO GL requirements and proposed changes in order to remove potential legal nonconformities.

2. Requirements of EBGL/SOGL

In this chapter, a brief overview of the most relevant EBGL/SOGL requirements are given, based on which a gap analysis between regulations of WB6 parties and EBGL/SOGL was made.

Note that in Annex to Task 1 Report, the comprehensive gap analysis for each country is given, with additional requirements listed.

2.1 General provisions

Article 3 of the SO GL/Article 2 of the EB GL

In these articles definitions of numerous concepts are given, such as FCR, FRR, RR, balancing services, BRP, BSP, imbalance, TSO-TSO model, standard product, common merit order list, activation optimisation functions and so on.

2.2 Functions and responsibilities/ European platforms

Article 14 – Role of the TSOs

Each TSO shall be responsible for procuring balancing services from balancing service providers in order to ensure operational security. In addition, each TSO shall apply a self-dispatching model for determining generation schedules and consumption schedules.

Article 16 – Role of BSPs



A balancing service provider shall qualify for providing bids for balancing energy or balancing capacity, which are activated or procured by the connecting TSO. Also, each balancing service provider participating in the procurement process for balancing capacity shall submit and have the right to update its balancing capacity bids before the gate closure time of the procurement process.

Each balancing service provider with a contract for balancing capacity shall submit to its connecting TSO the balancing energy bids or integrated scheduling process bids corresponding to the volume, products, and other requirements set out in the balancing capacity contract

The price of the balancing energy bids or integrated scheduling process bids from standard and specific products shall not be predetermined in a contract for balancing capacity.

Article 17 – Role of BRPs

In real time, each balance responsible party shall strive to be balanced or help the power system to be balanced and shall be financially responsible for the imbalances to be settled with the connecting TSO.

Prior to the intraday cross-zonal gate closure time, each balance responsible party may change the schedules required to calculate its position pursuant TSO.

Article 18 – Terms and conditions related to balancing

TSOs shall develop a proposal regarding:

- (a) the terms and conditions for balancing service providers;
- (b) the terms and conditions for balance responsible parties.

Where a LFC area consists of two or more TSOs, all TSOs of that LFC area may develop a common proposal subject to the approval by the relevant regulatory authorities.

Article 24 – Balancing energy gate closure time

Balancing energy gate closure times shall:

- (a) be as close as possible to real time;
- (b) not be before the intraday cross-zonal gate closure time;



(c) ensure sufficient time for the necessary balancing processes.

After the balancing energy gate closure time, the balancing service providers shall no longer be permitted to submit or update their balancing energy bids.

Article 25 and 26– Requirements for standard and specific products

The list of standard products for balancing energy and balancing capacity may set out at least the following characteristics of a standard product bid: (a) preparation period; (b) ramping period; (c) full activation time; (d) minimum and maximum quantity; (e) deactivation period; (f) minimum and maximum duration of delivery period; (g) validity period; (h) mode of activation

The list of standard products for balancing energy and balancing capacity shall set out at least the following variable characteristics of a standard product to be determined by the balancing service providers during the prequalification or when submitting the standard product bid: (a) price of the bid; (b) divisibility; (c) location; (d) minimum duration between the end of deactivation period and the following activation

Each TSO may develop a proposal for defining and using specific products for balancing energy and balancing capacity

2.3 Procurement of balancing services

Article 29, 30 and 31. Activation of balancing energy bids from common merit order list, pricing for balancing energy and cross-zonal capacity used for exchange of balancing energy or for operating the imbalance netting process and activation optimisation function

Each TSO shall use cost-effective balancing energy bids available for delivery in its control area based on common merit order lists.

All TSOs shall develop a proposal for a methodology for classifying the activation purposes of balancing energy bids. This methodology shall:

- (a) describe all possible purposes for the activation of balancing energy bids;
- (b) define classification criteria for each possible activation purpose.

The activation of balancing energy bids shall be based on a TSO-TSO model with a common merit order list.



All TSOs shall develop a proposal for a methodology to determine prices for the balancing energy that results from the activation of balancing energy bids for the frequency restoration process, and the reserve replacement process. Such methodology shall:

- (a) be based on marginal pricing (pay-as-cleared);
- (b) define how the activation of balancing energy bids activated for purposes other than balancing affects the balancing energy price, while also ensuring that at least balancing energy bids activated for internal congestion management shall not set the marginal price of balancing energy;
- (c) establish at least one price of balancing energy, for each imbalance settlement period;
- (d) give correct price signals and incentives to market participants;
- (e) take into account the pricing method in the day-ahead and intraday timeframes.

In case TSOs identify that technical price limits are needed for efficient functioning of the market, they may jointly develop as part of the proposal pursuant to paragraph 1 a proposal for harmonised maximum and minimum balancing energy prices, including bidding and clearing prices, to be applied in all scheduling areas. In such a case, harmonised maximum and minimum balancing energy prices shall take into account the maximum and minimum clearing price for day-ahead and intraday timeframes pursuant to Regulation

Common merit order lists shall consist of balancing energy bids from standard products. All TSOs shall establish the necessary common merit order lists for the standard products. Upward and downward balancing energy bids shall be separated in different common merit order lists.

Article 32 – Balancing capacity procurement rules

Each TSO procuring balancing capacity shall define the rules for the procurement of balancing capacity in the proposal for the terms and conditions related to balancing service providers developed pursuant to Article 18. The rules for the procurement of balancing capacity shall comply with the following principles:

- (a) the procurement method shall be market-based for at least the frequency restoration reserves and the replacement reserves;



(b) the procurement process shall be performed on a short-term basis to the extent possible and where economically efficient;

(c) the contracted volume may be divided into several contracting periods.

The procurement of upward and downward balancing capacity for at least the frequency restoration reserves and the replacement reserves shall be carried out separately.

2.4 Cross-zonal capacity for balancing services

Articles 36 and 37 – Use and Cross-zonal capacity calculation of cross-zonal capacity (Exchange of balancing energy or imbalance netting process)

All TSOs shall use the available cross-zonal capacity, computed according to paragraphs 2 and 3 of Article 37, for the exchange of balancing energy or for operating the imbalance netting process

After the intraday-cross-zonal gate closure time, TSOs shall continuously update the availability of cross-zonal capacity for the exchange of balancing energy or for operating the imbalance netting process. Cross-zonal capacity shall be updated every time a portion of cross-zonal capacity has been used or when cross-zonal capacity has been recalculated.

Before the implementation of the capacity calculation methodology, TSOs shall use the cross-zonal capacity remaining after the intraday cross-zonal gate closure time

Article 38 and 39 – General requirements and calculation of market value of cross-zonal capacity (Exchange of balancing capacity or sharing of reserves)

Two or more TSOs may at their initiative or at the request of their relevant regulatory authorities in accordance with Article 37 of Directive 2009/72/EC set up a proposal for the application of one of the following processes: (a) co-optimised allocation process; (b) market-based allocation process; (c) allocation process based on economic efficiency analysis.

The market value of cross-zonal capacity for the exchange of energy and for the exchange of balancing capacity or sharing of reserves used in a co-optimised or market-based allocation process shall be based on the actual or forecasted market values of cross-zonal capacity

2.5 Settlement

Article 44 – General principles

The settlement processes shall:

- ensure that imbalances are settled at a price that reflects the real time value of energy;
- provide incentives to balance responsible parties to be in balance or help the system to restore its balance;
- ensure the financial neutrality of all TSOs;

Article 45, 47 and 48 – Balancing energy calculation, balancing energy for frequency restoration process and balancing energy for reserve replacement process

As regards the settlement of balancing energy for at least the frequency restoration process and the reserve replacement process, each TSO shall establish a procedure for:

(a) the calculation of the activated volume of balancing energy based on requested or metered activation;

(b) claiming the recalculation of the activated volume of balancing energy

Each connecting TSO shall calculate and settle the activated volume of balancing energy for the frequency restoration process and for the reserve replacement process with balancing service providers.

The price, be it positive, zero or negative, of the activated volume of balancing energy for the frequency restoration process and for the reserve replacement process shall be defined for each direction pursuant to as defined in the table below.

Table 1: Payment for balancing energy

	Balancing energy price positive	Balancing energy price negative
Positive balancing energy	Payment from TSO to BSP	Payment from BSP to TSO
Negative balancing energy	Payment from BSP to TSO	Payment from TSO to BSP

Article 49 – Imbalance adjustment to the balance responsible party

Each TSO shall calculate an imbalance adjustment to be applied to the concerned balance responsible parties for each activated balancing energy bid.

Article 50 – Intended exchanges of energy



By one year after the entry into force of this Regulation, all TSOs shall develop a proposal for common settlement rules for:

- (a) the reserve replacement process;
- (b) the frequency restoration process with manual activation;
- (c) the frequency restoration process with automatic activation;
- (d) the imbalance netting process.

Articles 52, 53, 54 and 55 – Imbalance settlement, imbalance settlement period, imbalance calculation and imbalance price

All TSOs shall develop a proposal to further specify and harmonise at least:

- (a) the calculation of an imbalance adjustment and the calculation of a position, an imbalance and an allocated volume
- (b) the main components used for the calculation of the imbalance price for all imbalances including, where appropriate, the definition of the value of avoided activation of balancing energy from frequency restoration reserves or replacement reserves;
- (c) the use of single imbalance pricing for all imbalances, which defines a single price for positive imbalances and negative imbalances for each imbalance price area within an imbalance settlement period ;
- (d) And the definition of conditions and methodology for applying dual imbalance pricing for all imbalances, which defines one price for positive imbalances and one price for negative imbalances for each imbalance price area within an imbalance settlement period;

All TSOs shall apply the imbalance settlement period of 15 minutes in all scheduling areas while ensuring that all boundaries of market time unit shall coincide with boundaries of the imbalance settlement period. The TSOs of a synchronous area may jointly request an exemption from this requirement.

Each TSO shall calculate within its scheduling area or scheduling areas when appropriate the final position, the allocated volume, the imbalance adjustment and the imbalance:



- (a) for each balance responsible party;
- (b) for each imbalance settlement period;
- (c) in each imbalance area.

Each TSO shall set up the rules for:

- (a) the calculation of the final position;
- (b) the determination of the allocated volume;
- (c) the determination of the imbalance adjustment pursuant to Article 49;
- (d) the calculation of the imbalance;
- (e) claiming the recalculation of the imbalance by a balance responsible party

Each TSO shall set up rules to calculate the imbalance price, which can be positive, zero or negative, as defined in Table 2.

Table 2: Payment for imbalance

	Imbalance price positive	Imbalance price negative
Positive imbalance	Payment from TSO to BRP	Payment from BRP to TSO
Negative imbalance	Payment from BRP to TSO	Payment from TSO to BRP

The imbalance price for negative imbalance shall not be less than the weighted average price for positive activated balancing energy from frequency restoration reserves and replacement reserves.

The imbalance price for positive imbalance shall not be greater than, the weighted average price for negative activated balancing energy from frequency restoration reserves and replacement reserves.

3. Status of beneficiaries balancing markets and legal gap analysis

3.1 Serbia

3.1.1 Current state of balancing market

Based on: publicly available information

a) Balancing market

Balancing market in Serbia is functional but still not in competitive manner.

By adopting the new Energy Law at the end of 2014, the field of energy in Serbian legislation is harmonized with the provisions of the Third energy legislative package of the European Union, which continued the process of introducing competition in the electricity sector in Serbia. As a support in this process, Grid Code (2017)¹ and Market Code (2016)² have particularly important place especially having in mind that EMS has a role of transmission and market operator.

Balancing electricity market was established on January 1, 2013 and responsibility for system balancing was completely given to EMS, including the following tasks:

- provision of the balancing services in accordance with transparent, non-discriminatory and market principles which will provide adequate incentives for system users to keep balance between their delivery and takeover of electricity;
- determination of the price of electricity for the needs of system balancing, pursuant to Market Code;
- regular publication of data relating to activated balance energy and settlement price.

The number of balance responsible parties (BRP) reached 55 at the end of 2016 but as providers of balancing services there is still one dominant market participant (EPS).

Also, renewables are exempt from balancing responsibility and costs for balancing of RES are transferred to end consumers.

¹ PRAVILA_O_RADU_PRENOSNOG_SISTEMA_

² Pravila o radu trzista elektricne energije - 09.12.2016 (1)



b) Balancing capacity procurement scheme

In 2015, EMS signed an agreement on the use of common regulation reserve (on the principle of common dimensioning) within control block with the transmission system operator in Montenegro.

Balancing capacity dimensioning is done for two types of balancing product: one for automatically activated secondary reserve and the other one for manually activated tertiary reserve.

Grid Code determines active power range for the needs of secondary reserve at the level of 160 MW, while the positive and negative tertiary reserves are 300 MW and 150 MW, respectively.

Price for secondary and tertiary reserve capacity is regulated and determined for each year. For 2017, the prices were:

- Secondary reserve: 9.86 €/MW/h
- Tertiary reserve: 3.0 €/MW/h

Reserve capacity is provided for the period of 1 year and costs for provision of these reserves are transferred to end consumers.

Availability of contracted capacity is monitored.

c) Balancing products and prequalification for BSPs

There is no prequalification for provision of the secondary or tertiary reserve although specific technical characteristics of the units that provide balancing services present a part of contract.

Market rules do not determine any specific requirements related to balancing products and no Standard Product is defined.

Offering of all available reserve capacity is mandatory for all participants (generating units).

d) Balancing energy procurement process, pricing and activation of balancing energy



Procurement of balancing energy is market based process completely realized by EMS.

Within balancing market, EMS recognizes dominant participant (EPS) and other participants. Dominant participant, beside explicit bids for provision of balancing services, provides a priority list for activation of the balancing entities in tertiary regulation and prices for upward and downward engagement in case of endangered security of supply.

Balancing services can be also provided by suppliers and neighbouring TSOs, all in line with contracts for provision of ancillary services.

Basic characteristics of the balancing energy procurement process are as follows:

- Initial offers (explicit bids, priority lists and offers for engagement in case of endangered security of supply) are submitted before 16.00 of the D-1
- Gate closure time for acceptance of the explicit bids is 60 minutes
- Gate closure time for “priority lists” is 15 minutes, while submitted offer for engagement in case of endangered security of supply cannot be changed
- Bid Quantity can be any quantity (no minimum is defined)
- Price of bid can be any bid less than determined price cap (500 EUR/MWh) and higher than 0.1 EUR/MWh
- Difference of the prices proposed by dominant participant for upward and downward activation of first 100 MWh have to be less than 30 EUR/MWh.
- Balancing bids can be posted during 24 hours any day in a week.

EMS is responsible for balancing process and activation of the balancing energy but also for organization of the balancing market. Tertiary reserve is separated to fast and slow and it is activated according to merit order list. Secondary reserve is activated on the pro-rata basis.

Regarding automatic activation of the secondary reserve, the Load frequency controller is a proportional-integral (PI) type. The cycle time for the automatic controller is 4s. The controller has actions only on generating units or power plants capable to exchange in real time a specific flux of data:

- All hydropower units with $P_{nom} > 50$ MW
- All thermal units with $P_{nom} > 150$ MW

Activation of secondary regulation takes into account existing contracts for netting of the imbalances with neighbouring TSOs (currently imbalance netting with CGES is in trial period).

Total engaged balancing energy in 2016 was 939,665 MWh which is around 3% of total consumption.

e) Settlement of balancing energy between TSO and BSPs

Imbalance settlement period in EMS balancing mechanism is still 1 hour. There are separate accounting of balancing energy quantity activated in upward direction and balancing energy quantity activated in downward direction within same ISP.

Settlement of activated balancing energy is made on the basis of the prices given in explicit bids by dominant and other participants.

Settlement mechanism for tertiary regulation can be characterized as pay-as-bid mechanism.

Settlement mechanism for secondary regulation is more complicated:

- Price is maximal price for activated tertiary regulation when secondary and tertiary regulation are of the same direction
- if not, price is equal to price offered by dominant participant

Report for operation of balancing market in 2016 gives the prices in Table 3.

Table 3: Average price of balancing energy in Serbia for 2016

Average price for provision of balancing services in 2016 (EUR/MWh)	Secondary & tertiary regulation
Upward	47.252
Downward	11.071

f) Imbalance settlement and cost recovery

Cost recovery for capacity procurement is organised through network tariff while for balancing energy costs via BRPs. For imbalance settlement, responsible party is market operator.

Single imbalance pricing based on weighted average prices of tertiary and secondary activated regulation both for positive and negative direction is used.

Settlement price can be between 0 EUR/MWh and 1.5 times maximum price of upward balancing energy.

3.1.2 Summary of gap analysis

The table below contains a condensed summary of the main gaps identified, along with the proposed transitional solutions³.

Relevant provisions/concepts of the EB GL/SO GL	National framework	legal	Level of compliance/identified gap	Transitional solution
General provisions				
Article 2/ Article 3 of the EB GL/ SO GL	The Energy Market Code, Code	Law, Grid	Main concepts to be introduced/aligned: FRR/RR, balancing services, balancing energy, balancing capacity, BRP, imbalance settlement, imbalance adjustment, TSO-TSO model (including TSO-TSO settlement function), balancing energy gate closure time, standard/specific products, common merit order list.	Replicate the definitions of the EB GL/SO GL in the Market Code/Grid Code and align the existing terminology accordingly
Functions and responsibilities/ European platforms				
Article 14 - 16, 18 and 24	The Energy Market Code, Code	Law, Grid	In substantive terms partially compliant, mainly due to the lack of pre-qualification requirements for BSPs and explicit provisions on submission of bids for balancing capacity.	<ul style="list-style-type: none"> - Introduce explicit provisions in the Market Code setting out the TSO's/BSPs role and procurement of "balancing energy", and "balancing capacity" pursuant to the provisions of the EB GL; - introduce amendments in the Market Rules covering the cooperation between the TSO and DSO concerning the reserve providing groups/units connected to the DSO grid, following the rationale of Article 182 of the SO GL; - Introduce pre-qualification requirements for the BSPs, as

³ Note: some of the transitional solutions might be needed/applicable after the Guidelines will become part of the Energy Community *acquis*, as there will be necessity to ensure that the national legal framework does not overlap/is not contradictory to the Guidelines



		<p>foreseen in Article 16 of EB GL and Article 159 and 162 of SO GL;</p> <ul style="list-style-type: none"> - Introduce a transitional definition of a standard product in the Market Code; - Introduce an explicit provision in the Market Code forbidding to predetermine the prices for balancing energy bids from these products in a contract for balancing capacity; - Clarify in the Market Code the concept of “a contract for balancing capacity” and use it uniformly for all relevant MPs; - Expand the scope of the Market Code by replicating the scope of terms and conditions for the BSPs and the BRPs, as set out in Article 18 of the EB GL; - Along with introducing the transitional definition of “standard product”, as well as the definition of the term “common merit order list” and “balancing energy gate closure time” itself, the balancing energy gate closure time should be set out in the Market Code in line with criteria envisaged in Article 24 Para 2 of the EB GL.
<p>Article 25 and 26 – Requirements for standard/specific products</p>	<p>N/A</p> <p>The standard/specific products for balancing energy and balancing capacity are not defined in the Serbian legislation, i.e. missing.</p>	<ul style="list-style-type: none"> - Introduce transitional definition of a standard product in the Market Code; - If the TSO identifies the necessity for specific products, the requirements for specific products, as well as the regular review thereof should be foreseen in the Market Code, following the rationale of Article 26 of the EB GL.
<p>Procurement of balancing services</p>		
<p>Article 29 – 32</p>	<p>The Energy Law, Market Code, Grid Code</p>	<p>Partially compliant, as the current framework foresees a general possibility for the TSO to receive balancing services from other TSOs.</p> <ul style="list-style-type: none"> - Amend Article 5.5.5. of the Market Code, so as to ensure that the price limit for difference of the activated energy for in both directions is eliminated;



		<p>Non-compliant, mainly due to the “pay-as-bid” pricing for activation of balancing energy bids for FRR/RR, as well potential price regulation of secondary and tertiary control.</p>	<ul style="list-style-type: none"> - amend Article 5.12.3. and 5.12.5. of the Market Code to explicitly set out that the price of activated balancing energy is equal to marginal price of last activated MWh (pay-as-cleared pricing); - Modify Articles 5.12.5 and 5.7. of the Market Code so as to allow offers, i.e. balancing energy bids to be submitted with associated prices by all participants in the balancing market (including suppliers/wholesale suppliers and other TSOs); - Ensure in the interim period that the agreements concluded among EMS and the neighboring TSOs on cross-border procurement/exchange of balancing energy are based on/aligned with the requirements of the EB GL (i.e. common merit order list, common definition of standard products, common pricing and settlement rules, etc.); - Introduce a definition of “reserve capacity” which will replicate the definition from the SO GL; - Introduce provisions setting out the rules for the procurement of balancing capacity in the Market Code, following the principles set out in the EB GL (market-based, short-term where economically efficient); - Ensure that the possibility of price regulation of secondary and tertiary control is not used in practice
<p>Article 34</p>	<p>N/A</p>	<p>The possibility for the BSPs to transfer their balancing capacity obligations is missing in the Serbian legislation.</p>	<p>Introduce in the Market Code a possibility for the BSPs to transfer their balancing capacity obligations within the geographical area in which the procurement of balancing capacity has taken place.</p>



<p>Article 37</p>	<p>N/A</p>	<p>Explicit provisions setting out the update/recalculation of the available cross-zonal capacity for the exchange of balancing energy or for operating the imbalance netting are missing in the legal acts.</p>	<p>TSO should use the cross-zonal capacity remaining after the intraday cross-zonal gate closure time as proposed (in Task 4). This provision should be introduced in the Market Code and/or Grid Code (and/or respective national rules and/or contracts governing the allocation of cross-border capacities if necessary)</p>
<p>Article 38 and 39</p>	<p>N/A</p>	<p>Explicit provisions regulating how the exchange of balancing capacity and sharing reserves shall take place, including one of three methodologies (foreseen in Article 38 and Article 40 – 42 of the EB GL respectively) for allocating cross-zonal capacity, are missing. Given that there is no methodology for allocating cross-zonal capacity, corresponding provisions setting out how the market value of cross-zonal capacity is calculated for the exchange of balancing capacity and sharing reserves are missing as well.</p>	<p>Introduce in the Market Code and the Grid Code provisions defining how the market value of cross-zonal capacity is calculated and allocated, pursuant to the general requirements set out in the EB GL.</p>
<p>Settlement</p>			
<p>Article 50</p>	<p>The Market Code</p>	<p>Explicit provisions regulating TSO-TSO settlement rules for the intended exchanges of energy from aFRR/mFRR/RR are missing in the Serbian legislation.</p>	<ul style="list-style-type: none"> - Introduce explicit provisions in the Market Code that would clarify the intended exchanges of energy from aFRR/mFRR/RR with other TSOs, pricing in such exchanges, as well as whether imbalance netting can be applied for these exchanges; - ensure that the agreements concluded among EMS and the neighboring TSOs on cross-border procurement/exchange of balancing energy are based on/aligned with the requirements of the EB GL.
<p>Article 53 - 55</p>	<p>The Market Code</p>	<p>Partly compliant, mainly due to imbalance calculation and calculation of imbalance prices.</p>	<ul style="list-style-type: none"> - Amend the existing “accounting interval” definition in the Market Code; - Introduce a provision in the Market Code explicitly stating



that allocated volume shall not be calculated for a BRP which does not cover injections or withdrawals;

- Review the imbalance settling principles in the Market Code, especially regarding meeting the requirements of Para 4 and 5 of Article 55 of the EB GL.



3.2 Albania

3.2.1 Current state of balancing market

Based on: relevant legislation (listed in references) data questionnaire and public information

a) Balancing market

OST, transmission system operator is a central counterparty for the purpose of balancing mechanism and responsible to undertake measures for balance the system physically and manage the financial settlement process. The transmission system operator procures balancing services from the state owned producer, KESH, under the regime of public service obligation. Prices for provision of these services are based on hourly price settled in the Hungarian day-ahead auction market, HUPX. Where the reference index is not available due to failure of the day-ahead market, as a second option, OST may use another reference index for the days and/or hours the prices are not available. The reference index to be used by OST in such circumstances is the price settled in the Serbian day-ahead market, SEEPEX..

The Transitional balancing rules enables participation of other balancing services providers also.

Although there is practically one BSP, there is 13 balancing responsible parties.

Renewables are exempt from balancing responsibility on the basis of Law on promotion of Renewable Energy Sources in Albania (2017) and all the costs for balancing RES productions are transferred to Universal Supplier (OSHEE)

b) Balancing capacity procurement scheme

Cross-border balancing cooperation is required by law.

OST has together with KOSTT developed a mechanism for exchange and sharing of secondary reserves but it is not yet operational. There is also a discussion about cross-border cooperation with MEPSO, CGES and EMS for tertiary reserve.

Balancing capacity dimensioning is done for two types of balancing product: one for automatically activated secondary reserve and the other one for manually activated tertiary reserve.



For aFRR reserves, OST uses empirical formula to calculate capacity requirements, according to ENTSO-E Policy 1 Operational Handbook. In 2017, contracted value for FRR reserve capacity was ± 35 MW. In 2018, contracted value for secondary and tertiary reserve capacity is determined on weekly level and separately for upward and downward direction.

For Restoration Reserve there was no provision in 2017 but from 2018, based in a new contract with BSP (KESH), RR reserve is procured on a market basis.

Price for balancing reserve capacity is regulated and determined for each year. For 2017, average prices were:

- Balancing reserve (in both directions): 1.196 €/MW/h

In 2018, based in new contract with BSP (KESH), price for FRR is 2.14 €/MW/h and for RR is 3.17 €/MW/h.

Procurement cycle for balancing capacity is year ahead.

c) Balancing products and prequalification for BSPs

There is no prequalification for provision of the secondary or tertiary reserve and no definition of Standard Product, but there are procedures for testing of the technical characteristics of the generating units participating in the mechanism.

Balancing reserve capacity provision is mandatory for all units.

d) Balancing energy procurement process, activation and pricing

Procurement of balancing energy is not based on bids for energy, but TSO have right to give balancing orders which are priced according to HUPX prices, and this can be seen as restrictions impose due to presence of only one dominant provider of balancing services (KESH). KESH is obliged to offer all of its available capacity.

Other providers should provide an offer with specification of the offered capacity in MW and the period from/to during which the balancing services are offered. The request should be submitted at least 30 calendar days before the day when balancing services are available. No restrictions in the sense of min/max capacity are set.



OST is responsible for balancing process and activation of the balancing energy but also for organization of the balancing market. In cases when more than one provider is present, balancing reserve is activated on a pro-rata basis to avoid any discrimination.

Regarding automatic activation of the secondary reserve, the Load frequency controller is a proportional-integral (PI) type. The cycle time for the automatic controller is 4s.

Total engaged balancing energy in 2016 was 135 GWh, which is around 2% of total consumption.

e) Settlement of balancing energy between TSO and BSPs

Imbalance settlement period in OST balancing mechanism is 1 hour. There are separate accounting of balancing energy quantity activated in upward direction and balancing energy quantity activated in downward direction within same ISP.

Settlement of activated balancing energy is made on the basis of the prices that are set based on a market price reference. Market price reference is the hourly price settled in the Hungarian day-ahead auction market, HUPX. This is HUPX DAM in EUR/MWh and is published on a daily basis for the next delivery day at HUPX web page (www.hupx.hu) or in the case of its unavailability - hourly price settled in the Serbian day-ahead auction market, SEEPEX.

Upward balancing reserve activation price is calculated as HUPX DAM price of specific hour multiplied by a factor of 1.2 for each MWh. BSPs are paid for this service.

Downward balancing reserve activation price is calculated as HUPX DAM price of specific hour multiplied by a factor of 0.05 for each MWh. BSPs pays for this service.

In 2017 average price for activated balancing energy in upward direction was 61.23 EUR/MWh.

f) Imbalance settlement and cost recovery

Cost recovery for capacity procurement is organised through network tariff while for balancing energy costs via BRPs. For imbalance settlement, responsible party is Balancing Market Operator. Although Grid code describe single imbalance pricing, dual imbalance pricing mechanism that takes into account position of control area is applied.

Table 4: Dual imbalance pricing in Albania

BRP	Control Area	LONG	SHORT	Neutral
LONG		0.05 x HUPX DAM (receives)	0.5 x HUPX DAM (receives)	1 x HUPX DAM (receives)
SHORT		0.5 x HUPX DAM (pays)	1.5 x HUPX DAM (pays)	1 x HUPX DAM (pays)

Due to the pricing model used, OST account for managing the financial settlement of balancing mechanism may not be financially neutral on the annual basis. Having this in mind, ERE ensures that any income or cost arising from the balancing mechanism is taken into account in the transmission tariff review.

3.2.2 Summary of gap analysis

Relevant provisions/concepts of the EB GL/SO GL	National framework	legal	Level of compliance/identified gap	Transitional solution
General provisions				
Article 2/ Article 3 of the EB GL/ SO GL	The Power Sector Law, Provisional Market Rules, Transitional Balancing Rules, Grid Code, Market Model, Market Rules		Main concepts to be introduced/aligned: balancing services, balancing energy, balancing capacity, BRP, imbalance adjustment, TSO-TSO model (including TSO-TSO settlement function), balancing energy gate closure time, standard/specific products, common merit order list	Replicate the definitions of the EB GL/SO GL in the Power Sector Law/Provisional Market Rules/Transitional Balancing Rules/Grid Code/Market Rules and align the existing terminology accordingly
Functions and responsibilities/ European platforms				
Article 14	The Power Sector Law, Provisional Market Rules, Transitional Balancing Rules, Grid Code, Market Model, Market Rules		Partially compliant , due to lack of appropriate definition of balancing services.	No separate transitional solution is proposed, as it is inherently linked with the transitional solutions for the definition of “balancing services”: - Correct the definition in Transitional Balancing Rules so that it includes “or balancing capacity or both” and thus make



			<p>it compliant with the definition from the EB GL;</p> <ul style="list-style-type: none"> - introduce a definition of “balancing services” in the Provisional Market Rules, the Market Model and Market Rules which will replicate the definition from the EB GL
Article 16	The Provisional Market Rules, Transitional Balancing Rules, Grid Code, Market Rules	<p>Non-compliant, mainly due to the fact that the usage of balancing energy is not done on the basis of any kind of bids but rather by the TSO giving orders for activation (“balancing orders”). Similarly, there are no provisions on how BSPs can submit balancing capacity bids.</p>	<ul style="list-style-type: none"> - Link the pre-qualification requirements mentioned in Article 169 and 171 of the Grid Code with the qualification process to become a BSP; - introduce in the Transitional Balancing Rules the possibility and procedure for all BSPs to submit offers (bids) for balancing capacity and balancing energy; - once the Market Rules enter into force and till standard agreement mentioned in Article 2.4.2. of the Market Rules is approved, introduce an explicit provision in the Transitional Balancing Rules setting out the type of agreement the TSO and BSPs shall conclude and use this concept of agreement uniformly; - introduce a transitional definition of a standard product in the Transitional Balancing Rules; - introduce an explicit provision in the Transitional Balancing Rules forbidding to predetermine the prices for balancing energy bids from these products in a contract for balancing capacity
Article 18	The Power Sector Law, Provisional Market Rules, Transitional Balancing Rules, Market Rules	<p>Partially compliant, due to lack of clear requirements for provision of balancing services, FRR/RR qualification process is not linked with the qualification process for becoming a BSP, etc.</p>	<ul style="list-style-type: none"> - Expand the scope of the Transitional Balancing Rules by replicating the scope of terms and conditions for the BSPs and the BRPs, as set out in Article 18 of the EB GL. This would require



			<p>amendments on requirements for provisions of balancing services and the qualification requirements for the BSPs, defining standard products in the interim period, etc.</p>
Article 24	The Transitional Balancing Rules	Non-compliant , linked to the non-existence of bids for balancing energy	<ul style="list-style-type: none"> - Introduce the transitional definition of “balancing energy gate closure time” in the Transitional Balancing Rules; - introduction of provisions on balancing energy bids (for standard products on a common merit order list) provided by the BSPs and on the gate closure time for their submission; - along with introducing the transitional definition of a standard product in the Transitional Balancing Rules, the balancing energy gate closure time should be set out in line with the criteria envisaged in Article 24 Para 2 of the EB GL
Article 25 and 26 – Requirements for standard/specific products	N/A	The standard/specific products for balancing energy and balancing capacity are not defined in the Albanian legislation, i.e. missing.	<ul style="list-style-type: none"> - Introduce transitional definition of a standard product in the Market Code; - if the TSO identifies the necessity for specific products, the requirements for specific products, as well as the regular review thereof should be foreseen in the Market Code, following the rationale of Article 26 of the EB GL
Procurement of balancing services			
Article 29 – 32	The Power Sector Law, Provisional Market Rules, Transitional Balancing Rules, Grid Code, Market Model, Market Rules	Non-compliant , linked to the non-existence of bids for balancing energy and price regulation for balancing/ancillary services.	<ul style="list-style-type: none"> - Along with a thorough overhaul of the current framework and introduction of balancing energy bids (for standard products on a common merit order list) provided by the BSPs and ensuring the application of the “pay-as-cleared” (marginal pricing) principle, expand the scope of the Transitional Balancing Rules by replicating



	<p>the scope of Article 29 - 30 of the EB GL, i.e. addressing the cross-border exchange of balancing energy and pricing of balancing energy and cross-zonal capacity used for exchange of balancing energy or for operating the imbalance netting process;</p> <ul style="list-style-type: none">- ensure that the operational agreements, as foreseen in Article 161 of the Grid Code, whether already concluded or to be concluded during the interim period are aligned Article 29 – 31 of the EB GL, especially regarding the common merit order list, methodology for determining prices for the balancing energy resulting from the activation of energy bids for FRR and RR, etc;- introduce/align a definition of “reserve capacity” in the Transitional Balancing Rules and Grid Code, which will replicate the definition from the SO GL;- introduce provisions setting out the rules for the procurement of balancing capacity in the Transitional Balancing Rules, following the principles set out in the EB GL (market-based, short-term where economically efficient);- ensure that the possibility of price regulation of procurement of balancing capacity is not used in practice (or eliminate these provisions if the legislative procedure permits this)
<p>Article 33</p>	<p>The Power Sector Law, Provisional Market Rules, Grid Code</p> <p>Partially compliant/missing, due to lack of explicit provisions on requirements for the exchange of balancing capacity and necessity to coordinate these requirements with the NRA.</p> <ul style="list-style-type: none">- Introduce provisions setting out the rules for the procurement of balancing capacity in the Transitional Balancing Rules, as well as amendments that would introduce requirements for exchange of balancing capacity pursuant to the provisions of the EB GL;



			<p>- in case common and harmonized rules and processes for the exchange of balancing capacity are/will be included in the operational agreements, ensure that in practice ERE is properly informed and involved in prior approval of such rules (even though formally ERE might not have to approve the operational agreements as such) and it can coordinate its approval with other NRAs pursuant to Article 19 Para 1 under e) and Article 23 Para 1 under b) of the Power Sector Law</p>
Article 34	N/A	The possibility for the BSPs to transfer their balancing capacity obligations is missing in the Albanian legislation.	Introduce in the Transitional Balancing Rules a possibility for the BSPs to transfer their balancing capacity obligations within the geographical area in which the procurement of balancing capacity has taken place, or a possibility for the TSO to request an exemption
Cross-zonal capacity for balancing services			
Article 37 - 39	N/A	Explicit provisions are missing in the Albanian legislation.	<p>- TSO should use the cross-zonal capacity remaining after the intraday cross-zonal gate closure time as proposed (in Task 4). This provision should be introduced in the Transitional Balancing Rules and the Grid Code (and/or respective national rules and/or contracts governing the allocation of cross-border capacities if necessary);</p> <p>- introduce in the Transitional Balancing Rules and the Grid Code (and/or respective national rules and/or contracts governing the allocation of cross-border capacities if necessary) provisions defining how the TSO calculates and allocates the available cross-zonal capacity</p>



			<p>for the exchange of balancing capacity or sharing of reserves, pursuant to the general requirements set out in the EB GL;</p> <ul style="list-style-type: none"> - based on the proposed solution for allocation of cross-zonal capacity, introduce in the Transitional Balancing Rules provisions defining how the market value of cross-zonal capacity is calculated
Settlement			
Article 44	The Power Sector Law, Transitional Balancing Rules	Non-compliant in the context of <u>imbalance price</u> (linked to HUPX/SEEPEX day-ahead market prices and multiplied by incentive factor) and vague (unclear) provisions on the settlement of balancing energy with BSPs.	No separate transitional solution is proposed, as it is inherently linked with the transitional solutions for Article 45 – 50 and Article 52 – 55 of the EB GL
Article 45, 47 and 48	Transitional Balancing Rules, Grid Code	Partially compliant/non-compliant , due to lack of explicit provisions, especially on how the payment for balancing energy is defined if the activated balancing energy is negative and the balancing energy price is positive/negative.	<ul style="list-style-type: none"> - Introduce in the Transitional Balancing Rules clear provisions on how activated volume of balancing energy for FRR and RR is calculated and settled with the concerned BSPs, pursuant to Article 45, 47 and 48 of the EB GL; - introduce in the Transitional Balancing Rules procedure for claiming the recalculation of the activated volume of balancing energy; - the terminology used in the Transitional Balancing Rules should be aligned with the terminology used in the Guidelines (FRR/RR) and as already foreseen in the Grid Code
Article 49	Transitional Balancing Rules	Partially compliant , linked to the non-existence of bids for balancing energy and lack of clear provisions on imbalance adjustment.	- Along with a thorough overhaul of the current framework and introduction of balancing energy bids, introduce a definition of “imbalance adjustment” in the Transitional Balancing Rules which will



			<p>replicate the definition from the EB GL and use the term throughout the text instead of the current wording;</p> <ul style="list-style-type: none"> - introduce clear provisions in the Transitional Balancing Rules that would replicate the requirements for imbalance adjustment to the BRPs pursuant to Article 49 the EB GL, including the clear provisions on how the volumes activated by the TSO for purposes other than balancing are determined and assigned to the concerned BRP for the purpose of imbalance calculation
Article 50	The Power Sector Law, Provisional Market Rules, Grid Code	Explicit provisions regulating TSO-TSO settlement rules for the intended exchanges of energy from aFRR/mFRR/RR are missing in the Albanian legislation.	<ul style="list-style-type: none"> - Introduce explicit provisions in the Market Code that would clarify the intended exchanges of energy from aFRR/mFRR/RR with other TSOs, pricing in such exchanges, as well as whether imbalance netting can be applied for these exchanges; - ensure in practice, when concluding agreements between participating TSOs, they follow the same common rules for settlement, following the requirements set out in Article 50 of the EB GL
Article 52	Transitional Balancing Rules, Grid Code, Market Model	Non-compliant , mainly due to imbalance pricing and imbalance adjustment.	The Transitional Balancing Rules, Grid Code and Market Model shall be reviewed , by setting out explicitly which imbalance pricing model shall be applied (if necessary, by indicating which one is the target model and which the transitional solution), as well as conditions on when the TSO may propose to its NRA the application of dual pricing and which justification shall be provided
Article 53 - 55	Transitional Balancing Rules, Grid Code	Partially compliant/non-compliant , mainly due to imbalance pricing.	- Along with the proposed solutions for Article 49 "Imbalance adjustment for the



BRPs” introduce a provision in the **Transitional Balancing Rules** explicitly stating that allocated volume shall not be calculated for a BRP which does not cover injections or withdrawals;

- The **Transitional Balancing Rules** shall be reviewed, especially regarding meeting the requirements of Para 4 and 5 of Article 55 of the EB GL. This solution shall be viewed/applied together with the general overhaul of the current framework and introduction of balancing energy bids.

3.3 Kosovo*

3.3.1 Current state of balancing market

Based on: publicly available information

a) Balancing market

Balancing Mechanism become operational from June 1st 2017 according to provisions of the Market Rules and methodologies approved by Regulatory Office but market is still not fully functional.

By adopting the new Energy and Electricity Law in July 2016⁴, the field of energy in Kosovo* legislation is harmonized with the provisions of the Third energy legislative package of the European Union.

As a support in the process of balancing services procurement in a transparent, market-based and non-discriminatory manner, Market Rules (2013)⁵ are developed and adopted. By these rules, responsibility of KOSTT as transmission and market operator are determined. Market Rules are under process of modification considering the recent development and requirement. New Market Rules have been prepared and submitted to Regulatory Office (ERO) for approval.

Balancing market is concentrated with one dominant participant (KEK) although the market rules enables participation of other balancing services providers also.

Actually each Market Participant is balance responsible party. New Market Rules which are in the process of approval allows creation a Balancing Groups.

Renewables are not exempt from balancing responsibility.

The costs of imbalance management caused by a RES generators is distributed between RES generator and Renewable Energy Fund set up to fund feed-in tariffs (grid users):

- 25% of the costs of imbalance management caused by a RES generator's in upward and downward directions in any hour will be borne by the RES generator
- Remaining costs are charged to a Renewable Energy Fund set up to fund feed-in tariffs (grid users).

⁴ Law on Energy, 2016
Law on electricity, 2016

⁵ Market rules, 2013



b) Balancing capacity procurement scheme

Kosovo power sector is small and faces challenges in generation reserve capacities. With respect to that, KOSTT has together with OST developed a mechanism for exchange and sharing of secondary reserves but it is not yet operational.

Balancing capacity dimensioning is done for two types of balancing product: one for automatically activated secondary reserve and the other one for manually activated tertiary reserve.

For secondary reserves, KOSTT uses empirical formula to calculate capacity requirements, according to ENTSO-E Policy 1 Operational Handbook. In 2015, required value for secondary reserve capacity was 34.5 MW.

PS of Kosovo has no adequate reserves for secondary control, therefore a part of 25 MW will be provided by hydropower plants of PS in Albania, while the rest is from TPP Kosovo B.

Current needs for tertiary reserve are 260 MW, but, in the absence of flexible units, Kosovo's PS, has no generating unit that can provide tertiary regulation

Prices for balancing reserve capacity are contracted through bilateral contracts for ancillary services, and they also could be regulated by NRA. Costs are recovered by grid users.

c) Balancing products and prequalification for BSPs

Prequalification for BSPs is missing. No definition of Standard Product has been given.

Balancing reserve capacity provision is mandatory for all units.

d) Balancing energy procurement process, activation and pricing

Procurement of balancing energy is market based by definition but with certain restrictions due to presence of just several generators (TPP Kosovo A and B and 2 HPPs (42 MW) that are obliged to offer all of their available capacity.



In general, market participants (trading parties) can participate in balancing mechanism on the basis of Ancillary Services Contracts. They submit bids and offers⁶ on a daily basis to market operator. The process is monitored by ERO (Regulatory body).

Basic characteristics of the balancing energy procurement process are as follows:

- Bids and offers are submitted before “day-ahead gate closure time”, 15.00 of the D-1
- Bids and offers cannot be altered subsequently
- Quantities at bids and offers are in MW (interpreted as MWh/h)
- Prices of bids/offers are based on Ancillary Service Contract Utilisation Price and Ancillary Service Contract Reservation Price and Reserve Utilisation Index Factor⁷ notified by the TSO for each Settlement Period.
- In absence of balancing bids and offers, KOSTT has developed the methodology for Imbalance price calculation based on DA HUPX price.

KOSTT is responsible for balancing process and activation of the balancing energy but also for organization of the balancing market.

e) Settlement of balancing energy between TSO and BSPs

Imbalance settlement period in KOSTT balancing mechanism is 1 hour. There are separate accounting of balancing energy quantity activated in upward direction and balancing energy quantity activated in downward direction within same ISP.

Settlement mechanism can be characterized as pay-as-bid mechanism.

f) Imbalance settlement and cost recovery

Cost recovery for capacity procurement is carried out by TSO under its regulated charges while cost recovery for energy procurement will be taken by BRPs. For imbalance settlement, responsible party is market operator. Single imbalance pricing mechanism is applied.

⁶ "Bids", when buying energy from TSO. "Offers", when selling energy to TSO

⁷ The Reserve Utilisation Index Factors (RUIF_i and NRUIF_i; respectively) shall be determined as the ratio of the probability of the contracted Reserve being utilised in the Settlement Period compared to the average probability of such contracted Reserve being utilised in any Settlement Period during the year.



3.3.2 Summary of gap analysis

Relevant provisions/concepts of the EB GL/SO GL	National framework	legal	Level of compliance/identified gap	Transitional solution
General provisions				
Article 2/ Article 3 of the EB GL/ SO GL	The Energy Law, NRA Law, Electricity Law, Market Design, Market Rules, Methodology, MAR Rules, Grid Code		Main concepts to be introduced/aligned: balancing capacity, imbalance price, imbalance adjustment, allocated volume, position, TSO-TSO model (including TSO-TSO settlement function), balancing energy gate closure time, standard/specific products, common merit order list	Replicate the definitions of the EB GL/SO GL in the Market Code/Grid Code and align the existing terminology accordingly
Functions and responsibilities/ European platforms				
Article 14	The Electricity Law, Market Design, Market Rules, Grid Code		Partially compliant , mainly due to the fact that the current framework foresees two parallel processes – balancing mechanism and ancillary service contracts, and fails to explicitly set it out the link between the two mechanisms	<ul style="list-style-type: none"> - Introduce explicit provisions in the Market Rules clarifying the procurement of balancing capacity and activation of balancing energy, and whether/to what extent ancillary services contracts for capacity and energy exist in parallel with balancing mechanism (and the correlation between the two) in which, supposedly, the BSPs submit balancing energy bids indicating volume and price for activated capacity; - ensure the assessment of MO's ability to carry out assigned tasks is carried out, following the rationale of Article 13 Para 4 of the EB GL.
Article 15	The Electricity Law, Market Rules		The provisions defining the possibility to elaborate cost allocation methodology related to the cooperation of the TSO and DSO concerning the reserve providing groups/units connected to the DSO grid (Title 10 of SO GL) are missing .	Introduce in the (Draft) Balancing Rules provisions covering the cooperation between the TSO and DSO concerning the reserve providing groups/units connected to the DSO grid, following the rationale of Article 182 of the SO GL.



Article 16

The Electricity Law, Market Design, Market Rules, Grid Code

Non-compliant, mainly due to the lack of pre-qualification requirements, lack of provisions on submission of balancing capacity bids in the procurement process for balancing capacity, as well as the regulated prices for ancillary services

- **Introduce clear pre-qualification requirements for the BSPs, as foreseen in Article 16 of EB GL and Article 159 and 162 of SO GL;**
- **introduce in the Market Rules a clear link between the volume of reserved capacity that the BSP has agreed to hold and the obligation for submitting bids (and offers) for the corresponding volume of balancing energy, i.e. provide bridging norms between the ancillary service contracts and balancing mechanism, as well as provisions setting out conditions and procedures for BSPs to submit bids(offers) for balancing capacity and balancing energy, following the rationale of Article 16 of the EB GL. Specific requirements can be maintained for the dominant BSP if it proves to provide higher economic efficiency;**
- **introduce a transitional definition of a standard product in the Market Rules;**
- **clarify in the Market Rules the concept of “a contract for balancing capacity” and use it uniformly throughout the text, as well as introduce an explicit provision forbidding to predetermine the prices for balancing energy bids from standard products in a contract for balancing capacity;**
- **amend to Article 62 Para 4 of the Electricity Law and Article 1.8.1. under a) and b) of the Market Rules or ensure in practice that the prices for provision of ancillary services, including ancillary service contract reservation (i.e. balancing capacity) and ancillary service contract utilization (balancing energy) price, as well as price for (balancing energy) bids/offers are not regulated;**



			- amend Article 62 Para 4 of the Electricity Law and Article 1.8.1. of the Market Rules, so as to ensure that clear criteria for transitional period is set out.
Article 17	The Electricity Law, Market Design, Market Rules	Explicit provisions allowing the BRP change its schedule prior to the intraday cross-zonal gate closure time are missing .	Introduce provisions in the Market Rules that would explicitly allow a BRP to change its position prior to the intraday cross-zonal gate closure time as defined by the capacity allocation procedures in force.
Article 18	The NRA Law, Electricity Law, Market Rules	Partially compliant/non-compliant , linked to the role of BSPs and non-compliance with some of the requirements of the EB GL related to BRPs	- Expand the scope of the Market Rules by replicating the scope of terms and conditions for the BSPs and the BRPs, as set out in Article 18 of the EB GL. This would require a general overhaul of the Market Rules, along with the associated amendments on the qualification requirements for the BSPs, clarifying provisions on procurement of balancing capacity, defining standard products in the interim period, etc.; - introduce clear and detailed provisions on requirements concerning BRPs obligation to strive to be balanced in real time (following the rationale of Article 17 Para 1 of the EB GL).
Article 24	The Market Rules	Non-compliant , as the balancing energy gate closure time shall be defined for each standard product, at least for RR/FRR.	Along with introducing the transitional definition of “standard product” in the Market Rules, as well as the definition of the term “common merit order list” and “balancing energy gate closure time” itself, the balancing energy gate closure time should be set out in the Market Rules in line with criteria envisaged in Article 24 Para 2 of the EB GL.
Article 25 - 26	N/A	The standard/specific products for balancing energy and balancing capacity are not defined, i.e. missing .	- Introduce transitional definition of a standard product in the Market Rules;



			<ul style="list-style-type: none"> - if the TSO identifies the necessity for specific products, the requirements for specific products, as well as the regular review thereof should be foreseen in the Market Rules, following the rationale of Article 26 of the EB GL.
Procurement of balancing services			
Article 29 - 31	The Electricity Law, Market Rules, Grid Code	Partially compliant/non-compliant , mainly due to the fact that the activation of balancing energy bids is left up to the TSO's discretion and has no relation to the merit order list, as well as that the current framework implies regulated prices/possibility to regulate prices for balancing energy bids/offers and regulated/predetermined prices for activation of balancing energy under the ancillary service contract	<ul style="list-style-type: none"> - the Market Rules should be amended to explicitly set out that the price of activated balancing energy is equal to marginal price of last activated MWh (pay-as-cleared pricing); - in the interim period it shall be ensured that the agreements concluded among KOSTT and the neighboring TSOs on cross-border procurement/exchange of balancing energy are based on/aligned with the requirements of the EB GL (i.e. common merit order list, common definition of standard products, common pricing and settlement rules, etc.); - ensure that Article 62 Para 3 and 4 of the Electricity Law, and Article 1.8.1. and Article 13.2.9. under f) of the Market Rules are not used in practice to regulate/limit prices for balancing energy or eliminate these provisions, or introduce clear criteria for their phase-out in primary legislation.
Article 32	The Energy Law, Electricity Law, Market Rules, Grid Code	Partially compliant/non-compliant , mainly due the fact that the current framework foresees (1) balancing capacity is procured periodically (the Market Rules contain vague guidance on the procurement rules themselves), (2) no procurement rules are foreseen for balancing capacity for FRR, and (3) procurement of balancing capacity for FCR and RR is based on bilateral agreements with	<ul style="list-style-type: none"> - Introduce a definition of "reserve capacity" which will replicate the definition from the SO GL; - introduce provisions setting out the rules for the procurement of balancing capacity in the Market Rules, following the principles set out in the EB GL (market-based, short-term to extent possible and where economically efficient); - ensure that Article 62 Para 3 and 4 of the Electricity Law, and Article 1.8.1. and Article 13.2.9.



		regulated/predetermined prices for balancing capacity.	under f) of the Market Rules are not used in practice to regulate/limit prices for balancing energy or eliminate these provisions, or introduce clear criteria for their phase-out in primary legislation.
Article 33	The Electricity Law, Grid Code	Partially compliant , as the current framework does not foresee for KOSTT and the TSOs exchanging or willing to exchange balancing capacity obligation to develop a proposal for common and harmonized rules and processes for the exchange of balancing capacity.	Introduce in the Market Rules and Grid Code requirements for exchange of balancing capacity pursuant to the provisions of the EB GL.
Article 34	N/A	The possibility for the BSPs to transfer their balancing capacity obligations is missing .	Introduce in the Market Rules a possibility for the BSPs to transfer their balancing capacity obligations within the geographical area in which the procurement of balancing capacity has taken place.
Cross-zonal capacity for balancing services			
Article 37 - 39	N/A	Explicit provisions are missing in Kosovo* legislation.	The transitional solution depends on the solution of the KOSTT area.
Settlement			
Article 44	The Electricity Law, Market Rules, Methodology, MAR Rules	Non-compliant , as the current framework foresees the possibility to regulate/limit bid/offer prices, imbalance price, ancillary service contract reservation price, ancillary service contract negative reservation price/utilization price, all of which are taken into account for calculating settlement prices for either BSPs or BRPs.	Introduce provisions in the Market Rules and Methodology (and, if necessary, the MAR Rules) clarifying the financial neutrality of the TSO in the settlement processes, following the rationale of Article 44 Para 2 of the EB GL.
Article 45, 47 - 48	The Market Rules	Partially compliant , as the current framework does not differentiate/specify the calculation of the activated volume of balancing energy per process (FCR/FRR/RR), nor does it provide clear guidance on how the activated volume of balancing energy (per process) is settled with the concerned BSPs. Additionally, calculation and settlement of the activated	<ul style="list-style-type: none"> - Introduce in the Market Rules clear provisions on how the activated volume of balancing energy for RR is calculated where the ancillary service contract for RR is in operation, and attributed to the concerned BSP; - introduce in the Market Rules procedure for claiming the recalculation of the activated volume of balancing energy,



		balancing energy for FRR is not foreseen at all in the Market Rules.	<p>following the rationale of Article 45 of the EB GL;</p> <ul style="list-style-type: none"> - Introduce in the Market Rules clear regulation on settlement of balancing energy with BSPs for each process, following the rationale of Article 47 and 48 of the EB GL.
Article 49	The Market Rules	Explicit provisions defining the imbalance adjustment to the BRP is missing ; provisions of the Market Rules partially compliant	<ul style="list-style-type: none"> - Introduce a definition of “imbalance adjustment” in the Market Rules which will replicate the definition from the EB GL; - introduce clear provisions in the Market Rules that would replicate the requirements for imbalance adjustment to the BRPs pursuant to Article 49 the EB GL, i.e. the imbalance adjustment shall be applied to the concerned BRP for each activated balancing energy bid, calculated by the TSO as the netted volume of (a) all balancing energy volumes from all activated bids for that ISP that assign this balancing energy to the concerned BRP and (b) all volumes activated by the TSO for purposes other than balancing, that are assigned to the concerned BRP.
Article 50	The Grid Code N/A	Explicit provisions regulating TSO-TSO settlement rules for the intended exchanges of energy from aFRR/mFRR/RR are missing .	Introduce explicit provisions in the Market Rules that would clarify the intended exchanges of energy from aFRR/mFRR/RR with other TSOs, pricing in such exchanges, as well as whether imbalance netting can be applied for these exchanges. The exchange of balancing energy should be based on/aligned with the requirements of the EB GL (i.e. common merit order list, common rules for exchange of balancing energy, common pricing and settlement rules, etc.).
Article 52 - 55	The Market Rules, Methodology	Partially compliant/non-compliant/missing, linked with the fact that the imbalance price	- Introduce a provision in the Market Rules explicitly stating that allocated volume shall not be



Task 1 – Current state and gap analysis

calculation involves regulated components, the lack of explicit link between the price for negative/positive imbalances and prices for negative/positive activated balancing energy from FRR/RR, as well as missing definition of the value of avoided activation of balancing energy from FRR/RR.

calculated for a BRP which does not cover injections or withdrawals;
- the imbalance price setting principles in the Market Rules and Methodology shall be reviewed, following the rationale of Article 55 of the EB GL, especially regarding meeting the requirements of Para 4 and 5 of the above-mentioned Article.

3.4 FYR Macedonia

3.4.1 Current state of balancing market

Based on: data questionnaire and public information

a) Balancing market

New Energy Law was adopted at the end of March 2018. This presents the necessary primary legislation for further liberalization of electricity market.

The amendments to the Electricity Market Rules (adopted at the end of 2016)⁸, establish a national balancing market and enables cross-border market exchange of balancing services. These rules are not implemented yet and by amendments adopted in June 2018⁹, implementation of these rules is postponed to beginning of 2019.

By these rules, MEPSO will procure balancing services from the Balance Service Providers in national and in perspective, from a regional, balancing market at competitive conditions. The new mechanism will impose balance responsibility to all parties. However, there still remain the needs for harmonization of the horizontal legal acts, amongst others but not limited to VAT, public procurement, custom duties, or company registration legislation in order to remove barriers.

Currently there is only one market participant in the role of BSP (ELEM) and 47 BRPs (2017).

Renewables are exempt from balancing responsibility. The costs of imbalance management caused by RES generators are paid by grid users.

The following descriptions are related to market rules as indicated in the adopted document from 2016 and not the existing situation, assuming that these rules will be implemented from January the 1st 2019.

b) Balancing capacity procurement scheme

Balancing capacity dimensioning is done for two types of balancing product: one for automatically activated secondary reserve and the other one for manually activated tertiary reserve.

⁸ 2016.10.13-PRAVILA- IZMENA NA PAZARNI PRAVILA

⁹ 2018.06.18- Правила за изменување и дополнување на Пазарни Правила -web (1)



For secondary reserves, MEPSO uses empirical formula to calculate capacity requirements, according to ENTSO-E Policy 1 Operational Handbook. In 2017, required value for secondary reserve capacity was in the range 18-28 MW.

The amount of tertiary reserve that MEPSO must acquire, should be able to cover the disconnection of one generation block from TEC Bitola, i.e. +205 MW, or the disconnection of the consumer with the highest power consumption directly connected to the grid, i.e. –100 MW.

Contracted tertiary reserve in 2017 was 120 MW upward and 50 MW for downward regulation.

According to drafted Balancing market rules:

Prices for secondary and tertiary reserve capacity are not regulated. Prices are determined by the bids provided by balancing service provider. Costs are recovered by grid users.

Default procurement cycle for balancing capacity is year ahead for aFRR each month separately and month ahead for mFRR.

c) Balancing products and prequalification for BSPs

There is a prequalification for provision of the balancing reserve through checkout if characteristics required by grid code are satisfied, and prequalification process is also foreseen in new balancing rules.

Currently there is no definition of Standard Product, but new Balancing market rules obligate TSO to define standard product for aFRR/mFRR capacity/energy in corresponding rules for procurement.

Balancing reserve capacity provision is mandatory for ELEM units.

d) Balancing energy procurement process, activation and pricing

Procurement of balancing energy is market based.

Providers submit the bids for activation of secondary and tertiary reserve.

ELEM, as the electricity producer with the license that stipulates its obligation to provide a public service, is obliged to offer all of its available capacity.



Prices for secondary reserve activation are based on DA HUPX price and same for all providers, but this is going to change with adopting new balancing rules. Pricing will be “pay as bid”, according to given bids.

Prices for tertiary reserve activation are given by the bids and capped at 100 EUR/MWh for upward direction and 5 EUR/MWh for downward direction, but new balancing rules will delete price caps.

MEPSO is responsible for balancing process and activation of the balancing energy but also for organization of the balancing market. In the process of bids activation, pro-rata mechanism is applied for secondary (this provision will not be valid in new market and balancing rules) and merit order principle is applied for tertiary regulation.

Regarding automatic activation of the secondary reserve, the Load frequency controller is a proportional-integral (PI) type. The cycle time for the automatic controller is 4s. The controller has actions only on generating units or power plants capable to exchange in real time a specific flux of data:

- All hydropower units with $P_{nom} > 20$ MW

e) Settlement of balancing energy between TSO and BSPs

Imbalance settlement period in MEPSO balancing mechanism is 1 hour. There are separate accounting of balancing energy quantity activated in upward direction and balancing energy quantity activated in downward direction within same ISP.

Settlement mechanism can be characterized as pay-as-bid mechanism.

f) Imbalance settlement and cost recovery

Cost recovery for capacity procurement is organised through network tariff while for balancing energy costs via BRPs. For imbalance settlement, responsible party is market operator.

Single imbalance pricing based on weighted average prices of tertiary and secondary activated regulation both for positive and negative direction is used.



3.4.2 Summary of gap analysis

Relevant provisions/concepts of the EB GL/SO GL	National legal framework	Level of compliance/identified gap	Transitional solution
General provisions			
Article 2/ Article 3 of the EB GL/ SO GL	The Energy Law, Draft Market Rules, Draft Balancing Rules and the Grid Code	Main concepts to be introduced/aligned: balancing capacity, BRP, imbalance, imbalance settlement, imbalance adjustment, allocated volume, position, TSO-TSO model (including TSO-TSO settlement function), balancing energy gate closure time, standard/specific products, common merit order list.	Replicate the definitions of the EB GL/SO GL in the Market Code/Grid Code and align the existing terminology accordingly
Functions and responsibilities/ European platforms			
Article 15	The Energy Law, Draft Balancing Rules	The provisions defining the possibility to elaborate cost allocation methodology related to the cooperation of the TSO and DSO concerning the reserve providing groups/units connected to the DSO grid (Title 10 of SO GL) are missing.	(If the national system allows from a technical point of view) introduce in the (Draft) Balancing Rules provisions covering the cooperation between the TSO and DSO concerning the reserve providing groups/units connected to the DSO grid, following the rationale of Article 182 of the SO GL.
Article 16	The Energy Law, Draft Balancing Rules	Partially compliant/missing, mainly due to the lack of provisions on pre-qualification requirements for potential RR providers, BSP's right to update its balancing capacity bids before the gate closure time of the procurement process, and explicit provision prohibiting discrimination between balancing energy bids submitted by a BSP with or without contracted capacity.	<ul style="list-style-type: none"> - Introduce clear pre-qualification requirements for potential RR providers in the (Draft) Balancing Rules, as foreseen in Article 16 of EB GL and Article 161 and 162 of SO GL, as well as clear technical requirements for potential FRR/RR providers in the Grid Code; - introduce in the (Draft) Balancing Rules a clear provision allowing BSP right to update its balancing capacity bids before the gate closure time of the procurement process; - introduce in the (Draft) Balancing Rules a clear provision forbidding discrimination between balancing energy bids



		<p>submitted by BSPs mentioned in Article 4 Para 5 and 6 respectively i.e. a provision foreseeing equal rights to such BSPs regarding balancing energy bids;</p> <ul style="list-style-type: none"> - clarify in the (Draft) Balancing Rules the concept of “a contract for balancing capacity” and use it uniformly throughout the text, as well as introduce an explicit provision forbidding to predetermine the prices for balancing energy bids from standard products in a contract for balancing capacity; - clarify the provisions of the (Draft) Balancing Rules that currently imply possibility to regulate/limit prices of the balancing energy/capacity bids (in the context of Article 5 para 2, Article 67 and Article 12 Para 2 of the Draft Balancing Rules).
<p>Article 17</p>	<p>The Energy Law, Market Rules, Draft Balancing Rules and the Grid Code</p>	<p>Explicit provision allowing the BRP to change its schedule prior to the intraday cross-zonal gate closure time is missing.</p>
<p>Article 24</p>	<p>The Draft Balancing Rules</p>	<p>It is advisable to consider introducing in the (Draft) Balancing Rules and/or Grid Code explicit provision setting out the timeframe for changing daily schedule.</p>
<p>Article 25</p>	<p>The Draft Balancing Rules</p>	<p>Partially compliant, as the balancing energy gate closure time will be defined by the TSO in procurement rules for aFRR/mFRR, making it not feasible to assess the compliance in substance; provision setting out balancing energy gate time for RR is missing.</p> <p>Partially compliant, as the standard products themselves will be defined in particular procurement rules, it is not feasible to fully assess the compliance of these provisions in substance. Provision setting out standard products for balancing capacity and balancing energy from RR is missing.</p>



Article 26	N/A	The specific products for balancing energy and balancing capacity are not defined, i.e. missing .	If the TSO identifies the necessity for specific products, the requirements for specific products, as well as the regular review thereof should be foreseen in the (Draft) Balancing Rules, following the rationale of Article 26 of the EB GL.
Procurement of balancing services			
Article 29 - 31	The Grid Code, Draft Balancing Rules	<p>Partially compliant/missing, mainly due to the fact that cross-border exchange of balancing energy is not clearly regulated in FYROM legislation.</p> <p>Non-compliant to the extent that “pay-as-bid” pricing is foreseen for activation of balancing energy bids for aFRR/mFRR.</p>	<ul style="list-style-type: none"> - Principle of marginal pricing (pay-as-cleared) for activated balancing energy should be introduced in the (Draft) Balancing Rules; - introduce provisions in the (Draft) Balancing Rules on activation of balancing energy bids for RR process and pricing for balancing energy thereof; - ensure that Article 5 Para 2, Article 25 Para 8 and Article 67 Para 2 of the (Draft) Balancing Rules are not used in practice to regulate/limit prices for balancing energy or eliminate these provisions from the (Draft) Balancing Rules, or prescribe them in primary legislation with accompanying clear criteria; - in the interim period it shall be ensured that the agreements concluded among MEPSO and the neighboring TSOs on cross-border procurement/exchange of balancing energy are based on/aligned with the requirements of the EB GL (i.e. common merit order list, common definition of standard products, common pricing and settlement rules, etc.).
Article 32	The Grid Code, Draft Balancing Rules	<p>Partially compliant/non-compliant, as the procurement of balancing capacity for aFRR appears not to be performed on a short-term basis, and the Draft Balancing Rules suggest price</p>	<ul style="list-style-type: none"> - Introduce a definition of “reserve capacity” in the Grid Code which will replicate the definition from the SO GL; - review the (Draft) Balancing Rules, so as to ensure that the



Task 1 – Current state and gap analysis

		regulation/limitation for the balancing capacity.	rules for the procurement of balancing capacity, including potential price regulation/limitation, follow the principles set out in Article 32 of the EB GL; - ensure that Article 5 Para 2 and Article 67 Para 2 of the (Draft) Balancing Rules are not used in practice to regulate/limit prices for balancing capacity or eliminate these provisions from the (Draft) Balancing Rules, or prescribe them in primary legislation with accompanying clear criteria.
Article 33	The Energy Law, Grid Code, Draft Balancing Rules	Partially compliant, as explicit requirements related to exchange of balancing capacity, nor the necessity to coordinate these requirements with the NRA.	Amendments to the (Draft) Balancing Rules/ Grid Code that would introduce requirements for exchange of balancing capacity pursuant to the provisions of the EB GL.
Article 34	N/A	The possibility for the BSPs to transfer their balancing capacity obligations is missing .	Introduce in the (Draft) Balancing Rules (and if necessary, the Grid Code) a possibility for the BSPs to transfer their balancing capacity obligations within the geographical area in which the procurement of balancing capacity has taken place.
Cross-zonal capacity for balancing services			
Article 37 - 39	The Draft Balancing Rules and Grid Code N/A	<p>The explicit provisions setting out the update/recalculation of the available cross-zonal capacity for the exchange of balancing energy or for operating the imbalance netting are missing in the legal acts.</p> <p>Provisions regulating how the exchange of balancing capacity and sharing reserves shall take place, including one of three methodologies for allocating cross-zonal capacity are missing.</p> <p>Consequently, corresponding provisions setting out how the market value of cross-zonal capacity is calculated for the</p>	<p>- TSO should use the cross-zonal capacity remaining after the intraday cross-zonal gate closure time as proposed (in Task 4). Introduce this provision in the (Draft) Balancing Rules and the Grid Code (and/or respective national rules and/or contracts governing the allocation of cross-border capacities if necessary)</p> <p>- introduce in the (Draft) Balancing Rules and the Grid Code (and/or respective national rules and/or contracts governing the allocation of cross-border capacities if necessary) provisions defining how the TSO calculates and allocates the available cross-zonal capacity for the exchange</p>



Task 1 – Current state and gap analysis

		exchange of balancing capacity and sharing reserves are missing as well.	<p>of balancing capacity or sharing of reserves, pursuant to the general requirements set out in the EB GL;</p> <ul style="list-style-type: none"> - introduce in the (Draft) Balancing Rules provisions defining how the market value of cross-zonal capacity is calculated.
Settlement			
Article 44	The Energy Law, Draft Balancing Rules	Partially compliant , mainly due to “pay-as-bid” pricing for activation of balancing energy bids for aFRR/mFRR, lack of provisions on bids for balancing energy for RR, activation and pricing of such bids, as well as the lack of clear provisions on one out of three elements that should be taken into account when assessing/ensuring financial neutrality of the TSO in the settlement processes.	Introduce provisions in the (Draft) Balancing Rules (and, in necessary, in a methodology for electricity transmission system tariffs) clarifying the financial neutrality of the TSO in the settlement processes, following the rationale of Article 44 Para 2 of the EB GL.
Article 45	The Draft Balancing Rules	Partially compliant/missing , as the current framework does not explicitly foresee the calculation of activated volume of balancing energy for each direction, while clear provisions on how the activated volume of balancing energy for RR is calculated are missing .	<ul style="list-style-type: none"> - Align Article 76 of the (Draft) Balancing Rules with Article 45 Para 2 of the EB GL (calculation done for each direction); - introduce in the (Draft) Balancing Rules clear provisions on how the activated volume of balancing energy for RR is calculated, as well as procedure for claiming the recalculation of the activated volume of balancing energy, following the rationale of Article 45 of the EB GL.
Article 47 - 48	The Draft Balancing Rules	Partially compliant , as the current framework does not explicitly reflect the payment of price, be it positive, zero or negative, of the activated volume of balancing energy for aFRR/mFRR for each direction.	<ul style="list-style-type: none"> - Align Article 50 and Article 78 of the (Draft) Balancing Rules with Article 47 and 48 of the EB GL in terms of payment of price, be it positive, zero or negative, for the activated volume of balancing energy for aFRR/mFRR for each direction; - introduce clear provisions on payment for the activated volume of balancing energy for RR, following the rationale of Article 48 of the EB GL.
Article 49	The Draft Balancing Rules	Partially compliant , due to the lack of explicit provisions covering the determination of volumes	-Introduce a definition of “imbalance adjustment” in the (Draft) Balancing Rules which will



		activated by the TSO for purposes other than balancing.	replicate the definition from the EB GL; - introduce clear provisions in the (Draft) Balancing Rules on how the volumes activated by the TSO for purposes other than balancing are determined and assigned to the concerned BRP for the purpose of imbalance calculation.
Article 50	N/A	Explicit provisions regulating TSO-TSO settlement rules for the intended exchanges of energy from aFRR/mFRR/RR are missing .	- Introduce explicit provisions in the (Draft) Balancing Rules and Grid Code that would clarify the intended exchanges of energy from aFRR/mFRR/RR with other TSOs, pricing in such exchanges, as well as whether imbalance netting can be applied for these exchanges; - ensure that the agreements concluded among MEPSO and other TSOs on cross-border procurement/exchange of balancing energy are based on/aligned with the requirements of the EB GL (i.e. common merit order list, common rules for exchange of balancing energy, common pricing and settlement rules, etc.).
Article 53	The Draft Balancing Rules	Non-compliant , as the period of time defined as settlement period is 1 hour.	Introduce a provision in the (Draft) Balancing Rules explicitly stating that allocated volume shall not be calculated for a BRP which does not cover injections or withdrawals.
Article 54 - 55	The Draft Balancing Rules	Partially compliant , mainly due to the inverted terminology used for “allocated volume” and “position”, and the lack of definition of the value of avoided activation of balancing energy from FRR/RR and link between this value and the calculation of the imbalance price.	Article 129 and 130 of the (Draft) Balancing Rules should be reviewed regarding meeting the requirements of Para 4 and 5 of Article 55 of the EB GL.



3.5 Montenegro

3.5.1 Current state of balancing market

Based on: data questionnaire and public information

a) Balancing market

Balancing market in Montenegro is functional but still not in competitive manner.

Energy law was adopted in 2016 and set the guidance for development of balancing mechanism. New Grid Code (2017), as well as Market Rules (2017) and other relevant documents set relations between TSO (CGES), MO (COTEE) and other market participants concerning organization and control of balancing market¹⁰. However, although regulatory basis is comprehensive, existence of only one (or two) BSPs and 3 BRPs disables competition. At the same time, it implies the need for regulated control over reserve capacity prices.

Also, renewables are exempt from balancing responsibility and costs for balancing of RES are transferred to end consumers.

b) Balancing capacity procurement scheme

Secondary legislation enables provision of the reserve capacity from another area and CGES implements common dimensioning with EMS within common LFC block. Still, the required balancing capacity is provided internally considering the fact that provision of the reserve capacity abroad would present unjustifiable cost for the end consumers. As a support to this decision, part of balancing reserve capacity is also provided by a large consumer (KAP-UNIPROM).

Balancing capacity dimensioning is done for two types of balancing product: one for automatically activated secondary reserve and the other one for manually activated tertiary reserve.

¹⁰ (1) Market rules, COTEE, 2017

(2) Grid Code, CGES, 2017

(3) Rules for balancing market operation, COTEE, 2017

(4) Decision on establishing prices and expenses for ancillary supply and balancing services, for the period 01.01.2017 – 31.12.2019., REGAGEN, 2016

(5) Methodology for determining prices, deadlines and conditions for provision of ancillary services and balancing services for transmission system for electricity, REGAGEN, 2016

Secondary reserve capacity is dimensioned on the basis of ENTSO-E Operational Handbook recommendations (empiric formula) while tertiary reserve provided by internal sources (and taking into account common dimensioning with EMS) is determined as the difference between the half of the largest unit on line and secondary reserve.

Based on the above criteria and taking into account the specific features of the National Power System, peak load data in different months in year 2017 and planned outages of the generating units, secondary and tertiary reserve capacity for 2017 are presented in the table.

Table 5: Required reserve capacity in Montenegro in 2017

Months in 2017	Secondary reserve capacity (MW)	Tertiary reserve capacity (MW)
1	25	75
2	24	76
3	23	77
4	15	42
5	15	63.5
6	15	85
7	19	81
8	19	81
9	17	83
10	22	78
11	25	75
12	27	73

However, due to constrained capacities provided by only one producer (EPCG), total reserve capacity is agreed at the level of 50 MW. Having this in mind, contracted reserve capacities in 2017 were: aFRR=20MW/20MW, mFRR/RR=+30MW/40MW, for upward and downward direction, respectively.

Price for secondary and tertiary reserve capacity is regulated and determined for each year within regulatory period (3 years in Montenegro). For 2017, the prices were:

- Secondary reserve: 9.3 €/MW/h
- Tertiary reserve: 1.86 €/MW/h



Reserve capacity is provided for the period of 1 year and costs for provision of these reserves are transferred to end consumers.

Availability of contracted capacity is monitored and non-availability is penalized. In fact TSO charges a difference between contracted and available reserve.

c) Balancing products and prequalification for BSPs

There is no prequalification for provision of the secondary or tertiary reserve although relevant technical characteristics of the units that provide these services are part of the TSO-BSP Contract.

Balancing market rules determine some specific characteristics of the balancing product, like:

- Preparation period: 30 seconds
- Ramp-rate: 10% Pnom/minute
- Full delivery period can be 15-minute or 1-hour but also block products consisted of several hourly products can be provided.

d) Balancing energy procurement process, pricing and activation of balancing energy

Currently procurement of balancing energy is regulated process, but with balancing market code adoption the following process is ongoing:

Procurement of balancing energy will be market based process now divided between CGES and COTEE.

Basic characteristics of the balancing energy procurement process are as follows:

- Gate closure time for acceptance of the bids is 30 minutes
- Bid Quantity can be any quantity in the range determined by COTEE (and approved by CGES)
- Price of bid can be any bid less than determined price cap
- Price cap is double value of average price of export or import (whatever is higher) from the year preceding the year in which the contract is made¹¹

¹¹ Methodology for determining prices, deadlines and conditions for provision of ancillary services and balancing services for transmission system for electricity, REGAGEN, 2016



- Balancing bids can be posted during 24 hours any day in a week through specific SW platform.

CGES is responsible for balancing process and activation of the balancing energy while COTEE is responsible for organization of the balancing market. In the process of manually activated tertiary reserve, CGES decides which bids will be activated taking into account security of the system and minimization of costs. The process is limited due to limited number of BSPs.

Regarding automatic activation of the secondary reserve, the Load frequency controller is a proportional-integral (PI) type. The integral term is limited in order to have a non-windup control. The cycle time for the automatic controller is 4s.

The controller has actions only on generating units or power plants capable to exchange in real time a specific flux of data. The controller represents a control function inside the EMS SCADA system. The units/power plants receive a set-point as a percentage (named control order) from the total regulating band selected. In some cases, this set point (control order) is send as one value to one Power Plant and it is redistributed between power plant units, as same value reported to each generation unit control band.

e) Settlement of balancing energy between TSO and BSPs

Imbalance settlement period in CGES balancing mechanism is 1 hour. There are separate accounting of balancing energy quantity activated in upward direction and balancing energy quantity activated in downward direction within same ISP.

At the moment, settlement of activated balancing energy is made on the basis of contracted prices determined, but with introducing the bids settlement mechanism will be pay- as-bid.

Average prices for provision of balancing services in 2017 were:

- Upward: 47.45 EUR/MWh
- Downward: 26.22 EUR/MWh

f) Imbalance settlement and cost recovery

Cost recovery for capacity procurement is organised through network tariff while for balancing energy costs via BRPs. For imbalance settlement, responsible party is market operator (COTEE).



The imbalance pricing method can be characterized as single with introduction of the imbalance threshold (tolerance zone) within which basic imbalance price (Cp) is applied. Basic imbalance price (Cp) is determined as weighted average price for activation of the secondary regulation, tertiary regulation and compensation of unintentional deviations in each ISP.

3.5.2 Summary of gap analysis

Relevant provisions/concepts of the EB GL/SO GL	National framework	legal	Level of compliance/identified gap	Transitional solution
General provisions				
Article 2/ Article 3 of the EB GL/ SO GL	The Energy Law, Law on Cross-border Exchange of Electricity and Natural G, Market Rules, Balancing Rules, Methodology, Grid Code		Main concepts to be introduced/aligned: balancing services, balancing energy, balancing capacity, BSP, imbalance adjustment, TSO-TSO model (including TSO-TSO settlement function), balancing energy gate closure time, standard/specific products, common merit order list	Replicate the definitions of the EB GL/SO GL in the Market Code/Grid Code and align the existing terminology accordingly
Functions and responsibilities/ European platforms				
Article 14	The Energy Market Balancing Methodology, Grid Code	Law, Rules, Grid	Partially compliant, mainly due to the division of the competences between the TSO and MO.	<ul style="list-style-type: none"> - Ensure the assessment of MO's ability to carry out assigned tasks is carried out, following the rationale of Article 13 Para 4 of the EB GL; - clarify Article 36 Para 3 and 4 of the Market Rules and Article 34 Para 1 under 2) of the Methodology by introducing clear provisions on procedure/conditions how this transfer of collected funds between the MO and TSO takes place.
Article 15	The Energy Market Rules	Law,	Partially compliant, as the provisions defining the possibility to elaborate the cost allocation methodology related to the cooperation of the TSO and DSO concerning the reserve providing	(If the national system allows from a technical point of view) introduce amendments in the Market Rules covering the cooperation between the TSO, MO and DSO concerning the reserve providing groups/units



			groups/units connected to the DSO are missing.	connected to the DSO grid, following the rationale of Article 182 of the SO GL.
Article 16	The Energy Balancing Methodology, Code	Law, Rules, Grid	Non-compliant , related to the lack of pre-qualification requirements from BSPs, lack of clear provisions on the bids for balancing capacity and balancing energy, as well as potential discrimination between BSPs.	<ul style="list-style-type: none"> - Along with the introduction of the definition of “balancing service provider” introduce clear pre-qualification requirements for the BSPs, as foreseen in Article 16 of EB GL and Article 159 and 162 of SO GL, as well as ensure that the successful completion of the pre-qualification process shall be considered enough to become a BSP; - introduction of clear provisions in the Balancing Rules and Methodology on bids for balancing capacity and bids for balancing energy. This implies a general review of the Balancing Rules and Methodology, including but not limited to introducing a clear bridging norm, i.e. making a link between these two documents and clarifying to what extent each of them regulates procurement of balancing capacity (submission of balancing capacity bids) and activation of balancing energy (submission of balancing energy bids) from FRR and RR; - amend the Balancing Rules by introducing a transitional definition of a standard product and based on that clarify the right of BSPs without contracted capacity to submit energy bids from these products and equal treatment of such bids thereof; - altogether eliminate any kind of existing/potential discrimination of BSPs with and without contracted capacity, in terms of the right to submit balancing energy bids and equal settlement rules; - introduce an explicit provision in the Balancing Rules (and, if



				<p>necessary, in the Methodology) forbidding to predetermine the prices for balancing energy bids from these products in a contract for balancing capacity and clarify Article 6 of the Methodology by stating that the prices of balancing energy are not determined but capped in line with the Methodology (in the period of application of caps);</p> <ul style="list-style-type: none"> - clarify in the Methodology the concept of “a contract for balancing capacity” and use it uniformly for all relevant legal acts.
Article 18	The Energy Market Balancing Methodology	Law, Rules, Rules,	Non-compliant in the context of the terms and conditions for BSPs.	Expand the scope of the Balancing Rules and Methodology by replicating the scope of terms and conditions for the BSPs and the BRPs, as set out in Article 18 of the EB GL. This would require a general overhaul of the current framework, along with the associated amendments on the qualification requirements for the BSPs, clarifying submission of bids for balancing capacity and balancing energy, defining standard products in the interim period, etc.
Article 24	The Balancing Rules		Non-compliant in terms of balancing energy gate closure time per each standard product.	Along with introducing the transitional definition of “standard product” in the Balancing Rules, as well as the definition of the term “common merit order list” and “balancing energy gate closure time” itself, the balancing energy gate closure time should be set out in the Balancing Rules in line with criteria envisaged in Article 24 Para 2 of the EB GL.
Article 25 - 26	The Balancing Rules		Non-compliant , as the products mentioned in the Balancing Rules do not contain minimum	- Introduce transitional definition of a standard product in the Balancing Rules;



Task 1 – Current state and gap analysis

N/A		<p>characteristics of the standard products, nor comply with variable characteristics (e.g. divisibility).</p> <p>The standard/specific products for balancing energy and balancing capacity are not defined in the Montenegrin legislation, i.e. missing.</p>	<p>- if the TSO identifies the necessity for specific products, the requirements for specific products, as well as the regular review thereof should be foreseen in the Balancing Rules</p>
Procurement of balancing services			
Article 29 - 31	The Methodology, Balancing Rules	Partly compliant/non-compliant, mainly due to the lack of clear provisions on how the activation of balancing energy bids for secondary and tertiary regulation is carried out, as well as “pay-as-bid” pricing	<p>- Article 14 Para 1 and Article 24 Para 1 of the Methodology should be amended to set out that the price of activated balancing energy is equal to marginal price of last activated MWh (pay-as-cleared pricing);</p> <p>- in the interim period it shall be ensured that the agreements concluded among CEGS and the neighboring TSOs on cross-border procurement/exchange of balancing energy are based on/aligned with the requirements of the EB GL (i.e. common merit order list, common definition of standard products, common pricing and settlement rules, etc.).</p>
Article 32	The Energy Methodology, Code	Law, Grid Partly compliant/non-compliant, mainly due to unclear rules on procurement of balancing capacity, as well as regulation of the price of availability of secondary/tertiary capacity	Review the Methodology, so as to ensure that the rules for the procurement of balancing capacity, including its pricing, follow the principles set out in the EB GL (market-based, short-term to extent possible and where economically efficient).
Article 33 - 34	The Methodology N/A	The explicit provisions are missing in the Montenegrin legislation.	- Amendments to the Methodology (or elaborate separate rules for exchange of balancing capacity which would form an integral part of a legal act covering balancing matters) that would introduce requirements for exchange of balancing capacity pursuant to the provisions of the EB GL;



			<ul style="list-style-type: none"> - introduce in the Methodology/Balancing Rules (and if necessary, the Grid Code) a possibility for the BSPs to transfer their balancing capacity obligations within the geographical area in which the procurement of balancing capacity has taken place.
--	--	--	---

Cross-zonal capacity for balancing services

Article 37 - 39	The Energy Law, Law on Cross-border Exchange of Electricity and Natural Gas, Methodology	The explicit provisions are missing in the Montenegrin legislation.	<ul style="list-style-type: none"> - TSO should use the cross-zonal capacity remaining after the intraday cross-zonal gate closure time as proposed (in Task 4). Introduce this provision in the Methodology/Balancing Rules and the Grid Code (and/or respective national rules and/or contracts governing the allocation of cross-border capacities if necessary). - introduce in the Methodology/Balancing Rules and the Grid Code (and/or respective national rules and/or contracts governing the allocation of cross-border capacities if necessary) provisions defining how the TSO calculates and allocates the available cross-zonal capacity for the exchange of balancing capacity or sharing of reserves, pursuant to the general requirements set out in the EB GL. - Introduce in the Methodology/Balancing Rules provisions defining how the market value of cross-zonal capacity is calculated.
------------------------	---	--	---

Settlement

Article 44	The Energy Law, Methodology, Market Rules, Balancing Rules	Partly compliant/non-compliant, mainly due to the provisions (or lack thereof) related to the settlement with BSPs (no explicit provisions on how the activated volume of balancing energy is	No separate transitional solution is proposed, as it is inherently linked with the transitional solutions for Article 45 – 50 and Article 52 – 55 of the EB GL.
-------------------	---	--	--



Task 1 – Current state and gap analysis

		calculated, as well as the settlement price for balancing energy (“cost of using service”) appears to be limited by a regulated price cap in the period of the application of the cap, and otherwise under the “pay-as-bid” principle.	
Article 45	The Methodology, Balancing Rules	Clear provisions are missing in the Montenegrin legislation.	<ul style="list-style-type: none"> - Introduce in the Methodology and Balancing Rules clear provisions on how the activated volume of balancing energy for FRR/RR is calculated, following the rationale of Article 45 of the EB GL; - introduce in the Methodology and Balancing Rules procedure for claiming the recalculation of the activated volume of balancing energy; - the terminology used in the introduce in the Methodology and Balancing Rules should be aligned with the terminology used in the Guidelines (e.g. FCR/FRR/RR).
Article 47 - 48	The Methodology	Non-compliant/missing , mainly due to the lack of clear provisions on how the activated volume of balancing energy for FRR/RR is calculated.	<ul style="list-style-type: none"> - Amend the Methodology and Balancing Rules, so as to ensure clear regulation on settlement of balancing energy for FRR/RR with BSPs (both with contracted capacity and without), following the rationale of Article 47 and 48 of the EB GL; - terminology used in the Methodology and Balancing Rules should be aligned with the terminology used in the Guidelines (e.g. FRR/RR).
Article 49	The Market Rules, Balancing Rules	The current framework merely implies imbalance adjustment which is not further elaborated, hence explicit provisions are missing .	<ul style="list-style-type: none"> - Introduce a definition of “imbalance adjustment” in the Market Rules which will replicate the definition from the EB GL; - introduce clear provisions in the Market Rules (and, if necessary, in Balancing Rules) that would replicate the requirements for



			<p>imbalance adjustment to the BRPs pursuant to Article 49 the EB GL, including the clear provisions on how the volumes activated by the TSO for purposes other than balancing are determined and assigned to the concerned BRP for the purpose of imbalance calculation.</p>
Article 50	The Methodology N/A	Explicit provisions regulating TSO-TSO settlement rules for the intended exchanges of energy from aFRR/mFRR/RR are missing in the Montenegrin legislation.	<ul style="list-style-type: none"> - Introduce explicit provisions in the Methodology or Balancing Rules (or elaborate separate rules for intended exchanges of energy which would form an integral part of a legal act covering balancing matters) that would clarify the intended exchanges of energy from aFRR/mFRR/RR with other TSOs, pricing in such exchanges, as well as whether imbalance netting can be applied for these exchanges; - ensure that the agreements concluded among CGES and other TSOs on cross-border procurement/exchange of balancing energy are based on/aligned with the requirements of the EB GL (i.e. common merit order list, common rules for exchange of balancing energy, common pricing and settlement rules, etc.)
Article 52 - 55	The Market Rules, Methodology	Partly compliant/non-compliant/missing, mainly due to the price for activation of the secondary/tertiary regulation and compensation of unintentional deviations (Ek) as a part of the imbalance price calculation, as well as inverted positive/negative imbalance.	<ul style="list-style-type: none"> - Amend Article 33 of the Methodology and Article 58 of the Market Rules, insofar it refers to Cp, so as to ensure compliance with Article 52 of the EB GL; - introduce a provision in the Market Rules explicitly stating that allocated volume shall not be calculated for a BRP which does not cover injections or withdrawals; - amend Article 51 Para 1 and 2 of the Market Rules, so as to ensure



compliance with Article 54 Para 6 of the EB GL;

- the imbalance settlement principles in the Market Rules and basic imbalance price calculation that involves Ek component shall be reviewed, especially regarding meeting the requirements of Para 1, 4 and 5 of Article 55 of the EB GL.

3.6 Bosnia-Herzegovina

3.6.1 Current state of balancing market

Based on: publicly available information

a) Balancing market

Balancing market in BiH is functional already for some time. From the beginning of 2016 a more market-based concept was launched by NOS BiH, particularly focused on operation of balancing market and imbalance settlement, which enabled improvement of competition.

Efficiency of the balancing mechanism is increased through cross-border cooperation.

There is an exchange of balancing services (manually activated frequency restoration reserve) with the transmission system operators of Croatia and Slovenia operational since 2016. The exchange of balancing energy from the manually activated frequency restoration reserve with the transmission system operator of Serbia is signed and activated during 2017. An agreement on the exchange of balancing energy with the transmission system operator of Montenegro was approved by the regulator in March 2018.

Responsibility for system balancing is completely given to NOSBIH and according to Market rules¹² the main operating principles are as follows:

- Market principles of balancing in the power system of BiH and procurement of ancillary services,
- Equal and non-discriminatory treatment of all Market Participants,
- Transparency.

The number of balance responsible parties (BRP) reached 18 (2018) but as providers of balancing services there are still just three dominant market participants (EP BIH, ERS, EP HZHB).

b) Balancing capacity procurement scheme

Balancing capacity dimensioning is done for two types of balancing product: one for automatically activated secondary reserve and the other one for manually activated tertiary reserve.

¹² Market Rules 2015 - Translated

According to the Grid Code required secondary control capacities are determined on monthly basis, for peak load (from 6:00 to 24.00) and off-peak hours (from 0:00 to 6:00) separately. The required tertiary reserve capacity is determined on a monthly level and separately for upward and downward direction, taking into consideration the existing arrangements for the joint reserve in the SHB control block.

In 2016, required reserve capacity determined for each month was as follows.

Table 6: Required reserve in BiH for 2016

2016	Secondary		Tertiary	
	Peak hours	Off-peak hours	Upward	Downward
Required reserve capacity	45 - 55 MW	30 - 35 MW	184 MW	93 MW
Contracted capacities	98%			
Delivered capacity	70-80%	38%	70-80%	
Prices EUR/MW/h	15.8-18.5	15.8-20.8	4.3-4.7	1

NOS BiH procures secondary and tertiary reserve capacity through the public purchase procedure. The submitted bids are ranked by offered bid price and selected bids are paid by the offered price (pay-as-bid). There are price caps determined by SERC for both reserve capacities, with additional monthly values in case of secondary reserve capacity.

In case of missing capacities, additional capacity is paid by weighted average price of the accepted bids.

In 2016, contracted capacities presented more than 98% of the required volumes, but delivered capacity was at the level of 70-80% for tertiary reserve (both upward and downward) and secondary reserve during peak hours. Delivered secondary reserve capacity during off-peak hours was at the level of 38%.

Negative prices are applicable, but, their further application is under consideration.

Costs for provision of these reserves are transferred to end consumers.



Availability of contracted capacity is monitored and non-availability is penalized. In fact TSO charges a difference between contracted and available reserve.

c) Balancing products and prequalification for BSPs

There is no prequalification for provision of the secondary or tertiary reserve although specific technical characteristics of the units that provide balancing services present a part of contract.

Market rules determine some specific requirements related to standard product.

Offering of all available reserve capacity is mandatory for all participants (generating units).

d) Balancing energy procurement process, activation of balancing energy and pricing

Procurement of balancing energy is market based process completely realized by NOSBIH.

Basic characteristics of the balancing energy procurement process are as follows:

- Balancing bids are provided daily
- Bid Quantity for secondary reserve is not limited but for tertiary reserve minimum is 10MW
- Price of bid for secondary reserve activation can be any price which respects the following rule: The price difference of the activated energy of secondary control in two directions of the regulation shall be limited by the value of S. The value of S shall be determined by SERC. In 2016, this difference was set to 10 EUR/MWh in the first part of the year and to 20 EUR/MWh in second part.
- Price of bid for tertiary reserve activation can be any price that is less than the cap determined by SERC. Electricity price for upward tertiary control was limited to 195 EUR/MWh in the first, and to 238 EUR/MWh in the second half of 2016.

NOSBIH is responsible for balancing process and activation of the balancing energy but also for organization of the balancing market. Secondary reserve is activated - pro-rata, while tertiary reserves are activated according to merit order list.

Regarding automatic activation of the secondary reserve, the Load frequency controller is a proportional-integral (PI) type. The cycle time for the automatic controller is 2s. The controller has actions only on generating units or power plants capable to exchange in real time a specific flux of data:

- All hydropower units with $P_{nom} > 20$ MW and with ramp rate of 1.5-2.5% of P_{nom} per second
- All thermal units with ramp rates of 1-2% of P_{nom} per minute in case of coal fired units and rate of 8% of P_{nom} per minute in case of gas fired ones

e) Settlement of balancing energy between TSO and BSPs

Imbalance settlement period in NOSBIH balancing mechanism is 1 hour. There are separate accounting of balancing energy quantity activated in upward direction and balancing energy quantity activated in downward direction within same ISP.

Settlement mechanism for both secondary and tertiary regulation can be characterized as pay-as-bid mechanism.

Table 7: Average prices for balancing services in BiH

Average price for provision of balancing services in 2016 (EUR/MWh)	Secondary & tertiary control
Upward	61.5
Downward	14.4

f) Imbalance settlement and cost recovery

Cost recovery for capacity procurement is organised through network tariff while for balancing energy costs via BRPs.

For imbalance settlement, responsible party is market operator.

Imbalance pricing system is type of dual imbalance pricing.

3.6.2 Summary of gap analysis



Task 1 – Current state and gap analysis

Relevant provisions/concepts of the EB GL/SO GL	National legal framework	Level of compliance/identified gap	Transitional solution ¹³
General provisions			
Article 2/ Article 3 of the EB GL/ SO GL	The Law on Transmission, Law on ISO, Market Rules, Ancillary Services Procedures, Balancing Rules, Grid Code	Main concepts to be introduced/aligned: FRR/RR, balancing services, balancing energy, balancing capacity, BSP, imbalance settlement, imbalance adjustment, TSO-TSO model (including TSO-TSO settlement function), balancing energy gate closure time, standard/specific products, common merit order list	Replicate the definitions of the EB GL/SO GL in the Market Rules, Ancillary Services Procedures, Balancing Rules and Grid Code, and align the existing terminology accordingly
Functions and responsibilities/ European platforms			
Article 14	The Law on Transmission, Law on ISO, Market Rules, Balancing Rules, Grid Code	Partially compliant , mainly due to lack of the definition of “balancing services” and the identified shortcomings regarding the usage of “ancillary services”	No separate transitional solution is proposed, as it is inherently linked with the transitional solutions for the definition of “balancing services”
Article 15	The Law on Transmission, Market Rules	Partially compliant , as the current framework foresees a general obligation for the TSO and DSO to cooperate and exchange of information necessary for imbalance settlement.	Introduce amendments in the Market Rules covering the cooperation between the TSO and DSO concerning the reserve providing groups/units connected to the DSO grid, following the rationale of Article 182 of the SO GL
Article 16	The Market Rules, Ancillary Services Procedures, Balancing Rules	Partially compliant , mainly due to BSPs right (limitation) to submit certain type of bids for balancing energy	<ul style="list-style-type: none"> - Introduce clear pre-qualification requirements for the BSPs, as foreseen in Article 16 of EB GL and Article 159 and 162 of SO GL, as well as ensure that the successful completion of the pre-qualification process shall be considered enough to become a BSP; - introduce in the Market Rules and Ancillary Services Procedures the right of a BSPs to update balancing capacity bids prior to a gate closure time of procurement process; - amend the Ancillary Services Procedures and the Balancing

¹³ Note: some of the transitional solutions might be needed/applicable after the Guidelines will become part of the Energy Community *acquis*, as there will be necessity to ensure that the national legal framework does not overlap/is not contradictory to the Guidelines



		<p>Rules, so as to ensure that there is no discrimination among the BSPs to submit bids for balancing energy for secondary and tertiary regulation;</p> <ul style="list-style-type: none"> - clarify provisions of the Market Rules and Balancing Rules to ensure a clear distinction between the bids for balancing capacity and bids for balancing energy; - introduce a transitional definition of a standard product in the Market Rules, as proposed in the Final Report Task 4, and based on that clarify the right of BSPs without contracted capacity to submit energy bids from these products and equal treatment of such bids thereof; - introduce an explicit provision in the Market Rules (supplementing Article 30 Para 7 and Article 31 Para 5) forbidding to predetermine the prices for balancing energy bids from these products in a contract for balancing capacity. This also entails clarification of the currently used “agreement on providing the service of secondary/tertiary control reserves” in line with the concept of “a contract for balancing capacity” used in the EB GL.
<p>Article 17</p>	<p>The Market Rules and Grid Code</p>	<p>Partially compliant, mainly due to lack of clear and explicit provisions putting an obligation on a BRP to strive to be balanced in real time</p>
<p>Article 18</p>	<p>The Law on Transmission, Market Rules, Balancing Rules and Ancillary Services Procedures</p>	<p>Partially compliant, as the current framework does not cover fully all aspects foreseen in Article 18 of the EB GL</p>
		<p>Expand the scope of the Market Rules by replicating the scope of terms and conditions for the BSPs and the BRPs, as set out in Article 18 of the EB GL, as well as introduce clear and detailed provisions on requirements concerning BRPs obligation to</p>



			<p>strive to be balanced in real time (following the rationale of Article 17 Para 1 of the EB GL). This would require amendments to the Market Rules, Balancing Rules and Ancillary Services Procedure, along with the associated amendments on the qualification requirements for the BSPs, defining standard products in the interim period, etc.</p>
Article 24	The Balancing Rules	<p>Non-compliant, mainly due to lack of standard products and balancing energy gate closure time for each standard product, as well as gate closure time for balancing energy bids for tertiary regulation</p>	<ul style="list-style-type: none"> - Along with introducing the transitional definition of “standard product” in the Market Rules, as well as the definition of the term “common merit order list” and “balancing energy gate closure time” itself, the balancing energy gate closure time per standard product should be set out in the Market Rules in line with criteria envisaged in Article 24 Para 2 of the EB GL; - amend Article 9 of the Balancing Rules, so as to eliminate the discriminatory provisions for submitting or updating balancing energy bids for RR/mFRR/aFRR.
Article 25	The Market Rules	<p>Partially compliant in substance to the extent that the Market Rules mention some of the minimum and variable characteristics of a standard product bid</p>	<p>Introduce transitional definition of a standard product in the Market Rules, as proposed in the Final Report, Task 4.</p>
Article 26	N/A	<p>The specific products for balancing energy and balancing capacity are not defined in the BiH legislation, i.e. missing</p>	<p>If the TSO identifies the necessity for specific products, the requirements for specific products, as well as the regular review thereof should be foreseen in the Market Rules, following the rationale of Article 26 of the EB GL.</p>
Procurement of balancing services			
Article 29 -31	Market Balancing Ancillary Procedures, Grid Code	<p>Rules, Rules, Services</p> <p>Partially compliant/non-compliant, mainly due to “pay-as-bid” pricing for activation of all balancing energy bids for secondary and tertiary regulation, as well as the regulated price cap</p>	<p>- Amend Article 3.3.2.2. and 4.3.2.2. of the Ancillary Services Procedures and Article 12 Para 1 of the Balancing Rules, so as to explicitly set out that the price of activated balancing energy is</p>



		<p>for difference of the activated energy for secondary regulation in both directions (determined by NRA)</p>	<p>equal to marginal price of last activated MWh (pay-as-cleared pricing);</p> <ul style="list-style-type: none"> - amend Article 30 Para 9 of the Market Rules, so as to ensure that the price cap for difference of the activated energy for secondary regulation in both directions is eliminated; - in the interim period it shall be ensured that the agreements concluded among NOSBiH and the neighboring TSOs on cross-border procurement/exchange of balancing energy are based on/aligned with the requirements of the EB GL (i.e. common merit order list, common definition of standard products, common pricing and settlement rules, etc.); - the ambiguity of Article 11 Para 1 of the Balancing Rules and Article 3.3.1 Para 1 of the Ancillary Services Procedures should be clarified.
<p>Article 32</p>	<p>The Market Rules, Ancillary Services Procedure and Grid Code</p>	<p>Partially compliant/non-compliant, mainly due to regulated price cap for secondary/tertiary control reserve capacity</p>	<ul style="list-style-type: none"> - Introduce a definition of “reserve capacity” which will replicate the definition from the SO GL; - review the Market Rules and Ancillary Services Procedures, so as to ensure that the rules for the procurement of balancing capacity, including its pricing, follow the principles set out in the EB GL (market-based, short-term to extent possible and where economically efficient). If the procurement for upward and downward secondary reserve capacity remains part of one procedure (and not separately for upward and downward reserve capacity), an explicit provision should be introduced in the Market Rules outlining the possibility/procedure for NOSBiH to submit a proposal to SERC



			requesting exemption from the requirement to carry out procurement for upward and downward secondary reserve capacity separately.
Article 33 - 34	N/A	<p>Explicit provisions on rules and processes for the exchange of balancing capacity are <u>missing</u> in the BiH legislation.</p> <p>The possibility for the BSPs to transfer their balancing capacity obligations <u>is missing</u> in the BiH legislation.</p>	<ul style="list-style-type: none"> - Amend the Market Rules, Ancillary Services Procedures and Grid Code, so as to introduce explicit possibility for exchange of balancing capacity pursuant to the provisions of the EB GL; - in case common and harmonized rules and processes for the exchange of balancing capacity are/will be included in the plans/regional agreements, ensure their compliance with the above-mentioned requirements; - introduce in the Market Rules a possibility for the BSPs to transfer their balancing capacity obligations within the geographical area in which the procurement of balancing capacity has taken place.
Cross-zonal capacity for balancing services			
Article 37 - 39	The Ancillary Services Procedure and Grid Code	<p>The explicit provisions setting out the update/recalculation of the available cross-zonal capacity for the exchange of balancing energy or for operating the imbalance netting are <u>missing</u> in the legal acts.</p> <p>Provisions regulating how the exchange of balancing capacity and sharing reserves shall take place, including one of three methodologies (foreseen in Article 38 and Article 40 – 42 of the EB GL respectively) for allocating cross-zonal capacity, are <u>missing</u>.</p> <p>Consequently, corresponding provisions setting out how the market value of cross-zonal capacity is calculated for the exchange of balancing capacity</p>	<ul style="list-style-type: none"> - TSO should use the cross-zonal capacity remaining after the intraday cross-zonal gate closure time as proposed (in Task 4). Introduce this provision in the Market Rules and the Grid Code (and/or respective national rules and/or contracts governing the allocation of cross-border capacities/exchange of balancing energy, if necessary) - introduce in the Market Rules and the Grid Code (and/or respective national rules and/or contracts governing the allocation of cross-border capacities if necessary) provisions defining how the TSO calculates and allocates the available cross-zonal capacity for the exchange of balancing capacity or sharing of reserves, pursuant to the



		and sharing reserves are missing as well.	general requirements set out in the EB GL; - introduce in the Market Rules provisions defining how the market value of cross-zonal capacity is calculated.
Settlement			
Article 44	The Law on ISO, Market Rules, Ancillary Services Procedures	Partially compliant/non-compliant , mainly due to a price coefficient set by SERC as one of the elements for imbalance price formation	- Amendments to Article 12 Para 7 of the Balancing Rules in line with rationale of Article 30 Para 2 of the EB GL (implying the necessity of price limits are needed for efficient functioning of the market); - introduce in the Market Rules a provision clarifying the financial neutrality of the TSO with regard to the financial outcome of the settlement with BSPs and BRPs.
Article 49	The Market Rules	Explicit provision regulating the imbalance adjustment to be applied to the concerned BRP is missing in the BiH legislation. Existing framework partially compliant in substance , while explicit provisions following the same rationale as in Article 49 of the EB GL are missing in the BiH legislation.	- Introduce a definition of “imbalance adjustment” in the Market Rules which will replicate the definition from the EB GL; - introduce clear provisions in the Market Rules that would replicate the requirements for imbalance adjustment to the BRPs pursuant to Article 49 the EB GL , including the clear provisions on how the volumes activated by the TSO for purposes other than balancing are determined and assigned to the concerned BRP for the purpose of imbalance calculation.
Article 50	N/A The Ancillary Services Procedures	Explicit provisions regulating TSO-TSO settlement rules for the intended exchanges of energy from aFRR/mFRR/RR are missing in the BiH legislation. Existing framework partially compliant , as it only foresees exchange of tertiary regulation (energy) which according to Article 6.2.1.3. of the Grid Code relates to mFRR, missing aFRR and RR.	- Introduce explicit provisions in the Market Rules and Ancillary Services Procedures that would clarify the intended exchanges of energy from aFRR/mFRR/RR with other TSOs, pricing for such exchanges, as well as whether imbalance netting can be applied for these exchanges; - ensure that the agreements concluded among NOSBiH and other TSOs on cross-border



				procurement/exchange of balancing energy are based on/aligned with the requirements of the EB GL (i.e. common merit order list, common rules for exchange of balancing energy, common pricing and settlement rules, etc.).
Article 52 - 55	The Market Rules, Balancing Rules	Partially compliant in substance/non-compliant, mainly due to the fact that imbalance price calculation involves a regulated component (price coefficient determined by NRA), positive/negative imbalance price calculation is linked to the lowest/highest bid price for secondary regulation, regardless of the direction of activation, as well as determination of the imbalance price in case of no activation of balancing energy.		<ul style="list-style-type: none">- Introduce in the Market Rules provisions on conditions and methodology for applying dual imbalance pricing, including conditions on when the TSO may propose to its NRA the application of dual pricing and which justification shall be provided;- introduce a provision in the Market Rules explicitly stating that allocated volume shall not be calculated for a BRP which does not cover injections or withdrawals;- the imbalance settlement principles in the Market Rules shall be reviewed as whole to meet the requirements of Article 55 of the EB GL. This also implies amendments to Article 40 Para 2 and Article 40 Para 3 of the Market Rules.