ELECTRICITY BALANCING MARKET RULES

- unofficial translation and consolidated text-[1]

1. GENERAL PROVISIONS

Subject matter

Article 1

(1) These rules for the Electricity Balancing Market (here after: The Rules) govern:

1) The rights and obligations of the Balancing Service Providers,
2) The procedures for the procurement of balancing services,
3) The pricing methodology for the balancing services, their balancing calculation, invoicing and payment, which should be non-discriminatory, to reflect real costs incurred and their minimization,
4) The method for determining the activated amounts of balancing services which are settled between the balancing services providers,
5) The financial settlement with the Balancing Service Providers, including agreements and financial guarantees required by the Service Providers concerning the settlement of balancing services,
6) The responsibilities of the Balancing Parties, including the conclusion of the Balancing Agreements,
7) The form, content and manner of managing a Balancing Service Providers Registry, and a Balancing Parties and Balancing Groups Registry,
8) The method for calculating the imbalances between the nominated and realized transactions based on measurements done by the Electricity Transmission System Operator and the Power Distribution System Operator, and
9) The financial settlement with the Balancing Responsible Party.

Definitions

Article 2

(1) The expressions used in these rules have their meaning set forth in the Energy Law.

(2) Separate terms and expressions used in these Rules have the following meaning:

1) **Primary regulation (FCR - Frequency Containment Reserve),** is the active power reserve available to contain system frequency, which is used for the regulation of the turbine speed that follows the frequency deviation from the nominal value due to the imbalance between generation and consumption in synchronized and interconnected systems.

2) **Frequency Restoration Reserve (FRR**), is a reserve of active power which includes aFRR and mFRR;

3) **Secondary regulation (aFRR)** called automatic Frequency Restoration Reserve and it means the active power reserve that can be activated by an automatic control device available to restore system frequency to the nominal frequency value;

[1] The consolidated text of the rules is prepared on the basis of the Rules for balancing the power system ("Official Gazette no. 179/19, 242/19, 49/20, 7/21, 146/21, 263/21, 289/21, 281/22, 114/2023, 284/2023 and 271/2024.

The consolidated text has no legal force.

For legal purposes regarding the processes related to the Balancing Rules, only the texts that have been published in the previously mentioned Official Gazettes of the Republic of Macedonia are valid.

4) **Tertiary regulation (mFRR)** called manual Frequency Restoration Reserve and it means the active power reserve that can be activated by a manual control device available to restore system frequency to the nominal frequency;
5) **Active power reserve (RR)** it means the active power reserves available to restore or support the required level of FRR, so FRR can be prepared for additional system imbalances, including generation reserves;
6) **Balancing Group**: a group consisting of one or more electricity market participants, of which one member of the Balancing Group takes over full balancing responsibility and becomes a Balancing Responsible Party;
7) **Balancing Group Member**: is an Electricity Market Participant that has signed a balancing group membership statement with one of the Balancing Responsible Parties;
8) **Balancing Service Provider (BSP)**: Balancing Market Participant with reserve-providing units or reserve-providing groups that can provide balancing services for the needs of the TSO and has a valid Balancing Service Provider agreement;
9) **Balancing Responsible Party (BRP)**: an Electricity Market Participant, or his elected representative, who undertakes balancing responsibility and submits daily schedules (nominations) for the Balancing Group in accordance with their respective contractual obligations and is responsible for the imbalances towards TSO.
10) **Balancing service provider agreement:** legal act regulating the management of balancing energy delivery and the financial imbalance settlement.
11) **Balancing Responsibility Agreement:** a legal act that regulates the Balancing Responsibility by BRP, the submission of BRP's daily schedules in accordance with the daily schedules submission rules, as well as financial imbalance settlements and their financial provision.
12) **Balancing Group agreement:** legal act regulating the establishing of balancing groups and the changes in the balancing group, as well as the rights and obligations between the members and the Electricity Market Operator.
13) **Imbalance (deviation)**: the difference between the realized and nominated daily schedules for each imbalance settlement interval.
14) **Final daily schedule**: a document prepared by TSO for the overall electricity generation, internal and cross-border transactions through the power transmission system, based on daily schedules submitted by the electricity market participants approved by the TSO.
15) **Compensation**: Calculated electricity which is a result of unwanted deviations made in a predefined period and for which the TSO is obliged to obtain / deliver from/to Electricity Transmission System Operators from the countries of Continental Europe.
16) **Merit order list**: a list of balancing capacity and / or balancing energy bids sorted by their offered prices, starting from the lowest price, which are then used to select the balancing capacity and / or balancing energy.
17) **Physical schedule:** document submitted to the Electricity Market Operator and TSO by the Balancing Responsible Party with a defined time schedule of: generation, consumption and exchange of electricity, including cross-border day-to-day transactions, in accordance with the bilateral agreements between the market participants,
18) **DSO:** Distribution System Operator.
19) **EMO:** Electricity Market Operator.

20) **PEPPT:** Preferential electricity producer with feed-in tariff.
21) **GOT:** Gate opening time -set time for launching an auction.
22) **GCT:** Gate closure time - set time for ending an auction.
23) **GOTV:** Gate opening time voluntary - set time for launching an auction for voluntary bidding.
24) **GCTV:** Gate closure time voluntary - set time for ending an auction for voluntary bidding.
25) **ISP:** Imbalance settlement period
26) **ERC:** Energy and Water Services Regulatory Commission
27) **Portfolio:** the total balancing units of a single Balancing Service Provider (BSP).
28) **Weekly auctions:** auctions that are conducted from the first day of the week at 00:00 to the last day of the same week at 24:00, or in the case of the first or last week of the month, only the days of that week that belong to the month M.

2. RIGHTS AND OBLIGATIONS OF BALANCING SERVICE PROVIDERS

2.1 Roles and responsibilities

The role of TSO in the Balancing Energy Market
Article 3

(1) In order to ensure operational reliability, maintenance of frequency and voltage stability of the system, taking into account all planned outages and interruptions due to malfunctions, TSO procures balancing services from BSPs.
(2) TSO organizes:
   1) signing an agreement with Balancing Service Providers,
   2) procuring balancing services from Balancing Service Providers,
   3) collecting bids for procurement of balancing capacity,
   4) collecting bids for balancing energy,
   5) making a merit order list for procurement of balancing capacity and balancing energy for aFRR and mFRR,
   6) establishing and maintaining a Balancing Service Providers Registry,
   7) calculating activated and delivered balancing energy from the BSP's balancing units.

The role of Balancing Service Providers
Article 4

(1) The BSP may participate in the Balancing Energy Market and provide bids for balancing capacity and balancing energy after successfully completing the qualification process.
(2) The BSP may submit an offer to TSO for standard or specific balancing capacity and / or balancing energy products for which they are qualified.

2.2 BSP qualification and registration procedure

Description of the system balancing process
Article 5

(1) The purpose of the balancing process is to maintain the balance in the system between generation and consumption (demand). Frequency deviation from the nominal frequency

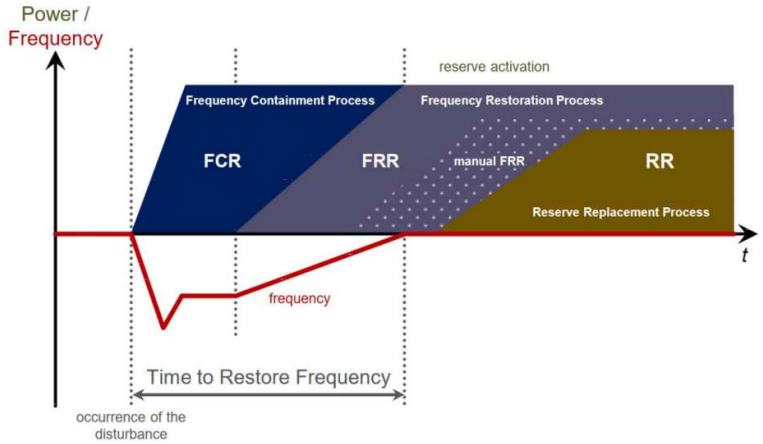
stems from the imbalance between generation and demand. In the balancing process, TSO can use the following three types of balancing capacity: FCR, aFRR and mFRR.

(2) The system operation control is performed with the following successive steps:

1) FCR startsin a time period which is measured in seconds as a joint response of all activated balancing units which have the possibility for FCR.
2) aFRR replaces FCR for a few minutes and is initiated by the TSO by activating the appropriate amount of aFRR secured by the BSP involved in the aFRR process.
3) mFRR partially addends and replaces the aFRR with redistribution of electricity generation and is manually operated by TSO in cases of failure of large generating units or in case of system failure that lasts for a longer time period.

(3) In addition to the three types of regulation FCR, aFFR, and mFRR, TSO may also implement an independent RR activation process that makes the active power reserves available for recovery or support for the required level of FRR available in the event of further system deviation, including the power generation reserves.

(4) The whole system operation control process conducted by TSO is shown in Picture 1:



Picture 1: System operation control process performed by TSO

(5) TSO determines the quantities of operating reserves according to the methodology defined in the Transmission Grid Code (hereinafter Grid Code) in cooperation with ENTSO-E, and provides them in a public and transparent manner.

Balancing Service Provider Registration Application

Article 6

(1) The BSP registration procedure begins with a request submission to the TSO.
(2) Balancing Service Provider Registration Application (BSPRA) that TSO publishes on its website contains:
    1) Information on the Market Participant Agreement concluded with EMO (agreement number)
    2) Name, address, contact details and EIC code,
    3) Names and data of all authorized personnel representing the applicant during the implementation of the registration procedure in the Balancing Energy Market,
    4) A list of all balancing units that meet the criteria for providing a balancing service with which the applicant intends to participate in the Balancing Energy Market,
    5) Dynamic Parameters Submission Form for the balancing units.

Dynamic Parameters Submission Form for the balancing units

Article 7

(1) TSO prepares and publishes the Dynamic Parameters Submission Form of BSP's balancing units (DPSF) on its website, and it should contain at least the following:
    1) Type of generation unit and brief description (model, constraints, etc.),
    2) Rated power expressed in MW,
    3) Permissible overload expressed in MW,
    4) Minimum level of variable load expressed in MW,
    5) Normal and critical speed of output power increasement expressed in MW/min,
    6) Normal and critical reduction speed of output power expressed in MW/min,
    7) Minimum time for shutdown from full load conditions, expressed in minutes,
    8) The minimum time required for restart from a cold to a hot state expressed in minutes,
    9) Available capacity for a primary reserve,
    10) Available capacity for a maximum and minimum secondary reserve,
    11) Available capacity for a tertiary reserve,
    12) Availability for a startup in a state total loss of power(black-start).
(2) For consumers in the role of a balancing unit, the DPSF form should contain at least:
    1) Peak power expressed in MW,
    2) Points of connection,
    3) Minimum level of variable load expressed in MW,
    4) Maximum level of variable load expressed in MW,
    5) Normal and critical speed of output power increasement expressed in MW/min,
    6) Normal and critical reduction speed of output power expressed in MW/min,
    7) The maximum level of load which can be cut off expressed in MW,
    8) The maximum duration of the load cut off expressed in minutes.

Acquiring status of balancing service provider

Article 8

(1) The potential BSP submits the completed BSPRA to the TSO, together with the information

required for its potential balancing units.

(2) Within 8 days of the BSPRA submission, TSO confirms the submitted Application is completed.

(3) If the TSO determines that the Application is incomplete, it notifies the potential BSP within 7 days of the Application submission and sets a time limit of 30 days for the Application to be completed.

(4) If the applicant fails to further regulate the required documentation within the time limit set in paragraph (3) of this Article, the request shall be deemed withdrawn.

(5) After the TSO confirms that the Application is complete, the TSO conducts the necessary tests within 3 months of the Application submission and decides whether the potential BSP meets the qualification criteria.

(6) If the applicant meets the qualification criteria, TSO signs a Balancing Service Provider Agreement in four copies and submits it to the applicant.

(7) The applicant signs the agreement referred to in paragraph 6 of this Article within 10 days after receiving the Agreement and submits two copies of the signed Agreement to TSO.

(8) If the applicant fails to submit a signed Agreement within the time limit referred to in paragraph 6 of this Article, TSO considers the request is withdrawn.

(9) Upon admission of the Balancing Agreement, TSO registers the electricity market participant in the Balancing Service Providers Registry as a participant in the Balancing Energy Market, thereby acquiring the right to participate in the Balancing Energy Market as a Balancing Service Provider.

(10) The guarantee should be irrevocable, unconditional and payable on the first written call.

(11) TSO has the right to request re-testing of BSP's balancing units for FCR, aFRR or mFRR:

1) At least once every 5 years,
2) In the event of a change in the technical requirements or equipment availability requirements,
3) In case of upgrading the activation equipment of FCR, aFRR or mFRR,
4) In case it does not meet the technical requirements referred to in Article7.

The Balancing Service Providers Registry

Article 9

The Balancing Service Providers Registry is an electronic data registry in which the following data is being kept:

1) The name of the legal entity,
2) The Balancing Responsible Party, to which BSP belongs to,
3) BRP's EIC code,
4) Registry entry date,
5) The type of reserve,
6) List of the balancing units.

Providing balancing capacity and balancing energy

Article 10

(1) The BSP acquires the right to participate in auctions, or has the right to submit bids for balancing capacity and balancing energy within the capacity of its balancing units by fulfilling the conditions defined in the aFRR and mFRR Procurement Rules.

(2) TSO secures the Balancing Services in a transparent and non-discriminatory manner by performing public auctions for capacity and energy for aFRR and mFRR, whereby at least the following information shall be defined in advance:

1) Type of auction
2) Time of conduction the auction
3) Product characteristics

(3) TSO organizes and conducts auction for Balancing Capacity and Balancing Energy and announces the results of the auction on a internet based platform (hereinafter referred to as Platform).

Suspending a Balancing Market Participant as a Balancing Service Provider

Article 11

(1) For submitting inaccurate data or repeated irregularities in relation to already submitted data on dynamic parameters, the TSO has the right to suspend the Balancing Market Participant as a BSP.
(2) The decision on suspension shall contain the reasons for its adoption. The duration of the suspension cannot be longer than six months.
(3) Before submitting the decision on suspension from paragraph (2) of this Article, TSO shall be obliged to submit a warning to the Balancing Market participant, stating the reasons for it.
(4) The warning prior to the suspension shall contain a time period not shorter than 3 days and no longer than 30 business days, in which the Balancing Market Participant should eliminate the reasons for which the warning from TSO was submitted.
(5) If the market participant within the period referred to in paragraph 4 of this Article proves that it has eliminated the reasons for which the warning has been submitted, the TSO shall make a decision to withdraw the warning before a suspension, which then submits to the Balancing Energy Market Participant and publishes it on its website.
(6) If, during the period specified in the notice prior to the suspension, the Balancing Market Participant does not eliminate the reasons for the submitted suspension, TSO makes the decision to suspend the Balancing Market Participant.
(7) TSO publishes the decision for suspension, i.e. warning before suspension, on its website and submits it to the Balancing Market Participant. The decision is posted on TSO's website until the suspension is terminated or the pre-suspension warning is withdrawn.
(8) Against the TSO's decision on suspension, the suspended Balancing Market Participant may file a complaint with ERC within 15 days of receipt of the Decision. The complaint does not delay the decision.
(9) In case of losing the right to participate in the Electricity Market, the Balancing Service Provider ceases to participate in the Balancing Market.

2.3 Internet based platform (Platform)

Internet based platform

Article 12

(1) TSO procures aFRR and mFRR balancing capacity and energy via internet-based platform.
(2) BSPs submits aFRR and mFRR balancing capacity and energy bids on a platform managed by TSO or a third party selected by TSO.
(3) TSO determines electronic platform specifications, platform operating rules, communication protocols, and other technical features of the platform and publishes this information on its website.
(4) TSO procures all aFRR and mFRR balancing capacity and energy through the platform. In exceptional cases of technical problems, TSO collects bids by other means of communication, for example email, in accordance with the aFRR and mFRR Procurement Rules.

(5) The TSO informs all registered BSPs in a timely manner of such exceptional situations together with the reasons, by email and by posting information on its website.

2.4 Balancing energy in the frequency containment process (FCR)

Obligation to procure FCR

Article 13

(1) The technical characteristics of the FCR and the operational requirements that must be met by the producers participating in the FCR, are defined in the Grid Code.
(2) As defined in the Grid Code all hydro and thermal generation units must be equipped with turbine regulator for automatic speed regulation which should be capable of securing energy for primary regulation. The TSO can release or exempt the individual generation unit from its obligation of securing FCR in accordance with the generator technology and primary fuel type.
(3) All hydro generation units, with installed capacity higher than 10 MW and all thermal generation units with installed capacity higher than 30 MW must take part in securing FCR. Other hydro and thermal units (for hydro units with installed capacity of less or equal to 10 MW and for thermal units with installed capacity of less or equal to 30 MW) are bound for automatic regulation activation if required by TSO.
(4) In case when the TSO does not have access to enough FCR capacity, the TSO informs the Energy Regulatory Commission.

2.4.1 Activation of Balancing Energy from FCR

Activation of FCR

Article 14

(1) The FCR is activated automatically by the production unit in accordance with the technical instructions specified in the Grid Code.
(2) The BSP should provide the TSO with information on each of its FCR balancing units whether FCR is on or off.

Financial settlement of activated FCR balancing capacity and balancing energy

Article 15

The balancing capacity and balancing energy from FCR units are not subject of financial settlement between the BSP and the TSO.

2.5 Frequency restoration process with automatic activation (aFRR)

Procurement of aFRR

Article 16

(1) The TSO procures the required quantity of aFRR from the BSP using the market base principles through implementation of auctions in accordance with these Rules.
(2) The procurement of aFRR is divided into the procurement of aFRR balancing capacity and aFRR balancing energy.
(3) The TSO preforms auctions for the aFRR balancing capacity in different timeframes.
(4) The TSO preforms auctions for the aFRR balancing energy.

aFRR Procurement Rules

Article 17

(1) TSO will conduct auctions for the purchase of aFRR balancing capacity and balancing energy for the following year, until December 31 of the current year, in accordance with the aFRR Procurement Rules from the balancing units which should include at least the following:
   1) Technical details of activation, duration and method of activation,
   2) Standard auction products,
   3) Dates and times of the auctions,
   4) Bidding,
   5) Timetable for calculations and financial settlement,
   6) Complaints,
   7) Results announcement.

(2) TSO adopts aFRR Procurement Rules for the following year and publishes them on its website by October 31st of the current year at the latest.

2.5.1 Standard products (capacity, energy)

Standard product definition of balancing capacity for aFRR

Article 18

(1) The available capacity for aFRR represents the difference between the generator's operating point determined by the final daily schedule (base power of the balancing unit) and the positive part of the scope of regulation.
(2) The scope of regulation is the zone in which the AGC (Automatic Generation Control) operates automatically in both directions (up and down regulation).
(3) The scope of balancing unit regulation is secured by setting the lower and upper limits by the operators in the Balancing Service Provider's power plants.
(4) A standard product for aFRR balancing capacity is an hourly product with the same values in both directions.
(5) With the exception of paragraph (4) TSO may decide to introduce additional products for aFRR balancing capacity depending on the operation and needs of the power system.
(6) The delivered quantities for each product are expressed as an integer value in MW.

Standard product definition of balancing energy from aFRR

Article 19

(1) The standard product for the aFRR balancing energy is an hourly product, and it is different for each direction and period.
(2) The BSP may not link bids on a technical or economic level which would link different balancing units' bids for different time periods and make them interdependent.
(3) The activated balancing energy from aFRR is financially settled using the pay-as-bid method.
(4) The BSP may enter unlimited number of bids for the required aFRR balancing energy.

Data on the functioning of the aFRR

Article 20

(1) The detailed technical specifications for metering are defined in the MEPSO Grid Code.
(2) For the balancing mechanism to function, the BSP provides dispatching data to TSO for the balancing units through a communication link between the BSP's SCADA system and TSO's SCADA system.
(3) The BSP shall submit to the TSO a schedule for dispatching balancing units which will participate in the balancing process of the power system using aFRR for the day D, on day D-1.
(4) The BSP may change the balancing dispatch schedule involved in the system balancing process using aFRR for day D by submitting a new balancing dispatch schedule at least one hour prior to the start of the hour where the change referred to.
(5) For financial settlement, TSO provides data on activation and realization of activated aFRR balancing energy and submits it to the BSPs.

2.5.2 Procurement of aFRR balancing capacity

aFRR balancing capacity auctions

Article 21

(1) TSO conducts monthly auctions for each month separately, at least 15 days before the first day of delivery of the monthly product.
(2) In the event of incomplete procurement aFRR balancing capacity, the TSO may decide to hold additional weekly or daily auctions, for which it should announce the decision at least 7 days before the delivery period.
(3) The TSO may set different or additional time periods for carrying out the auctions.
(4) The BSP may submit a balancing capacity bid as a portfolio that does not exceed the value of the total eligible aFRR balancing capacity of all its balancing units in any given time period.

Selection of bids for aFRR balancing capacity

Article 22

(1) TSO selects the bids for aFRR balancing capacity by the criterion of the cheapest bid.
(2) TSO informs the BSPs about the auction results through the platform.
(3) The participating BSPs may submit a complaint about the results in accordance with the aFRR Procurement Rules.

2.5.3 Bidding for aFRR balancing energy

General requirements

Article 23

(1) BSP submits bids at the aFRR balancing capacity auction for the quantity and price of aFRR balancing capacity as a portfolio.

(2) BSP at the auction for procurement of aFRR balancing energy, for the submitted bids for providing aFRR balancing energy on day D-1 for day D, should submit the balancing units that will provide the contracted aFRR balancing capacity, the amount of MW for each balancing unit respectively and the balancing energy prices, if they are within the minimum and maximum values for the aFRR balancing energy price defined in paragraph (3) of this Article.

(3) The submitted bids for aFRR balancing energy on day D-1 for day D should have the following values:

1) for upward regulation the price of aFRR balancing energy delivered in D-1 for day D may be lower than or equal to the value HUPX + 50% for the corresponding hour achieved in DAM (Day Ahead Market). If the HUPX value achieved on the DAM for the relevant hour is lower than the value at which the universal supplier purchases electricity from the electricity producer with the largest installed capacity, instead of HUPX +50%, the value at which the universal supplier purchases electricity from the electricity producer with the largest installed capacity increased by +50% shall be taken,
2) for downward regulation the price of aFRR balancing energy supplied in D-1 for day D in cases where there are positive HUPX values in DAM, it may be greater than or equal to the HUPX-50% value for the corresponding hour achieved in DAM (Day Ahead Market). If the HUPX value for the corresponding hour in DAM is lower than 40 €/MWh, HUPX -40 €/MWh for the corresponding hour achieved in DAM is taken.
3) for downward regulation, the price of aFRR balancing energy delivered in D-1 for day D in cases where there is a negative or zero value of HUPX in DAM may be greater than or equal to the value HUPX-40€/MWh for the corresponding hour achieved in DAM (Day Ahead Market).

(4) TSO has the right to organize auctions for day D on day D-2, i.e.D-3 in case of holidays and weekends.

(5) In case of auctions held for a period longer than D-1 when the values from paragraph (3) of this Article are not available, the balancing service providers will submit bids without limitation of the balancing energy price and according to those prices a merit order list is created. When the values referred to in paragraph (3) are available and if the balancing energy prices exceed them, they shall be reduced to the appropriate limits.

(6) The value of the submitted bids for the provision of aFRR balancing energy on day D-1 for day D at hourly level must be greater than or equal to -50 €/MWh. The delivered quantities for each balancing unit are expressed in an integer value in MWh.

Time period for submitting aFRR balancing energy bids

Article 24

(1) The chosen BSPs with contracted capacity, submit the mandatory bids for the aFRR balancing energy to the auction platform in the time window between the GOT and the GTC, determined by TSO.

(2) The BSPs may submit aFRR balancing energy bids to the auction platform in the time window between the start of the bidding (hereinafter referred to as GCTV), and the time of completion of the bidding (hereinafter referred to as GCTV) determined by TSO.

(3) The opportunity and manner of bidding for aFRR balancing energy are set out in the aFRR Procurement Rules.

2.5.4 Ordering and activation of aFRR balancing energy bids

Merit order list

Article 25

(1) The bids for aFRR balancing energy are sorted in the following order:
   1) for upward regulation - first the bids with the lowest price, until the required amount of balancing energy in the amount of the purchased aFRR balancing capacity is fulfilled,
   2) for downward regulation - first the bids with the highest price, until the required amount of balancing energy in the amount of the purchased aFRR balancing capacity is fulfilled.

(2) In case of more than one bid with the same price, the first submitted bid shall be ordered.

Activation of aFRR

Article 26

(1) The aFRR is activated automatically over TSO's SCADA system which sends a signal to the BSP's balancing units that are successfully engaged in the ACG, for the activation of the required balancing energy.

(2) TSO activates the aFRR balancing energy only from the generating units included in the balancing unit dispatching schedule submitted by the BSP.

(3) In case of technical difficulties as a result of the inability to realize the activation of balancing energy, the BSP sends a notification and a new dispatching balancing units schedule with available balancing units to the TSO, one hour before the activation of the balancing unit.

2.5.5 Calculation of activated aFRR balancing energy

Calculation of the activated aFRR balancing energy amount

Article 27

(1) The calculation of the activated aFRR balancing energy is performed seperately for each time interval.

(2) The calculation of the activated aFRR balancing energy is done using the following formula:

$$E_{sb_{i,t}} = \left(E_{sbm_{i,t}} - E_{sbazna_{i,t}}\right)$$

Where:

$E_{sb_{i,t}}$ - Activated aFRR energy from a balancing unit (i) for the time interval (t), (MWh)

$E_{sbm_{i,t}}$ - Measured energy for the balancing unit (i) for the time interval (t), (MWh)

$E_{sbazna_{i,t}}$ - Base power of the balancing unit (i) for the time interval (t), (MWh)

(3) The total activated aFRR balancing energy for the time interval (t) is calculated by the following formula:

$$E_{sr_t} = \sum_{i=0}^{i=n} E_{sb_{i,t}}$$

If $E_{sr_t} > 0$, activated aFRR balancing energy for the time interval (t) is for upward regulation;

If $E_{sr_t} < 0$, activated aFRR balancing energy for the time interval (t) is for downward regulation.

n - number of balancing units engaged in regulation in time interval(t)

(4) BSP's balancing units are considered to be operating correctly in aFRR if they operated continuously for at least 45 minutes at the appropriate hour.

2.5.6 Financial settlement of aFRR

Financial settlement of procured balancing capacity
Article 28

(1) The TSO carries out the financial settlement of procured aFRR balancing capacity by BSP, based on prices obtained from the aFRR capacity auctions.
(2) The settlement period is one calendar month.
(3) TSO sends a Financial Settlement Report on the procurement of aFRR within five business days from the first business day of the month following the month of the referred calculation.
(4) Based on the report referred to in paragraph 3 of this Article, the BSP shall send an invoice within eight business days of the report.
(5) The due date is eight business days from the invoice date of issue.

Financial settlement of activated balancing energy
Article 29

(1) The TSO carries out the financial settlement of procured aFRR balancing energy, based on amount of activated aFRR balancing and prices obtained from the aFRR energy auctions.
(2) For the financial settlement of activated aFRR balancing energy the prices provided by BSPs are used as they are listed in the merit order list, in the order from lowest to highest price.
(3) The settlement period is one calendar month.
(4) TSO sends a Financial Settlement Report on the procurement of aFRR within five business days from the first business day of the month following the month of the referred calculation.
(5) The BSP has the right to file a complaint about the report and send it no later than two business days after the report was sent. TSO examines the complaint, prepares and sends the final settlement report no later than one business day after receiving the complaint and it becomes final basis for the financial settlement.
(6) If the BSP is not satisfied with the final report, it can initiate an ERC procedure, but this does not delay the obligation of paying the invoice.
(7) TSO sends the activated balancing energy invoice for downward regulation to the BSP 12 business days after the end of the month in question.
(8) The BSP sends the activated balancing energy invoice for upward regulation to the TSO 12 business days after the end of the month in question.
(9) The invoice due date is eight business days from the invoice date of issue.

Consequences of non-fulfillment of obligations
Article 30

(1) If the BSP fails to fully procure the purchased aFRR balancing capacity, the unprovided capacity (the difference between the purchased and procured capacity) will not be paid.
(2) The unprovided capacity in the time interval is the basis for calculating the cost of the unprovided aFRR balancing energy and is calculated with the following formula:

$$S_{amount} = W_{unprovided\ capacity} * t * P_{amount\ for\ penalization}$$
$$P_{amount\ for\ penalization} = 2 * SaFRR$$

Where:

$S_{amaount}$ - amount that the BSP pays to the TSO,
S_{aFRR} - average price for balancing energy for that month,
t - time interval.

2.6 Frequency restoration process with manual activation (mFRR)

General Principles
Article 31

(1) TSO procures the required amount of mFRR from the BSP using the market base principles by conducting auctions in accordance with these Rules.
(2) The procurement of mFRR is divided into the procurement of mFRR balancing capacity and mFRR balancing energy.
(3) The bids for mFRR balancing capacity or mFRR balancing energy can only be entered by the BSP that is qualified to offer mFRR balancing capacity or mFRR balancing energy.
(4) The TSO conducts mFRR balancing capacity auctions in different timeframes.
(5) The TSO conducts mFRR balancing energy auctions in different timeframes.

mFRR procurement rules
Article 32

(1) TSO will conduct mFRR balancing capacity and balancing energy auctions for the following year until December 31st of the current year, from balancing units in accordance with the mFRR Procurement Rules, which should contain at least the following:
    1) Standard products of the auctions,
    2) The dates and time of the auctions,
    3) Bidding,
    4) Technical details of activation, duration and method of activation,
    5) The timetable of the calculation and financial settlement,
    6) Complaints and publishing of the results.
(2) TSO adopts mFRR Procurement Rules for the following year and publishes them on its website no later than October 31st in the current year.

2.6.1 Standard products (capacity, energy)

Standard product definition of mFRR balancing capacity
Article 33

(1) The standard product for mFRR balancing capacity is an hourly product with the same or different values in both directions for each period.
(2) With the exception of paragraph (1) TSO may decide to introduce additional products for mFRR balancing capacity depending on the operation and needs of the power system.
(3) The delivered quantities for each product are expressed as an integer value in MW.

Standard product definition of mFRR balancing energy
Article 34

(1) The standard product for the mFRR balancing energy is an hourly product which is different for each direction and each period.
(2) The BSP must not link bids at a technical or economic level that may link different bids from

the balancing units it manages for different interdependent time periods.

(3) The activated mFRR balancing energy is financially settled using the method pay-as-bid.

(4) The BSP may enter unlimited number of bids for the required balancing energy for mFRR.

Simultaneous provision of other balancing services

Article 35

(1) The BSP cannot simultaneously provide aFRR and mFRR from the same balancing unit.

Required data for mFRR operation

Article 36

(1) The detailed technical specifications for measuring the activated balancing energy are set out in the Grid Code.

(2) Due to the functioning of the balancing mechanism, the BSP provides data for dispatching the TSO balancing units through a communication link between the BSP's SCADA system and the TSO's SCADA system.

(3) The BSP shall submit a dispatching balancing units schedule to the TSO which will be included in the power system balancing process using mFRR for D day, in the day D-1.

(4) The BSP may change the dispatching schedule for the balancing units involved in the system balancing process using mFRR for day D, by submitting a new dispatching schedule for the balancing units at least one hour before the start of the hour to which the change refers to.

(5) For the purpose of financial settlement, TSO provides data on activation and realisation of activated balancing energy from mFRR and submits it to BSPs.

2.6.2 Procurement of mFRR balancing capacity

Auctions for mFRR balancing capacity

Article 37

(1) TSO conducts monthly auctions for every month at least 15 calendar days before the first delivery day of the monthly product.

(2) In case of insufficient procurement of mFRR balancing capacity, TSO may decide to hold additional weekly or daily auctions, for which the TSO should announce its decision at least 7 days before the delivery period.

(3) The TSO may define different or additional time periods for conducting the auctions.

(4) The BSP may submit balancing capacity bids as a portfolio that do not exceed the total of the qualified mFRR balancing capacity of the balancing units at any given time.

Bid selection for mFRR balancing capacity

Article 38

(1) TSO selects the bids for mFRR balancing capacity by cheapest bid criterion.

(2) TSO informs the BSPs about the auction results through the platform.

(3) BSPs who participated in the auction may object to the results in accordance with the mFRR Procurement Rules.

2.6.3 Placing bids for mFRR balancing energy

General requirements

Article 39

(1) BSP at the auction for providing mFRR balancing capacity submits bids as a portfolio for the

quantity and price of mFRR balancing capacity.

(2) BSP for the submitted bids for providing mFRR balancing energy on day D-1 for day D, has the following possibilities:
   1) to provide the balancing units which will provide the contracted mFRR balancing capacity, the quantities of MW for each balancing unit respectively and the balancing energy prices, if they are within the minimum and maximum values for the mFRR balancing energy price defined in paragraph (4) of this Article, or
   2) to submit new bids with quantities of MW which will provide mFRR balancing energy outside the contracted mFRR balancing capacity and price of mFRR balancing energy which is within the minimum and maximum values defined in paragraph (4) of this Article. In this case AD MEPSO will pay BSP only for the contracted mFRR balancing capacity.

(3) A BSP that has not participated in the auction for procurement of mFRR balancing capacity has the right to submit bids for mFRR balancing energy that will be in accordance with the limits in paragraph (4) of this Article.

(4) The submitted bids for mFRR balancing energy on day D-1 for day D should have the following values:
   1) for upward regulation the price of mFRR balancing energy delivered in D-1 for day D may be less than or equal to the value HUPX + 30% for the corresponding hour achieved in DAM (Day Ahead Market). If the HUPX value achieved on the DAM for the relevant hour is lower than the value at which the universal supplier purchases electricity from the electricity producer with the largest installed capacity, instead of HUPX +30%, the value at which the universal supplier purchases electricity from the electricity producer with the largest installed capacity increased by +30% shall be taken,
   2) for downward regulation the price of mFRR balancing energy supplied in D-1 for day D may be greater than or equal to the value of HUPX-70% for the corresponding hour achieved in DAM (Day Ahead Market).
   3) for downward regulation, the price of mFRR balancing energy delivered in D-1 for day D, for a negative or zero value of HUPX achieved on DAM for the relevant hour, may be greater than or equal to the value HUPX-40 €/MWh for the relevant hour achieved in DAM (Day Ahead Market).

(5) TSO has the right to organize auctions for day D on day D-2, ie D-3, in case of holidays and weekends.

(6) In case of auctions held for a period longer than D-1 when the values from paragraph (4) of this Article are not available, the BSPs submit bids without limitation of the balancing energy price and according to those prices a merit order list is created. When the values referred to in paragraph (4) are available and if the balancing energy prices exceed them, they shall be reduced to the appropriate limits.

(7) The value of the submitted bids for the provision of mFRR balancing energy on day D-1 for day D, at hourly level, must be greater than or equal to -50 €/MWh. The delivered quantities for each balancing unit are expressed in an integer value in MWh.

Time period for submitting mFRR balancing energy bids

Article 40

(1) The BSPs who are selected and have contracted capacity, submit the bids for mFRR balancing energy to the platform between the GOT and GCT determined by the TSO.

(2) BSPs may submit mFRR balancing energy bids on the auction platform in the time period between the time the bidding starts (hereinafter referred to as GOTV), and the time the bidding ends (hereinafter referred to as GCTV) as determined by TSO.
(3) The opportunity and manner of bidding for mFRR balancing energy is determined in the mFRR Procurement Rules.
(4) In order for a bid to be valid, the BSP must submit bids for each defined imbalance settlement period.

2.6.4 Sorting and activating mFRR balancing energy bids

Merit order list

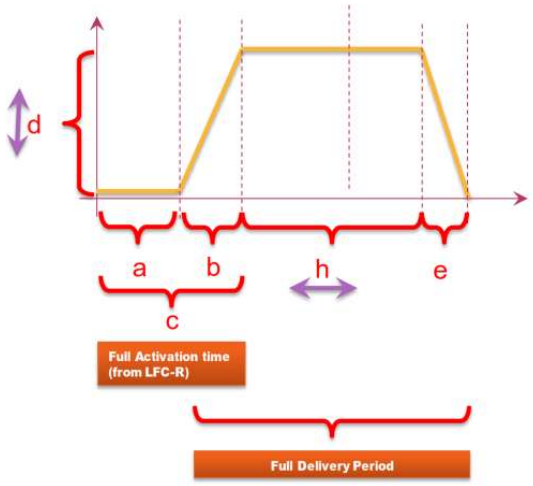
Article 41

(1) The bids for mFRR balancing energy in the merit order list are sorted in the following order:
    1) For upward regulation - first the bids with the lowest price, until the required amount of balancing energy is provided. For downward regulation - first the bids with the highest price, until the required amount of balancing energy is provided.
(2) Acceptance of the balancing energy bids from mFRR will happen after the biddings with the following features are sorted in the merit order list:
    1) Upward and downward balancing energy bids shall be separated in different merit order lists;
    2) Depending on the requirement for balancing energy standard products, the TSO may create more merit order lists.
(3) In case of more than one bid with the same price, the first submitted bid shall be taken into account.

Activation of mFRR

Article 42

(1) The mFRR bids are activated manually by the TSO by submitting a request to the BSP with all the relevant information for their activation.
(2) The shape of the balancing energy standard product is defined with the following standard bid features also shown on Picture 2:
    1) (a) Preparation period;
    2) (b) Ramping period;
    3) (c) Full activation time;
    4) (d) Minimum and maximum amount;
    5) (e) Deactivation period;
    6) (f) Minimum and maximum duration of Delivery period;
    7) (g) Validity period; and
    8) (h) Activation mode.



Picture 2: The process of management actions performed by the TSO

Activation backup procedure

Article 43

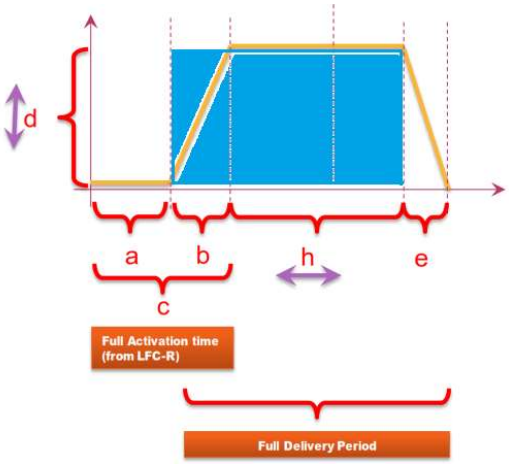
(1) In exceptional cases defined in the mFRR Procurement Rules, TSO can activate bids for mFRR balancing energy by other means of communication, and the BSPs will follow TSO's instructions.

2.6.5 Calculation of activated mFRR balancing energy

Calculation of activated mFRR balancing energy amount

Article 44

(1) The total balancing energy is calculated based on the amount of the activated balancing energy, activation start time and activation end time.



Picture 3: The volume of activated mFRR balancing energy (blue colored rectangle)

(2) If the activation of the balancing energy includes more than one ISP, the activation is divided into more ISPs. Each activation period has a certain balancing energy price that is defined by the BSP in its bid.

(3) The amount of the activated mFRR balancing energy is calculated using the following formula:

$$\mathrm{mFRR}_a = \frac{P_d}{t_h}(t_e - t_s)$$

Where:

- mFRR_a - activated balancing energy,
- P_d - TSO's demand,
- t_h - 60min (hourly products),

t_s - activation starting time,

t_e - activation ending time.

2.6.6 Financial settlement of mFRR

Financial settlement of procured mFRR balancing capacity

Article 45

(1) The TSO carries out the financial settlement of procured (reserved) mFRR balancing capacity based on the data of the provided capacity and the prices of the mFRR capacity auctions.

(2) The financial settlement period is one calendar month.

(3) The TSO sends a report for the financial settlement of mFRR procurement five (5) business days after the end of the calendar month.

(4) Based on the report referred to in paragraph 3 of this Article, the TSO sends the invoice eight (8) business days after the end of the calendar month.

(5) The due date is eight (8) business days from the date of issue of the invoice.

Financial settlement of activated mFRR balancing energy

Article 46

(1) The TSO carries out the financial settlement only for the activated mFRR balancing energy based on the amount data of the calculated activated mFRR balancing energy and auction prices for the mFRR balancing energy.

(2) For the financial settlement of the activated mFRR balancing energy the prices set by the BSPs are used as sorted in the merit order list, respectively from the lowest to the highest price.

(3) The financial settlement period is one calendar month.

(4) The TSO sends a report of the calculated activated mFRR balancing energy for a financial settlement, seven (7) business days after the end of the month in question.

(5) The BSP has the right to file a complaint about the report and has to send the complaint no later than two (2) business days after the report was sent. The TSO reviews the complaint, prepares and sends the final settlement report no later than one (1) business day after receiving the complaint, and it becomes final for financial settlement.

(6) If the BSP is not satisfied with the final report, it can initiate an ERC procedure but this will not delay the payment of the invoice.

(7) The TSO sends the invoice for activated balancing energy for downward regulation to BSP, twelve (12) business days after the end of the referred calendar month.

(8) The BSP sends the invoice for activated balancing energy for upward regulation to the TSO, twelve (12) business days after the end of the referred calendar month.

(9) The settlement's due date is eight (8) business days from the date of issue of the invoice.

Consequences of failure to comply with the given conditions

Article 47

(1) If the BSP fails to fully procure the purchased mFRR balancing capacity, the unprocured capacity (the difference between the purchased and procured capacity) will not be paid.

(2) The unprocured capacity in the time interval is the basis for calculating the cost of the unprocured mFRR balancing energy which is calculated with the following formula:

$$S_{amount} = W_{unprovided\ capacity} * t * P_{amount\ for\ penalization}$$

$$P_{amount\ for\ penalization} = 2 * SmFRR$$

Where:

$S_{amaount}$ - amount that the BSP pays to the TSO,
S_{mFRR} - average price for balancing energy for that month,
t - time interval.

2.7 Balancing energy for replacement reserve (RR)

General provisions
Article 48

(1) The TSO has the right to conduct additional activities to free the aFRR and mFRR capacities for their reuse. For this purpose, TSO concludes bilateral agreements for purchasing/buying or selling of RR balancing energy.
(2) The TSO uses a market-oriented method of procuring RR balancing energy by public bidding or inviting all interested BSPs or Electricity Market Participants who have the opportunity to participate in the RR balancing market.
(3) TSO adopts the RR Procurement Rules and publishes them on its website.

3. FINANCIAL GUARANTIES

3.1 Procurement of aFRR and mFRR balancing capacity by public call

Bid Guarantee
Article 49

(1) As part of the bid, the bidders are obliged to provide a Bid Guarantee by 3% of the total in amount of the bid, excluding VAT, valid for not less than 14 days from the bid's expiration day.
(2) The Bid Guarantee can be in a form of a Bank Guarantee, issued by a reputable bank chosen by the bidder and accepted by the TSO, or deposited funds.
(3) The Bid Guarantee should be submitted together with the Bid in original form, or with a proof of deposited funds.
(4) TSO will charge the Bid Guarantee if the bidder:
    1) withdraws its offer before the expiration date of the Bid
    2) does not sign the procurement agreement, or
    3) does not provide a Performance Guarantee.
(5) The Bid Guarantee shall be returned to the bidders who are not selected as the most favorable bidder after signing an agreement with the chosen bidders and when they submit an Performance Guarantee.
(6) The Bid Guarantee shall be returned to the most favorable bidder upon signing the agreement and submitting an Performance Guarantee.

Performance Guarantee
Article 50

(1) By signing the Agreement for procurement of aFRR and mFRR balancing capacity by both contracting parties, and no later than 5 business days from the day of its signing, the bidder is obliged to submit to the TSO – A Guarantee for quality and timely execution of the agreement. The bidder whose bid is selected as the most favorable will provide a financial guarantee for quality performance of the agreement (Performance Guarantee). The financial guarantee can be in the form of a bank guarantee, issued by a reputable bank selected by the bidder and acceptable to TSO, or deposited funds.
(2) The Performance Guarantee should be irrevocable, unconditional and payable on the first demand.

3.2 Procurement of balancing capacity and balancing energy on a web based platform

Procurement of aFRR balancing capacity and balancing energy
Article 51

(1) Each balancing service provider registered in the Registry of Balancing Service Providers, who had participated in the monthly auction organized for each month separately, at least 15 days before the first day of delivery of the monthly product and whose bid for aFFR balancing capacity is selected for is most favorable to submit a financial guarantee for quality performance of the agreement for providing balancing capacity and balancing energy no later than 5 days before the start of delivery in the amount of 10% of the agreement value valid for 20 business days after the end of the relevant month for which there is an agreement for procurement of aFRR balancing capacity.
(2) The financial guarantee can be in a form of a bank guarantee, issued by a reputable bank chosen by the bidder and accepted by the TSO, or as deposited funds.
(3) In the case that the BSP fails to settle its financial obligations under Article 29 paragraph (7) to TSO as well as any financial liabilities arising from Article 30, the TSO shall provide a written notice, and if within 8 days from the submission of the written notice the BSP does not settle the financial obligation, the TSO initiates a procedure for activation of the financial guarantee.

Procurement of mFRR balancing capacity and balancing energy
Article 52

(1) Each balancing service provider entered in the Register of Balancing Service Providers, if it participated in the monthly auction organized for each month separately, at least 15 days before the first day of delivery of the monthly product and whose bid for mFFR balancing capacity is selected for is most favorable to submit a financial guarantee for quality performance of the agreement for providing balancing capacity and balancing energy no later than 5 days before the start of delivery in the amount of 10% of the agreement value valid for 20 business days after the end of the relevant month in which there is a agreement to provide mFRR balancing capacity.
(2) The financial guarantee can be in a form of a bank guarantee, issued by a reputable bank chosen by the bidder and accepted by TSO, or as deposited funds.
(3) In the case that the BSP fails to settle its financial obligations under Article 46 paragraph (7) to TSO as well as any financial liabilities arising from Article 47, TSO shall submit a written notice, and if within 8 days from the submission of the written notice BSP does not settle the financial obligation, TSO initiates a procedure for activation of the financial guarantee.

Compensation for unwanted deviations

Article 53

(1) TSO procures or delivers quantities of electric energy deriving from the compensation for the unintended exchanges in a public and transparent manner.
(2) TSO prepares the Rules for procurement and delivery of electric energy as a compensation for unwanted deviations and publishes them on its website.
(3) Costs, ie revenues from the procurement or delivery of electric energy as a compensation for unwanted deviations are submitted to the ERC in setting the electricity transmission tariff procedure.

4. TERMS AND CONDITIONS FOR BALANCING RESPONSIBLE PARTIES AND BALANCING GROUPS

4.1 Obligations and responsibilities

TSO's obligations

Article 54

(1) The TSO signs an Agreement on balancing responsibility with the entity that intends to become a market participant and a BRP, which also includes the provisions for financial settlement.
(2) TSO, informs EMO of any changes to the BRP and Balancing Groups Registry within three (3) business days.

BRP and Balancing Groups Registry

Article 55

(1) TSO establishes and maintains a BRP and Balancing Groups Registry.
(2) The BRP and Balancing Groups Registry is an electronic data registry in which the following data is being kept:
    1) BRP,
    2) BRP EIC code,
    3) Names of the balancing group members,
    4) EIC codes of the balancing group members,
    5) Registry entry date.
(3) TSO publishes the Registry on its website.
(4) TSO regularly updates the Registry with all data.

4.1.1 Procedure for registering Balancing Responsible Parties

Balancing Responsible Party Registration Application

Article 56

(1) Any entity that conducts an activity on the energy market, as well as any consumer has the right to participate in the electricity market independently, may submit a written request for a BRP status to the TSO.
(2) The applicant referred to in paragraph 1 of this Article shall submit, in original or a notarized copy of the original, the following documents:
    1) Certificate of the current data of the applicant issued by the Central registry of the Republic of North Macedonia, not older than three months.

2) License for carrying out energy activities or a decision to enter the registry of foreign traders and electricity suppliers, unless the application is submitted by a consumer who has the right to independently participate in the electricity market.

(3) TSO prepares the BRP Application and publishes it on its website after prior approval by ERC.

(4) If the TSO determines that the Application referred to in paragraph 1 of this Article is not complete, it shall notify the applicant within five (5) days of the application submission date and shall set a deadline of fifteen (15) days for the applicant to further regulate the required documentation in accordance with paragraph 2 of this Article.

(5) If the applicant fails to further regulate the required documentation within the deadline determined in paragraph 2 of this Article, TSO shall issue a decision to reject the request.

(6) The applicant may submit a complaint to the ERC within fifteen (15) days after receiving the decision referred to in paragraph 3 of this Article.

Balancing Responsibility Agreement
Article 57

(1) If the TSO determines that the application referred to in paragraph 1 of Article 56 is completed within five (5) business days of the date of its submission, it shall notify the applicant that the requirements are met and shall deliver a signed Balancing Responsibility Agreement in four copies.

(2) The applicant needs to sign the agreement referred to in paragraph 1 of this Article within seven (7) days after receiving the Agreement and submit two copies of it to TSO.

(3) If the applicant fails to submit a signed agreement within the time limit referred to in paragraph 2 of this Article, TSO considers that the request has been withdrawn.

(4) Within seven (7) business days after signing the Agreement referred to in paragraph 2 of this Article, BRP shall submit the necessary financial guarantees to TSO.

(5) TSO prepares the template of the Balancing Responsibility Agreement and publishes it on its website.

(6) If the BRP does not submit the necessary financial guarantees in accordance with paragraph (4) of this Article, the Agreement will be considered invalid. If the BRP wants to conclude a new Balancing Liability Agreement, it is necessary to start the registration procedure from the beginning.

Entry in the BRP and Balancing Group Registry
Article 58

(1) After meeting the requirements referred to in paragraph 4 of Article 57, the TSO shall immediately enter the BRP into the BRP and Balancing Groups Registry.

(2) By registering in the BRP and Balancing Groups Registry, BRP submits a market participation application in accordance with the Electricity Market Rules.

(3) From the time of entry of BRP into the BRP and Balancing Groups Registry until the notice by the EMO to the TSO that it has been entered in the Market Participants Registry, BRP's status in the BRP and Balancing Group Registry is considered inactive.

(4) BRP is active, ie it can submit nominations, once it is registered in the Market Participant Registry.

(5) BRP within three days, shall notify the TSO of any changes to the data published in the Registry.

(6) The TSO may at any time request the BRP to provide appropriate documents as proof that it meets the requirements for the BRP status, which must be submitted within eight (8) business days.

The obligations of a BRP
Article 59

BRP:

1) Submits a statement on balancing group membership to the EMO, signed by the BRP and the market participant;
2) Provides appropriate financial guarantees and submits them to the TSO;
3) Sends (nominates) daily schedules as following: trade plan (TPS), consumption plan (CPS) and production plan (PPS) to the EMO and the TSO, for each balancing group member individually;
4) Conducts financial imbalance settlement within the balancing group;
5) Fulfills the obligations arising from the financial settlement of the balancing group imbalance settlements; and
6) Submits data and documentation at the TSO's request or at the request of the EMO based on these Rules.

Temporary inactive BRP
Article 60

(1) If the EMO suspends a BRP market participant, the TSO appoints it as inactive in the BRP and Balancing Groups Registry until the EMO decides that its suspension as a market participant has ended.
(2) A BRP that is temporarily inactive in the BRP and Balancing Groups Registry has no right to submit nominations for daily schedules.

Termination of the Balancing Responsibility Agreement by TSO
Article 61

(1) The Balancing Responsibility Agreement is terminated:
    1) upon expiry, revocation or suspension of the license,
    2) with the termination of the electricity market participation agreement,
    3) with termination by the TSO, if BRP:
        - does not fulfill its obligations under the Balancing Responsibility Agreement,
        - used fake registration data to gain BRP status
        - does not conclude an Annex to the Balancing Responsibility Agreement, if such a thing is needed.
(2) In accordance with paragraph (1) of this Article, the TSO shall notify the BRP and the EMO of the termination of the Balancing Responsibility Agreement by mail and email, indicating the date and time of the agreement termination, which normally happens to be the last day of the current month, and it cannot be less than seven days.
(3) On the day and hour specified in paragraph (2) of this Article, the TSO removes the BRP from the BRP and Balancing Groups Registry.
(4) The BRP may request termination of the Balancing Responsibility Agreement if its obligations towards TSO are fulfilled.
(5) In case of paragraph 4 of this Article, the BRP may propose the date and hour for the termination of the Balancing Responsibility Agreement, which normally happens to be the last day of the current month and may not be less than seven (7) days and shall notify the TSO thereof by mail and email.

(6) In case of a termination of the Balancing Responsibility Agreement referred to in paragraph (2) of this Article, BRP may specify the desired date for its removal from the BRP and Balancing Groups Registry and shall notify TSO at least five (5) business days prior to the said date for termination of the Registry participation by mail and email.
(7) The financial guarantees submitted by the BRP remain valid and / or are kept by the TSO until the potential obligations arising from the financial imbalance settlement are settled, including the recalculation of the imbalances.

4.2 Balancing Responsible Parties

Balancing Group
Article 62

(1) A market participant, who has contracted a Balancing Responsibility Agreement, can conclude an Agreement to form a Balancing Group with the EMO.
(2) Market Participants may join a Balancing Group of their choice.
(3) A Balancing Group may consist of one or more Market Participants.
(4) A Market Participant may be a member of only one Balancing Group.
(5) Preferential producers that are using a feed-in tariff in accordance with the Energy Law belong to the Balancing Group with the EMO as a BRP.
(6) A market participant conducting a regulated energy activity may not join a Balancing Group with free (unregulated) market participants or consumers with the exception of the Universal Supplier Balancing Group.
(7) Each balancing group is represented by a BRP.
(8) The EMO shall be obliged to prepare a template of the Agreement to form a Balancing Group, and upon prior approval by the ERC, publishes it on its website.
(9) Each member of the Balancing Group exchanges data with the BRP.

Member transfer between Balancing Groups
Article 63

(1) A member of a Balancing Group may initiate a procedure for changing the Balancing Group by submitting a request for change of the Balancing Group to the EMO in the following cases:
    1) termination of the Balancing Responsibility Agreement;
    2) expiration of the Balancing Group Membership Statement;
    3) on the proposal of a member of the balancing group;
(2) In addition to the request referred to in paragraph (1), the market participant shall also submit:
    1) in the case referred in paragraph (1), items 1 and 2, a copy of the Balancing Responsibility Agreement concluded with the TSO or a statement of balancing responsibility taken by another market participant who has previously regulated the balancing responsibility.
    2) in the case referred to in paragraph (1), item 3, a joint statement signed by both withdrawing and accessing Balancing Responsible Parties.
(3) The EMO prepares the request form referred to in paragraph (1) and publishes it on its website.
(4) Member transfers between the Balancing Groups shall take place on the first day of the following calendar month or on the first day of the month specified in the request.

Excluding a member of the balancing group at the request of the BRP
Article 64

(1) The BRP may submit a request to the EMO for the exclusion of a Balancing Group Member if it does not comply with the mutual agreements.
(2) In the request referred to in paragraph (1) of this Article, the BRP may propose the exclusion date of a Balancing Group Member, which may not be shorter than 15 days from the date when the submission request was made.
(3) The EMO shall immediately notify the Market Participant of the BRP's request and shall set a deadline of three business days from the day of the exclusion report, so the EMO can initiate a procedure to regulate its balancing responsibility.
(4) Within the deadline referred to in paragraph (3), the Market Participant shall submit to the EMO:
    1) a copy of the request for the conclusion of a balancing responsibility agreement submitted by the TSO, or
    2) a report from another the BRP that it will take over its balancing responsibility.
(5) If the Market Participant fails to submit the documents referred to in paragraph (4) of this Article to the EMO within the period specified in paragraph (4) of this Article, the EMO shall make a decision on suspension in accordance with the electricity market rules.
(6) In the case referred to in paragraph (4), item 1, the EMO shall determine a date for the termination of the balancing group membership, which may not be earlier than ten days after receiving a copy of the request for the conclusion of a balancing responsibility agreement.
(7) In the case referred to in paragraph (4) item 2, the EMO shall set a date for the termination of the balancing group membership which may not be earlier than seven (7) days after receiving a statement from another BRP that it will take over its balancing responsibility.
(8) Within five (5) days from the submission date of the request under paragraph (1) of this Article, the BRP has the right to withdraw the request if it submits a joint statement signed by the BRP and the Balancing Group Member referred to in paragraph (1) of this Article.

Termination of the Balancing Group Agreement
Article 65

(1) The EMO shall adopt a Decision to terminate the Balancing Group Agreement in case of:
    1) Termination of the Market Participation Agreement and/or
    2) Termination of the Balancing Responsibility Agreement.
(2) In a case when the Balancing Group Agreement for a Market Participant is terminated, the BRP shall notify the Balancing Group Members and the TSO, 20 days prior to the expiry date of the Balancing Group Agreement.
(3) The EMO shall notify the TSO of any changes in the balancing groups on the day of termination of the Balancing Group Agreement.

4.3 Data exchange and imbalances settlement

4.3.1 Required data exchange

Providing BRP data by TSO and DSO
Article 66

(1) The TSOs and DSOs provide BRP with free access to all measured data needed for the calculation of the imbalance settlement.
(2) For the needs of the BRP, the TSO and DSO provide measured data for every balancing group member individually, as well as for each imbalance settlement period.

Article 67

(1) The manner, form, content and deadlines of data and information provided or exchanged between the TSO, EMO and / or DSO shall be regulated by the Submission and Exchange of Data and Information Protocol.

(2) The protocol referred to in paragraph (1) of this Article shall in particular regulate:
   1) Consumption and generation calculated data of each market participant.
   2) All the necessary data for the preparation of the market plan and the final daily agenda.
   3) Loss data in the transmission i.e. distribution grid
   4) Calculated data from the electricity meters of the interconnection transmission lines with neighboring electricity transmission system operators.

Calculated data for metered consumers and producers

Article 68

(1) The Electricity delivery/reception points equipped with electricity meters which registration interval is shorter than or equals the length of ISP are defined as metered consumers and metered producers.

(2) The calculated data for the realized electricity quantities by metered consumers and producers in an individual ISP are determined on the basis of the measured values.

(3) In case of missing or incorrect measurements for the delivery points on the distribution grid due to power failure, destruction, or inaccuracy of the metering data, the calculated data are prepared according to the Distribution Grid Code.

Calculated data for non-metered consumers

Article 69

(1) Electricity delivery points with installed electricity meters whose reading interval is longer than the ISP are classified as measured points of non-metered consumers with a standard load profile.

(2) The realized electricity consumption of non-metered consumers for each ISP is calculated by using the standard load profiles of non-metered consumers, except for consumers supplied with electricity from the Universal Supplier.

(3) The standard load profiles are defined by the DSO. The DSO calculates the allocated volumes for each consumer and ISP individually and aggregates the allocated volumes per virtual metering points for the Balancing Group Member excluding Universal Power Supply Consumers, where standard load profiles serve as a sample required only in the l Power Consumption Planning process for the Universal Supplier.

Universal supplier calculated data

Article 70

(1) The realized (delivered) electricity to the customers supplied with electricity by the Universal Supplier for each ISP shall be calculated according to the following formula:

$$\mathrm{E}_{is\_SoUS\_\mathrm{total}} = \mathrm{E}_{is\_\mathrm{DSO\_Vlez}} - \sum_{l=1}^{n} \left(\mathrm{E}_{\mathrm{is\_P}ot\_SKO} + \mathrm{E}_{\mathrm{is\_P}ot\_LP} + \mathrm{E}_{\mathrm{is\_DSO}\_Zag} \right)$$

Where:

$\mathrm{E}_{is\_\mathrm{DSO\_Vlez}}$ - total realized (delivered) power consumption at the distribution system input,

$E_{is\_Pot\_SKO}$ - the total consumption of the qualified non-metered consumers in the distribution system,

$E_{is\_Pot\_LP}$ - the total consumption of all qualified metered consumers in the distribution system,

$E_{is\_DSO\_Zag}$ - realized (delivered) electricity needed to cover distribution grid losses.

(2) The total realized (delivered) energy at the distribution system input referred to in paragraph (1) of this Article $E_{is\_DSO\_Vlez}$ shall be calculated as:

$$E_{is\_DSO\_Vlez} = \left(E_{is\_PMM\_MEPSO} + E_{is\_PMM\_ELEM} + E_{is\_PMM\_DPE} + E_{is\_PMM\_PPE}\right)$$

Where:

$E_{is\_PMM\_MEPSO}$ - realized (delivered) energy at the distribution system input point through delivery/reception points with MEPSO,

$E_{is\_PMM\_ELEM}$ - realized (delivered) energy at the distribution system input point through delivery/reception points with ELEM,

$E_{is\_PMM\_DPE}$ - realized (delivered) energy at the distribution system input through distribution power producers interconnections,

$E_{is\_PMM\_PPE}$ - realized (delivered) energy at the distribution system input through preferential power producers interconnections.

(3) The difference between the nominated electricity for the consumption needs of the Universal Supplier and the realized electricity consumption of the consumers supplied by the Universal Supplier in accordance with paragraph (1) of this Article shall be subject to the Universal Supplier's balancing responsibility.

Loss calculated data in the transmission i.e. distribution grid

Article 71

(1) The electricity losses in the transmission grid are calculated for each settlement period as the difference of the power input at each reception point and the power output, for each connection point between the transmission and distribution grid, each interconnection point between the power system of the Republic of North Macedonia and the power system of the neighboring country and each delivery point with consumers and producers.

(2) The electricity losses in the distribution grid are calculated for each settlement period as the difference between the power input at each reception point and the power output at each delivery point of the distribution grid.

(3) If the DSO on its grid has connected producers or consumers with installed meters whose reading interval is longer than the ISP, the electricity losses in the distribution grid shall be calculated according to the following formula:

$$E_{is\_DSO\_Zag} = N\% * E_{is\_DSO\_Vlez}$$

N% - a percentage which is set for each month by the TSO, based on the seasoned distribution losses and the trend of their decrease or increase over the last five years.

(4) The difference between the nominated energy which covers the losses in the distribution grid $\mathrm{E}_{\mathrm{pl\_DSO\_}Zag}$ by the DSO and the realized (supplied) energy needed to cover the grid distribution losses $\mathrm{E}_{is\_\mathrm{DSO\_Zag}}$ which is the product of the total energy that enters in the distribution grid in accordance with Article 70 paragraph 2 and the anticipated percentage losses in accordance with paragraph 2 of this Article shall be subject to the balancing responsibility of the DSO $\mathrm{E}_{IMB\_DSO\_Zag}$;

$$\mathrm{E}_{IMB\_DSO\_Zag} = (\mathrm{E}_{\mathrm{pl\_DSO\_}Zag} - \mathrm{E}_{is_{\mathrm{DSO_{Zag}}}})$$

$\mathrm{E}_{IMB\_DSO\_Zag}$ - Imbalance between the planned (nominated) and realized (delivered) energy covering grid distribution losses.

4.3.2 Calculation of imbalance settlement process

Imbalance settlement

Article 72

(1) The EMO shall prepare calculation of the imbalances of the Balancing Responsible Parties and a draft calculation on the imbalances cost in accordance with the electricity metering, the quantities of balancing services activated for each Balancing Service Provider, the imbalance settlement price and the final agenda obtained from the TSO and the DSO.
(2) The imbalance settlement is done on a monthly basis and separately for each ISP.
(3) The submitted quantities of calculated data are provided in integer values of kWh.

First calculation of imbalance settlement

Article 73

(1) The EMO shall submit to the TSO the BRP's imbalance calculations and a draft calculation of the imbalances cost due to financial settlement within 25 days of the end of the month for which the calculation is made.
(2) The imbalances settlement report contains the amounts of positive and negative imbalances of a Balancing Group separately for each ISP.
(3) When the BRP pays for the imbalances in the monthly accounting period, the TSO sends to the BRP an invoice for the imbalances made, as well as the calculation of the imbalances for their balance group for the month in question within 5 business days after receiving the imbalance settlement of the BRP by EMO.
(4) When the TSO pays for the imbalances in the monthly calculation period, the TSO sends to the BRP a Report with financial compensation for the imbalances made, as well as the calculation of the imbalances for their balancing group for the month in question within 5 business days after receiving the BRP imbalances of EMO.

Complaint about the imbalance settlement invoice

Article 74

(1) The BRPs have a right of complaint about the imbalance settlement invoice within five (5) business days upon receipt of the invoice sent by the TSO.
(2) The complaint submitted by the BRP should include the reasons and explanation behind it.
(3) Submitting a complaint to TSO does not delay payment of the issued invoice.

(4) If the complaint referred to in paragraph 1 of this Article is approved, the TSO shall prepare a new corrected invoice which shall submit to the BRP within three (3) business days after the adoption of the complaint.

Obligations of System Operators related to the imbalance settlement complaint

Article 75

(1) If the complaint to the invoice referred to in Article 74, paragraph 1 concerns the imbalance settlement, the TSO shall forward it to the EMO the following business day.
(2) The EMO may submit a request for new data from the TSO and / or the DSO.
(3) The TSO and DSO shall submit new data to the EMO within three (3) business days after receiving the request referred to in paragraph 2 of this Article.
(4) The EMO shall, within three (3) business days of receiving the data referred to in paragraph 3 of this Article, prepare and submit to TSO a new imbalance settlement, on the basis of which TSO prepares a new revised invoice and submits it to the BRP within three (3) business days.

Obligations of System Operators related to the imbalance settlement complaint

Article 76

(1) If the complaint referred to in Article 78 paragraph 1 or Article 79 paragraph 1 is not sustained by TSO within eight (8) business days of receiving the complaint, it shall make a decision to reject the complaint.
(2) The BRP has the right to file a complaint with the ERC within seven (7) days of receiving the decision referred to in paragraph 1 of this Article.
(3) The filing of the complaint under paragraph 2 of this Article shall not delay the payment of the issued invoice.
(4) If the ERC makes a decision to adopt the BRP's complaint referred to in paragraph 2 of this Article, it shall inform the TSO and the EMO.

Final imbalance settlement

Article 77

(1) The EMO makes a final imbalance settlement only for the BRP for which it has received corrected data from TSO and / or DSO, 6 months from the month for which the settlement applies.
(2) The EMO sends the final (recalculated) imbalance settlement to TSO with adjustments for all balancing groups, in order for TSO to conduct another financial settlement with BRP on the basis of the final recalculated imbalance settlement within five days of six months after the month to which the settlement applies.
(3) The TSO, to each BRP for which it has a correction, sends a debit note or a credit note or a Report on debit and credit note and the final imbalance settlement for their balancing group for the month in question within 5 business days after submission of the corrected settlement by EMO.
(4) The debit or credit note or the Report on debit and credit note referred to in paragraph (3) of this Article shall be prepared on the basis of the Final Imbalance Settlement obtained as the difference between the values obtained from the first imbalance settlement and the values obtained from the final imbalance settlement.

Complaint to the recalculation of the imbalance settlement

Article 78

(1) The BRPs have the right to file a complaint about the debit and credit note referred to in Article 77 paragraph 3 of these Rules and the recalculation of the imbalance settlement within five (5) business days after receiving the financial responsibility or approval.
(2) The submission and decision making process of the complaint referred to in Article 75 and Article 76 shall also apply to the complaint referred to in paragraph 1 of this Article.

4.3.3 Realized electricity exchange

Realized electricity exchange for the balancing group members
Article 79

(1) The realized electricity generation by a Balancing Group Member for every ISP equals the sum of the realized quantities of generated electricity from all delivery points of generation capacities which belong to the Balancing Group Member:

$$W_{production} = \sum_{i=1}^{n} W_i$$

Where:

$W_{production}$ - the total realized electricity generation per Balancing Group Member;
W_i - realized electricity generation at the point of delivery for the generation site i;
n - the number of delivery measurement points of generated electricity by the Balancing Group Member.

(2) The realized consumption of electricity by a Balancing Group Member for each ISP equals the sum of the realized quantities of electricity consumption from all reception points that belong to the Balancing Group Member:

$$W_{consumption} = \sum_{j=1}^{m} W_j$$

$W_{consumption}$ - the total realized electricity consumption by a Balancing Group Member;
W_j - the realized electricity consumption at the delivery point j;
m - the number of electricity consumption measurement points which belong to the Balancing Group Member.

(3) The total realized electricity of a Balancing Group Member for each ISP shall be calculated as the difference between the total realized electricity consumption and the total realized electricity generation for all measuring delivery points of the Balancing Group Member.

$$W_{allocated\ volume} = W_{consumption} - W_{production}$$

Realized electricity exchange of a Balancing Group
Article 80

(1) The total realized electricity exchange by a Balancing Group for each ISP is calculated as the sum of the realized electricity exchange for all consumption and generation delivery points which belong to the Balancing Group.

$$W_{allocated\ volume\ of\ BG} = \sum_{l=1}^{r} W_{allocated\ volume_l}$$

Where:

$W_{allocated\ volume\ of\ BG}$	-	the total realized electricity of the Balancing Group;
$W_{allocated\ volume_l}$	-	the total realized electricity of each member within the Balancing Group;
r_l	-	number of Balancing Group Members.

4.3.4 Methodology for imbalance settlement

Imbalance settlement of the balancing group
Article 81

(1) The EMO makes a preliminary imbalance settlement for each balancing group as a difference between the total realized electricity exchange and the announced (nominated) exchange of that balancing group, for each imbalance settlement period:

$$W_{imbalances} = W_{final\ position} - W_{allocated\ volume} - W_{activated\ balancing\ volume}$$

Where:

$W_{imbalances}$	-	the total imbalance amount for the Balancing Group;
$W_{final\ position}$	-	the nominated electricity exchange for the Balancing Group;
$W_{allocated\ volume}$	-	the total finished electricity exchange of the Balancing Group;
$W_{activated\ balancing\ volume}$	-	the total activated balancing energy of the BSPs included in the balancing group, which may have a positive sign for activated balancing energy for up regulation or a negative sign for activated balancing energy for down regulation.

(2) $W_{imbalances}$– could be positive or negative.

1) The positive imbalance of the Balancing Group means that the total electricity consumed by the Balancing Group is less than the nominated electricity of the Balancing Group (lower consumption or higher generation than planned).
2) The negative imbalance of the Balancing Group means that the total electricity consumed is greater than the nominated electricity of the Balancing Group (higher consumption or lower generation than planned).
3) The announced electricity exchange of a Balancing Group Member is the difference between the sum of purchase and import transactions on one side and the sales and export transactions on the other side that are delivered according to confirmed daily schedules for each ISP:

$$W_{final\ position} = \left(\sum W_{buy} - \sum W_{sell}\right) + \left(\sum W_{import} - \sum W_{export}\right)$$

Where:

$W_{final\ position}$	-	the total announced electricity exchange of a Balancing Group Member;
W_{buy}	-	the amount of electricity that each Balancing Group Member receives from other electricity market participants in the regulatory area in the accounting interval;

W_{sell} - the amount of electricity that each Balancing Group Member transfers to other electricity market participants in the regulatory area in the accounting interval.

W_{import} - the amount of electricity that each Balancing Group Member imports during cross-border exchange at hour i;

W_{export} - the amount of electricity that each Balancing Group Member exports during cross-border exchange at hour i;

4) the total nominated electricity exchange of the Balancing Group for each ISP is calculated as the transactions sum of all Balancing Group Members

$$W_{final\ position\ of\ BG} = \sum_{i=1}^{n} W_{finil\ position\ i}$$

Forecasted imbalances

Article 82

(1) Forecasted imbalances are electricity amounts that the BRP failed to settle for him and the members of his Balancing Group, upon completion of the intra-day process of preparing a daily schedule for D day.

(2) Forecasted imbalances are calculated for all Balancing Groups with and without electricity generation or electricity consumption.

(3) For each ISP, the forecasted imbalances are calculated as following:

$$W_{forecasted\ imbalances} = W_{final\ position}$$

Where:

$W_{forecasted\ imbalances}$ - the amount of forecasted imbalances of a Balancing Group;

$W_{final\ position}$ - nominated electricity exchange of the Balancing Group.

4.3.5 Methodology for imbalances settlement calculation prices

Imbalance settlement price

Article 83

(1) TSO calculates the imbalance settlement price $C_{imbalance}$ based on the activated balancing energy prices and the amount of activated balancing energy.

Amounts of activated balancing energy for each ISP	Imbalance settlement prices ***Cimbalance***
The amount of activated positive balancing energy exceeds the amount of activated negative balancing energy $W_{pos} + W_{neg} > 0$	WAP_{pos}
The amount of activated negative balancing energy exceeds the amount of activated positive balancing energy $W_{pos} + W_{neg} < 0$	WAP_{neg}
No activated balancing energy or $W_{pos} + W_{neg} = 0$	*VAA*

Where:

WAP_{pos} - price of activated positive balancing energy for each ISP;
WAP_{neg} - price of activated negative balancing energy for each ISP;
VAA - the price for inactive balancing energy for each ISP;
W_{pos} - the volume of activated positive balancing energy;
W_{neg} - the volume of activated negative balancing energy.

The imbalance settlement price can be positive, zero or negative, as definied in the following table:

	Positive imbalances settlement price	Negative imbalances settlement price
BRP positive imbalance	Payment from TSO to BRP	Payment from BRP to TSO
BRP Negative imbalance	Payment from BRP to TSO	Payment from TSO to BRP

(2) The costs of each BRP are calculated by the TSO based on the imbalance settlement for every accounting period.

(3) A single price mechanism is used for the price of the imbalance settlement, i.e. for the positive and negative imbalances the same price would be used, designated as Cimbalance.

Price of activated balancing energy

Article 84

1) The cost of activated positive balancing energy is calculated for each ISP, according to the prices of aFRR, mFRR and RR using the following equation:

$$WAP_{pos,i} = \frac{\sum_1^n type(Price_{pos,type,i} \cdot W_{pos,type,i})}{\sum_1^n type W_{pos,type,i}}$$

Where:

WAP_{pos} - the price of activated positive balancing energy for each ISP;
$Price_{pos,type,i}$ - the price of activated positive secondary and / or tertiary balancing energy for each ISP;
$W_{pos,type,i}$ - the amount of activated positive secondary and / or tertiary balancing energy for each ISP;
n - balancing unit;
$type$ - secondary or tertiary balancing energy.

(2) The cost of activated negative balancing energy is calculated for each ISP, according to the prices of aFRR, mFRR and RR using the following equation:

$$WAP_{neg,i} = \frac{\sum_1^n type(Price_{neg,type,i} \cdot W_{neg,type,i})}{\sum_1^n type W_{neg,type,i}})$$

Where:

$WAP_{neg,i}$ - the price of activated negative balancing energy for each ISP;
$Price_{neg,type,i}$ - the price of activated negative secondary and / or tertiary balancing energy for each ISP;

$W_{neg,type,i}$ - the amount of activated negative secondary and / or tertiary balancing energy for each ISP;
n - balancing unit;
$type$ - secondary or tertiary balancing energy.

(3) If there is a positive or negative BRP imbalance, and the amount of activated balancing energy is zero, ($W_{pos} + W_{neg} = 0$), the settlement price of the BRP's imbalance is determined as follows:

	Determining the imbalance settlement price
Positive BRP imbalancing, if the HUPX price for the corresponding hour reached in DAM has a positive value	TSO pays BRP, HUPX – 50% If the HUPX value for the relevant hour achieved in DAM is lower than 40 €/MWh, HUPX – 40 €/MWh for the relevant hour achieved in DAM is taken.
Positive BRP imbalancing, if the HUPX price for the corresponding hour reached in DAM has a negative or zero value	TSO pays BRP, HUPX–40 €/ MWh for the relevant hour achieved in DAM, but not less than -50 €/MWh
Negative BRP imbalancing, if the HUPX price for the corresponding hour reached in DAM has a positive value, zero or negative value	BRP pays TSO, HUPX + 50% (If the HUPX value for the relevant hour achieved in DAM is lower than the value at which the universal supplier purchases electricity from the electricity producer with the largest installed capacity, the value at which the universal supplier purchases electricity from the electricity producer with the largest installed capacity shall be taken)

(4) After receiving all the data necessary to calculate the imbalance settlement prices, the TSO publishes the calculated amount data of the imbalance settlement price $C_{imbalance}$ for each ISP on its website, separately.

Imbalance settlement

Article 85

(1) Imbalance settlement is a calculation process of the balancing group imbalances for each ISP separately and performed once for a one-month calculation period based on:

1) Imbalances of Balancing Groups;
2) Forecasted imbalances of Balancing Groups;
3) Imbalance settlement prices.

Imbalance settlement of Balancing Groups

(Article 86)

(1) The financial imbalance settlement for a ISP (t), of the Balancing Group is calculated according to the following equation:

$$Z_t = -C_{imbalances} \cdot W_{imbalances}$$

Where:

$W_{imbalances}$ - the imbalance quantities of a Balancing Group in an ISP

Z_t - the amount of the financial settlement for the Balancing Group in an ISP (t)

Financial imbalances settlement of a Balancing Group on a monthly basis

Article 87

(1) The total amount of financial imbalances settlement of a Balancing Group in the monthly calculation period is calculated according to the following equation:

$$Z = \sum_{t=1}^{u} Z_t$$

Where:

- Z - the total amount of the financial imbalance settlement of a Balancing Group in the monthly calculation period;
- Z_t - is the amount of the financial imbalance settlement of a Balancing Group in a ISP *(t);*
- t - *ISP;*
- u - the number of ISP in the monthly calculation period.

The total amount of BRP's forecasted imbalances

Article 88

(1) For the imbalanced daily schedule upon completion of the intra-day process for day D, the BRP is required to pay a fee to TSO.

(2) The tolerance range for all Balancing Groups for imbalanced daily schedule (with and without measuring points of delivery) is equal to 0 MWh.

(3) With an exception of paragraph 2 of this Article, traders, suppliers and electricity producers when purchasing electricity generated by preferential electricity producers with a feed-in tariff by EMO, and when purchasing or selling electricity on the organised electricity trading marketshall be entitled to the forecasted difference between the sum of the receiving transactions, ie purchase of electricity and the sum of the delivery transactions, ie sale of electricity to be less than 1 MWh / h, for each trading interval in which such electricity is purchased.

(4) The amount of forecasted imbalance for BRP and its Balancing Group Members for forecasted positive imbalance for each settlement period is calculated using the equation:

$$Z_{forecast,t} = 2 \cdot C_t \cdot W_{forecasted\ imbalances,t}$$

(5) The value of forecasted imbalance for BRP and its Balancing Group Members for forecasted negative imbalance for each settlement period is calculated using the equation:

$$Z_{forecast,t} = -5 \cdot C_t \cdot W_{forecasted\ imbalances,t}$$

Where:

$Z_{forecast}$	-	the fee to be paid for the forecasted imbalances of the Balancing Group in the ISP;
$W_{forecasted\ imbalances}$	-	the amount of forecasted imbalances of the Balancing Group;
t	-	ISP;
C_t	-	the price of HUPX at the same hour when the forecast imbalances occurred. If the HUPX value for the corresponding hour achieved in DAM is negative, the absolute value of HUPX for that hour is taken.

4.4 Financial imbalance settlement

4.4.1 Financial liabilities and guarantees

Settlement agent

Article 89

(1) The TSO carries out and implements the financial settlement of the claims and obligations of the financial settlement participants.

Financial imbalance settlement

Article 90

(1) The financial imbalance settlement is carried out based on the calculated amounts in the imbalances settlement report in the monthly calculation period.
(2) The regulations relating the financial imbalance settlement shall apply the final imbalance settlement.
(3) Based on the imbalance settlement in the calculation period, TSO invoices the financial settlement participants, when the BRP pays for the imbalances in the selected monthly calculation period. Attached to the invoice is the report on the imbalances settlement for the selected monthly calculation period for each individual Balancing Group. The invoice's due date is eight (8) business days from the date of issue.
(4) Based on the imbalance settlement for the calculation period, BRPs issue an invoice to TSO, when the TSO pays for the imbalances in the selected monthly calculation period. Attached to the invoice is the report on the imbalance settlement for the selected monthly calculation period for each individual Balancing Group. The invoice's due date is ten (10) business days from the date of issue.
(5) The deadline for issuing the invoice is five (5) days after receiving the imbalance settlement.

4.4.2 Financial risk management

Financial risk management

Article 91

(1) The TSO conducts the financial obligations arising from the financial imbalance settlement and the balancing of the power system in the amount of the submitted financial guarantees.
(2) As the settlement agent, the TSO assesses the operating risks of an individual participant in the financial settlement and imposes mandatory financial guarantees for financial settlement participants.
(3) For the purpose of financial risk management, the recalculation of the imbalance settlement is considered as the final imbalance settlement.

Financial guarantees

Article 92

(1) The financial settlement participant shall provide fixed and variable financial guarantees upon TSO's request.
(2) The financial settlement participant deposits and provides a financial guarantee in the amount and form defined by TSO as a guarantee for the fulfillment of the participant's obligations arising from the settlements.
(3) All financial guarantees or funds deposited by the participant in the financial settlement to TSO are TSO's property and may not be used for any other purpose.
(4) If the Balancing Responsibility Agreement of the financial settlement participant ends, all financial guarantees are refunded when the participant settles all financial obligations to the settlement agent, including financial obligations from the recalculation of the imbalance settlement for the calendar months when the Balancing Responsibility Agreement ceases to be valid.
(5) The amount of the fixed financial guaranteeis 5.000.000 denars and may be submitted by the financial settlement participants in the form of a cash deposit or a bank guarantee.
(6) No fixed financial guarantee is provided for the Balancing Group in which the BRP is a Market Operator.

Variable Bid Security

Article 93

(1) The BRP must submit a variable financial guarantee upon request to the TSO.

(2) The variable financial guarantee can be submitted in the form of a cash deposit or in the form of a bank guarantee, and it will be valid from the date of issue until March 31 of the following year, unless the BRP is registered as such in the last quarter of year D, then the validity of the financial guarantee will be until March 31 of the year G + 2.

(3) Before the expiration of the validity of the variable financial guarantee, defined in paragraph (2) of this Article, the BRP is obliged to renew it at the request of TSO, which is made on the basis of calculations described in paragraphs (5), (6) and (7).

(4) For the BRP that is registered for the first time, the amount of the variable financial guarantee will be 1,500,000 denars.

(5) If the BRP is registered as such for more than 4 months and less than 13 months to the moment of renewal of the variable financial guarantee, the amount of the variable financial guarantee is calculated as an amount that is twice the amount of the highest monthly invoiced value of the BRP for the imbalances made in the previous months from its registration.

(6) If the BRP is registered as such for more than 13 months until the renewal of the variable financial guarantee, the amount of the variable financial guarantee is calculated as an amount that is twice the amount of the highest monthly invoiced value of the BRP for the imbalances made in the previous 12 months.

(7) The highest monthly invoiced value of the BRP for the imbalances mentioned in paragraph (5) and paragraph (6) of this Article, only applies to the months in which BRP has financial obligations to the TSO, i.e. the TSO submits an invoice for the collection of imbalances.

(8) If the financial guarantees already submitted by the BRP are lower than the amount of the last issued invoice for imbalances settlement, the BRP is obliged at the request of TSO to submit a new or to complement the existing variable financial guarantee.

(9) The amount of the new variable financial guarantee is calculated as the difference between the amount of the invoice issued in the last month and the amount of the fixed financial guarantee.

(10) If the financial guarantees already submitted by the BRP are higher than the amount of the last issued invoice for imbalance settlement, the submitted variable financial guarantee does not change.

(11) The BRP is obliged to submit a new variable financial guarantee within 8 business days from the submitted request for increase of the amount of the variable bank guarantee by the TSO.

(12) After signing the Balancing Liability Agreement, the BRP submits both the fixed and the variable financial guarantee at the same time.

(13) For the BRP in which the Universal Electricity Supplier is a member, a variable financial guarantee is not submitted only for the part of the Universal Electricity Supplier.

(14) A variable financial guarantee is not submitted for the balancing group in which BRP is the EMO.

Bank guarantee

Article 94

(1) The beneficiary of the bank guarantee submitted by the financial settlement participant is the TSO. The bank guarantee shall be irrevocable and have mandatory "no cavil" or "first complying demand" clauses, or similar wording. The bank guarantee must contain an

unconditional and irrevocable takeover by the bank to secure payment of the amount stipulated in the bank guarantee to the first claim beneficiary. The bank guarantee also contains a clause according to which a partial implementation is possible.

(2) Before submitting the bank guarantee, the financial settlement participant shall notify the TSO about the bank and the purpose of the bank guarantee submission.

(3) The TSO reserves the right to accept or reject a bank guarantee from a particular bank. Acceptance or rejection of a bank guarantee is TSO's discretion right.

(4) The TSO can implement the bank guarantee if the participant in the financial settlement does not settle its obligations within the agreed deadline.

(5) The financial settlement participant shall bear all costs incurred in the issuing and implementing process of the financial guarantee.

(6) The financial settlement participant submits a new guarantee to TSO at least three (3) business days before the expiration of the currently valid bank guarantee and / or submits a cash deposit instead of a bank guarantee.

Non-fulfilment of obligations

Article 95

(1) The following cases or circumstances are considered as a non-fulfilment of the financial obligations:
   1) If a financial settlement participant fails to settle its financial obligations within the period specified in the Balancing Responsibility Agreement; or
   2) If a financial settlement participant fails to submit the corrected financial guarantee;

(2) In case when the BRP will not settle its financial obligations from paragraph (1) item 1) to the TSO, the TSO submits a written notice, and if within 8 days from the delivery of the written notice the BRP does not pay the due obligation, the TSO will use the submitted financial guarantees to settle the due demands.

(3) In case when when the TSO uses part or the full amount of the financial guarantee to meet the financial obligations of the financial settlement participants, the participant is obliged to addend the bank deposit or provide an additional financial guarantee with the amount specified by TSO within eight (8) business days from TSO's first demand.

(4) In case when the BRP will not settle its financial obligations from paragraph (1) item 2) to the TSO, the TSO shall submit a written notice, and if within 8 days from the delivery of the written notice the BRP does not settle the financial obligation, the TSO initiates procedure for termination of the Balancing Liability Agreement.

(5) The financial settlement participant shall compensate the TSO for any costs incurred by the measures taken in case of non-fulfilment of the financial obligations.

(6) TSO may contact third parties for cooperation regarding the non-fulfillment of the obligations.

5. SUBMISSION OF DAILY SCHEDULES

Article 96

(1) The TSO in cooperation with the EMO determines the submission procedures, adjustment and verification of the submitted daily schedules, including any necessary clarifications, instructions and templates for the preparation and submission of daily schedules and publishes them on its website.

(2) In the daily schedules that BRP submits to TSO and the EMO, the transactions from the bilateral agreements of all Balancing Group Members should be shown separately for the electricity reception points, i.e., the sale of electricity and for the electricity that is taken over at the delivery points, i.e., the purchase of electricity.
(3) In the daily schedules provided by the BRP, the sum of the reception transactions, i.e. sale of electricity, shall be equal to the sum of the delivery transactions, i.e. the purchase of electricity upon completion of the intra-day process of preparing a daily schedule for the D day.
(4) In the event of failure to comply with paragraph (3), the TSO shall calculate an appropriate compensation to the market participant in accordance with these Rules, with the exception of the market participants referred to in Article 88, paragraph 3 of these Rules.
(5) Any submitted and harmonized daily schedule is considered based on a signed bilateral agreement.
(6) The TSO prepares the final daily schedule for the overall electricity generation, internal and cross-border transactions through the electronic system, based on daily schedules submitted by electricity market participants, approved by the Electricity Transmission System Operator.

Article 97

(1) The BRP shall submit to the TSO and the EMO the daily schedules for its Balancing Group for each day of delivery, prepared in accordance with these Rules, day in advance (D-1) for D-Day in accordance with the Final Daily Schedule Preparation Procedure published on TSO's website.
(2) A BRP, which has electricity producers or consumers connected to the electricity distribution network in its Balancing Group, also submits its daily schedules to the relevant DSO.
(3) The TSO checks the daily schedules in accordance with the undertaken international obligations for the delivery of daily schedules regarding the assigned cross-border transmission capacities, harmonization of all nominations and their balancing, and notifies the BRP in the event of acceptance or rejection of the schedules.
(4) The EMO checks the accuracy of daily schedules in terms of electricity market share and notifies the TSO only in case of formal deficiencies.

Article 98

(1) The TSO may request an audit of the BRP's daily schedules due to obvious errors or insufficient data.
(2) The BRPs are fully responsible for the errors in their daily schedule nominations and in the event where the TSO has not requested an audit of the daily schedules.

Article 99

(1) If the BRP receives information of rejected daily schedules, it shall submit new corrected daily schedules by the deadline set in the Procedure for preparing the final daily schedule.
(2) If the submitted daily schedules are still not harmonized, the TSO has the right to define new daily schedules.
(3) If the reasons for the imbalancing of the daily schedules are different nominations in the two Balancing Groups, for the new daily schedules of the groups:
    1) it is considered that the mutual transaction of these two BRPs does not exist (reduced to zero) if one the BRP nominated a transaction and the other did not nominate a transaction,

2) a lower value transaction is adopted if both BRPs nominate different mutual transactions in the same direction,
3) their mutual transaction is considered to be reduced to zero if both BRPs nominate equal transactions but in a different direction.

(4) If the reasons for the imbalancing of the daily schedules are different nominations in the same Balancing Group, the new daily schedules adopt the transaction with the lower value.

Article 100

(1) The final daily schedule is obligatory for market participants and the deviations from it are a subject to imbalance settlement, taking into account the change in the daily schedules throughout the day.

Article 101

(1) The TSO informs the BRP of any technical limitations that could mean partial or complete non-realization of certain daily schedules.

Article 102

(1) The BRPs have the right to submit a new daily schedule or make adjustments to a previously approved daily schedule due to incurred transactions in the bilateral contract market and / or in the organized electricity market.
(2) The BRP shall submit to the TSO and EMO a corrected daily schedule due to a change in a bilateral contract and / or transactions in the organized electricity market no later than 60 minutes before the start of the hour to which the daily schedule applies.
(3) Changes to the daily schedules referred to in Paragraph 1 of this Article shall apply to internal transactions.
(4) Changes to cross-border transactions of daily schedules are carried out in accordance with the Rules which regulate the allocation of intra-day cross-border transmission capacities within the relevant interconnection, published on the TSO's website and previously approved by the ERC.

Article 103

(1) The TSO, through its planning system, automatically notifies the BRP of approval or non-approval of the request for a change of the daily schedule in accordance with the Rules which regulate the allocation of intra-day cross-border transmission capacities on the relevant interconnection.
(2) If the connection request is approved, the corrected daily schedule is considered final.

6. TRANSITIONAL AND FINAL PROVISIONS

Transitional provisions

Article 104

(1) BSP that are qualified to provide FCR, aFRR and mFRR balancing capacity and balancing energy until the date of application of these Rules, shall be considered as BSPs for FCR, aFRR or mFRR and shall conclude a Balancing Agreement with TSO and can participate in the providing balancing energy process.

(2) No later than 31st October 2019, the TSO announces the adopted rules for procurement of aFRR in accordance with Article 17 and rules for procurement of mFRR in accordance with Article 32 and implements them by 31st October 2019.
(3) The TSO, EMO and DSO jointly prepare and sign the Protocol referred to in Article 67 of these Rules by 31st December 2019.
(4) The electricity producer with the highest installed capacity in the Republic of North Macedonia has no obligation to submit the financial guarantees referred to in Articles 92 and 93 of these Rules as long as the obligation under Article 237 paragraph 4 of the Energy Law is in progress.
(5) Article 30 paragraph (2) and Article 47 paragraph (2) of these Rules, for the electricity producer with the largest installed capacity will start to apply from January 2023.
(6) EMO transfers the BRP and Balancing Groups Registry referred to in Article 41 of the Electricity Market Rules ("Official Gazette of Republic of North Macedonia" No.38/14, 42/14, 57/14, 194/14, 190/16, 80/17, 172/17, 197/17, 115,18, 241/18 I 65/19) to TSO by December 31st 2023.

Final provision

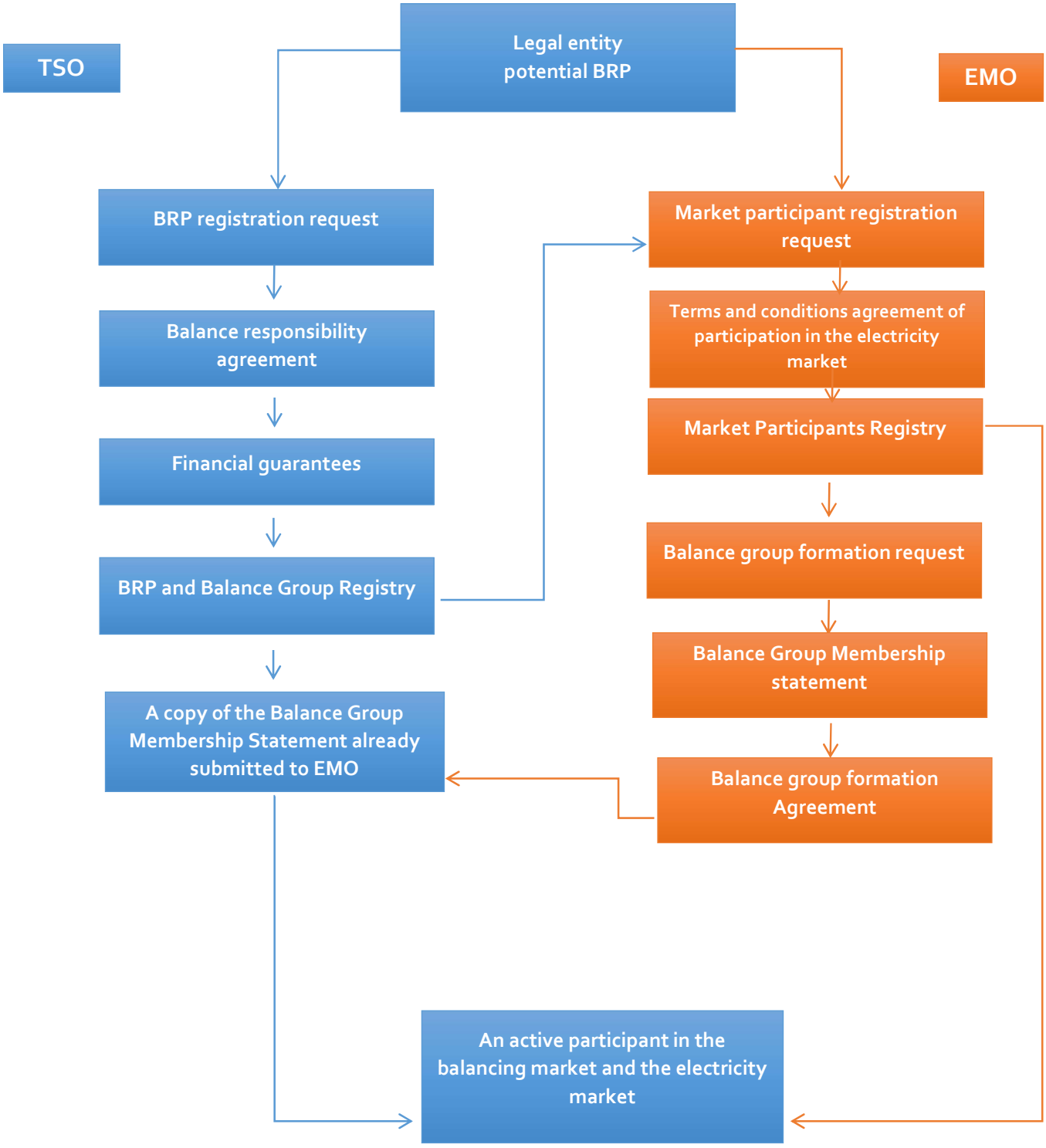
Article 105

These Rules shall enter into force on the day of their publication in the "Official Gazette of the Republic of North Macedonia"

No:
Date:

Annex 1: Balance Response Party (BRP) registration procedure and Balancing Group Members as members of the Balancing Scheme.

A graphic representation of the BRP and Balancing Group member registration process into the Balancing Scheme.



Annex 2: Pre-qualification process for becoming a Balance Service Provider