Kosovo Electricity Market Design

(KEMD)

June 2023

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Summary

According to the Law on Electricity, the Market Operator (MO) shall prepare the Kosovo Electricity Market Design and any modifications thereof, in compliance with the Energy Strategy of the Republic of Kosovo. The Design is limited to what KOSTT can achieve in the markets for energy and capacity and cannot directly influence things like investment in new capacity, which requires Government initiatives.

The parts that can be included in the Market Model partially are presented as follows:

1. **Improving system resilience**
    - The design allows for the integration of BESS (Battery Energy Storage System) to deliver improved ancillary services, efficiently procured through ancillary services contracts including from across borders.
    - Efficient price signals for capacity scarcity built into a market model closely designed around the EU Target Model and using a value of lost load metric to signal the value of security of supply, which will incentivise new investment.
2. **Supporting decarbonisation and promoting renewable energy**
    - The design allows for the integration of new and varied renewable energy contracts with different types of support and different balancing cost attribution rules.
    - The design includes new trading platforms (the ALPEX PX) for incentivising renewables to market at low cost.
3. **Strengthening regional cooperation and market functioning**
    - KOSTT is known as TSO within ENTSO-E with its own control area in a block area with Albania. This improves the operation of the transmission system and the market including participation in financial settlement of unintended exchanges.
    - KOSTT participates in pan-European initiatives such as the allocation of PTRs by SEE CAO and the development of market coupling with Albania.
    - The nomination processes use standardised ENTSO-E forms and procedures.
    - Kosovo intends to implement the EU Target Model in accordance with the commitments of the Energy Community Treaty.
4. **Protecting and empowering customers**
    - The development of functioning and competitive wholesale market is essential to customer protection.

The Market Design has the following features:

- **Competitive markets**
- **Transparent and market reflective pricing**

- **No cross-subsidization**[1]
- **Secure system where customers support necessary investments through their tariffs**
- **Environmental improvement**.

The EU Target Model is central to the Market Design. This model is based on organised markets in different timeframes as follows:

- **Forward markets:**
  - Bilateral contracts for the future period.
  - Ancillary services contracts can be procured paying for both availability of capacity and utilisation of energy.
  - Long-term physical transmission rights (PTRs) allocated by SEE CAO on KOSTT's behalf on most borders.
- **Day-ahead markets:**
  - Nominations of energy flows against PTRs and unused PTRs converted into financial transmission rights for use in market coupling or for sale as day-ahead PTRs where no market coupling is in force.
  - A day-ahead organized auction of energy bid and offer curves operated by ALPEX and including market coupling where feasible.
- **Intraday markets:**
  - ALPEX shall also organize so-called intraday trading as in energy contracts using a bulletin board-type matching system.
  - SEE CAO will auction daily capacity for use in cross-border trades (on borders not already supporting market coupling).
- **Balancing market:**
  - KOSTT as TSO will accept bids and offers for real-time balancing of the system based on forecasts of system imbalance.
  - KOSTT will utilise ancillary services contracts to react to real-time changes in scheduled interchange and frequency.

As specified in the Law on Electricity, the Market Design is the basis for a set of Market Rules that provide a comprehensive operation of balancing and settlement compliant with the Market Design.

[1] The Market Design ensures cost-reflective provision of transmission and wholesale services but cannot, by itself, enforce a policy of elimination of cross-subsidy although it certainly does not impede this policy.

1 Introduction

1.1 Purpose of this document

In accordance with Article 23.6 of Law No 05/L-085 on Electricity, the Market Operator shall prepare the proposed Electricity Market Design and any modifications thereof, in compliance with the Energy Strategy of the Republic of Kosovo.

Kosovo has implemented a bilateral contract market with balance responsibility consistent with the principles of the EU Target Model established by the Third Energy Package of the EU; Kosovo is committed to this implementation as a Contracting Party to the Energy Community Treaty (ECT) with the EU. The ECT process involves Contracting Parties agreeing to adopt elements of the EU Acquis Communautaire in the energy sphere to ensure efficient adoption of agreed EU Directives in a manner consistent with the principles of the Directive but with necessary adaptations to meet the constraints of adoption in non-EU domains. At the centre of this commitment is the move towards implementation of the so-called 'network codes' from the target model including:

- The Capacity Allocation and Congestion Management Guideline (CACM);
- The Forward Capacity Allocation Guideline (FCA); and
- The Energy Balancing Guideline (EBGL).

The following are also important:

- The Renewable Energy Directive; and
- The proposed EU regulation on risk-preparedness in the electricity sector and its initiatives on regional security coordination in which Kosovo is participating.

This document is a revision and update of an earlier electricity market design document approved and published in March 2013 as required by a previous law on which it builds and sets policy objectives for the upcoming five years.

1.2 Scope of this document

This document covers:

- Government principles and policies;
- KOSTT obligations and objectives;
- KOSTT's actions on behalf of the market;
- How the market is organised;
- How balancing and final settlement works;
- Other obligations derived from the market and the strategy.

In the Appendix there is a Glossary of the abbreviations and terms referred to in this document.

1.3 Principles and policies

1.3.1 Government's Energy Strategy

The Market Design needs to be consistent with the Government's Energy Strategy. This has set several strategic objectives:

1. **Improving System Resilience** with:
    a. Enhanced system flexibility;
    b. Modernisation of the network to reduce network losses;
    c. Revitalization of existing capacities for electricity generation and investments in new capacities; and
    d. Improvements in cybersecurity in energy sector.

This involves the targets for: improving quality of supply indicators (System Average Interruption Duration Index and System Average Interruption Frequency Index), market-based reserve services to be at least 170 MW of flexible capacity by 2031, transmission and distribution losses down to 9% by 2031, and refurbishment of two units at Kosovo B and at least one at Kosovo A by 2024.

Market Design for the wholesale market can facilitate flexibility through:

- **Efficient price signals** for imbalance correction and utilisation of ancillary services and other flexibility instruments, thereby encouraging investment; this will be further improved with the commencement of trading on the new ALPEX day ahead market and intraday market.
- **Flexible rules** ensuring that new technologies such as BESS can compete in the provision of flexibility
- **Pricing of lost load** giving incentives to adequate network development and energy procurement by suppliers.

However, the main targets will require adequate founds being made available for investment; the Market Design can only help that investment to be efficient.

2. **Decarbonisation and promoting renewable energy** with:
    a. Gradual implementation of carbon pricing
    b. Promotion of renewables
    c. Promoting renewables energy in heating.

This will be developed through: preparing for integration into the EU Emissions Trading System by 2025, reduction in greenhouse gas emissions in the power sector by at least 32% by 2031, RES generation reaching 35% of electricity consumption by 2031, and new wind and solar PV generating capacity reaching at least 1400 MW by 2031 of which at least 100 MW should be developed by prosumers.

Market Design can facilitate both renewables and good quality combined heat and power through:

- **Settlement systems** recognising the central role of a **RES Operator** for combining outputs from renewable generators and managing the cost of their imbalances
- **Facilitating trade in renewables**; this will be enhanced when trading commences on the ALPEX day-ahead market.

By itself, the Market Design cannot ensure that investment will take place; the guarantee scheme foreseen in the new Renewable Energy legislation, backed up by funds for that guarantee will also be needed.

3. **Increasing energy efficiency** through:
    a. Improvement of buildings efficiency
    b. Cogeneration and district heating.

The targets are: limiting final energy consumption to 1877 ktoe by 2031, cumulative energy savings of 266,4 ktoe in buildings by 2031 and constructing 150 buildings with near zero net energy by 2031.

Market Design plays no direct part in this objective.

4. **Strengthening regional cooperation and market functioning** through:
    a. Regional cooperation
    b. Removing barriers to market functioning
    c. Training in energy-related fields.

Targets are: market integration with Albania by 2023, joining the pan-European market area in 2030, phasing out the Bulk supply Agreement, starting in 2025 at the latest, and increasing the number of graduates in energy-related fields with 25% of sector employees being women by 2031.

Kosovo is part of the Continental Europe Synchronous area. KOSTT's memberships of ENTSO-E and SEE CAO are central to Kosovo's integration ambitions. **The Market Rules facilitate this integration**:

- Implementation of the **EU Target Model** as required under the ECT
- **Cross-border capacity rights allocation** through SEE CAO
- **Cross-border energy flows** and **market coupling** (initially just with Albania)
- **System balancing**.

5. **Protecting and empowering customers** with:
    a. Protection for vulnerable customers
    b. Empowering all customers
    c. Preserving human health and the environment.

The targets for this are: revise the current price-support scheme for new vulnerable customers program by 2024, introduce at least two new energy-related schemes for vulnerable customers by 2024 and four by 2031, introduce more than two programs supporting community projects in

efficiency and self-consumption by 2024, and more than five by 2031, implement at least nine energy-related information campaigns annually, and develop a fully functioning price comparison tool by 2024.

The Market Design is central to the achievement of this objective. By developing a functioning and competitive wholesale market with cost-reflective pricing and a centralised database of final customers, targeted support can be designed and implemented and the means for customer switching are practical and available.

1.3.2 Guiding principles of Market Design

The guiding principles applied in this Market Design, consistent with the Law on Electricity and Kosovo's commitments under the ECT, are therefore:

- **Competitive markets**. Customers will be best served if there is free competition in generation and in wholesale markets, including across borders, and also in retail markets.
- **Transparent and market reflective pricing**. Contracts for wholesale delivery of energy should reflect competitive market prices and should not advantage any energy supplier in the retail market.
- **Cross-subsidization**. Retail customers should pay cost-reflective prices for energy delivered to them, reflecting the cost of delivery as well as the true cost of the wholesale energy. Where specific social tariffs are applied, the cost should not disadvantage any other customers.
- **Secure system with customers supporting necessary investments through their tariffs**. Where specific social benefits are required such as from renewable energy or security of supply then any additional costs must be borne by all customers proportionately.
- **Environmental improvement**. This involves cleaner generation and promotion of electricity from renewable sources.

1.4 KOSTT obligations and objectives

KOSTT obligations as MO are set out in Article 23 of the Law on Electricity, requiring transparent, objective and independent performance of tasks that comprise:

- Organisation of the Kosovo wholesale electricity market in line with the Market Rules, which shall be prepared for approval by the Regulator and charge a regulated tariff for its market operation activities
- Specific tasks (as set out in the legislation):
  - **Economic management of the electricity system** including financial settlements of imbalances and billing for transmission services on behalf of the TSO; financial settlement of trades in the organised electricity market are the responsibility of ALPEX, according to the agreement for the transfer of responsibilities.

- **Organisation and development of the electricity market** to the benefit and advantage of electricity market participants. The performance of this is set out in the Market Rules, which also contains rules for developing new initiatives to support the market; an example of this is the cooperation with the TSO in the final financial settlement of unintended exchanges with other control areas throughout the Continental Europe Synchronous Area.
- **Organisation and development of the organised electricity market** in cooperation with the Transmission System Operator. This has been pursued through cooperation with Albania in the establishment of ALPEX, which has set up a Kosovo PX arrangement to be coupled with Albania and with plans to couple with other power exchanges being set up in the region. Provisions in the Law for potential auctions for sale or purchase of electricity are therefore satisfied by establishment of ALPEX. Similarly, responsibilities for establishing market prices are satisfied by ALPEX as are notifications of market results.
- **Registration of all electricity sale and purchase transactions** between electricity market parties. This is used to assess the net imbalance position of market parties.
- **Timely submission to the Transmission System Operator of daily electricity sale and purchase programs**. The MO is responsible for collecting all physical and contractual nominations of all parties and to notify these to the TSO.
- **Verification of harmonization of contractual cross-border sale and purchase programs, with allocated cross-boundary capacities**. KOSTT is a shareholder in SEE CAO, which allocates cross-border PTRs at most of Kosovo's borders as well as secondary trades in those rights. SEE CAO also accepts nominations of energy flows against those PTRs. The MO is given an advisory role to the TSO on capacity allocations.
- **Maintenance metering database for all suppliers**. As set out in the Market Rules, the MO maintains the database of customer meters and the necessary details of the customers at those meters and of the suppliers to those customers. This includes details of those customers classed as vulnerable.
- **Conclusion of sale and purchase agreements for the obligatory portion of electricity generated from renewable energy sources and cogeneration**. The MO may perform the task of Renewable Energy Operator (REO).
- **Collection of payments for supporting electricity generation from renewable energy sources and cogeneration**, from all suppliers, including suppliers with public service obligations.
- **Electricity market analysis** and proposal of measures for its advancement and **publication of information** necessary for unhindered electricity market organisation and conduct of electricity activities.
- **Management of the customer transfer process**, in accordance with the Market Rules.
- **Installation, maintenance and update of the market operation platform**. This platform shall provide for independent auditing.

- **Publication of all market-relevant data** and information and other obligations deriving from the Market Rules.

The objectives determined for KOSTT are set out in the Market Rules. These are:

a) the efficient discharge of the obligations imposed upon the MO by its licence;

b) the facilitation of efficient operation of the Transmission Network by the Transmission System Operator;

c) the promotion of effective competition in the generation, trade and supply of electricity;

d) the efficient implementation and management of balancing and settlement provided by the Market Rules;

e) the promotion of the use of renewable sources of energy in the generation of electricity.

These objectives fit well with Energy Strategy objectives. Obviously, the MO should be efficient and should facilitate the TSO to operate efficiently. More broadly, the objectives of facilitating competition and promoting electricity from renewable sources set out *how* the MO should go about supporting the delivery of electricity to customers.

1.4.1 KOSTT main policy strategies

KOSTT's obligations and objectives are set out above. It is worth mentioning here the main strategies that KOSTT will utilise through this Market Design because these strategies, which have already been mentioned, are central to the Design. The key strategies are:

- **European Cooperation**:
  - KOSTT has signed Connection Agreement with ENTSO-E and is bound into various cooperation schemes. Recently, this has included a new treatment of unintended exchange.
  - KOSTT is a member of the SEE CAO transmission capacity auction allocation platform and uses this to allocate capacity rights at its borders.
- **EU Target Model**:
  - The ALPEX PX. This provides a voluntary day ahead market and intraday market for Kosovo that will be coupled, initially, with Albania. KOSTT intends to procure energy for transmission losses through the ALPEX platform.
  - The balancing Market Rules are in line with the core principles of the EU Target Model.
- **Renewable Energy Law**:
  - The PX will provide a reference price for new forms of contract permitted under the new law.
  - The Market Rules will allow for balancing and settlement of new renewables.

- **System resilience and flexibility**:
  - The Market Rules encompass procurement of ancillary services in a variety of ways and from a variety of sources including storage devices.

2 Overview of Market Design

2.1 The current structure: parties and responsibilities

Figure 1 sets out the current way the market is organised. This divides into key components and highlights the European model that divides the market essentially into:

- The **physical market** that deals with electricity flow from generators through to suppliers and then to customers; and
- The **contractual market** that deals with commercial trade in electricity.

The diagram is limited to the arrangements for electricity trading and delivery. Missing are the arrangements for the trade in PTRs for cross-border trading. These are included in the descriptions below.

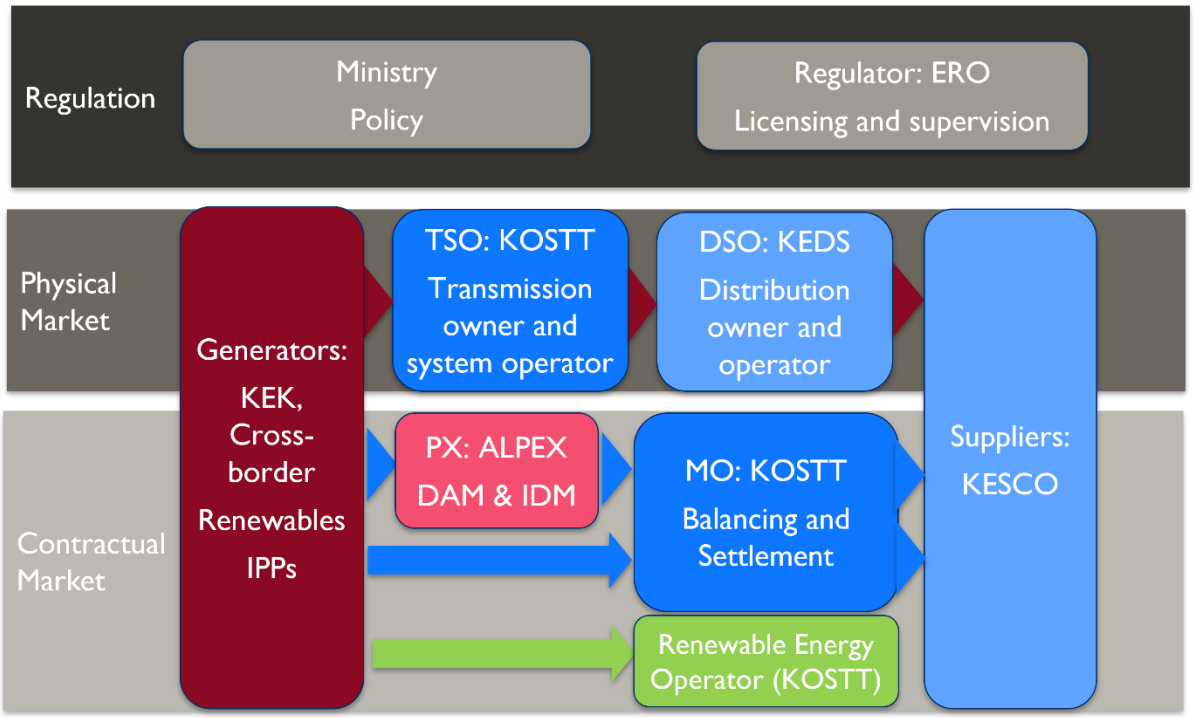

Figure 1: Current organisation of the market

Governance

European Legislation. All parties are governed by the following principal laws: Law on Energy, Law on the Energy Regulator and Law on Electricity. These laws implement commitments under the ECT and adopted Guidelines of the EU Target Model.

ENTSO-E. Membership of this EU TSO body is a necessary part of implementation of the Target Model.

Energy Regulatory Office (ERO), the independent regulatory agency, appointed by Government, is responsible for (among other things): licensing of energy enterprises, determining where Public Service Obligations (PSO) should apply to specific licensees for a limited time, price regulation of natural monopolies, facilitating competition and detection of market abuse, and authorization for building new capacities.

Ministry of Economy (MoE) is responsible for supporting and helping determine Government policy in electricity. This is done through primary legislation and secondary regulations. A specific responsibility is preparing the Government strategy for the sector and setting the objectives that this Design document must support.

Physical Operation

- **Transmission System Operator (KOSTT)** is licensed by ERO and is responsible for ensuring efficient system operation, system balance and cross-border flows but, other than for losses and for specific system operation matters, does not trade in energy.
- **Market Operator (**also **KOSTT)** is separately licensed by ERO and is responsible for maintaining a set of the Market Rules governing market participation, balance responsibility and imbalance pricing and settlement – a cost-reflective balancing market facilitates these tasks. MO does not trade in energy. The MO is responsible for organisation and operation of the electricity market, a meter point database and meter reading collection and attribution to trading parties. The MO is also currently the REO.
- A **Distribution System Operator (KEDS)** is licensed by ERO to manage physical distribution of energy to customers and is also responsible for purchasing distribution losses.

Both the TSO and DSO are responsible for connections to their networks at regulated tariffs and for maintenance and development of those networks.

Market Operation

- **Market Operator** performs that function in line with the obligations set out in the law, the MO runs end to end processes involving party and contract registration, balancing and settlement and invoicing on behalf of all of KOSTT activities.
- **Power Exchange Operator**. This is the responsibility of the TSO and MO under the legislation. However, KOSTT has transferred its responsibility for this to ALPEX, which performs the following activities:
  - Organisation of **day-ahead market** operating as a cleared crossover auction with ALPEX as counterparty to all trades;
  - Organisation of **intraday trading market** with ALPEX as counterparty to all trades;
  - Organisation of market coupling between Kosovo and Albania using 'spare' capacity notified by SEE CAO to determine the maximum amount of energy that can be transferred between the bidding areas (the operation of market coupling is explained below).
- **Renewable Energy Operator (REO)**. The MO has taken this role, which involves managing the Renewable Energy Fund and:
  - Acting as a BRP for renewable generators registered under the fund;

- Buying all energy from renewable generators through PPAs that specify the price to be paid for metered energy;
- Managing the share of imbalances attributable to each renewable generator;
- Allocating the energy to be delivered to suppliers and charging them the average cost incurred by the Fund in paying out to renewable generators under their PPAs.

- **SEE CAO**. As noted above, KOSTT is a member of SEE CAO and has delegated its congestion management responsibility for the auctioning of cross-border PTRs to SEE CAO, whose responsibilities include:
  - Running periodic auctions of PTRs at each border that it serves that have been made available by the TSOs at that border; the PTRs can be for a full year or part of a year;
  - Recording secondary trading of PTRs between those eligible to hold such rights;
  - Accepting nominations of energy flow against PTRs held;
  - Applying use-it-or-sell-it terms to any PTRs against which no energy nomination has been made and:
    - If market coupling is available at a border, offering these PTRs to the PXs either side of a border for this purpose; otherwise;
    - Organising an auction of daily PTRs across that border.
  - Handling payment for PTRs and compensation to rights holders for PTRs taken under the use-it-or-sell-it provisions, transferring any earnings from market coupling or day ahead auctions to those rights holders
  - Notifying TSOs of energy nominations at their borders.

Trading

ERO licenses trading participants in the market who may be:

- **Generators** contract to sell power and energy up until market gate closure and may also buy energy in order to meet their contractual commitments. Generators must be the parties responsible for balancing. Generators submit bids and offers to the MO to either reduce or increase their physical output and such bids and offers are accepted, when necessary, by the TSO to effect real-time balancing of the system where physical imbalances are identified.
- **Suppliers** buy and sell energy under bilateral contact for delivery to final customers. Suppliers have a right to trade and may also import and export energy. Suppliers are the parties responsible for balancing.
- **Wholesale customers** buy and sell energy on their own behalf or else sell on energy to other trading parties but may not sell to final customers. Wholesale customers may be responsible for their imbalances and may also import and export energy.

The PX also acts as a trading contractual party for all trades on its exchange.

All trading licensees may have terms in their licence that allow the holding of cross-border transfer capacity and the export and import of electricity.

2.2 Potential measures to facilitate competition

From the above, the strategic approach most relevant to the Market Design is the facilitation of competition. This is a primary responsibility of the Regulator but the MO also has this as an objective. In the next sections, how this can be implemented is explored. In overview, the following practical steps can be taken:

- **Increase trading on ALPEX**

Competition could be improved if ALPEX were to become more liquid. It is a voluntary market and much of energy trade is through the Bulk Supply Agreement (BSA) between KEK and KEDS/KESCO. Even if the BSA were traded through ALPEX, the terms of the underlying agreement would require a financial contract between KEK and KESCO (a Contract for Difference – see Glossary) that would not effectively contribute to liquidity in the PX.

Measures to improve liquidity could include:

  - KOSTT, the TSO, buying transmission losses through ALPEX;
  - KEDS as DSO could also procure distribution losses through ALPEX although it does have the contractual right to procure some losses from KEK under the BSA;
  - Renewable source electricity could all be sold through ALPEX;

Government strategy is to phase out the BSA, starting in 2025 at the latest and completing by 2031; this will increase the ability of KEK to offer energy into ALPEX. There are no details of the measures that could bring this about. One option that would directly benefit ALPEX liquidity could be:

  - The dominant generator (KEK) to sell a proportion of its output through ALPEX; or
  - The dominant supplier (KESCO) to buy a proportion of its electricity needs through ALPEX.

The implementation of the Government strategy on phasing out the BSA is unknown and so cannot be included in this Market Design.

- **Encourage investments for new generators**

  - **Direct procurement**. Kosovo has an unsuccessful history of attempted procurement of new generation capacity with the limited exception of new renewable capacity. This remains out of the scope of this Market Design document because it requires Government to design and commit to the necessary specific actions. This document describes a design that should facilitate new investment but cannot include measures for direct procurement. Such a procurement is not part of the Government Strategy at present.
  - **Capacity obligations or payments**. Another option is payments for provision of capacity. This is not part of the strategy or of the current design. Nevertheless, if the Government chooses it could institute:
    - **Capacity auctions**. These are now common in Europe. All generators bid for payments of a sum per MW on the basis that they will be available at peak. It is intended to cover 'missing money' from the energy markets that is required to

ensure that the generator stays in operation. The auction is run annually for four years ahead because multi-year contracts can also be bid in to support new investments. The shortage of current capacity would make this expensive to implement.

- **Capacity obligations**. This is similar to capacity auctions except that suppliers are given an obligation to procure capacity certificates from generators to ensure the capacity is available. It is likely to be similarly expensive in the current capacity shortage situation.

3 The Target Model

As stated above, the EU Target Model has been elaborated through a set of network codes. The structure of the model and its principal market components are set out in Figure 2.

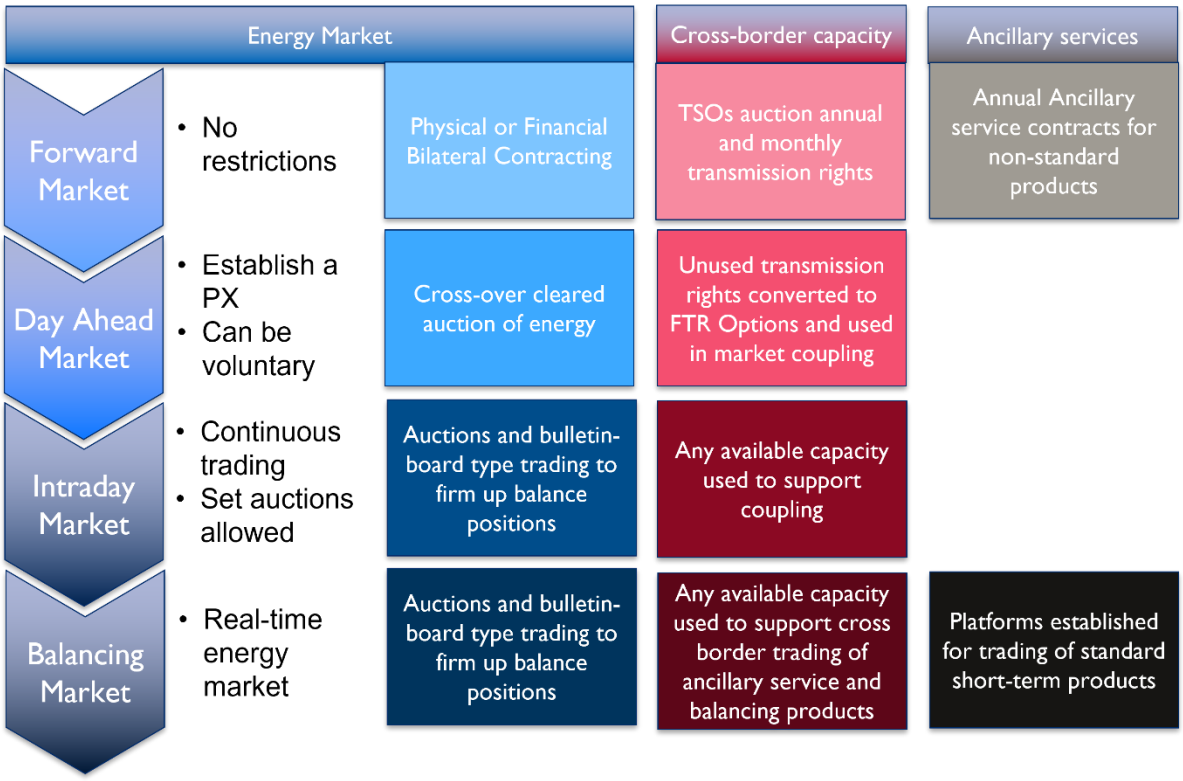

Figure 2: The EU Target Model

The split of the markets into timeframes is a key feature of the design, which is a common one in Europe and fits closely to the design already in place in Kosovo. The elements are:

- **Forward (long-term) markets**. This is a physical energy market in much of Europe, which is the design followed in Kosovo, and relies on bilateral contracts. Details of implementation can be found in Section 4.1.1 (*see Forward Markets*). Albania has followed the design favoured in the Nordic countries where only financial contracts are traded in the forward timeframe; the financial contracts are CfDs. This is not an impediment to increased market integration.

  In this timeframe, the TSO auctions the transmission rights for cross-border trades. KOSTT, along with most of the rest of EU and Energy Community TSOs has transferred this obligation to an auctions regional platform through its membership of SEE CAO (described in Section 2.1 above). Arrangements for cross-border trading are described more fully in Section 4.2.5.

  Kosovo has also procured ancillary services for reserve through long-term and annual contracts. The EU is pressing for day ahead balancing products tradable across borders but

non-standard products can also be procured under long-term contracts. Kosovo's arrangements for this market are described in Section 4.2.7.

- **Day ahead market**. This is important in European thinking because it is intended to concentrate liquidity. All European markets become physical at this stage. The core of this market is the day ahead crossover auction, which is described in Section 4.2.3. The innovation in Europe is coupling with neighbouring markets; this is explained in Section 4.2.4.

  SEE CAO determines how many transfer rights have not been nominated against and offers the unused transfer capacity for market coupling.

- **Intraday market**. This is also a purely physical market with continuous matching across the trading platform to adjust positions.

  Unused transfer capacity can be used for cross-border trades in this timeframe although this will often be reverse flow capacity, which is virtual rather than physical.

  Kosovo's arrangements for this market are described in Section 4.1.1 (*Intraday markets*). Market coupling arrangements are as explained in Section 4.2.4.

- **Balancing market**. This is a real-time market although bid and offer acceptances can be made by the TSO before the start of the day. This is described in slightly more detail in Section 4.1.1 (*Real time* markets).

Imbalance settlement. This is not part of the diagram but happens after the day when meters are read and market parties are found to have delivered more or less than they had contracted to deliver or else other parties' customers have consumed more or less than the parties had contracted to offtake. The MO will calculate the price at which the TSO has settled imbalances; this cost-reflective price is the incentive on parties to balance their metered positions through active forecasting and contracting of the energy required to be injected or offtaken. Kosovo's arrangements for calculating the balancing incentive are described in Section 4.1.3.

4 Market operation

4.1 Market operation principles

The principles behind the EU Target Model implemented in Kosovo are based on competitive markets providing incentives to market participants to operate efficiently in their own best interests, which leads to lower prices for customers. The central incentive on parties is to balance their metered positions against their forecasts of those positions; the central means of achieving this is through contracting.

4.1.1 Markets and market contracts

There are several types of contracts in the market. Some of these contracts are in standardised formats and are usually made with central parties. Other contracts made between trading parties are in the form agreed with those trading parties. Contracts can be for energy delivery or for capacity or for other services. Contracts can also be for different markets – the markets for delivering electricity of a standard quality on an as-required basis are multiple and can be complex.

As shown in Figure 2 above, the overall market can be divided into timeframes and each timeframe may have markets for energy, cross-border capacity and for ancillary services. Additional markets such as for security of supply (generating capacity) are not part of the EU Target Model and are not implemented in Kosovo; the market for promotion of renewables, while not strictly part of the model, requires the rules to be adapted and is described in Section 4.3 below.

Forward Markets

These are as follows:

- **Energy markets**. Energy contracts in the forward market can take multiple forms with specific details left to contracts. The market operates from any time (including multiple years ahead) right up until day ahead gate closure. The only constant requirement of a contract is that both parties must agree to notify the contract volumes to the Market Operator by day ahead gate closure; at this time the notification must include the volume of energy to be delivered in each hour of the day ahead, who is delivering and who is receiving – these contracts are known as **Contracts to Notify**, which are explained in Section 4.2.2.
- **Cross-border capacity**. This is managed by SEE CAO (with the exception of the border with Serbia's EMS, access to which is still in process of negotiation). This is explained in Section 4.2.5 below.
- **Ancillary services**. These are contracts made between the TSO, KOSTT, and Balancing Service Providers (BSPs – mainly generators but also demand side providers and, in the future, storage operators) for the provision of services. This is explained in more detail in Section 4.2.7 below.

Day ahead markets

These are markets in the hours before day ahead gate closure and comprise:

- **Power exchange**. The trading rules for the PX energy market are set out by ALPEX. The details of operation are given in Section 4.2.3 below.
- **Cross-border energy contracts and market coupling**. Before the PX day ahead auction, on a timetable determined by SEE CAO, PTR holders must nominate energy flows against the PTRs they hold. Any spare PTRs (not nominated against for physical energy flow) are then converted to FTRs; these FTRs are used in market coupling (explained in Section 4.2.5).
- **OTC market**. These are actually energy contracts made in the same way as in the forward market. The contracts must be nominated to the MO by day ahead gate closure.
- **Bids** and **offers**. These are contracts made between BSPs and the TSO in which the BSP sets a price per MWh at which it will increase physical electricity delivery and a different price that it will pay to decrease delivery. The bids and offers must be submitted to the MO by day ahead gate closure. This is further explained in Section 4.1.2.

Intraday markets

These are markets operating between day ahead gate closure one hour before real time and comprise:

- **Intraday organised market**. This is organised by ALPEX and allows trading parties to buy and sell energy as forecasts change (updated renewables output forecasts for example); cross-border energy flows are supported to the extent that PTRs can be procured – this is dependent on available capacity following any used for market coupling although reverse flow capacity will always be available.
- **Intraday PTR auctions**. PTRs not utilised in the day ahead nominations will not always be converted into FTRs if market coupling is not supported across particular borders. In those instances, KOSTT will take unused PTRs and will auction them for the day; the new short-term rights holders will be able to nominate against them in the intraday market.
- **OTC market**. These are actually energy contracts made in the same way as in the forward market. The contracts must be nominated to the MO by gate closure for each settlement period.

Real time markets

These are markets operating in real time and in control of the TSO. They comprise:

- **Balancing market**. The TSO accepts bids and offers to ensure a balance between its forecast of injections and offtakes. Balancing is action initiated by the TSO in response to an anticipated difference between what has been nominated for physical dispatch and the TSO's forecast of actual demand. This help ancillary services that are utilised by the TSO in response to an actual deviation in frequency. This is described in Section 4.1.2 below.
- **Ancillary service utilisation**. The TSO utilises ancillary service contracts made with BSPs in response to observed changes in cross border exchange and in frequency. This is described in Section 4.1.2 below.
- **EU ancillary service trading**. The EU is promoting standardised products that can be traded on dedicated platforms across borders but has not finalised how transfer capacity can be guaranteed for this. This applies to both balancing and ancillary services. The latter, if utilised are often cashed out in terms of the energy used through the balancing market.

  Kosovo will develop capability to trade in short-term ancillary service products once these become available in the region; the timetable for this is uncertain.

Financial markets

These contracts are largely outside the rules. Financial markets are not excluded from the rules but there are no explicit provisions to encourage them. The exception is CfDs that are envisaged as an option for support of renewables going forward; even here, settlement of CfD contracts is largely outside the scope of the Market Rules.

4.1.2 Market balancing

Each trading party acts as a BRP or part of a BRP's Balancing Group. This means that the BRP is responsible for trying to ensure that it balances the volumes of contracted injections of energy into the system with the sum of volumes of energy it is metered as having injected into the system or else to balance the volumes of energy it has contracted to offtake from the system with the sum of volumes of energy it is metered as having offtaken from the system.

Obviously, at day ahead gate closure (14:00 on day D-1) the contractual balance is against a forecast of metered injection or metered offtake. Day ahead gate closure is when all contracts (whether OTC – see Section 4.1.1 (*Forward Markets*) – or PX – see Section 4.2.3) must be notified to the MO.

The parties have an opportunity to revise their positions in the intraday timeframe right up to gate closure, which is one hour before the start of real time delivery but this is still against forecasts of metered injection or offtake because the physical metering will not be available to the parties until after the end of the trading hour (known as the imbalance settlement period).

This means that there will almost always be a residual imbalance that will need to be corrected in real time. This is done by the TSO.

There are two elements to balancing:

- The **balancing market**, in which the TSO accepts bids and/or offer contracts to correct net deviations from its own forecast of the balancing position. The TSO seeks here to get as close as possible to meeting the average hourly balance between injections and offtakes. However, balance needs to be on second-by-second basis to ensure that system frequency remains very close to 50 Hz;
- **Ancillary services** – substantially through contracted services. Ancillary services cover for two factors in the energy market: small second-by-second deviations, and larger deviations caused by failures of TSO forecasting (such as failures of a forecast of renewables output) or else due to a loss of generation or of a large load due to equipment failure (whether of a generator or of network lines). The different types of ancillary service and how they are used is explained in more detail in Section 4.2.7 below.

The way the balancing market works is as follows:

1. At day ahead gate closure (14:00 on D-1), BSPs will submit their bid and offer prices for decrease or increase in output.
2. By gate closure (one hour before real time), generators (and demand side bidders) will submit their final physical nomination positions for the hour ahead (these positions have so far not changed significantly from positions posted in initial physical nominations at day ahead gate closure).
3. The TSO stacks bids in descending price order and offers in ascending price order of available capacities to decrease or increase net injections into the system. This is shown in Figure 3.

4. The TSO accepts bids and/or offers to balance the system based on its forecast of imbalance resulting from its forecast of demand against the aggregated final physical nominations submitted to it.

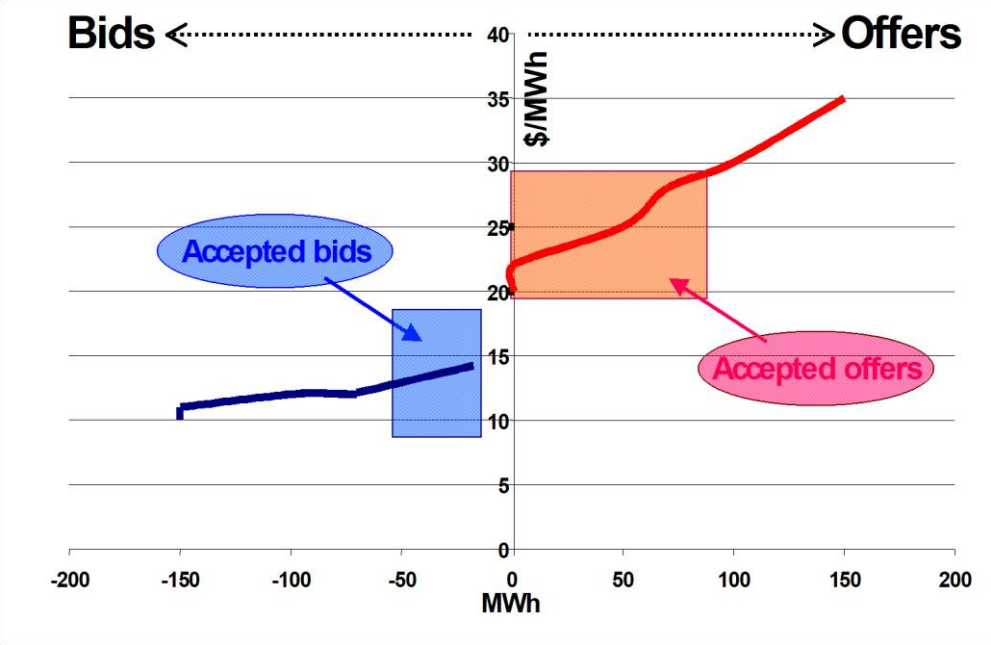

Figure 3: Balancing market operation

The weighted average price of all accepted bids will be used to set an imbalance price where the system turns out to have been over-contracted ('long' on energy) such that KOSTT has had to instruct generators to reduce output through bid acceptances; where the system is under-contracted ('short' on energy) then the weighted average price of all accepted offers will be used to set the imbalance price for that hour.

This mechanism is used where there are locational constraints in the system as well. This means that the TSO must restrict net generation upstream of a congestion point (bid acceptance) and contract for extra energy downstream of the congestion point (offer acceptance). Such acceptances are tagged to ensure that they do not enter the imbalance price calculation. In practice, such tagging will be rare in the Kosovo system.

4.1.3 The incentives to balance

In accordance with the EU Target Model, the average costs incurred by KOSTT in balancing the system using both the balancing market and ancillary services will be encapsulated in the imbalance price. As described in Section 4.1.2 above, this will be based on untagged bid acceptances when the system is long or else on untagged offer acceptances when the system is short.

In Figure 4, an example of balancing incentives on suppliers is given. Suppliers will seek to avoid exposure to both the high System Buy Price (SBP) and the low System Sell Price (SSP) by forecasting what those prices might reach. Exposure is to SBP if the system is short or to SSP if the system is long but suppliers will not know which it will be in any hour. So, their balancing strategy against their central forecast will depend on where they see those imbalance prices going.

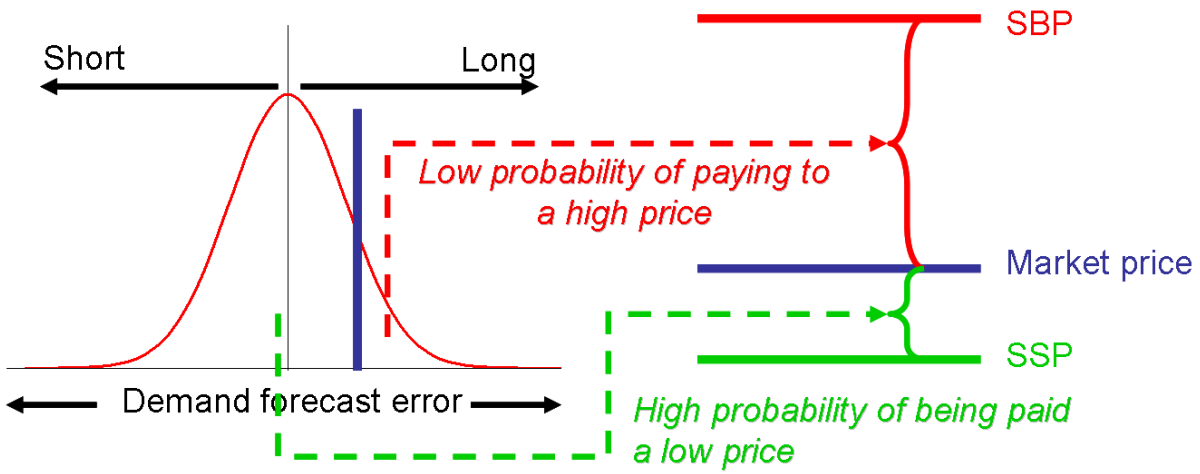

Figure 4: Balancing incentives

The dynamics of the market are as follows:

- Suppliers' forecasts can either be too high or too low in equal measure (the bell curve in the diagram) so their own forecast error could contribute to system forecast error in either direction if they contract to their central forecast.
- Errors in renewable generators' forecasts of their output are equally symmetrical against their central forecast.
- Thermal generators can control their dispatch and so can accurately contract without error except if they are faced with a unit failure. If this happens then they will be significantly short against their contracted position and there is unlikely they can anything do to mitigate their imbalance.

The result of the above is that there is normal probability of the system being approximately in balance but with an occasional possibility of the system being very short leading to a price spike in the balancing market. Price risk is therefore asymmetrical.

4.2 Market operation

As stated above, the Kosovo Market Design is based closely on the EU Target Model. Adaptations are made to the extent that the created markets are currently very illiquid with a shortage of operational flexibility within the system. Considerably there are shortages of available generation capacity.

While the Market Rules are designed to create an environment where competition (both wholesale and retail) can thrive, they cannot, by themselves, create the necessary liquidity in the markets nor the modern physical capacity needed for secure and flexible supply. The rules can only facilitate liquidity and have been designed in line with the intent of the EU Guidelines that are partly implemented directly through these Market Rules.

This section explains how key operational requirements are being implemented and how such elements will work.

4.2.1 Operational timelines

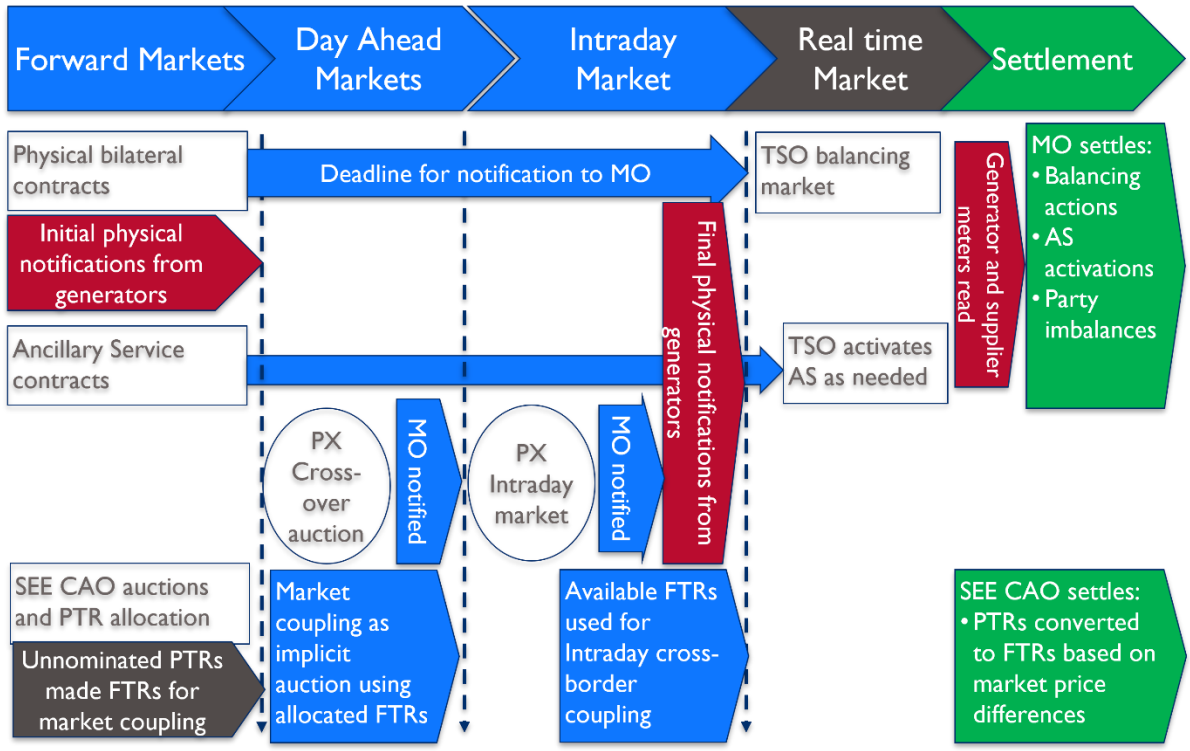

Figure 5: Market Operation timelines

Figure 5 sets out the sequence of the markets as described in Chapter 3.

4.2.2 Contract nomination

For the system to operate properly, correct information about intentions and contracts must be provided to the MO. By day ahead gate closure, all trading parties must provide:

- Initial **physical nominations** for each hour of the day ahead so that the TSO can be provided with the intended generation level of each generating unit in that hour; and

- Initial **contractual nominations** for each trading party detailing how much energy they are buying (and from whom) and how much they are selling (and to whom) for each settlement period of the day ahead.

This is done in a single nomination submission that should also match contracted volumes against generation. The submission form is compliant with ENTSO-E standards. It also includes energy flows nominated against PTRs held.

Each trading party submits contractual nominations on its own behalf and these must match with the information provided by the referenced counterparty. Failure to match will see the lower volume recorded (or zero). However, trades made with the PX are also submitted as contractual nominations by the PX on behalf of itself and its counterparties.

After day-ahead gate closure, revised position may be submitted as physical and contractual nominations for any hour of Day D that has not yet had a gate closure, which is one hour before the start of that hour. These renominations are likely to mostly occur following any day-ahead auction of PTRs as described in Section 4.2.5 below.

4.2.3 Power Exchange operation

The PX operates under rules set by ALPEX:

- Sellers submit offer curves consisting of monotonically ascending price-MW pairs for each hour or for blocks of hours; buyers submit bid curves consisting of monotonically descending price-MW pairs.
- ALPEX then runs an algorithm that sorts all the curves into cumulative sell and buy curves and adjusts for block bids and any other complexities.
- ALPEX then runs a clearing algorithm that finds the crossover point between the sell curves and the buy curves, thereby setting the clearing price.
- Successful sellers in the auction are paid the clearing price for all their accepted sales and successful buyers pay the clearing price for all their accepted purchases. Each successful bid or offer in the PX forms a bilateral contract between the trading party and ALPEX.
- ALPEX then nominates all these sales to the MO as contractual nominations.

4.2.4 Market coupling

At the moment, market coupling is only expected between Kosovo and Albania but other regional exchanges will be included where possible.

Figure 6 gives a simplified description of how market coupling works between two markets. It must be remembered that PTRs between the markets that have not been nominated against for energy flow are temporarily converted into FTR Options (as mentioned in Section 4.1.1 above).

Since there is no final process for determining the total cross-border capacities between Kosovo and Albania, KOSTT will allocate a necessary part of the available cross-border capacities in the organized market for market coupling purposes.

This separate part will be subject to regular review and may be changed after an assessment submitted by KOSTT and approved by ERO. ALPEX has the right to request that KOSTT initiate the evaluation for the revision of the allocated amount and after KOSTT's evaluation, then this revision can be submitted for approval to ERO.

How FTR Options work

An FTR Option is a form of transmission capacity right where the holder is paid the positive difference between the clearing price in one market and another. In the example in Figure 6, the initial clearing price in Market A is below that in Market B. An interconnector trader who has 1 MW of spare transmission capacity to flow energy from Market A to Market B now has 1 MW of FTR Options and will expect to be paid the difference in price between the clearing prices of the two markets for that 1 MW. If the interconnector trader had 1 MW of spare PTRs (converted to FTR Options) in the direction Market B to Market A they would receive nothing because the price in Market B is higher than in Market A. The FTR Options expire after the day ahead clearing and revert back to PTRs ready for the next day.

How Market Coupling works

In market coupling, where there is a price differential between markets, any spare capacity (FTR Options) can be utilised; this is progressively allocated from the low-priced market to the high-priced market. In Figure 6, this has the effect of increasing demand in Market A and so the clearing price in that market is raised. At the same time, the supply of energy offers in Market B is increased (energy is being offered from Market A), which reduces the clearing price in Market B.

The process of transfer continues until either:

- there are no more spare transmission rights to be utilised; or
- the ramp limit imposed on changes in interconnector flow has been reached; or else
- that the prices have equalised between the markets.

The final price differential between the markets is what will be paid out to all FTR Options held by the relevant parties. Although this might be considered as a bad deal for the original PTR holders who will often get nothing, it must be remembered that, in not nominating energy flows against their PTRs, these PTRs are, by definition, surplus to their requirements and so, for that hour, they are worthless to them anyway.

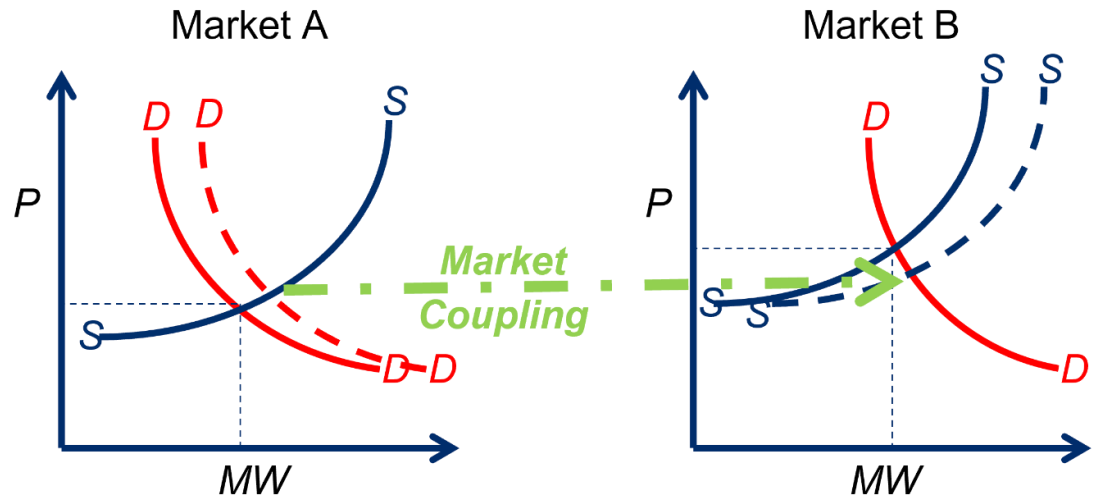

Figure 6: Market coupling

4.2.5 Cross-border trading

Different rules apply at various borders. The intention is that all borders will eventually be operated on the same basis. Currently, the TSOs either side of each border must agree how much transfer capacity is available in each direction. They do this by assessing scenarios of supply and demand patterns and how much must be reserved for contingency and then determine the residual available for trading. Eventually, this process will give way to a flow-based methodology that is likely to increase the amount that will be deemed safe to flow across borders.

In the following it should be noted that not all PTRs will necessarily be sold in any auction. Unsold PTRs can be offered in a subsequent shorter-term auction but will be treated in the same way as any other PTR against which no nomination has been received.

The differential operations are as follows:

Border with Albania

This will operate fully in line with the EU Target Model. The operational steps are:

1. Available Transfer Capacity (ATC) will be agreed annually by the TSOs on either side of the border.
2. The ATC is notified to SEE CAO who then runs auctions to allocate this capacity as PTRs in annual and monthly tranches.
3. Once PTRs are awarded and paid for, they may be traded with other interconnector traders notifying SEE CAO – trades can be short-term or permanent but the financial responsibility to SEE CAO remains with the original rights holder.

4. Early on D-1, interconnector traders with PTRs nominate energy flows against those rights to the TSOs (or MO) who notify SEE CAO of the validated nominations.
5. SEE CAO runs the use-it-or-sell-it arrangements and converts PTRs against which no nomination has been validated into FTR Options.
6. The FTR Options are made available to ALPEX in Albania and in Kosovo to use in market coupling when the PX day ahead auctions are held.
7. Spare FTR Options following market coupling are available for cross-border trades in the intraday market.
8. Residual FTR Options are then made available for short-term cross-border balancing and ancillary services to be utilised[2].
9. FTR Options revert back to the PTR holders ready for the next day's trading and nominations.

Borders with Montenegro and North Macedonia

These borders will operate as follows:

1. Same as for the Albanian border.
2. Same as for the Albanian border.
3. Same as for the Albanian border.
4. Same as for the Albanian border.
5. SEE CAO applies use-it-or-sell-it terms and temporarily removes the surplus PTRs.
6. SEE CAO conducts day ahead auctions of the spare PTRs and allocates these to successful bidders as daily PTRs.
7. Holders of daily PTRs nominate energy flows against the temporary capacity registered to them.
8. Daily PTRs revert back to the original long-term PTR holders.

Border with Serbia

There is currently no cross-border flow for this border. KOSTT is in negotiation with EMS of Serbia to agree rules for cross-border trading. EMS is not a member of SEE CAO and so KOSTT is endeavouring to replicate as many of SEE CAO's procedures as possible within the agreement. For KOSTT, the most important outcome will be that some form of ATC determination can be agreed and that capacity can

[2] Kosovo has made a long-term ancillary services contract with an Albanian hydroelectric plant; this contract will already have been allocated PTRs, which will not be available for market coupling.

be allocated for nominated flows at the day-ahead stage at least. Depending on the agreement reached with Serbia, the allocation for this border will be realized.

4.2.6 Unintended Exchange

In the ENTSO-E Central Europe synchronous area, each TSO is responsible for balancing their own control area. Given that balancing is based on forecast information, some Unintended Exchange (UE) is inevitable. In line with KOSTTs remit to extend cooperation with pan-European developments, Kosovo participates in the new methodology for dealing with UE. This involves financial restitution for the cross-border imbalances.

The process adopted is for all TSOs in the synchronous area and administered by Coordinated Centres.

The net revenues from UE are included in the TSO's balancing account and the charges are made to or by trading parties in settlement of that account.

4.2.7 Ancillary services

Types of ancillary service

Ancillary services ensure that the quality of electricity supply is maintained. There are several types, not all of which are directly covered by the Market Design. The services are as follows:

- **Covered by the Market Design and the Market Rules**:
  - **Frequency Containment Reserve (FCR)**. This covers for small deviations in frequency happening on a second-by-second basis and is a service addressed by automated governor control on suitable generating units. Because of the difficulty of distinguishing between within-control area and cross-border imbalances, KOSTT does not procure this service directly but includes it within settlement of UE (see Section 4.2.6 above). FCR activations could last for up to 30 seconds.
  - **Frequency Restoration Reserve (FRR)**. This can be automatic (aFRR) or manually activated (mFRR). FRR is intended to bring frequency back within the target range following a deviation outside that range.
  - **Replacement Reserve (RR)**. In common with many systems, Kosovo does not explicitly procure RR. It currently relies instead on the balancing market and cross-border providers. As the name suggests RR is used to release FRR to be available in case of a new frequency deviation.
- **Not part of the Market Design and the Market Rules**:
  - **Reactive Power Support**. In order to ensure voltage stability, specific units are required to provide leading or lagging support. The service is location-specific and so is not part of the Market Design. Currently, it is provided from demand sites with reactive compensation devices fitted.

- **Black Start**. KOSTT is tasked under the Grid Code to develop a restoration plan in the event of a total loss of power on the grid. This plan would need to rely on generators that can start up without support from the grid. There are no Black Start ancillary service contracts at present due to a lack of sufficient generation with self-starting capability.

Ancillary service contracting

KOSTT has standard contracts for the procurement of ancillary services. If there are enough BSPs capable of providing the required services, KOSTT will initiate annual auctions for procurement.

KOSTT has the option to bilaterally contract with providers using a standardised contract. Because Albania is within the same control block with Kosovo, its contract for FRR with an Albanian TSO is within the ENTSO-E rules.

A typical ancillary services contract will set two prices:

- An **Availability Fee** paid per MW made available in any hour – this covers the opportunity cost of holding that MW available rather than offering it in the day ahead or intraday markets.
- A **Utilisation Fee** paid per MWh utilised that covers the variable costs of the providing generator if it is called on to deliver or absorb energy.

Battery energy storage systems

Kosovo is being considered by the United States Millennium Challenge Corporation Kosovo Compact for grants for the installation of BESS units, which will provide FRR and other services including energy arbitrage.

Kosovo does not have a specific licence for a storage device but, under the Market Design, they will be treated as generators for the purposes of accounting and transmission charging.

An electricity storage device operates by purchasing energy in the wholesale markets when prices are cheap and selling it back – including through ancillary service contracts – when prices are higher.

These BESS devices will provide some of the flexibility that the current Kosovo electricity system lacks.

4.3 Promotion of renewables

Under legislation in force, KOSTT MO was allocated the task of making PPAs with approved renewable energy generators and operating a Renewable Energy Fund for purchasing their energy. The MO would calculate its costs for this operation and would allocate the energy to suppliers in proportion (covering part of its costs) and would charge the rest of its costs through a levy on suppliers in proportion to their actual sales in in the charging period.

4.3.1 Administration of renewable sources

Investments in renewable resources are made through auctions and authorisation. The Ministry will organize auctions for producers of renewable resources and will award the right to contracts at guaranteed prices for specified periods of time, while ERO shall license the same, as well as issue

authorizations to applicants who do not participate in auctions. The concluded contracts will be with REO, which could remain as part of the KOSTT J.S.C. The REO will act as BRP for the contracted generators.

4.3.2 Contracting from renewable generators

The Law allows for different sorts of contract that will all be with the REO:

- **Legacy Contracts**. These will be for existing RES-E generators with existing PPAs. The terms of the PPA will remain unless there is mutual agreement to convert the contract to a new form. The generator is paid a guaranteed price for the energy delivered and is charged for imbalances based on a specific formula. The generator can terminate the contract and sell its energy on the wholesale markets but will cease to receive the guaranteed price.
- **Direct contracts**. Generators can contract at a guaranteed price for newly installed capacity if agreed by the Government. The contract can be for all or for part of the generator's output – the formula for allocating the share of energy to be offered to the REO will be determined in the PPA. The generators will be responsible for marketing all energy outside the contract. The generator will be responsible for nominating the hourly volumes for the day ahead and will face specific balancing costs.
- **Auctioned contracts**. This is likely to be the preferred way of contracting with generators. The offers with the lowest cost to customers will be awarded contracts in two parts:
    - **Market price** – by reference to the day ahead market clearing price for all energy nominated by the generator.
    - **CfD** – the metered energy will be paid for at the difference between the contract price and the market price; if the contract price is above the market price, the difference is paid to the generator but if below the market price then the generator pays back the difference to the REO.

Auctions can be for all or part of the capacity of the plant – the formula for allocating the share of energy to be offered to the REO will be determined in the PPA.

All but legacy contracts can additionally be in two forms:

- **REO-marketed**. The energy under the contract is delivered to the REO who then sells the energy on.
- **Self-marketed**. The energy volume is notified to the REO as a physical nomination but the contractual nomination is to a third party (which could be the Power Exchange but is likely to be a supplier or even an interconnector trader).

4.3.3 Renewable generator balancing

There are two forms of balancing incentive:

- **For legacy contracts**. The generator pays 25% of the imbalance price for each MWh of deviation from the position set out in its physical nomination. This is regardless of whether the imbalance is positive or negative. The REO is responsible for any other imbalances.
- **For self-marketed contracts**. The generator is responsible for all imbalances and the REO pays (or is paid) nothing with respect to those volumes.

4.3.4 Sale of renewable energy

For all energy marketed by the REO (including from legacy contracts) the method of sale will be determined by the REO's capabilities in law or in practice.

The options are:

- **Allocation to suppliers**. Energy purchased by the REO will be allocated to suppliers in proportion to their forecast share of sales to final customers in a year (with the forecast informed by shares in the preceding year but adjusted for the impact of suppliers leaving or joining the market). This will apply if the REO cannot sell the energy in any other way.
- **Sale through the Power Exchange**. The REO can offer the energy at zero price in the Power Exchange and will take the day ahead clearing price.
- **Sale by bilateral contract**. If the REO reasonably believes that it can get a better long-term average price for the energy sold through bilateral contracts then, it can sell some or all of the energy in this way. The REO is charged with getting the best achievable price for the renewable energy it sells.

4.3.5 Recovery of costs

The REO is a not for profit operation, which operates the Renewable Energy Fund to be cash neutral and will create a Renewable Energy Levy to cover any shortfall in its cost recovery as well as to cover its reasonable operating costs, which must be approved by the Regulator. The main costs will be for the purchase of energy from RES-E generators under contract as well as imbalance costs and CfD costs. As the levy will be set a year ahead, there will also be an over- or under-recovery element for surpluses or costs from the previous year.

The levy will be charged to suppliers to final customers in proportion to their share of metered energy of those final customers in each imbalance settlement period.

5 The Market Rules – Implementation of the Market Design

5.1 Introduction

This is a brief introduction to the Market Rules. They implement the Target Model and are integral to the Market Design. The Market Rules document details a set of processes and obligations on parties. As such, the document is devised as a form of multi-party contract that participants must sign through a standard Accession Agreement. As with other contracts, some parts of the Rules bind the

participants after they have terminated their participation, things like an obligation to pay money owed.

The Market Rules are the responsibility of the MO as specified in Article 23, paragraph 7 of the Law on Electricity (Law No.05/L-085).

The Market Rules core document is divided into four parts entitled:

1. Preliminary Clauses
2. System Operation
3. Settlement
4. Governance.

These are described below.

5.2 Part I: Preliminary Clauses

This part sets out the Building Blocks of the market:

1. **Objectives and scope**

   The objectives are specified in the MO licence and are listed in Section 1.4 above.

   The scope of the rules is anything parties must do to fulfil the objectives and encompass everything detailed in the rules.

   This Section 1 of the Market Rules also includes legal conventions used and the many defined terms needed to implement such technical rules.

2. **Parties and accounts**

   Parties and responsibilities are as described in Section 2.1 above. A party may have more than one type of participation function.

   The MO keeps track of what trading parties do through their registered accounts. An account will register the volume of energy being transferred into or out of that account and the financial implications of that energy transfer in terms of net imbalance and other financial revenues or costs incurred as a consequence.

   A trading party can have an injection account and/or an offtake account. The DSO will also have an account for recording trades to cover distribution network losses for which it is responsible. The TSO has two accounts: one is for expenditures such as for transmission network losses for which it is financially responsible and the other is for balancing costs, which it recovers from trading parties.

3. **Accession and discontinuance**

   There is an administrative process for parties to accede to and be bound by the Market Rules involving determining participation functions applicable and registration of physical units

(generating units, final customer meters, etc.). The MO signs the Accession Agreement with the acceding party on behalf of all other signatories. Registrations must be kept up to date.

There are also processes for trading parties to become a BRP or to join a balancing group led by another BRP. The processes allow parties to leave a BRP and become a BRP in their own right or else to join another balancing group. This is a requirement under the law; a party must be a BRP or member of a balancing group at all times.

Parties may exit the market voluntarily or may be expelled for breach. The commonest reason for expulsion in most markets is insolvency. Expulsion is a major issue and so detailed processes are required to ensure it is fair and proportionate.

4. **Operational communications**

This is a short requirement scoping obligations on parties to install appropriate equipment to communicate with the MO (this is separate to systems for communication with the TSO).

5. **Metering requirements**

This section covers:

- The creation of the Meter Administration Agent (MAA) residing within the MO, which runs a metering database of meter installations and meter readings;
- The definition, standards and other meter data and the registration with MAA;
- The processes for meter readings and submission to the MAA.

6. **Change of supplier**

This section covers:

- Change of supplier communications between the old and new supplier for successful change of suppliers
- Registering of meter to the new supplier
- Bulk change of supplier
- Multiple suppliers at a meter and meter allocation agreements.

7. **Interconnector capacity allocation and trading**

The processes are described in Section 4.2.5 above. This section deals only with the allocation of PTRs and not with interconnector nominations (Section 10 of the Market Rules)

8. **Financial Guarantee**

This is an important element in maintaining solvency of the balancing market and of the TSO and the MO. The primary purpose of the requirement is to ensure that other trading parties are not forced to pay out extra due to the defaulting of any other trading party.

This section of the Market Rules is supported by a market rules procedure document.

There are processes for calculating the minimum level of security cover that a trading party must lodge with the MO as well as processes for how and in what form security cover instruments (cash or guarantees from suitable financial institutions) can be lodged with the MO.

There are processes for monitoring whether the level of posted security cover remains adequate. Failure to maintain sufficient security cover is a material breach of the Market Rules.

5.3 Part II: System Operation

This part of the rules is the core set of processes for how all market transactions are performed and recorded. It covers the following:

9. **Day ahead forecasting**

   This a short section detailing how the TSO will make and publish forecasts of hourly demand for the day ahead. Because the TSO has access to multiple information sources from the market as well as using external sources such as weather forecast data, the resulting forecast can be expected to be the most accurate available. By publishing this for all trading parties, new entrants are not disadvantaged relative to the dominant incumbent and can thereby reduce their cost of accurate contracting to balance.

10. **Interconnector nominations**

    The processes for interconnector nominations are described in Section 4.2.5 above. This section of the Market Rules also describes the market coupling (see Section 4.2.4 above).

11. **Nominations, bids and offers**

    Physical and contractual nominations are described in Section 4.2.2 above. The contractual nominations through a PX are set out in Section 4.2.3 above. The rules cover both initial nominations and the later intraday nominations.

    This section also describes details of matching requirements between physical nominations and contractual nominations submitted by a trading party.

    Also, in this section of the Market Rules are the processes for submission of bids and offers. This is done at day ahead gate closure and involves the BSP submitting the price in EUR/MWh at which it would be willing to increase output if so instructed by the TSO and the price it would be willing to pay to reduce output if so instructed by the TSO. The BSP does not need to reserve capacity for this and the bid or offer can only be accepted by the TSO if the BSP has capacity available for delivery at the time the acceptance is made.

    RES generating units must submit matching physical and contractual nominations to the REO. The REO, acting as the BRP for RES generators will sell on energy purchased either through the PX or through bilateral contracts (if that is advantageous) and will make appropriate contractual nominations to that effect. In the short-term, the REO may be forced to allocate the energy to suppliers in proportion to their final customers assessed annual offtake.

Renewable generators may make renominations although those with what is known as legacy contracts cannot make renominations less than three hours before gate closure.

12. Balancing market

This section deals with the processes of real-time acceptances of bids and offers by the TSO. The context of the balancing market is briefly summarised in Section 4.1.1 above (*see under the heading Real time* markets). The Market Rules are more detailed:

- BSP trading parties must submit dynamic dispatch parameters for each generating unit, which give precise limits to what that unit is capable of in terms of response to a redispatch instruction (such as how quickly it can ramp up or down). The TSO cannot instruct a unit to operate beyond its limits.
- The TSO otherwise has discretion to instruct a change in output from a balancing unit by issuing an acceptance of a bid or an offer. The TSO will use these instructions to seek physical balance of the system at least cost. These instructions cannot use capacity that has been reserved to provide an ancillary service (an instruction to capacity contracted for ancillary service will be issued under the ancillary services contract).
- A bid acceptance, unless overridden by a later instruction from the TSO will lead to the generator effectively buying the instructed energy from the TSO at the bid price. An offer acceptance (again, unless the instruction is overridden) will see the generator selling the energy to the TSO at the offer price. The TSO will receive money from a bid acceptance or pay money for an offer acceptance through its balancing account. It should be noted that bid and offer acceptances can also be made from demand side participants.
- Bid and offer acceptance will normally be includable in the calculation of the imbalance price but certain acceptances may be tagged and excluded from imbalance price calculation. This will be because the acceptance was made to relieve a transmission constraint and not to address an energy imbalance on the system.
- Where there is curtailment of delivery to final customers, a deemed acceptance can be made as if the trading party had offered the curtailment. This can happen if there is not enough energy available through submitted offers or else a transmission constraint has occurred. The price of a deemed offer acceptance will be high regulated price designed to reasonably compensate the final customer for the supply interruption.

13. Ancillary services, losses and unintended exchange

This is a mixed bag of activities united by the issue of the TSO's obligation to procure and manage the service.

The TSO shall procure the transmission losses at the lowest cost. This may involve auctions operated by the TSO, bilateral contracts using a standard contract form or may be procured

through the PX. The transmission losses contract, where used may include additional terms for payment form including reservation fees as well as payments for the energy and these costs must be accounted for. The cost of losses is not passed through to the market directly but is part of regulated system operator charges.

Finally, this section of the Market Rules deals with the treatment of UE, which is described in Section 4.2.6 above.

5.4 Part III: Final Settlement

This section describes the process needed for calculation and payments for settlement of imbalances and the various system operator services utilised. It covers:

14. **Activation of bids for sale and purchase**

    This section describes how the delivered volume of a bid or offer acceptance is calculated for an imbalance settlement period and how the resulting payments are then calculated and applied. The net payments are accumulated in the TSO balancing account. The section also describes the tagging process that is described at the end of Section 4.1.2 above; tagged bids and offers are excluded from calculation of the imbalance price.

15. **Imbalance price calculation**

    In Section 4.1.2 above the principles of imbalance price calculation are set out. This section of the Market Rules sets out the processes and the algebra of the calculation including the methodology for exclusion of tagged bids and offers from the calculation.

16. **Settlement calculations**

    The method of the calculations is given in this section of the Market Rules. The underlying requirement for settlement is that the metered energy in any imbalance settlement period should equal the contracted energy. The incentive to be in balance is described in Section 4.1.3 above, which also describes some of the reasons why this will not always be achieved. This Section 16 of the Market Rules describes:

    - How data is summed on contracts and on meters to achieve a BRP's net balance position;
    - How metering data for the bulk of customers is estimated because they do not have metered information for each individual imbalance settlement period;
    - The method for the calculation of a BRP's net imbalance;
    - The method of RES generator payments and imbalance as set out in Section 4.3.3;
    - How transmission losses are calculated and distribution losses are estimated;
    - Payments following adjustments to meter readings;

- How payments for non-delivery on bids and offers are calculated to ensure that the generator (or demand side participant) cannot be advantaged by such failure to perform as contracted
- Specific rules in the unlikely event that the PX fails to correctly nominate the contracts (a PX should always be in balance on all trades it makes as the intermediary buying and selling energy on its exchange).

17. Charges

The MO's primary role is to charge parties for imbalances. However, it acts as an agent for the TSO in administering transmission charges, which are at regulated rates set by ERO. Charges are calculated at different tariff levels depending on whether the system user is a generator, a distributed generator or a supplier. Not all charges are applicable and so, while the market rules provide methodologies for their calculation, some tariff levels may be set at zero. The section therefore covers how the charges are calculated for each imbalance settlement period in the areas of:

- **Transmission Network Charge**, which is applied based on each supplier's offtake at the time of peak demand and has provision to apply to generators on their peak generation.
- **System Operator Charge**, which is a charge per MWh of throughput (whether of energy injected into the transmission system or offtaken from it).
- **MO Charge**, which is charged per MWh of throughput (whether of energy injected into the transmission system or offtaken from it).
- **Cashflow Reallocation**, which is designed to ensure that KOSTT is cash neutral by charging for any shortfall in the TSO balancing account and returning any surpluses. These payments are for each MWh injected into or offtaken from the system.

18. Invoicing and payments

This section of the Market Rules sets out MO invoicing on its own behalf and also for the TSO and REO. It covers:

- The processes including preliminary Invoices (that allow trading parties to validate meter reading data);
- The overall monthly invoice and payment cycle;
- Details of invoice documents and the information to be provided in each line item;
- The charge types that may be invoiced;
- The Invoice Query.

5.5 Part IV: Governance

19. The Market Rules procedures

These procedures provide relevant details for processes or submission forms and can therefore be considered part of the Market Rules. A market rules procedure will be developed by the MO and must be approved by ERO.

20. Modifications to the Market Rules

This section sets out the processes whereby the Market Rules can be modified. The MO is responsible for reviewing the rules and proposing improvements but all stakeholders may propose changes. The process involves analysis and investigation of the proposed changes and reporting these findings, along with the proposed changes to ERO. No modification can take effect until ERO has approved it.

21. General provisions

This section covers different additional provisions for effective and orderly operation of the Market Rules. The subsections cover:

- **Access to the Market Rules** – a public document which is open to all;
- **Notices** – acceptable forms for official notices to or from the MO;
- **Commencement date** – when ERO has approved the Rules;
- **Force majeure** – temporary suspension of certain obligations for defined events beyond the control of a party;
- **Emergency conditions** – dealing with the financial consequences for a trading party in the event that the TSO makes instructions outside the terms of the Market Rules during a declared system emergency;
- **Assignment** – not allowed; a trading party cannot assign away its rights and obligations;
- **Audit** – of the operations described in the Market Rules;
- **Confidentiality;**
- **Liability;**
- **Currency** – the Euro;
- **Jurisdiction** – the laws and courts of Kosovo;
- **Dispute resolution** – use of the Rule in force on the Resolution of Complaints and Disputes in the Energy Sector with the courts as a backstop.

Transitional provisions

The legal provisions that deal with the issues related to the Storage Operator, the storage systems or the TSO Storage Unit and the issues related to their rights and obligations defined in this act, will not apply until they are approved by the Law on Energy and The Law on Electricity by the Assembly of the Republic of Kosovo, and the same must be established according to the approved laws.

Withdrawal

With the entry into force of the Kosovo Electricity Market Model, according to the ERO decision, the preliminary document "Kosovo Electricity Market Design", approved by the ERO in 2013, is repealed.

Final provision

1. The procedures for modification or changing this act will be the same as for its approval.

2. This act is published in the official languages of the Republic of Kosovo. In case of inconsistencies between the versions, the version in the Albanian language will prevail.

3. This act enters into force after approval by decision of the ERO Board.

Appendix: Glossary

Term	Abbreviation	Description
Agency for the Cooperation of Energy Regulators	ACER	The EU regulators body setting standards for market surveillance among other responsibilities
Albanian Power Exchange	ALPEX	An Albanian company in which KOSTT holds shares that provides power exchanges in Kosovo and Albania
Ancillary service	AS	A service provided to the TSO by BSPs for ensuring system operation stability, notably in the maintenance of frequency within safe levels
Available Transfer Capacity	ATC	The capacity available for trading on a cross-border interconnector
Balance Responsible Party	BRP	A party registering on its behalf and/or behalf of other trading parties
Balancing Services Provider	BSP	A party offering energy services to the TSO such as bids and offers in the balancing market or ancillary services
Battery Energy Storage System	BESS	An electricity storage device primarily used to provide ancillary services
Contract for Difference	CfD	A financial contract that uses a fixed price for financial settlement between the parties that if the market price (the reference price) is above the agreed fixed price, the seller pays the difference between market price and fixed price to the buyer and if the market price is below the fixed price, the buyer pays the difference to the seller
Day ahead gate closure		The time on the day ahead when all initial nominations must have been submitted to the MO
Day ahead market		A day ahead crossover auction market for electricity that is operated by ALPEX
Distribution System Operator	DSO	Natural or legal person responsible for the operation, maintenance and development of the distribution system
Elektromreža Srbije	EMS	The Serbian TSO

Energy Community Secretariat	ECS	It is the institution responsible for supporting the daily activities of the Energy Community and monitoring the implementation of the Energy Community Treaty
Energy Community Treaty	ECT	A treaty that Kosovo has signed between West Balkan countries (also known as Contracting Parties) and the EU for implementation by the Contracting Parties of EU Directives in the energy sphere; Georgia, Moldova and Ukraine are also Contracting Parties
European Network of Transmission System Operators for electricity	ENTSO-E	An organisation of TSOs setting rules for the stable operation of synchronous areas
Energy Regulatory Office	ERO	The independent Regulator of the electricity sector in Kosovo
European Union	EU	It is a political and economic union of member states in Europe
EU Target Model		A design for electrical energy markets used throughout the EU but which allows certain design variations
Frequency Control Reserves	FCR	A type of ancillary service as described in Section 4.2.7 above
Frequency Restoration Reserve	FRR	A type of ancillary service as described in Section 4.2.7 above
Financial Transmission Rights	FTR	A form of interconnector capacity right as described in Section 4.2.4 above
Gate closure		The time one hour before real time when all final nominations must have been submitted
Intraday market		A market where transactions are made for the purchase and sale of electricity with the obligation of physical delivery, operated by ALPEX between the gate closure of the day ahead and one hour before the real time for each period of final imbalance settlement
Kosovo Energy Distribution Services	KEDS	The electricity distribution system company of Kosovo

Kosovo Energy Corporation	KEK	The main publicly owned generating company in Kosovo
Kosovo Company for Supply of Energy	KESCO	The dominant supplier of electricity
Kosovo Electricity Market Design	KEMD	This document
Market coupling		A means of reducing price differentials between electrical energy markets as is explained in Section 4.2.4 above
Market Operator	MO	KOSTT in its role implementing balancing and settlement of electricity
Megawatt	MW	A measurement of power
Megawatt hour	MWh	A measurement of energy
Meter Administration Agent	MAA	The party (part of the MO) that runs the Meter Register and change of supply process and all processes related to metering information
Meter Register		The database of information about a meter including meter location, access details and meter readings
Ministry of Economy	MoE	The Ministry responsible for, among other things, the electricity industry
Operator Sistemi, Transmisioni dhe Tregu	KOSTT	The TSO and MO of Kosovo
Over the counter market	OTC	A bilateral contract market where forward contracts are made between trading parties that may be facilitated by brokers but can be arranged directly between the parties
Physical Transmission Right	PTR	Interconnector capacity purchased at a border by an interconnector trader permitting energy flow in a specified direction
Power Exchange	PX	An organised electricity market running day ahead energy auctions and an intraday energy trading platform
Power Purchase Agreement	PPA	A contract for the sale and purchase of electricity

Public Service Obligation	PSO	A legal obligation that ERO can place on specific electricity enterprises to support a public benefit
Regulation on wholesale energy market integrity and transparency	REMIT	An EU regulation governing market surveillance and market abuse also transposed in Kosovo
Renewable Energy Fund		A statutory fund used for support of RES generators and collection of any surplus costs from suppliers
Renewable Energy Operator	REO	An entity that operates the Renewable Energy Fund and contracts with all supported RES generators, acting as their BRP
Renewable Energy Source	RES	A source of renewable energy used for generation
Replacement Reserve	RR	A type of ancillary service as described in Section 4.2.7 above
Southeast Europe Coordinated Auction Office	SEE CAO	The pan-regional entity that runs auctions for PTRs
System Buy Price	SBP	The imbalance settlement price calculated for when the system is short of energy
System Sell Price	SSP	The imbalance settlement price calculated for when the system has too much energy
Trading party		A party to the Market Rules who trades in electricity in Kosovo
Transmission System Operator	TSO	An operator of a transmission system control area, responsible for managing physical energy flows in that system and contributing to stable operation of the synchronous system in which the transmission system is connected
Wholesale Customer		Natural or legal person who buys energy for resale purposes
Unintended Exchange	UE	Unintended cross-border flows

End of the Document