Republika e Kosovës
Republika Kosova - Republic of Kosovo

ZYRA E RREGULLATORIT PËR ENERGJI
REGULATORNI URED ZA ENERGIJU
ENERGY REGULATORY OFFICE

EVALUATION OF COMPETITION IN THE ELECTRICITY SECTOR IN KOSOVO 2020 - 2021

Prishtina, March 2022

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ACRONYMS

ALPEX	Albanian Power Exchange
CR	Concentration Ratio
EnCT	Energy Community Treaty
ERO	Energy Regulatory Office
IPP	Independent Power Producer
DSO	Distribution System Operator
HHI	Herfindahl-Hirschman Index
HPP	Hydro Power Plant
HUPEX	Hungarian Electricity Exchange
KEDS	Kosovo Electricity Distribution and Services
KEK	Kosovo Energy Corporation
KESCO	Kosovo Electricity Supply Company
KOSTT	Kosovo Transmission, System and Market Operator
kV	Kilovolt
MW	Megawatt
PSI	Pivotal Supplier Indicator
RSI	Residual Supply Index
SoLR	Supplier of Last Resort
TSO	Transmission System Operator
USAID	United States Agency for International Development
USS	Universal Service Supply
VPP	Virtual Power Plant
WP	Wind Power

EXECUTIVE SUMMARY

This report provides an analysis of the wholesale and retail electricity market competition in Kosovo during 2020 and 2021. It is based on market structure analysis and market concentration indexes such as Market Share, HHI, Concentration Ratio (CRn), Pivotal Supplier Indicator (PSI) and Residual Supplier Index (RSI).

The Regulator's duties and functions are defined by the Law on Energy Regulator No. 05/L-084 which include, among other things, the creation and efficient operation of competitive energy markets. Moreover, according to the Law on Electricity no. 05 /L-085, Article 26, the Regulator, in consultation with the Kosovo Competition Authority and State Aid Office, shall at least once in two (2) years conduct investigations related to the functioning of the electricity market.

Wholesale electricity market

The wholesale electricity market is currently structured around bilateral contracts with no organized day-ahead and intra-day markets. In Kosovo, KEK maintained an almost consistent market share of 95-97% over the years. The HHI index for the wholesale market was 9371 in 2020 and 9070 in 2021, representing a highly concentrated market. The electricity produced by KEK is sold with priority to the Universal Service Provider (75.7% of net electricity produced by KEK in 2021). KEK's residual electricity is sold to cover grid losses at the transmission (3.0% in 2021) and distribution (9.4% in 2021) levels and to export markets (11.8% in 2021).

In comparison to Peak Load, Kosovo's Nominal Transmission Capacities are 3.71 times higher, and in comparison, to the installed power of generators is 3.61 times higher. Thus, Kosovo's entire peak demand could theoretically be covered by imports, which limits the extent of market power of local generation companies to the price of imported electricity.

The Pivotal Supplier Indicator (PSI) indicates that during all hours KEK is considered as pivotal (needed to substitute imports), whereas HPP Ujmani is considered as pivotal only during 50% of the hours in 2020 and 61% of the hours in 2021. The Residual Supplier Index (RSI) indicates that KEK has a high degree of market power during all hours of the year. HPP Ujmani can exercise limited market power due to limited production.

A joint market with Albania, in which all electricity is traded through a joint power exchange, would reduce wholesale market concentration in Kosovo and Albania.

Retail electricity market

Currently there are 8 licensed suppliers in Kosovo, with only one being active (KESCO). In 2020 and 2021, KESCO functioned as the Public Service Supplier, Supplier of Last Resort and as the sole active supplier in the deregulated market. Thus, KESCO has a 100% share of the retail electricity market in Kosovo, for household and industrial consumers, representing a HHI index of 10,000. No customers have used the right of switching their supplier in either segment of the retail market.

For the period of review, based on the analyzed indicators both the wholesale and retail electricity markets show a lack competition and a high market concentration.

1. INTRODUCTION

Kosovo's electricity market has undergone several reforms during the past two decades. The electricity market shifted from a state-owned vertically integrated market, with a vertically integrated company providing generation, transmission, distribution, and supply of electricity. This process saw the establishment of the Energy Regulatory Office, and segmentation of the electricity market.

In 2016, the Law on Energy, Law on Electricity and Law on the Energy Regulator, were adopted. Moreover, the secondary legislation has also been harmonized to enable the energy market to function in accordance with the requirements of the Energy Community Treaty, as well as Directive No. 2009/72 /EC, regarding the common rules for the internal electricity market and Regulation No. 714/2009/EC on the criteria for access to network for cross-border electricity services.

ERO aims to introduce competition in market segments which are not natural monopolies, such as in generation and supply of electricity. A competitive market ensures efficient allocation of recourses among market players. Due to Kosovo's electricity market nature and history, introducing competition at any level is difficult.

The evaluation provides an in-depth analysis of the functioning of the wholesale and retail electricity market in Kosovo. Moreover, the report assesses the current level of competition at generation and supply segments in Kosovo and compares it to previous years and other countries.

The assessment of competition is based on established indicators such as: Market Share, Concentration Ratios, HHI index, Pivotal Supplier Indicator, and Residual Supply Index.

Data used in this report focuses on market competition in 2020 and 2021. It also uses previous historical data.

The report concludes with the evaluation of whether there is effective competition in the wholesale and retail electricity market. Moreover, market characteristics which may hinder effective competition are presented in this report and are analyzed in depth in the report on "Barriers to Retail Market Liberalization in Kosovo."

2. LEGAL BASIS TOWARDS EVALUATING MARKET COMPETITION

The ERO - is an independent agency, legally and functionally separated from any other natural or legal person. The duties and functions of the ERO are defined in the Law on Energy Regulator No. 05/L-084, which amongst other include: the creation and efficient functioning of competitive energy markets, the establishment and functioning of the efficient, transparent and non-discriminatory energy market; determination of criteria and conditions as well as issuing licenses for carrying out activities in the energy sector; defining criteria and conditions for granting authorizations for construction of new capacities; market monitoring and improvement of security of energy supply; setting tariffs for energy activities in a reasonable manner based on the tariff methodology; monitoring and preventing the establishment of a dominant position and non-competitive practices by energy enterprises, as well as resolving complaints and disputes in the energy sector.

Article 15.1, sub-paragraph 1.2 of the Law on Energy Regulator among others, defines the responsibility for evaluating the functioning of the market and competition, which states: to meet its duties, the ERO shall have the authority and responsibility as follows:

> *"1.2. to foster the transparent and non-discriminatory functioning of energy markets based on free market principles for competitive activities and regulated activities;"*

One of the responsibilities of the ERO, in order to protect the customers who are entitled the universal service, is to charge the public service obligation to energy enterprises. In order to charge the energy enterprises with this obligation, the ERO must act in accordance with Article 51.1, sub-paragraph 1.3 of the Law on the Energy Regulator, which states, inter alia:

> *"1.3. regularly assesses the possible effects of the public service obligation on national and international competition in the energy markets and considers whether or not such obligations should be revised.*

Furthermore, and to ensure that customers benefit through the efficient functioning of their national market, the ERO according to Article 15.1, sub-paragraph 1.17, should:

> *"1.17. ensure that customers benefit through the efficient functioning of their national market, promoting effective competition and helping to ensure consumer protection;"*

Based on the rights envisaged by Article 24.1 of the law on Energy, the ERO implements measures aimed at preventing violations of the provisions of the Law on Energy No. 05/081, Articles 22 and 23, which relate to the prohibition of competition limitations, respectively prohibiting the abuse of a dominant position in the market.

Whereas, according to the Law on Electricity no. 05 /L-085, Article 26, among others, the following are defined:

> *"1. The Regulator, in consultation with the Kosovo Competition Authority and State Aid Office, shall at least once in two (2) years conduct investigations related to the functioning of the electricity market."*

> *"1. The Regulator may establish necessary and proportional public service obligations with the aim of stimulating effective competition and ensuring regular functioning of the electricity market. These measures may include programs for the provision in the market of certain amounts of electricity, according to which entities are obliged to sell or make available certain amounts of electricity or provide access to a part of their generation capacities to interested suppliers, for a certain period of time."*

Whereas the Law on Energy, respectively Article 24, defines the competencies of the ERO and Kosovo Competition Authority regarding competition, as follows:

> *"2. If the Regulator acquires reasonable evidence of an actual or suspected violation under the provisions of Article 22 and 23 of this Law by an energy enterprise, the Regulator shall provide such evidence to the Kosovo Competition Authority. The Kosovo Competition Authority shall initiate an investigation of the alleged violation and shall take whatever enforcement measures it deems necessary and appropriate to remedy or otherwise address such alleged violation as provided for by the Law on Competition."*

> *"3. Kosovo Competition Authority conducts an investigation – whether on information obtained from the Regulator or any other source, including on its own motion - of an alleged or potential violation by an energy enterprise of the Law on Competition according to the Article 22 or 23 of this Law, the Regulator shall, provide assistance to the Kosovo Competition Authority with the conduct of such investigation, and the assessment of the alleged violation."*

According to Article 15.7, sub-paragraph 7.3 of the law on Energy Regulator, it is ERO's duty to cooperate with Kosovo Competition Authority to ensure:

> *"7.3. that the competitive market is created and maintained, where possible, as well as to prevent and punish any anti-competitive conduct, in cooperation with the Kosovo Competition Authority."*

The ERO and the Kosovo Competition Authority on September 2020, as required with Article 24.1 of the law on Energy, signed a Memorandum of Understanding and agreed to define the cooperation and coordination of activities between two institutions related to monitoring competition in the energy market.

3. OVERVIEW OF ELECTRICITY MARKET IN KOSOVO

Energy reforms in Kosovo kicked off with the establishment of an independent Energy Regulatory Office (ERO) in 2004. The reforms were followed with the unbundling of the vertically integrated state-owned Kosovo Energy Corporation (KEK). KEK had overseen electricity production, transmission, distribution, and supply of electricity. In 2006, the unbundling process led to the creation of the Transmission System Operator (TSO), namely KOSTT which also serves as the Market Operator (MO). KOSTT and KEK remain publicly owned.

The unbundling process continued with privatization of KEKs Distribution and Supply services in 2013. Distribution and Supply went through legal unbundling in 2015 establishing the DSO (KEDS) and the incumbent supplier (KESCO). This process opened the way to the establishment of seven other suppliers.

Since 2017 generation prices in Kosovo are deregulated and are set through bilateral contracts, and in 2019 HPP Ujmani started offering their production through competitive procedures.

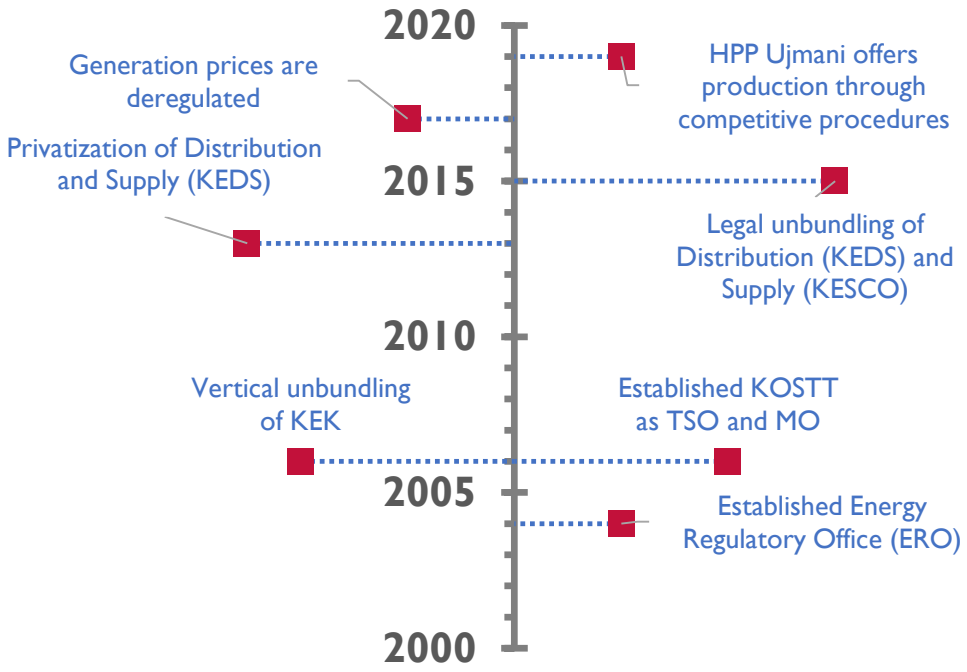

Figure 1. Timeline of electricity market reforms in Kosovo.

The wholesale electricity market is currently structured around bilateral contracts. Day-ahead and intra-day markets are not yet established in Kosovo. Electricity is imported from day-ahead or intra-day regional markets with bilateral contracts.

Energy generated by KEK is sold with priority to the Universal Service Supplier. During the process of unbundling and privatization, a Bulk Supply Agreement[1] was signed between the KEK and the incumbent KEDS (later legally unbundled to KEDS and KESCO). According to article 5.2. of this agreement,

[1] https://me.rks-gov.net/repository/docs/Bulk_Supply_Agreement.pdf

KEDS/KESCO can purchase electricity from KEK, for the purpose of the Universal Service Supply with priority. The remaining energy produced by KEK is sold to cover grid losses, at transmission (KOSTT) and distribution levels (KEDS), with prices negotiated between each party. Excess energy from KEK is traded in the market, according to the procedure for electricity trading[2].

Renewable Energy produced in Kosovo, is guaranteed dispatch with priority, and is compensated under Feed in Tariff Schemes (FiT) from all end users proportionally. Thus, the energy produced by renewable sources is not subject to procedures for trading electricity in the market.

According to Article 37 of the law on Electricity, the universal service is a right that can be enjoyed by all household and non-household customers that have an annual turnover of not more than ten (10) million euro, or not more than fifty (50) employees.

As per the Guideline on Liberalization of Electricity Market in Kosovo, ERO in April 2017[3] imposed the public service obligation to KESCO to supply with electricity the customers entitled with universal service, whilst for a transitory period under the universal service obligation are included also customers connected to 110 kV, 35 V and 10 kV.

As for the retail sector, in 2017 ERO issued the "Guideline on Liberalization of Electricity Market in Kosovo"[4]. Article 8 of this guideline set specific dates for the gradual price deregulation of customers – the transitory period. Customers connected at 220 kV were the first to enter the deregulated market, followed by customers at 110 kV (April 2017), and partial deregulation of customers connected at 35kV and 10kV (April 2018). Moreover, the guideline mentions that all final customers are entitled to supply at competitive market rates. ERO has also approved several rules to enable competition in the retail market, such as the Supplier Switching Rule[5], Rule on Determination of Revenues for Universal Service Supplier[6], Rule on Supplier of Last Resort[7].

A summary of planned schedules and postponements is shown in Table 1. The reason for postponements in 2017 and 2018 was attributed to the lack of competition in the market. The deadline of 31 March 2020 and 2021 were also postponed with a request to KESCO to continue supplying customers at 35kV and 10 kV under the Universal Supply Service. The justification for this postponement was the effect of the COVID pandemic to companies' finances.

The latest deadline (31 March 2021) was postponed indefinitely, without a decision from the board of ERO but with a request to KESCO, since at the time ERO did not have a functioning board mandated to make such a decision.

[2] KOSTT, Procedure for electricity trading, 2018
[3] ERO, Decision V_916_2017
[4] ERO, Guideline on Liberalization of Electricity Market in Kosovo, 2017
[5] ERO, Supplier Switching Rule, 2016
[6] ERO, Rule on Determination of Revenues for Universal Service Supplier (USS Pricing Rule), 2017
[7] ERO, Rule on Supplier of Last Resort, 2017

Table 1. Achieved and delayed deadlines on retail market liberalization. Green (deadline met), Red (deadline not met)

	Guide to electricity market liberalization in Kosovo (2017) [8]	V_916_2017[9]	Amendment of Guideline on Liberalization of Electricity Market in Kosovo (2018)[10]	Request to KESCO (2021)[11]
220 kV	January 2017			
110 kV	31 March 2017	31 March 2018		
35 kV	31 March 2018		31 March 2020	Indefinite
10 kV	31 March 2018		31 March 2021	Indefinite

3.1. INTERCONNECTION CAPACITIES

The EU has set interconnection targets for all member states of 10% in 2020 and 15% in 2030. In other words, member states should have cross-border interconnection capacities which allow at least 10% (15% in 2030) of the electricity produced by its power plants to be transported to neighboring countries. [12]

Kosovo has 400 kV interconnection capacities with all neighboring countries, and additional 220 kV interconnections with Albania and Serbia. Kosovo's interconnection capacities are presented in Table 2.

Table 2. Kosovo Interconnection capacities[13]

Borders	Voltage Level (kV)	Installed Capacity (MVA)	Nominal transmission capacity (MW)	Net Transfer Capacity (NTC) (MW)
Kosovo – Albania	400	1317	1185	600
	220	300	270	
Kosovo – Montenegro	400	1317	1185	400

[8] ERO, Guideline on Liberalization of Electricity Market in Kosovo, 2017
[9] ERO, Decision V_916_2017
[10] ERO, Guideline on Amendment of Guideline on Liberalization of Electricity Market in Kosovo, amended on 13th of June 2018 and amended on 30th of October 2018
[11] https://www.ero-ks.org/zrre/sq/zrre-kerkon-nga-kesco-te-vazhdoj-ofrimin-e-sherbimit-universal-edhe-konsumatoret-qe-ishte-parapare
[12] European Commission, Electricity interconnection targets
[13] Energy Community Secretariat, Electricity Interconnection Targets in the Energy Community Contracting Parties. 2021

Kosovo – Serbia	400	1317	1185	600
	220	300	270	
Kosovo – North Macedonia	400	1218	1096	400
	TOTAL	5769 MW	5192 MW	2000 MW

The peak load, total installed power, and the ratios between the nominal transmission capacities of interconnectors and peak load/installed power of generators in WB 6 are presented in Figure 2.

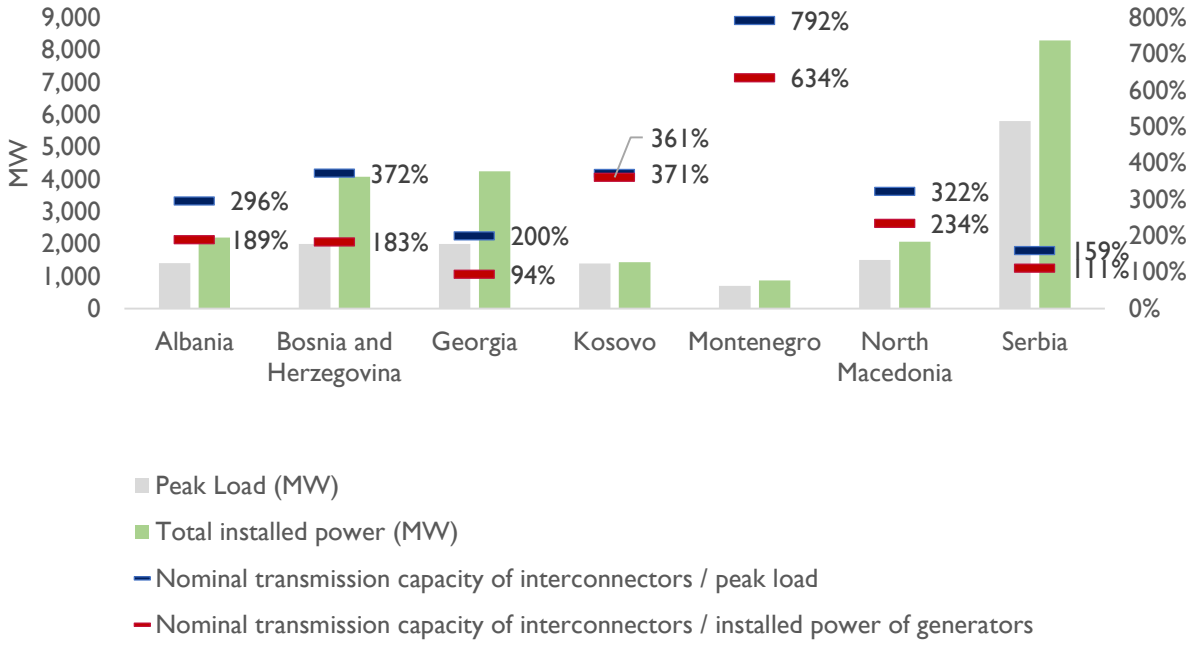

Figure 2. Peak load, installed power and the ratio between nominal transmission capacities of interconnectors and peak load/installed power of generators in WB 6 countries[14]

As seen in the figures, all WB 6 countries have considerable interconnection capacities with neighboring countries. In comparison to Peak Load (1,398 MW in 2021), Kosovo's Nominal Transmission Capacities are 3.71 times higher, and in comparison, to the installed power of generators is 3.61 times higher.

Kosovo's entire peak demand could theoretically be covered by imports, this limits the extent of market power of local generation companies to the price of imported energy.

[14] Energy Community Secretariat, Electricity Interconnection Targets in the Energy Community Contracting Parties. 2021

Suppliers in Kosovo have access to international wholesale markets such as HUPX, SEEPEX, EEX etc., through interconnections with neighboring countries and their interconnections with European countries (Croatia, Hungary, Greece, Italy, Bulgaria, and Romania).

4. APPROACH TO EVALUATING MARKET COMPETITION

There are several approaches to evaluate market competition in the electricity sector and to detect market power. Different approaches to market power detection are presented in Figure 3.

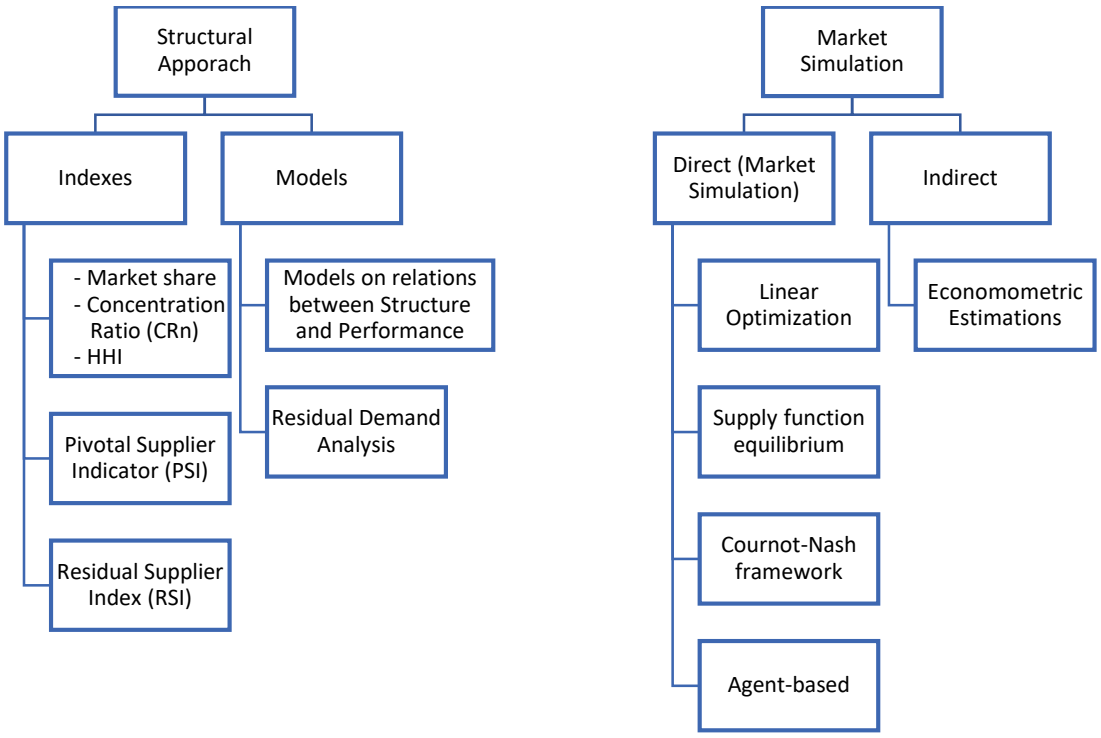

Figure 3. Market competition evaluation and market power detection approaches.[15]

Considering that Kosovo's wholesale market is based on bilateral contracts with limited liquidity as well as the lack of data on costs and bids, the evaluation of competition will be based on Structural Indexes. Residual Demand Analysis measures a company's incentive to exercise market power, since this analysis relies on liquid markets, with data on the price of bids and does not assist in measuring competition in the market, it will not be analyzed.

For the wholesale market the following Indexes will be analyzed:

- Market Share
- HHI
- Concentration Ratio (CRn)
- Pivotal Supplier Indicator (PSI)
- Residual Supplier Index (RSI)

Whereas, for the retail market the following Indexes will be analyzed:

- Market Share

[15] Pham, T., 2019. Market Power Issues in Liberalized Wholesale Electricity Markets: A Review of the Literature with a Look into the Future. Revue d'économie politique, 129(3), p.325.

- Concentration Ratio
- HHI

The granularity of data will be hourly and annual. Hourly data on generation and demand was provided by the Transmission System Operator (KOSTT). The number of suppliers and switching rates in the retail market will also be mentioned. All the indices are calculated ex-post.

The results will be compared to other similar studies in different jurisdictions/countries.

4.1. MARKET SHARE, CONCENTRATION RATIO AND HHI INDICES

Market share, Concentration Ratios and HHI indexes are the most simple and straight forward methods to evaluate competition in markets. The idea behind using these indices is that a higher concentrated market leads to less competition and an increased likeliness of participants with large market shares to exercise market power.

For these indices it is important to define the product and the geographical region.

In electricity wholesale markets, the product can include energy production, energy plus reserves, short-term capacity, long-term capacity.[16] For the purpose of this study we consider that the product is limited to energy production volumes.

The geographical region considered is Kosovo, and no significant congestion issues are assumed within the country's borders. Moreover, when analyzing the effect of Market Coupling with Albania towards competition in the wholesale market, Kosovo and Albania will be considered as a geographical region, assuming no significant congestion issues at transmission level.

To analyze the retail market, we consider the 2 different products: 1) number of retail customers served by a supplier and 2) volume of electricity served by a supplier. The customer base will be defined for households and industry separately.

The market share of a company is defined as the percentage of the market that is served by the company. In the case of the wholesale market, it is the ratio between the energy produced by the company and the total energy produced in the country. Whereas, for the retail market it is defined as the ratio between the number/energy of customers served and the total number/energy of retail customers. For example, a company producing 10 MWh/year of electricity in a market of 100 MWh/year, has a market share of 10%.

The Concentration Ratio is the combined market share of the largest *n* companies in the market.

$$CR_n = \sum_{i=1}^{n} MS_i$$

[16] Twomey, P. & Green, R. & Neuhoff, K. & Newbery, D. (2005): A Review of the Monitoring of Market Power the Possible Roles of TSOs in Monitoring for Market Power Issues in Congested Transmission Systems

Market share and the Concentration Ratio may be misleading in some cases. In the case of market share, a company with a 25% market share in a highly segmented market has a higher market power than a company with a 25% market share which is only the second or third largest company in the market.

A market with a Concentration Ratio of the 3 largest companies (CR_3) at 90% could mean that there are three equally large companies with a market share of 30% each, or a market where one company has a market share of 80%, the other two largest companies a market share of 5% each, and the rest of the market is segmented to smaller companies. In the second case, the market is more concentrated toward one company, which may exercise more market power.

To tackle this issue the Herfindahl-Hirschman Index (HHI) is calculated to evaluate market concentration. The HHI is calculated by squaring the market shares of all firms and summing the squares[17].

$$HHI = \sum_{i=1}^{n} (MS_i)^2$$

The values of the HHI index can reach up to 10,000, in cases where a single company controls 100% of the market. The higher the HHI index, the higher the market concentration. A HHI index close to 10,000 is indicative of a monopoly structure, whereas values close to 0 indicates perfect competition.

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While there are no set thresholds for HHI values, in general:

- HHI < 1,500 – indicative of a highly competitive market
- 1,500 ≤ HHI < 2,500 – indicative of a moderately concentrated market
- 2,500 ≤ HHI – indicative of a highly concentrated market[18]

A common critique to the HHI index for wholesale electricity markets is that it is a static index, which does not consider hourly demand and supply needs. A company may have a generation market share of 20%, however its supply pattern does not match the consumption pattern, and thus this company is a price taker. On the other hand, when the systems production capacities are close to the demand limit, a company can exercise market power and become a "pivotal supplier" even with low market shares. This is especially relevant during generation outages, high demand hours etc. To overcome these constrains the Pivotal Supplier Indicator (PSI) and the Residual Supply Index (RSI) are used.

[17] Rhoades, S. A. (1993). Herfindahl-Hirschman Index, The. Fed. Res. Bull., 79, 188.

[18] Beus, M., Pavić, I., Štritof, I., Capuder, T. and Pandžić, H., 2018. Electricity Market Design in Croatia within the European Electricity Market—Recommendations for Further Development. Energies, 11(2), p.346.

4.2. PIVOTAL SUPPLIER INDICATOR (PSI)

In electricity markets, during scarcities such as power generators down time, or in peak demand, even electricity generators with low market shares can exercise market power.

The Pivotal Supplier Indicator (PSI) incorporates demand in addition to supply, in order to measure potential market power of market participants. The PSI aims to show if, and how often a generator is considered necessary to cover demand. The PSI measures how often the capacity of a generator is larger than the surplus supply (the difference between total supply and demand). [19]

For this report, the PSI is limited to local generation, and does not include import capacities. This is because as shown in Chapter 3.1. Interconnection capacities" of this report, Kosovo has enough interconnection capacities to theoretically cover peak demand at all times through imports, thus market power of generators in Kosovo is limited to import prices.

In other words, the PSI in this case measures how often a generator is needed to ensure that all energy is produced locally and how often it can exercise market power to drive up costs, up to import prices. The PSI is calculated for each hour and is a binary index.

A generator is considered as pivotal, (PSI = 1) if in that time the demand exceeds the combined capacity of all other generators in the system.[20]

$$PSI_{i,t} = \begin{cases} 1, & if\ D_t \geq \sum_{i \neq j} C_{j,t} \\ 0, & if D_t < \sum_{i \neq j} C_{j,t} \end{cases}$$

$$D_t = Total\ Demand - Must\ Take\ Energy = TD_t - E_{Kitka,t} - E_{Lumbardhi,t}$$

Where:

- i – the generation company for which we calculate the PSI
- j – all other generation companies
- D_t – Demand at time "*t*" (MW)
- C – Available Capacity (MW)

The demand is considered as the residual demand, or the total demand at transmission level, subtracted by energy produced from wind (WP Kitka), solar and run off river (HPP Lumbardhi). Energy from these generators is considered as must take in Kosovo, and their capacities cannot be planned or saved for more suitable market conditions.

[19] Bataille, M., Steinmetz, A. and Thorwarth, S., 2014. Screening Instruments for Monitoring Market Power in Wholesale Electricity Markets Lessons from Applications in Germany. SSRN Electronic Journal.
[20] Biggar, D. 2011. The theory and practice of the exercise of market power in the Australian NEM.

To ensure outage and technical capacities of KEK, Kosova A and Kosova B are considered, the available capacity at time *t*, is considered as the energy produced by KEK, in that hour (MWh/h), whereas the capacity from HPP Ujmani is considered as the net capacity of HPP Ujmani (32 MW)[21].

4.3. RESIDUAL SUPPLY INDEX (RSI)

While the Pivotal Supplier Indicator (PSI) is a binary index, which measures when and if a generator is pivotal, the Residual Supply Index measures the extent of the "necessity" of firms. It measures to what extent can other generators in the market cover demand, without the firm's capacity.[22]

The RSI is calculated with the following formula:

$$RSI_{i,t} = \frac{total\ available\ capacity - capacity_i}{market\ demand}$$

To calculate the RSI some considerations must be made. Similarly, to the PSI, it is considered that Kosovo has enough transmission capacities to import electricity to cover peak demand at all times. Thus, market participants can only exercise market power to a certain extent, or in other words, they can mark up prices up to the price of imports.

The total available capacity is the sum of the energy produced by WP Kitka, HPP Lumbardhi per hour. Since the available capacity should also consider production outages and technical limitations, For KEK power plants, the available capacity is considered as the energy delivered at time *"t"* per hour (MWh/h). Whereas the capacity from HPP Ujmani is considered as the net capacity of HPP Ujmani (32 MW)[23].

Market demand is considered as the total electricity demand at transmission level.

If a firm has an RSI value of >100% at a given time, it means that at that time, other firms can supply all the necessary electricity to cover demand, thus this firm is not considered pivotal (PSI = 0), it can only exercise limited market power, and has little influence on the market price. Similarly, if a firm has an RSI of <100%, other firms cannot provide the necessary electricity to cover demand. The lower the RSI for that firm, the more it can exercise market power, and vice-versa.

The RSI values will be presented with a duration curve.

[21] KOSTT, Installed capacities of generation in Kosovo 2021

[22] Bataille, M., Steinmetz, A. and Thorwarth, S., 2014. Screening Instruments for Monitoring Market Power in Wholesale Electricity Markets Lessons from Applications in Germany. SSRN Electronic Journal.

[23] KOSTT, Installed capacities of generation in Kosovo 2021

5. EVALUATION OF COMPETITION IN THE WHOLESALE ELECTRICITY MARKET

5.1. OVERVIEW OF THE WHOLESALE MARKET IN KOSOVO

Local electricity generation capacities are dominated by coal-fired thermal power plants, namely Kosovo A and Kosovo B, which are owned by KEK (state owned). 95.2% of electricity produced in Kosovo in 2021, was produced by KEK. The remaining amount of electricity was produced by Wind Plant Kitka (1.3%), HPP Ujmani (1.8%), HPP Lumbardhi (1%) and WP Selaci (0.7%). This is presented in Figure 4.

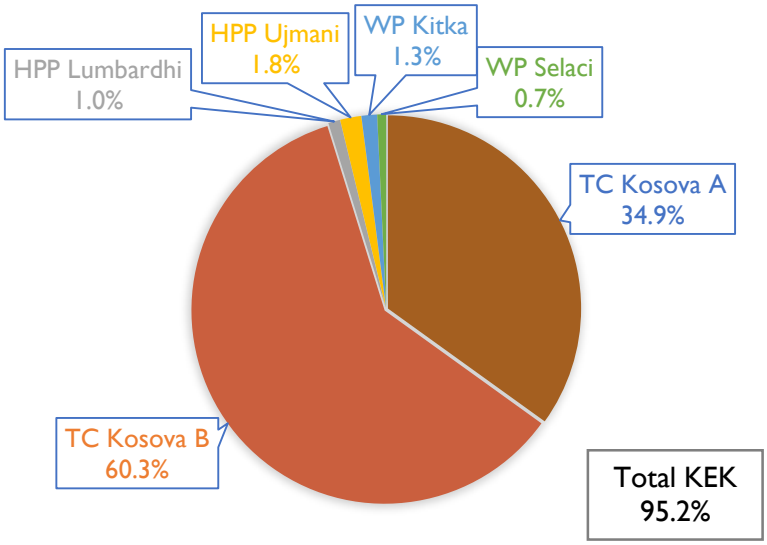

Figure 4. Local gross electrical energy produced in Kosovo at the transmission level, 2021[24]

The wholesale market is currently structured around bilateral contracts. Day-ahead and intra-day markets are not yet established in Kosovo. Most of Kosovo's generation capacities are used for local consumption under the Universal Supply Service, customers with deregulated prices and for covering grid losses. Electricity is imported from day-ahead or intra-day regional markets with bilateral contracts. Energy generated by KEK is sold with priority to the Universal Service Supplier. During the process of unbundling and privatization, a Bulk Supply Agreement[25] was signed between the Kosovo Energy Corporation (KEK) and the incumbent Kosovo Company for Distribution and Supply of Electrical Energy (later legally unbundled to KEDS and KESCO). According to article 5.2. of this agreement, KESCO can purchase electricity from KEK, for the purpose of the Universal Service Supply with priority. The remaining energy is sold to cover grid losses and traded in the market, according to the procedure for electricity trading[26].

WP Kitka is currently subject to the Feed-in Tariff Scheme, thus the energy produced by WP Kitka is not sold in the wholesale market but distributed to all suppliers in the market in proportion to the share of

[24] KOSTT, Annual Report, 2020
[25] https://me.rks-gov.net/repository/docs/Bulk_Supply_Agreement.pdf
[26] KOSTT, Procedure for electricity trading, 2018

each supplier's consumption. Since May 2019, HPP Ujmani offers all its electricity production in the wholesale market, through competitive auctions, according to the procedures for electricity trading.[27]

5.1.1. BULK SUPPLY AGREEMENT BETWEEN KEK AND THE USS SUPPLIER

The Bulk Supply Agreement between KEDS/KESCO and KEK was signed as a result of the privatization transaction after the vertical unbundling of the state-owned utility KEK in 2012.

Under the Bulk Supply Agreement, KEDS/KESCO will purchase electricity from KEK non-exclusively, for:

1. Its Public Supply Function.
2. Eligible customers, as defined by article 19.4 of the 2010 Law on Electricity.[28]
3. Any eligible customer who at any time can purchase electrical energy from KEDS at a regulated tariff price for such electrical energy set by ERO; and
4. For the efficient operation of the KEDS system (including electrical energy required to cover distribution losses) and maintenance or other services required for the operation of the KEDS system.

Article 5.6. of the same BSA, states that KEK may sell the electricity which is not requested by KEDS/KESCO to other purchasers, but only after this electricity is first offered to KEDS/KESCO to supply electricity for the above-mentioned customers.

Points 1 to 3 above describe customers who choose to be supplied from the Universal Supplier or the Supplier of Last Resort. The main reason behind the Bulk Supply Agreement was to provide local customers affordable electricity and to protect customers from regional market prices, and to secure a steady supply for the newly privatized distribution and supply company.

Generation prices in Kosovo are *de jure* deregulated, which would allow KEK to exercise high market power. However, as KEK is publicly owned Government exercising the shareholders rights, end-user prices are considered when negotiating wholesale prices. KEK's 2020 annual report mentions that electricity prices for the USS, and to cover network losses have not increased from 2019, because of the effect of the pandemic on end-users. The wholesale price of electricity sold by KEK in 2020 and 2021 for the USS was 29.5 €/MWh, and 36 €/MWh to cover transmission and distribution losses. KEK exported electricity for 30.7 €/MWh in 2020.[29] The average price of imports in 2020, in Kosovo was 57 €/MWh[30].

The price of imports increased significantly in 2021, reaching peaks of up to 620 €/MWh in the HUPEX market. The HUPEX market is usually used as a reference due to its high liquidity and close approximate with Kosovo. The average daily price of electricity in HUPEX, in comparison to the price of electricity sold by KEK to the USS under the Bulk Supply Agreement is presented in Figure 5.

[27] ERO, Report on evaluation of competition in the electricity market in Kosovo 2018-2019
[28] According to Article 19.4 of the 2010 Law on Electricity, repealed in July 2016 with the law on Electricity No.05/L-085, eligible customers are all customers excluding household customers.
[29] KEK, Annual Report 2020
[30] ERO, Annual Report 2020

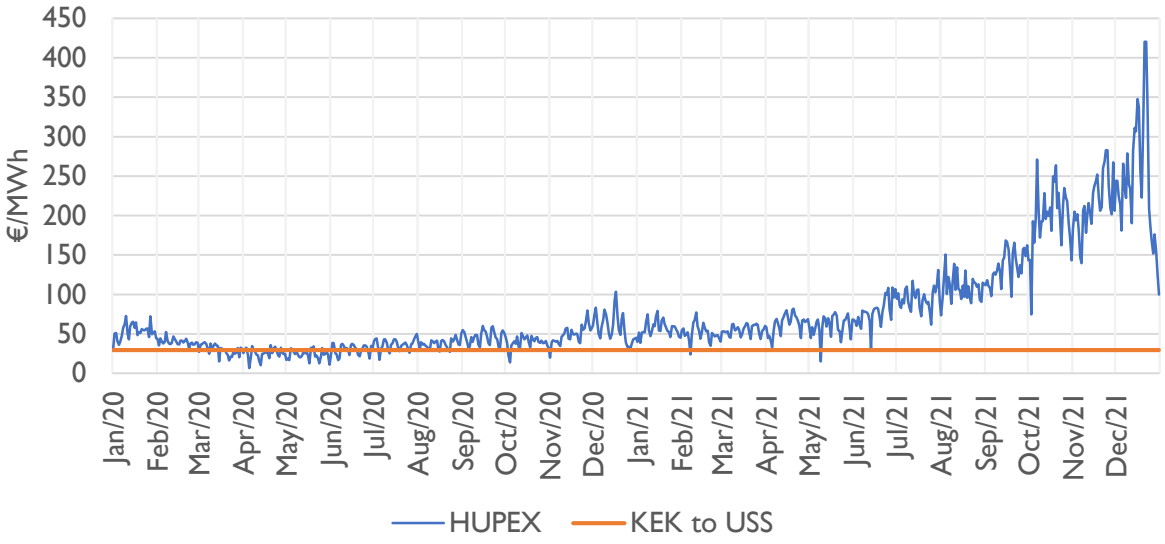

Figure 5. Price of electricity sold at HUPEX and from KEK to USS[31]

As seen in Figure 6, the majority of electricity produced by KEK is destined towards KESCO, mainly for its Universal Supplier Customers. In 2020, KEK sold 65% of its net electricity production to KESCO. This figure increased in 2021 up to 75.7%. The rest of the electricity produced by KEK is sold to cover distribution losses (9.4% in 2021), transmission losses (3.0% in 2021) and towards exports (11.8%).

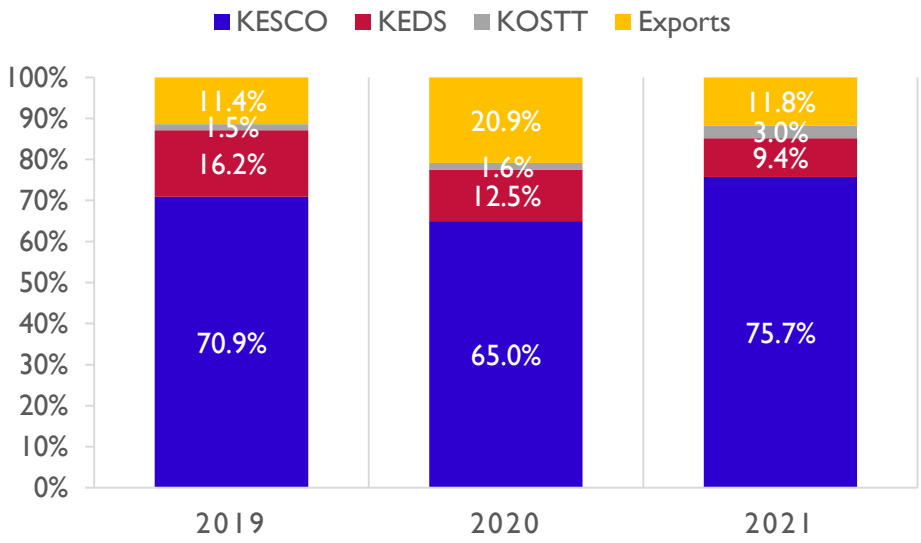

Figure 6. KEK net electricity production destination.

[31] HUPEX Day Ahead Market Prices www.hupx.hu

The Energy Community Secretariat[32] recommends the termination of BSAs between incumbent generators and suppliers, since Bulk Supply Agreements have the same negative effect on markets as vertically integrated companies.

5.2. CALCULATION OF INDECES FOR THE WHOLESALE MARKET IN KSOVO

5.2.1. MARKET SHARE

The market share of electricity generation, in terms of volume, in Kosovo throughout the years, is presented in Figure 7. KEK held a near constant market share of around ~95 - 97 %.

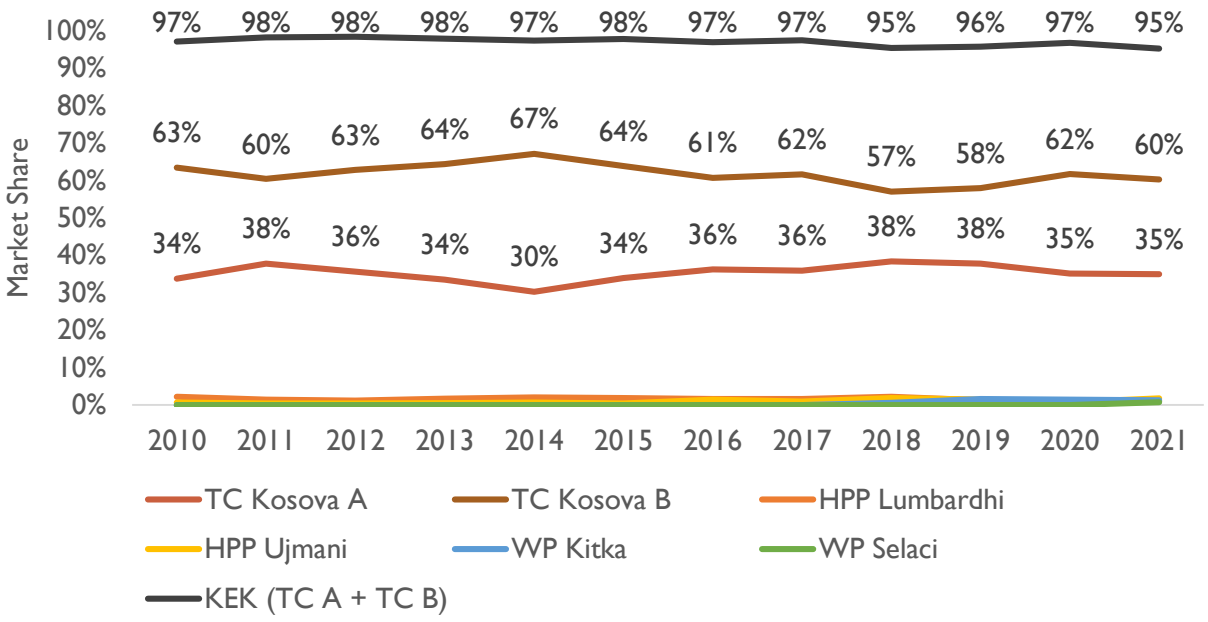

Figure 7. Market share in terms of generated electricity volume.[33]

In 2021 the market share of KEK fell by 2%, this is expected to fall in the following years with the increase of renewables in the system.

Compared to other countries in Europe, Kosovo has a high market concentration in local generation. The number of main electricity generating companies (companies which have a market coverage of at least 5% of total national net electricity), and the cumulative market share of these companies for European countries is presented in Figure *8*. Countries with a higher number of main electricity generation companies, which also have a lower cumulative concentration (closer to the top left of Figure *8*) are characterized as more competitive markets. Countries with a lower number of main electricity generation companies which also have high market shares are considered as highly concentrated or near monopoly states.

[32] Energy Community Secretariat, Policy Guidelines on increasing Competition and Liquidity of Wholesale Electricity Markets, including Power Exchanges

[33] KOSTT, Yearly Reports, 2014 - 2021

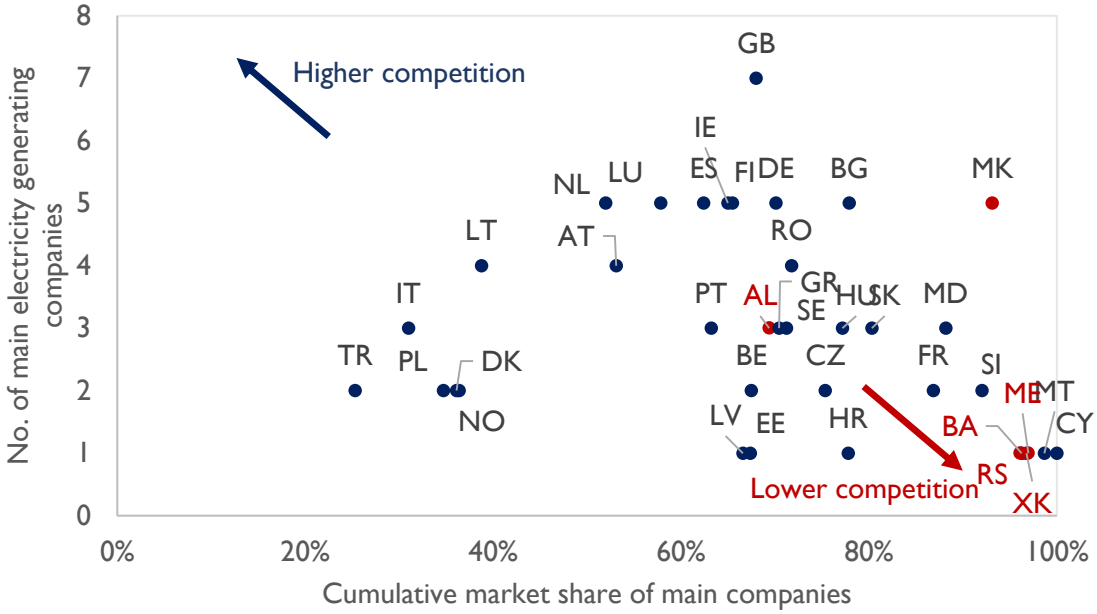

Figure 8. Number of main electricity generation companies and their cumulative market shares.[34] [35] [36]

5.2.2. HHI INDEX

Based on local electricity generation[37], the HHI values for each year in Kosovo are presented in Figure 9.

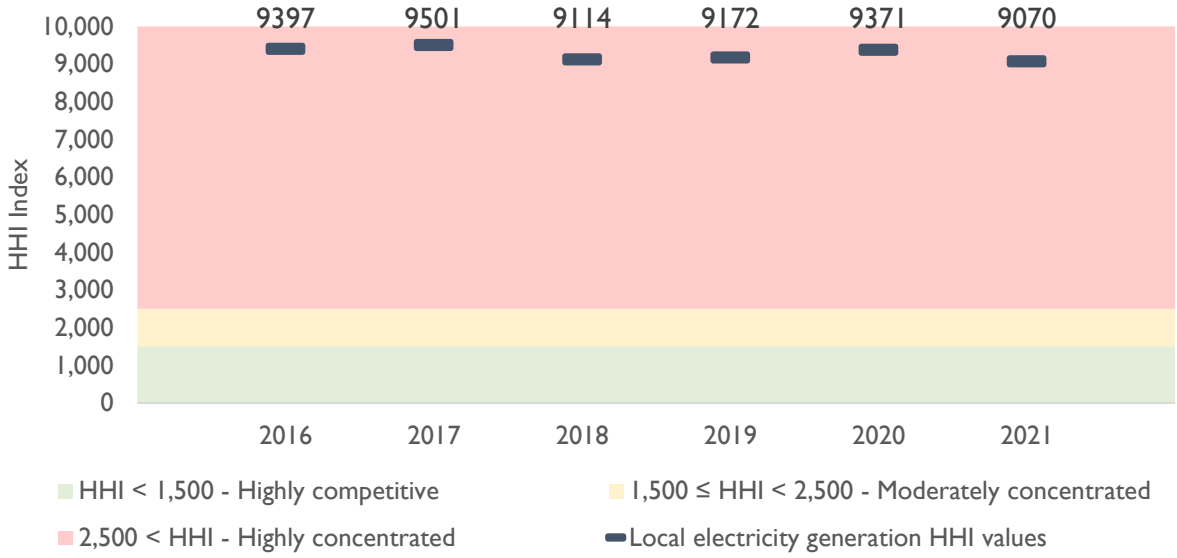

Figure 9. Local electricity generation HHI values for Kosovo.

[34] Eurostat, Electricity market indicators 2021
[35] Ofgem, Wholesale market indicators
[36] ERE, Albania Energy Balance for 2020
[37] KOSTT yearly reports.

The HHI value in 2021 was 9,070 and in 2020 the HHI index was 9,371. This represents a highly concentrated wholesale market. The HHI values for local electricity production did not change significantly during the past 5 years. A slight decrease of HHI values was seen in 2018, which corresponds to the installation of Kitka wind power plant and in 2021 which also corresponds to the installation of Selaci wind power plant. The wholesale electricity market in Kosovo is dominated by KEK, which under the Bulk Supply Agreement is obliged to sell all available produced electricity with priority to the Universal Service Supplier.

Based on the data in Figure *8*, an estimate of HHI values for European countries is presented in Figure 10. These estimates are based on limited data, thus the range of HHI values may be large in some cases.

The Western Balkan region is characterized by high market concentration even after wholesale market liberalization. State-owned companies such as KEK in Kosovo, KESH in Albania, EPCG in Montenegro, EPS in Serbia, ESM in North Macedonia and EPBiH, EPHZHB and EPRS (3 state-owned companies) in Bosnia and Herzegovina, dominate local electricity generation.

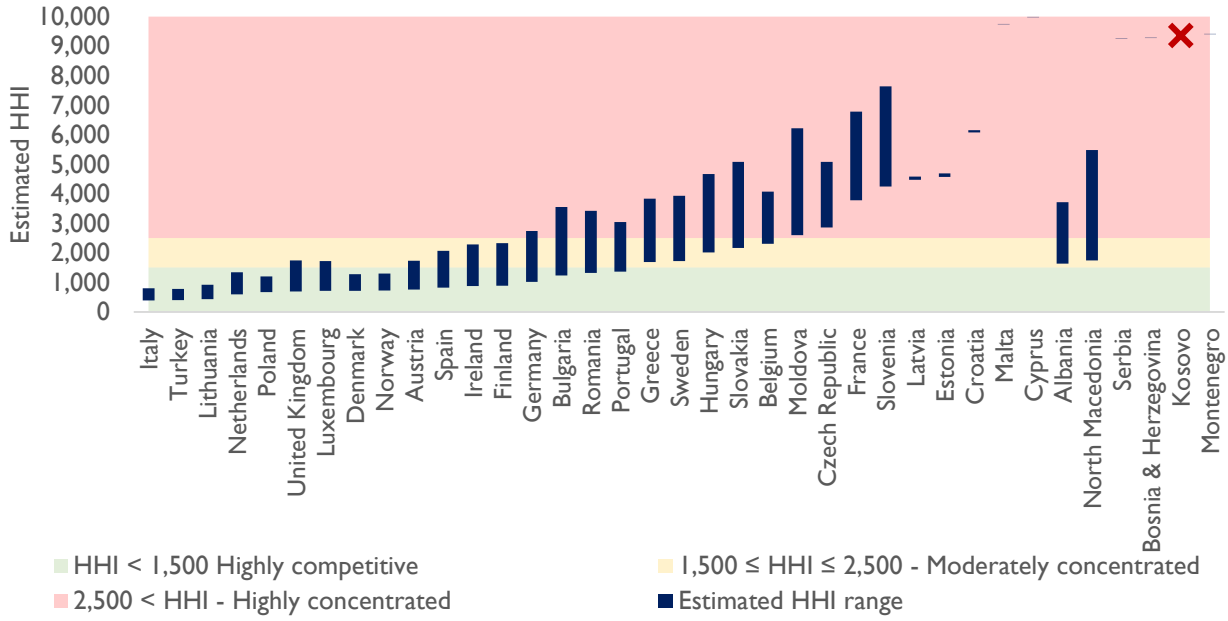

Figure 10. Estimated HHI values for electricity generation in European countries.

5.2.3. PIVOTAL SUPPLIER INDICATOR (PSI)

The PSI was calculated for KEK (Kosova A + Kosova B) and HPP Ujmani. The PSI was also calculated for TC Kosova A and TC Kosova B, to analyze the market power of each power plant separately.

The PSI was calculated for each hour of 2018, 2019, 2020 and 2021 separately. The aggregated data is presented in Figure 11.

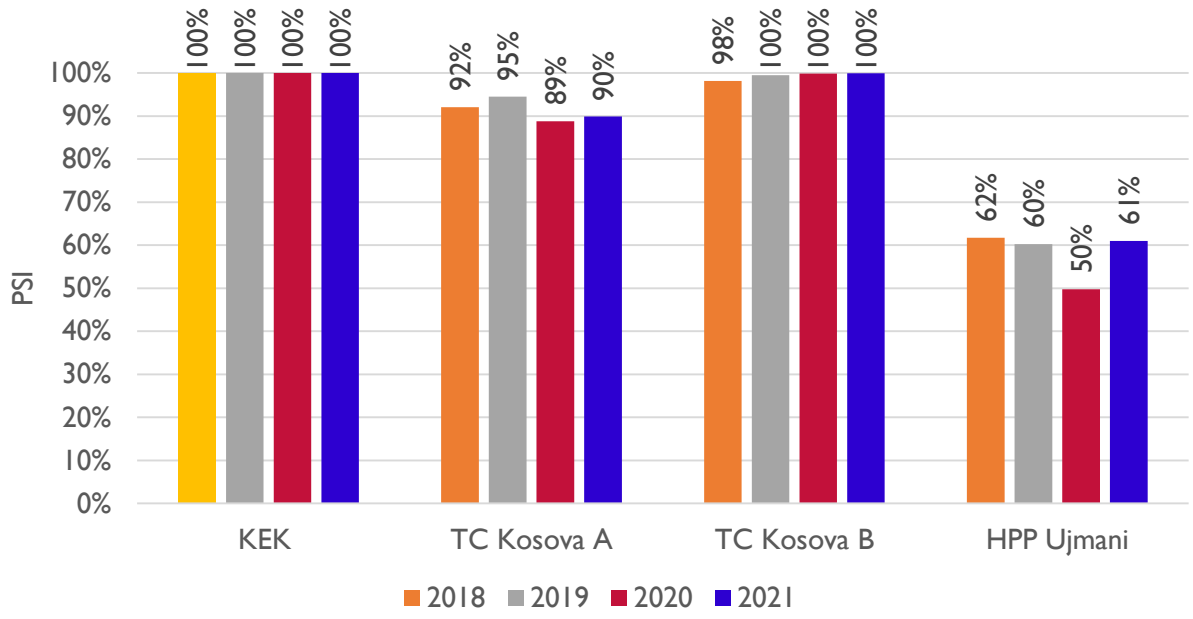

Figure 11. Aggregated PSI for energy generators in Kosovo. Data from 2018 - 2021.[38]

From Figure 11, it is shown that KEK was considered as a Pivotal Supplier, during all hours of year 2018, 2019, 2020 and 2021. In other words, generation from KEK was necessary to avoid imports of electricity in Kosovo, and in theory KEK could exercise market power 100% of the time, to push up their prices up to import prices.

On the other hand, HPP Ujmani was seen as pivotal in 61% of the hours in 2021 and 50% of the hours in 2020, even though it had a market share of only 1.8% and 0.8% respectively. HPP Ujmani could in theory exercise market power, to mark up prices up to import prices 50% (4,358 hours) – 61% (5,340 hours) of the year. For the rest of the year, HPP Ujmani cannot exercise market power, and is a price taker.

TC Kosova B and TC Kosova A are also considered as Pivotal Suppliers during more than 90% of the time.

5.2.4. RESIDUAL SUPPLIER INDEX

The Residual Supplier Index (RSI) was calculated for each hour for KEK and HPP Ujmani. The duration curve of the RSI for both power plants is presented in Figure 12 and in Figure 13 for a detailed view for KEK.

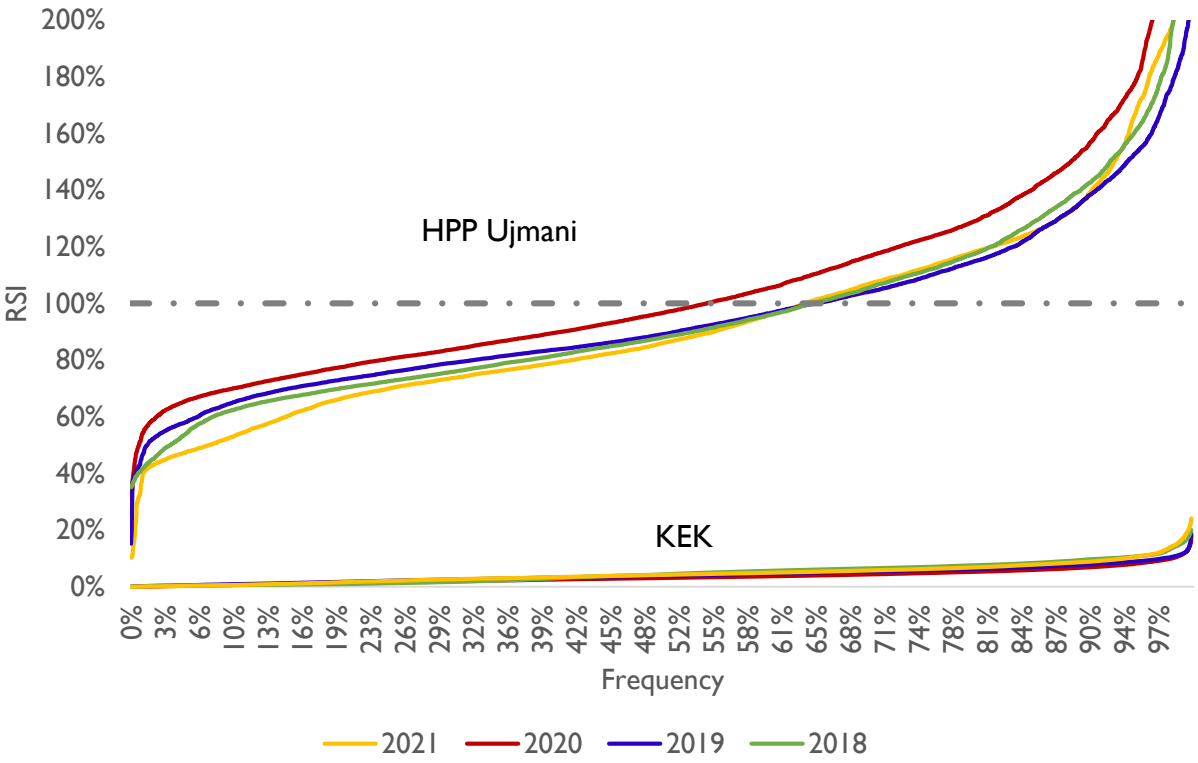

Figure 12. Cumulative percentage of RSI for KEK and HPP Ujmani, 2018-2021.

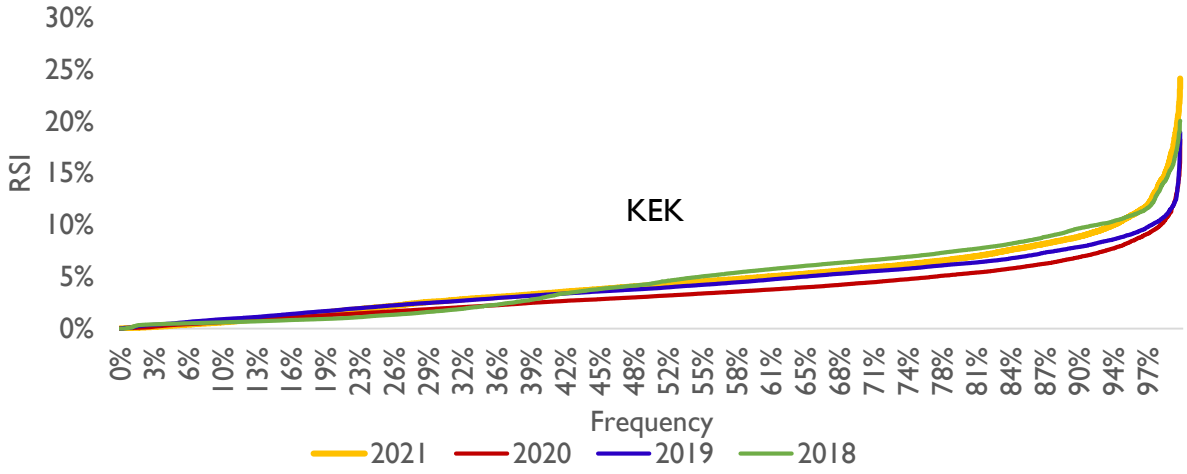

Figure 13. Cumulative percentage of RSI for KEK, 2018 - 2021.

As seen in Figure 12 and in Figure 13, KEK has a high degree of market power during all hours of the year. All other local generators combined (apart from KEK) could produce more than 10% of the total demand during only 559 hours of 2021, and during only 168 hours of 2020. Moreover, in 2021, other producers (apart from KEK), could never provide more than 24% (20% in 2020) of the demand. Thus, KEK has a significant impact in the average wholesale price of electricity.

Thus, while HPP Ujmani had a 61% PSI in 2021 and 50% PSI in 2020, its impact in electricity prices during these times is limited due to its low amount of production in comparison with the total demand.

5.3. IMPACT OF MARKET COUPLING WITH ALBANIA TO WHOLESALE ELECTRICITY MARKET COMPETITION

To address the lack of liquidity in the wholesale market due to bulk supply agreements and the presence of bilateral contracts, countries can require market participants to trade or offer part or all their capacity on the power exchange. This may be imposed on generators, suppliers of electricity and network operators (to cover losses). Renewable energy generation which are subject of subsidies, can also participate in the power exchange through Contracts for Difference (CfD). In Kosovo, this measure is subject to the starting of operation of the ALPEX platform with Albania.

A joint market with Albania where all electricity is sold through the joint power exchange, would also decrease market concentration in the wholesale market for Kosovo, if capacities are not bound to bulk supply agreements, and also assuming no congestion between countries.

The electricity production market in Albania is presented in Figure 15, and is dominated by the state-owned utility, KESH (59.6%).

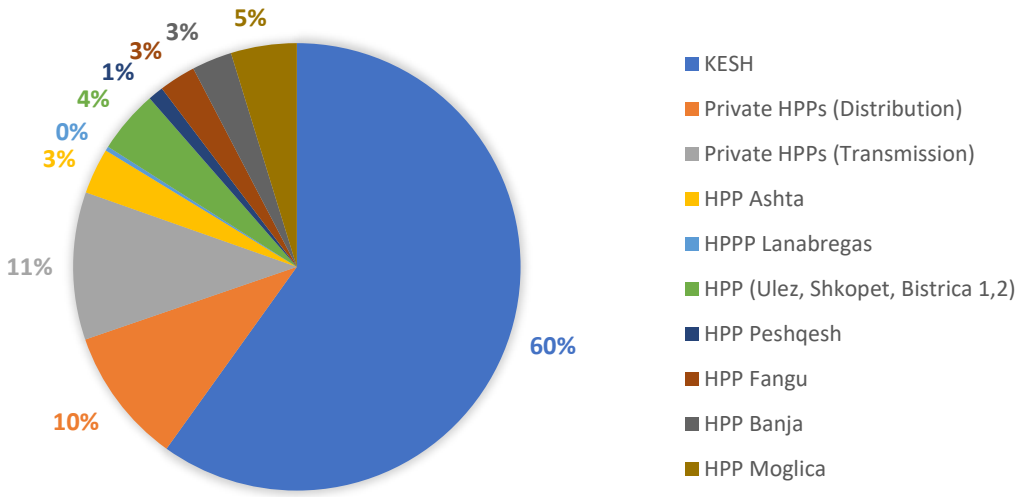

Figure 14. Market share of electricity producers for 2021 in Albania. [39]

[39] ERE, Albania Energy Balance, 2021

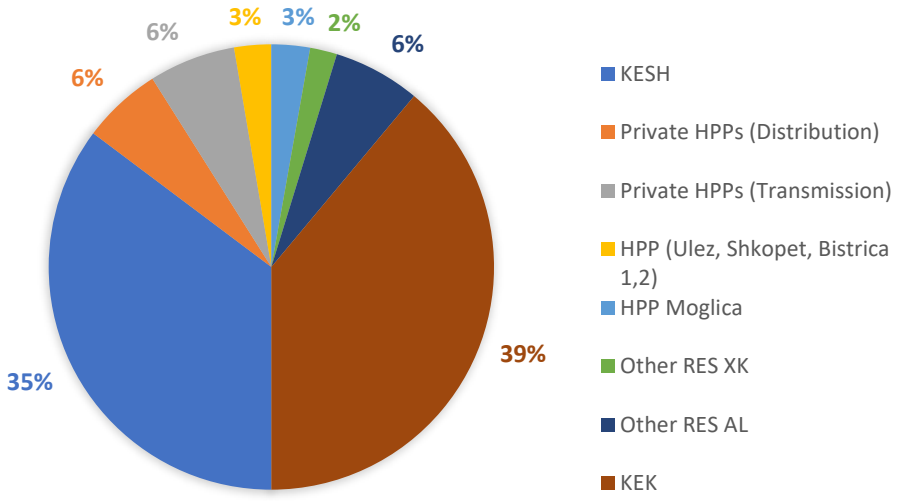

Figure 15. Market share of electricity producers for 2021 in the joint market between Albania and Kosovo.

The wholesale CR_3 in Albania is currently 68.9%, with the largest producer producing 59.6%. The CR_3 for a joint Albanian and Kosovo market would be 77%, with the largest producer (KEK) having a market share of 39%.

The effect towards the HHI index of a joint wholesale market is shown in Figure 16. Assuming no inter-connector capacity constraints, the HHI index of a joint Albanian and Kosovo market, would be significantly lower than the HHI index for Kosovo since the market share of KEK is reduced from 95.2% to 39% in a joint market and considerably lower than in Albania. This is shown in Figure 16.

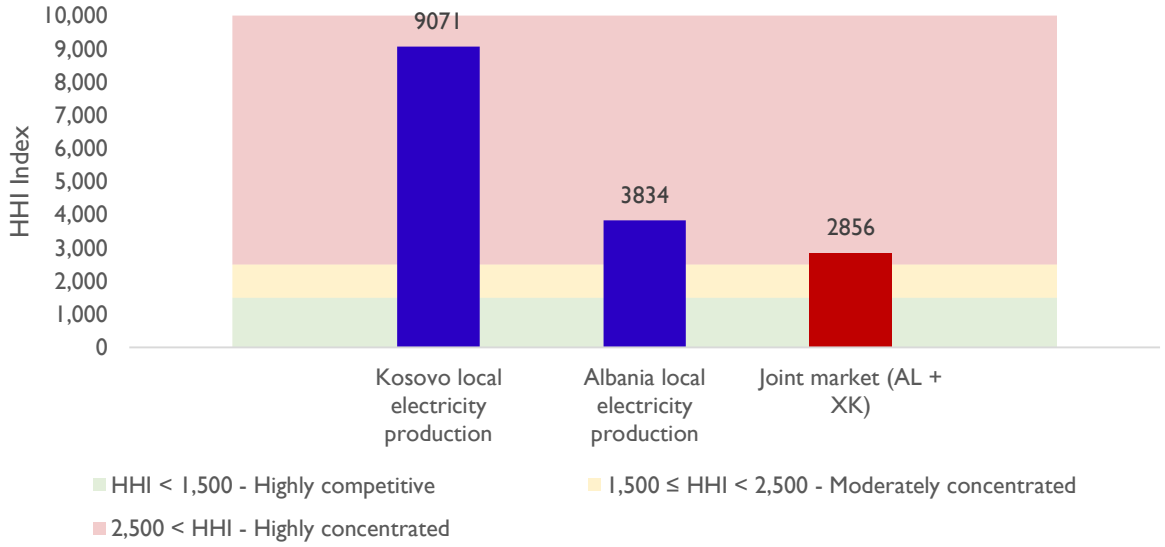

Figure 16. Joint wholesale market impact to HHI index.

Combining the joint Albanian and Kosovo electricity market with an example horizontal unbundling of KEK (between Kosova A and Kosova B, or by introducing Virtual Power Plants) would provide a HHI index under 2,500 which is considered as a threshold for "moderately concentrated markets".

Similar measures have been implemented in countries such as Bulgaria, Poland, and Romania. An effect of obligating participants to trade or offer electricity on the power exchange or organized forward market, electricity trading on the Power Exchange in Poland rose from 4.2% in 2010, to 58.7% in 2011 (the year after imposing the measure) and 61.8% in 2012. At the same the electricity traded through bilateral contracts dropped from 89.8% in 2010 to less than 40% in 2011. Similarly in Romania the volume of electricity traded in the day-ahead market rose by 52.51%, the year after implementing the measure.

According to the Law on Electricity[40], Article 26, paragraph 2, In order to simulate effective competition in the electricity market *"Regulator may include programs for the provision in the market of certain amounts of electricity, according to which entities are obliged to sell or make available certain amounts of electricity or provide access to a part of their generation capacities to interested suppliers, for a certain period of time. If implemented, this measure should be reviewed initially for State aid rules and consulted with the Energy Community Secretariat."*

This measure could be combined with other measures, such as, regulated access to historic investments, introduction of Virtual Power Plants (VPP) and Self-Supply restrictions. In this case Kosovo could impose obligations to KEK to sell part of its electricity produced by coal plants in the day-ahead market, or through forward markets, to other eligible electricity suppliers. Moreover, Kosovo could introduce Virtual Power Plants in the market to efficiently allocate electricity to buyers.

A detailed analysis of the most suitable form based on the market specifics in Kosovo should be carried out. Moreover, this obligation should include review clauses, or set periods of applicability.

6. EVALUATION OF COMPETITION IN THE RETAIL ELECTRICITY MARKET

6.1. OVERVIEW OF THE RETAIL ELECTRICITY MARKET IN KOSOVO

Currently there are 8 licensed suppliers (including the incumbent) in Kosovo, namely:

1. KESCO,
2. HEP Energjia,
3. GSA Energji,
4. Future Energy Trading and Exchange Dynamics,
5. Jaha Company,
6. Kosovo Energy Corporation KEK (also the main electricity producer in Kosovo),
7. SharrCem, and
8. Enerco.[41]

Out of the 8 licensed suppliers, only KESCO is active.

[40] Law No. 05/L-085 on Electricity
[41] ERO, Register of Supply Licenses issued 2021

6.1.1. PUBLIC SERVICE SUPPLY AND DE-REGULATION OF END-USERS

In case of low competition in the retail and wholesale markets, according to Article 3.2. of the Guideline for Electricity Market Liberalization, ERO reserves the right to impose Public Service obligations, to protect customers and energy security. To ensure security of supply and protection for consumers which are entitled to the regulated market, ERO obliged KESCO to act as the Public Service Supplier.

Kosovo currently has regulated prices for all household and non-household customers, except for customers connected to the TSO network (220 kV and 110 kV). Currently only 3 customers are subject to de-regulated prices, one customer connected at 220 kV and 2 at 110 kV. These customers are also supplied by the incumbent supplier, KESCO.

In 2017 ERO issued the *Guideline on Liberalization of Electricity Market in Kosovo*[42]. Article 8 of this guideline set specific dates for the gradual price deregulation of customers. Customers connected at 220 kV were the first to enter the deregulated market, followed by customers at 110 kV (April 2017), 35kV and 10kV (April 2018). Moreover, the guideline mentions that all final customers are entitled to supply at competitive market rates. ERO has also approved several rules to enable competition in the retail market, such as the *Supplier Switching Rule*[43], *Rule on Determination of Revenues for Universal Service Supplier*[44], *Rule on Supplier of Last Resort*[45].

The latest deadline (31 March 2021) aiming to deregulate prices for customers connected at 35kV and 10kV, who fulfill the criteria of yearly revenues over 10 million euros and more than 50 employees, was postponed indefinitely. ERO requested KESCO to continue supplying customers at 35kV and 10 kV under the Universal Supply Service, with the justification of the pandemic's impact to companies' finances.

During this attempt, ERO conducted several information sessions with customers.

According to interviews only a few of the licensed suppliers presented offers to clients. Due to several previous delays in de-regulating the market, several suppliers hesitated to invest resources in preparing offers to clients as there was uncertainty on whether these customers would be deregulated, thus negatively impacting the deregulation process.[46]

The offers were based on import prices and in some cases, local generation. According to the study on "Barriers to Retail Market Liberalization," on average customers who are obliged to enter the de-regulated market, consume 74% of the electricity during peak hours (when Kosovo imports electricity) and 26% during off-peak hours (when Kosovo exports electricity). Thus, electricity surplus from the BSA (from KEK) can only supply on average 26% of their demand. Moreover, since nomination of capacities in Kosovo is done on an hourly basis, suppliers cannot plan and rely on the residual production from KEK when submitting offers to customers.

In all cases the offers presented by different suppliers were more expensive than the price of the regulated market, which caused reluctancy from consumers. It was reported that some customers signed pre-

[42] ERO, Guideline on Liberalization of Electricity Market in Kosovo, 2017
[43] ERO, Supplier Switching Rule, 2016
[44] ERO, Rule on Determination of Revenues for Universal Service Supplier (USS Pricing Rule), 2017
[45] ERO, Rule on Supplier of Last Resort, 2017
[46] Interviews with Electricity Suppliers.

contracts with an alternative supplier before this deadline was postponed. These customers reverted to the regulated market after the deadline for forced de-regulation was postponed.

6.1.2. SUPPLIER OF LAST RESORT

Apart from the Universal Supplier, which provides energy to customers who are not obliged to and do not wish to enter the market, ERO also selects a Supplier of Last Resort. According to Article 9.1 of ERO Rule No.08/2017 on the Supplier of Last Resort[47], the Supplier of Last Resort (SoLR) shall supply customers which remain without a supplier in the following circumstances:

1. Their supplier has gone bankrupt or is under liquidation.
2. The license of the previous supplier has been permanently or provisionally revoked or has ceased to be valid (expired).
3. The customer has failed in selecting a new supplier upon termination of the contract with the previous one.

The Supplier of Last Resort is chosen through a competitive scheme. The pricing methodology and retail margins proposed by the SoLR are reviewed by ERO. The electricity price of the SoLR should be higher than the market price to incentivize customers to find alternative suppliers.

In 2017 ERO initiated a competitive procedure to select the Supplier of Last Resort[48]. No suppliers participated in either of the two bidding rounds. Consequently, with decision V_1074_2018[49], ERO set KESCO as the Supplier of Last Resort for a three-year period (Dec 2018 – Dec 2021). The latest bid procedure for the Supplier of Last Resort was issued on 04 October 2021[50].

6.2. MARKET SHARES AND HHI INDEX

KESCO is the only active supplier in the market, having a 100% share of the retail electricity market in Kosovo for both household and industrial consumers throughout 2020 and 2021. A comparison of the number of main electricity suppliers and their cumulative market share in the retail sector is shown in Figure 17. Main electricity retailer suppliers are considered suppliers with a market share >5%. As seen from Figure 17, the retail market is highly monopolistic, comparable to island countries such as Cyprus and Malta.

[47] ERO, Rule No.08/2017, on the Supplier of Last Resort.
[48] ERO, Decision V_910_2017
[49] ERO, Decision V_1074_2018
[50] ERO, Decision V_1471_2021

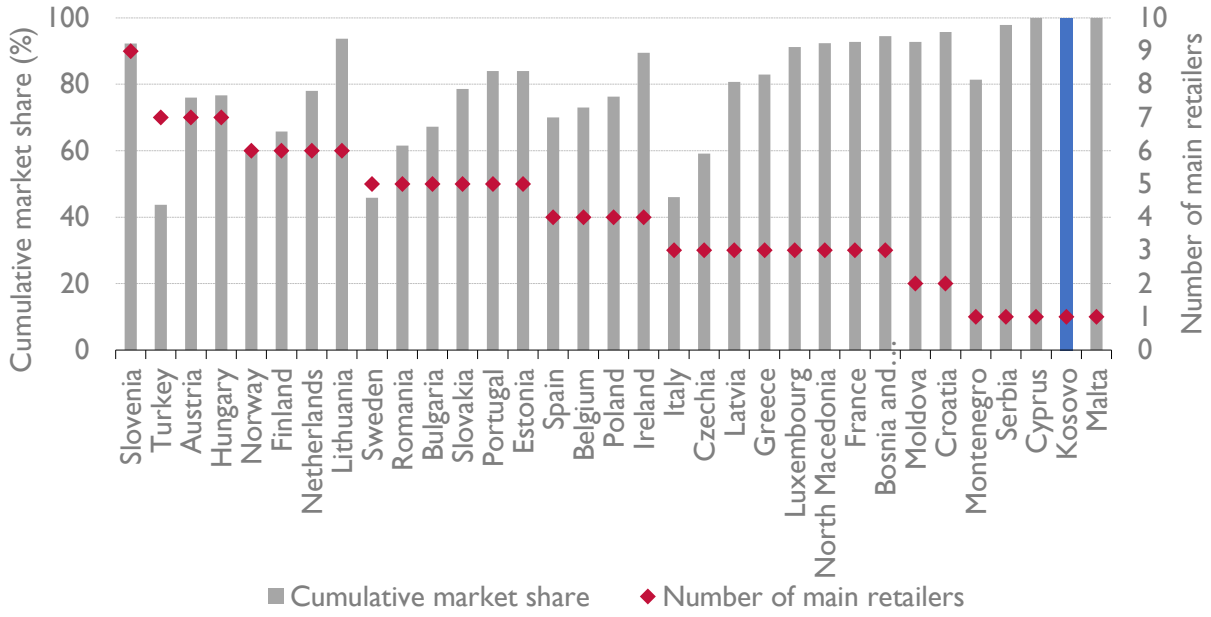

Figure 17. Number of main electricity retailers and their cumulative market share, 2019[51] and 2021 for Kosovo.

The HHI index for the retail market, non-household, and household alike, in Kosovo is 10,000 which also describes a monopolistic market. Retail market HHI indexes for household consumers in European countries are presented in Figure 18 for comparison.

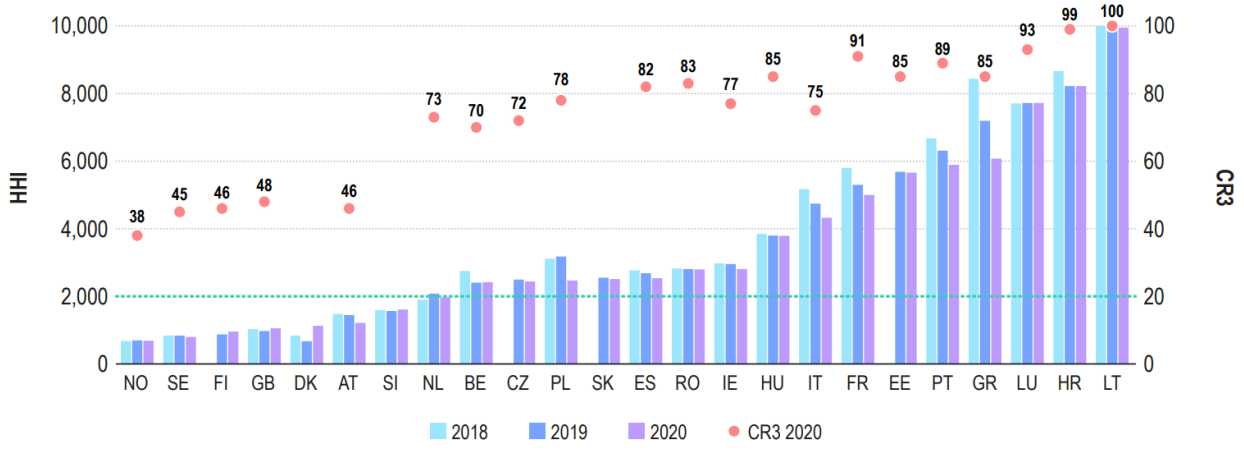

Figure 18. HHI and CR3 for the household market based on metering points in electricity – 2018-2020[52]

Retail market HHI indexes for non-household consumers in European countries are presented in Figure 19 for comparison.

[51] Eurostat, Electricity market indicators, 2019

[52] ACER, Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2020, 2021

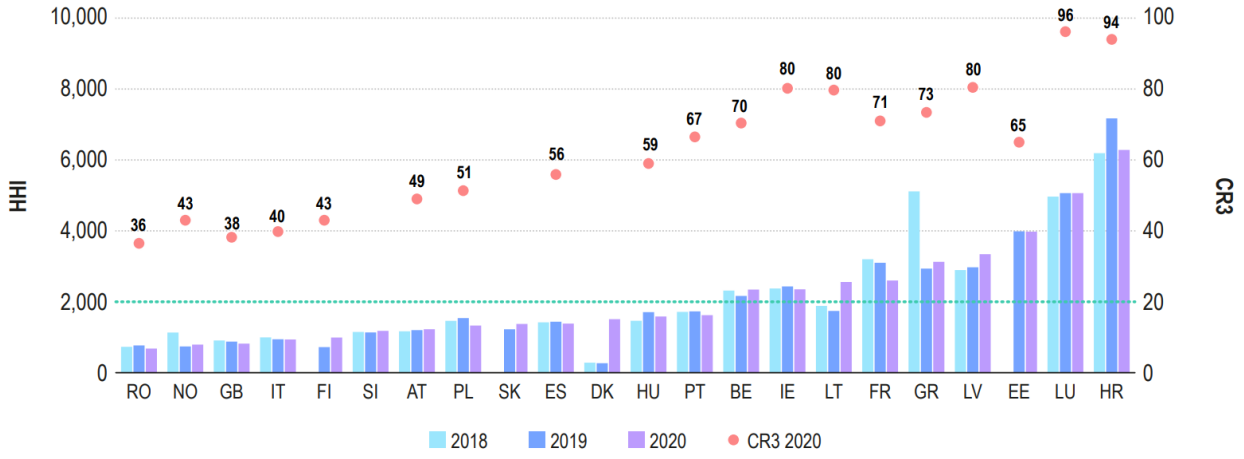

Figure 19. HHI and CR3 for the non-household market in electricity – 2018-2020[53]

Data from Figure 18 and Figure 19, show that non-household markets are more competitive in terms of retail supply than household markets in many of the listed countries. While 16 out of 24 countries have HHI values higher than 2,000 in the household market, only 9 countries out of 24 have high HHI values for non-household markets. Moreover, in most countries the trend from 2018 – 2020 is an increase in competition in both household and non-household markets.

Based on the market share and the calculated HHI index, the retail market in Kosovo is highly concentrated. Neither segment of the retail market fulfills the criteria set out in ERO decision V_342_2011.

> *"III. … a relevant market is considered as competitive if it fulfills the following criteria:*
>
> - *The number of suppliers in a relevant market, excluding the public supplier, must be 3 or more; and*
> - *The market share served by suppliers, excluding the public supplier must be over 30%".*

While the number of registered suppliers is 8, only one is active. Moreover, the only active supplier serves 100% of customers in terms of connection points and volume of electricity.

The main obstacles toward retail market liberalization, found in the "Barriers to Retail Market Liberalization in Kosovo" report, are:

1) Regulative and legislative uncertainty – Precedent of postponement of deregulation deadlines.

2) Limited wholesale market competition and access to local generation capacities – Lack of liquidity in the wholesale market, and available, reliable local energy generation.

3) Impact of regulated end-user prices – Low regulated end-user prices in comparison to market prices.

[53] ACER, Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2020, 2021

4) Lack of access to information by customers and suppliers – Lack of Data Hubs and Standard Load Profiles for consumers without smart meters

5) Lack of access to information by final customers – Lack of Price Comparison Tools

6) Challenges for new suppliers to attract customers due to legal unbundling of KESCO and KEDS.

6.3. SUPPLIER SWITCH RATES

According to the Guideline on Li

The Supplier Switching Rule[54], issued in October 2016 by ERO, sets out how final customers can switch their supplier. This Rule also defines procedures, responsible institutions, and deadlines to process a supplier switch.

According to the "Guideline on Liberalization of Electricity Market in Kosovo" (January 2017), Article 8:

> *"1.5. All final customers shall be entitled to electricity supply at competitive market, following the approval of this Guideline."*

To date no final customer has exercised their right to switch their electricity supplier. The three de-regulated customers, which are not part of the Universal Supplier (regulated) tariffs, are currently supplied by the incumbent KESCO, which is also the Universal Supplier.

It is worth noting that during the electricity price spikes in European and regional markets (Q3 – Q4 of 2021), NewCo Ferronikeli, which is one of the consumers supplied with de-regulated prices, halted production due to the high price of imported electricity. The company did not change their supplier during this period.

[54] ERO, Supplier Switching Rule, 2016

7. CONCLUSIONS

The wholesale and retail market in Kosovo have been subject to reforms during the past 2 decades. Kosovo has gone from a state-owned vertically integrated market, to establishing an independent regulator, vertical unbundling of the incumbent and introduction of separate companies for generation, transmission, and supply. Companies who operate under natural monopolistic markets, such as transmission and distribution, will continue to be overseen by ERO. ERO aims to introduce competition in markets such as wholesale (generation) and retail markets (supply).

Based on primary legislation, the evaluation of competition for the wholesale and retail was conducted.

The evaluation is based on calculating market concentration indexes, such as Market Share (MS), Concentration Ratio (CRn), Herfindahl-Hirschman Index (HHI), Pivotal Supplier Indicator (PSI), and Residual Supply Index (RSI).

Based on the analysis the conclusions are:

- The wholesale market is highly concentrated with a market share of the largest generator (KEK) at 96.8% in 2020 and 95.2% in 2021. This market share has remained at a near constant during the past 10 years. The HHI index for 2020 and 2021 is 9371 and 9070 respectively, describing a highly concentrated market.

- According to the PSI and RSI indices, KEK can exercise high market power during all hours of the year and could drive up prices up to import prices at any given time. HPP Ujmani can exercise limited market power during 50% of the hours of the year in 2020 and 61% of the hours in 2021.

- Out of 8 registered suppliers, only KESCO is active, serving all segments of the retail market in Kosovo.

- The Public Service Supplier Obligation was issued to KESCO by ERO. The Supplier of Last Resort was also issued to KESCO by ERO, after a going through competitive procedure with no applicants.

- In all segments of the retail market KESCO has a 100% share in terms of connection points supplied and volume of electricity supplied.

- Deregulated customers have been offered prices directly linked to import prices, which caused reluctancy of shifting from the regulated sector.

- No customers have used the right of switching their supplier in either segment of the retail market.

- No segment of the retail market fulfills the criteria set out in ERO Decision V_342_2011, to be considered as competitive.

- For the period of review, based on the analyzed indicators both the wholesale and retail electricity markets show a lack competition and a high concentration.