Energy Security

Research Paper

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SE3T.net is a regional network of independent energy transition think tanks which focuses predominantly on Southeastern Europe; Partners Association for Sustainable Development (ASOR), Center for the Study of Democracy (CSD), Energy Policy Group (EPG), Green Alternative, Institute for Development Policy – INDEP, Macedonian Center for Energy Efficiency (MACEF), National Observatory of Athens (NOA), NERDA, RES Foundation, University of Zagreb.

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Introduction

The Energy Strategy of the Republic of Kosovo 2017-2026 mentions the fact that "Kosovo can never fully meet its energy demand".[1] To reach this "supply security", the Strategy is almost exclusively focused on achieving it by building a new coal-fired power plant. All of this is largely focused on a narrow understanding of the term "energy security".

Energy security has been cited as one of the main problems of the country's economic development. In public appearances, supporters of the construction of a new coal-fired power plant have always emphasized the fact that each year Kosovo businesses lose EUR 300 million due to power shortages. [2] This attitude is based on a conducted study that has never been made public.

But electric power consumption figures indicate the opposite. The level of electric power generation in the country exceeds the inadequacy figures only in the winter months. To the energy shortages, especially during peak hours in winter season, when domestic generation cannot sustain the demand, imports for 2018 were 825,182 MWh.[3] This import of electric power was mainly done in the winter months when the demand for energy is higher.

[1]Republic of Kosovo, (2017), 2017-2026 Energy Strategy of the Republic of Kosovo, Prishtina: OJRKS
[2] Insajderi, (2017), Businesses Lose About 300 Million Euros Due to Power Issues, Prishtina: Insajderi.
[3] Energy Regulatory Office, (2019), 2018 Annual Report, Import and Export of Electric Power, page 104, Prishtina: ERO.

Net Imports/Exports in 2018

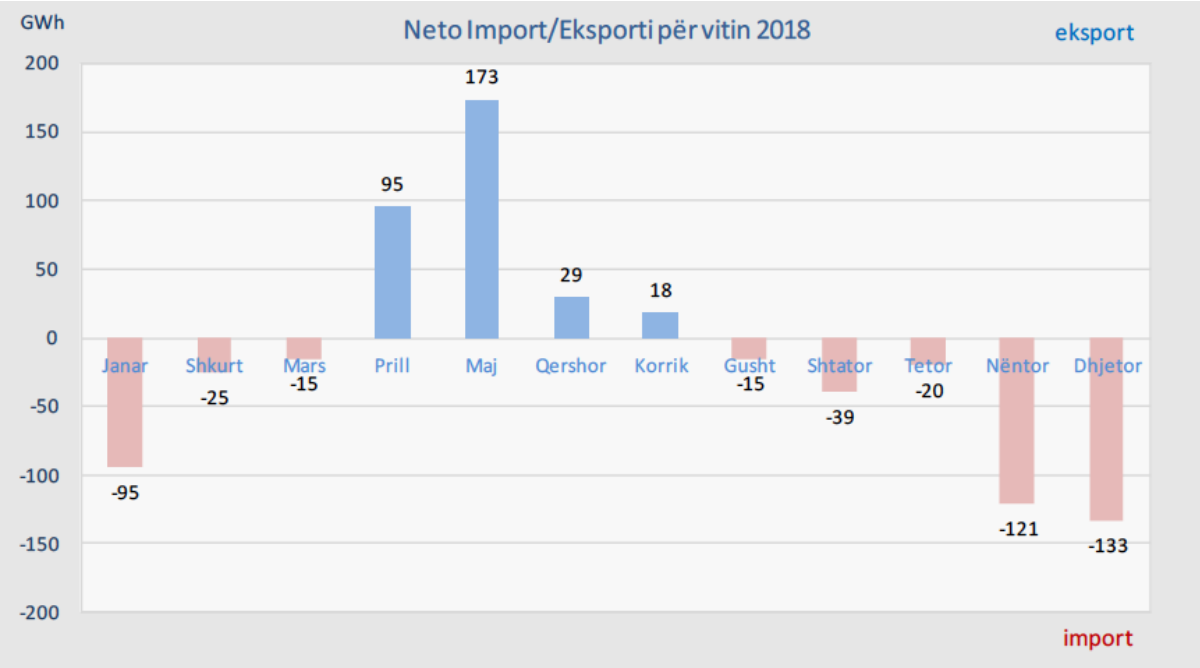


Figure 1. Import and Export of Electric Power in 2018 SOURCE: ERO

Jan – Feb – Mar – Apr – May – Jun – Jul – Aug – Sep – Oct – Nov - Dec

Total electric power imports for 2018 were 825,182 MWh, which is about 31 percentage points lower than in 2017, when imports amounted to 1,242,225 MWh.[4] So, despite the fact that some of the energy had to be imported for some of the winter months, the imports' trend is declining. As shown in the graph below, imports have declined over the years.

[4]Ibid.

Methodology

The methodology for drafting this paper has been largely qualitative. The secondary data collected in the desk review were analyzed through the content analysis method. In designing this paper, we did not restrict ourselves to a single approach, thus including the comparative, historical, and rational choice approaches. All of this has been to our assistance.

The data collected in the desk review included: Government documents and Energy Regulatory Office documents, data submitted by the Transmission System Operator (KOSTT), data from the Statistics Agency, and various local and international reports etc. In addition, we have also reviewed public statements and conducted an analysis of public discourse in general.

We have analyzed all the collected documents through the content analysis method. Through this, we have managed not only to identify the required data but also to construct a more accurate analysis of their impact and relevance to the subject of our analysis. Finally, the conclusions and arguments of the analysis have also undergone a logical test to see if they also fit into the current context of Kosovo's development.

Legal and institutional basis

The legal and institutional basis is satisfactorily established. In addition to the Ministry of Economic Development, which is the umbrella institution for policymaking, the other relevant institutions include the Energy Regulatory Office as an independent institution that regulates (and deregulates) the energy market in Kosovo. In addition, there are licensed companies such as the Transmission System Operator (KOSTT) that are publicly owned, the Distribution Operator that is privately owned, licensed suppliers and manufacturers.

The legal and institutional basis in Kosovo suffers mostly from the lack of clarity of priorities, lack of independence of institutions and lack of consistency in policymaking. All these challenges have crippled Kosovo's supply security

As regards the lack of clarity of priorities in Law no. 05/L-081 on Energy, energy security is limited to supply security and is defined as: "ability of energy systems to supply final customers with adequate amounts of energy in order to meet their demands."[5] This definition is extremely broad and does not include what we can really call supply security.

Energy security involves much more than supply security. It is also related to the quality of service that directly affects consumer rights, and also to price affordability. Actually, in the concept of energy security, also considering European legislation in this field, these are the key elements of supply security:

- Supply security
- Consumer protection
- Affordability of prices

While Kosovo has considered only the first element related to supply security, our legislation unfortunately lacks the inclusion of other elements in what constitutes supply security.

In terms of the legal basis, one of the elements that is very relevant in the field of energy security is the independence of institutions. Kosovo institutions have not yet managed to establish independent regulatory mechanisms. The Energy Regulatory Office is still extremely politically influenced and all decisions, including decisions to open and liberalize the market, are prevalently politically influenced. Such decisions also apply to cases of consumer protection, market integration, etc. All of these decisions have high-scale political influence and are not always based on expertise or free of political influence.

[5]Republic of Kosovo, (2016), Law No. Xx/l-XX on Energy, Prishtina: OJRKS

Lack of consistency and clarity

One of the basic problems of local energy policy in general, and energy security in particular, is the lack of consistency in attitudes. On the one hand, in December 2017, the Minister of Economic Development signed a € 1.3 billion contract for investments in coal-fired power plants, and on the other hand, one month later declared 2018 to be the year of renewable energy.

ERO 2018 Annual Report (March 2019)	**Proposed Document Establishing Public Service Obligation for Supply Security (Setting Supply Security Tax) (February 2019)**
In the generation adequacy section on page 76, ERO states: Generation adequacy and supply security in the Kosovo electric power system **are at an acceptable level, and it is worth noting that electric power generation, along with imports, meet national electric power consumption needs.**	ERO considers that there is a generation adequacy problem, which is ongoing and will continue until 2026.

As can be seen from the table above, the Energy Regulatory Office has taken two completely opposite positions in just one month, as far as generation adequacy is concerned. The report, which seeks to impose a tax on supply security, initially states that ERO thinks there will be a problem with generation adequacy. On the other hand, in a few weeks, in its Annual Report for 2018, ERO points out that generation adequacy and supply security in the Kosovo power system are at an acceptable level. Thus, for the same issue, two completely different positions are given depending on what document this position is published on.

System adequacy

Generation adequacy and supply security in the Kosovo electric power system are at an acceptable level, and it is worth noting that electric power generation, along with imports, meet national electric power consumption needs.

The adequacy of the transmission system contains sufficient reserves to enable electric power flows to meet local demand, including peak load coverage, as well as to enable transit through interconnection lines.

The total operating capacity of generators in Kosovo is 1076 MW, while the maximum load during this year was 1,203 MW, so the ratio of generation adequacy to maximum load is 89.4%.[6] This percentage is considered satisfactory given that Kosovo does not cover only 11.6% of demand based on generating capacity.

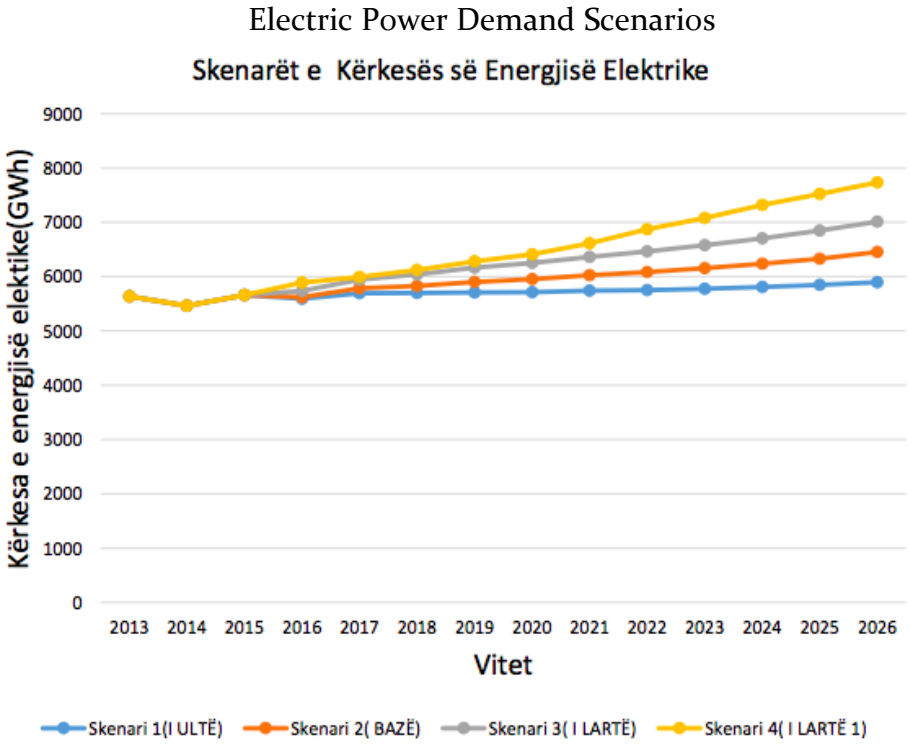
[6]Energy Regulatory Office, (2019), Annual Report for 2018, Prishtina: ERO.

Isolation into Coal or Regional Integration

One of the main problems of increasing supply security is to design the Kosovo market as an isolated and non-integrated market. The Energy Strategy of the Republic of Kosovo states:

> The Government of the Republic of Kosovo is committed to implementing all the obligations of the Energy Community Treaty (ECT) and the SAA to create a free and competitive energy market. The government has prioritized the creation of a joint Kosovo-Albania energy trade zone as a first step towards integration into the regional energy market.[7]

However, the main priority of the strategy is regular supply through the construction of a new power plant. This strategy analyzes three scenarios for energy demand, through which it concludes that with the construction of the Kosova e Re Power Plant is indispensable.



Scenario 1 (LOW) Scenario 2 (BASE) Scenario 3 (HIGH) Scenario 4 (HIGH 1)

[7]Republic of Kosovo, (2016), 2017-2026 Energy Strategy of the Republic of Kosovo, Prishtina: MED.

The total electric power demand in the system in 2018 was 5,671 GWh, which is lower than the low scenario designed by the MED in this strategy. This shows that the main idea was not to provide a strategy that helps increase energy security, but to justify the construction of a new coal-based power plant.

National Energy Union and Regional Integration

The national energy union, which would mean a union of the energy market of the Republic of Kosovo with that of Albania, was seen as the first step towards market integration with the region. In public discourse, energy union with Albania implies greater supply security, because these two markets are seen as complementary to each other.

As Albania generates a considerable amount of hydropower, its potential naturally increases during the winter. On the other hand, the demand for energy in Kosovo increases precisely in the winter months and thus, national unity would solve the problems, because the surplus energy that Albania has during the winter would be supplied to Kosovo, and vice versa. However, is this true or rather a myth?

For energy system balancing and stability, energy reserves are currently used as mechanisms to ensure that the energy supply covers demand and that energy demand is not lower than supply. All of these mechanisms are activated to maintain the 50 hertz (Hz) frequency that is reached when both output and power demand are equal, and the system is balanced.

Reserves are divided into primary, secondary and tertiary reserves. The primary reserve is decentralized. This implies that it is activated when the system is imbalanced, even by 0.5 Hz. This reserve is practically located in each generator, which increases the production capacity or reduces it automatically when required to balance the system.

If the system does not balance even after the primary reserve is activated, or in short, if even after the generator response (primary reserve), no system balance is achieved, then the secondary reserve is activated. This reserve is in the value of 20 MW. Our transmission system operator is not responsible for the secondary and tertiary reserves, due to the fact that these reserves are the responsibility of the regulatory area, which is still under the responsibility of Serbia.

The tertiary reserve is the largest capacity reserve and enters into operation if the system balance is not reached even after the secondary reserve is activated. The tertiary reserve has the value of the installed capacity of the largest generator in a power system. In the

case of Kosovo, this reserve is in the value of 160 MW. This reserve is held and paid by the states in case of failure of the primary and secondary reserve to balance the system.

But why are reserves so important to increasing energy security and what is their impact on the security concept? As explained above, a fairly simple rule applies to the tertiary reserve: it must be equivalent to the value of the installed capacity of the largest generator in a power system. Thus, the larger the system, the smaller the need for units of this system to have a tertiary reserve. Two states merging their markets do not need to hold two reserves: they hold a common reserve. In addition to saving a lot of money, this practice results in more supply security for states.

Regional integration also increases energy fluctuations that allow for mitigation of imbalance costs. This is important for Kosovo, precisely because it opens the door for more integration of renewable energy into the market. In such manner, the cost of the imbalance is reduced, and the larger the system, the easier it is to balance.

Regional integration and supply security have their challenges. Creating and enhancing the confidence of countries in the region to collaborate on such a large-scale project of integration, remains a major challenge. The Western Balkan states emerging from the war have not yet overcome the divisions between them. As a result, political problems have led the governments of these countries to insist on self-sufficiency. Moreover, investments into coal are seen as a strategic investment of paramount importance to national security as well.

More Generation, More Security

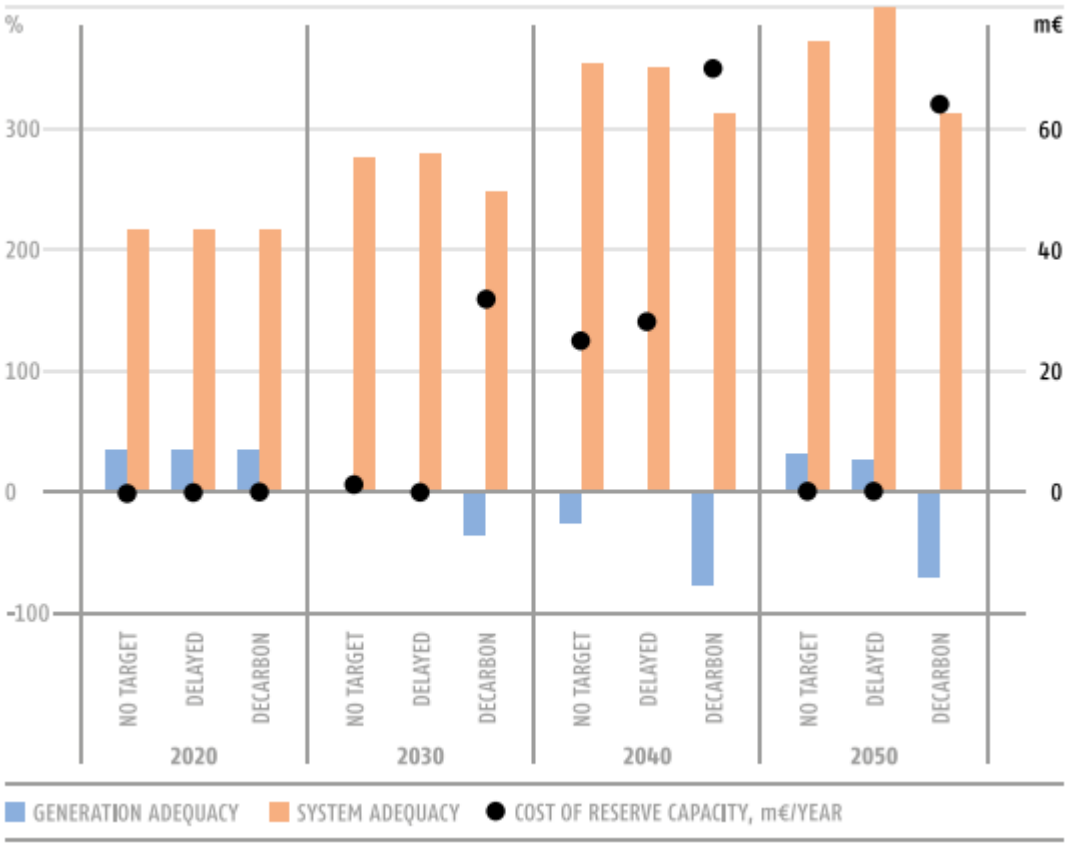


Figure 1. Projected Adequacy for Kosovo. Source: SEERMAP, REKK

According to the SEERMAP modeling, generation adequacy is negative from 2025 in the decarbonization scenario, whereas in the reference and no-measures scenarios, generation adequacy remains positive. However, the adequacy of the system is positive for the whole period, even with the complete decarbonization scenario.[8]

Potentials

The total length of transmission lines managed by KOSTT JSC. is 1391.3 km

- 400kV line - 279.7 km
- 220kV line - 231.8 km
- 110kV line - 873.1 km.

Substations

- 1 400/220 kV Substation with 1200 MVA transformer capacity
- 2 400/110 kV Substation with 1200 MVA transformer capacity

[8] SEERMAP, (2017), Kosovo Report, accessible at https://rekk.hu/downloads/projects/SEERMAP_CR_KOSOVO_A4_ONLINE.pdf (accessed in May 2019).

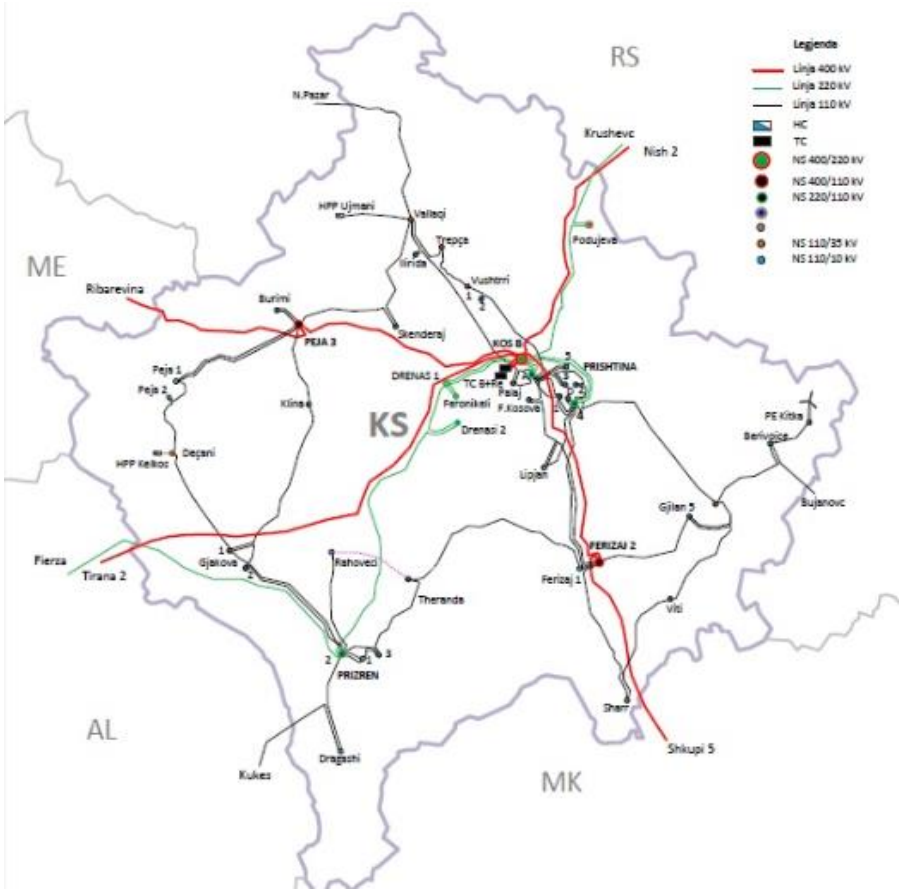
- 3 220/110 kV Substations with 1350 MVA transformer capacity
- 1 220 kV Distribution Node
- 1 220/35/10 kV Substation with 80 MVA transformer capacity
- 28 110/(35 or 10) kV Substations with 2080 MVA transformers capacity

Transmission Capacities: 1700 MW

Thanks to the central geographical position of our state, the transmission system KOSTT operates in, though small, represents a very important transmission node in Southeast Europe.

Interconnection lines in the Kosovo Transmission System

- 1 400 kV Line Kosovo - Serbia
- 1 400 kV Line Kosovo - Montenegro
- 1 400 kV Line Kosovo - Macedonia
- 1 400 kV Line Kosovo - Albania
- 1 220 kV Line Kosovo - Serbia
- 1 220 kV Line Kosovo - Albania
- 2 110 kV Lines Kosovo - Serbia[9]



[9] Official Website of the Transmission System Operator, (2019), Transmission System Capacities, Prishtina: KOSTT

The System Operator performs mid-term and short-term planning processes, system operation analysis, monitoring and control of Kosovo's EES power flows. This whole process is done with the purpose of uninterrupted, secure and reliable operation of the system, 24/7 and all year round.[10] The system operator, through planning and operation, ensures the continuous and qualitative supply for customers, with technical parameters such as voltage and frequency, is carried out in accordance with the applicable technical codes. It also provides synchronous work with other TSOs at all times, as well as provides system services.

In order to create conditions for the electric power market, the SO performs the calculations of available interconnection transmission capacities. The National Dispatch Center monitors and controls power flows across the Kosovo transmission network, providing necessary instructions to third parties connected to Kosovo's EES.

Since electric power cannot be stored, meaning that production must be equal to load, the SO, through available balancing mechanisms, keeps the technical parameters within secure operating limits. Necessary ancillary services such as primary, secondary and tertiary reserves are used for this purpose. These services enable market parties, such as generation and distribution, to conduct their operations reliably, in both technical and economic terms.

KOSTT annually compiles a forecast of one-year electric power balance, and long-term planning for expansion of the transmission network.

In order to maintain a quality customer supply, the National Dispatch Center coordinates maintenance, in terms of planning and implementation in real time, for Kosovo's EES.

The operation of the system is based on three main objectives:

• Enable secure and reliable operation of the power system

• Enable the economic operation of the system and to enable the energy market

• Enable contractual arrangements under the D-1 program[11]

The operation of the system should guarantee secure and reliable operation of the system by controlling possible system developments and actions in the system in the face of various contingencies such as: short circuits, sudden load changes, generator

[10] KOSTT (2019), Power System Operation, Prishtina: KOSTT website.
[11] KOSTT (2019), Power System Operation, Prishtina: KOSTT website.

failure, etc. The monitoring of work and control of the system enable risk prediction, whereby effective preventive measures are taken to minimize the expansion of events, so that the system does not degrade to total blackout.

Conclusions

Energy security is a multidimensional concept that includes not only supply security but also energy security, consumer protection and price affordability. In an increasingly interdependent and changing world, the concept of energy security must also be amended and supplemented in our domestic legislation.

Kosovo does not have a well-regulated legal framework that defines energy security and takes concrete steps to address it. On the one hand, security is limited to supply security only, and on the other hand, consumer protection elements, such as quality of supply and price affordability, are not included at all.

Supply security in Kosovo is addressed almost exclusively through the design of a new coal-fired power plant. It is designed based on the current reality of a non-integrated power system that has not yet been exposed to genuine openness. The concept of energy security, and supply security in particular, is significantly different in the reality of an integrated market.

Kosovo's government and institutions lack consistent views on energy security related topics. As can be seen from the paper, two different attitudes of the same institution describe the adequacy of the system and the adequacy of generation in Kosovo. This is due to the political influence on energy sector decisions and regulatory institutions, such as the Energy Regulatory Office.

Kosovo has tremendous potential to increase supply security and integrate Kosovo into the regional market. At the transmission system level, Kosovo has tremendous potential for interconnections with countries in the region, and a very high grid capacity for power circulation. ENTSO's latest decision has paved the way for more network integration.

Kosovo and Albania have the chance to create a joint energy exchange as well as a common energy market. This energy merger would be the first step towards creating an integrated regional market. The Kosovo-Albania common market will be of particular importance, especially given the fact that there will be more energy exchange and a tertiary energy reserve sharing.

The integrated regional energy market is an additional factor that will influence the increase of energy security. Kosovo should immediately make the necessary preparations for this process by establishing mechanisms that will ensure the liberalization of the internal market and increase confidence in cooperation with countries in the region.

Recommendations

The Government of Kosovo should correctly define energy security in current legislation and in energy policymaking. Investments that increase the cost for citizens beyond affordability and that deepen energy poverty, must be stopped. If consumer rights and price affordability are considered, Kosovo will develop policies that enhance energy security alongside protection of consumer rights.

The Energy Regulatory Office must stop approving the Public Service Obligation Tax for supply security. Supply security is the right of consumers and as such, no additional tax should be paid. Energy security falls within the concept of general security. Thus, it is the obligation of the state to provide this and not for the citizens to pay taxes. Security is a right, not a service!

The Government of Kosovo should focus on measures to increase energy management. This will control energy demand and increase the system's capability for more production from renewable sources, while lessening the import dependency.

The Government of Kosovo should invest in new energy storage capacities. Batteries will be indispensable for the energy transition. As Kosovo has considerable interconnection capacities, this will make Kosovo less dependent on imports and an important player in the region's energy flows.

KOSTT should focus on enhancing interconnection capacities. This will allow for increased transactions with the region now that KOSTT is finally becoming a regulatory area in Kosovo. This will position Kosovo as an important regional actor.

The incentive to invest in renewables should be increased. Domestic production must be increased to meet ever-increasing energy demand. The only way to achieve this is through investing in renewable energy sources. Kosovo should develop a One Stop Shop and review authorization procedures.

Own-consumption consumers must to be empowered. The Energy Regulatory Office should ensure that market companies, especially suppliers and Distribution System Operators, are implementing the Support Scheme Regulation. Only 3 own-consumption licenses are a very small number, and this is a failure to implement this regulation. The scheme should also be revised to change the permitted capacity limit, offset of positive balances and technical procedures for network connection.

Energy union with Albania should be Kosovo's priority. This process should precede an integration into the regional energy market, necessary for the energy transition. Kosovo

has the unique opportunity of joining the market with Albania to benefit from lower capacity market costs and increased security. This will be achieved through the pooling of tertiary reserves capacities in the region, which enable much lower costs for states as well as less need for additional capacities.

Energy security should be included in all strategic documents and policy priorities. Instead of a one-dimensional approach to the construction of the new coal-fired facilities at all costs, Kosovo's institutions should focus on a multidimensional strategy while maintaining the objectives of sustainable development and the goal of energy transition. All these measures will guarantee the right to energy security even without coal.