The Impact of TPP "Kosova e Re" in Electricity Tariffs

GAP INSTITUTE

Contents

Executive summary

At the end of 2017, the Government of Kosovo signed a contract with the American company, Contour Global, for the construction of a new power plant with 500 MW gross electric output, for a cost of 1.3 billion euros. Even though the call for bids was opened in accordance with the Law on public procurement, which foresees a bidding process with a least two offers, the government did not cancel the process after getting only Contour Global's offer. With the signing of the contract, the Government of Kosovo and Contour Global (GenCo) have agreed that the targeted price should be 80 Euro for MWh.

The construction of the TPP "Kosova e Re" is a project with a comprehensive impact in the economy, state's budget, health, environment, people displacement, and public debt among others. To illustrate the impact of this project in the price of electricity, GAP Institute has analyzed two scenarios. The first one suggests that the initiation of the TPP "Kosova e Re" in 2023 will increase the electricity tariffs by 44%. Whereas according to the second scenario, which includes the construction of the new power plant and other planned investments in the electricity market, the electricity tariffs' increase will add up to 60.4%.

Besides the two scenarios, this analysis contains a survey that GAP Institute conducted with 84 small and medium enterprises in the main sectors in Kosovo. With the increase of electricity tariffs for 60.4% in 2023, only 68% of the enterprises will remain in the category of monthly electricity expenses less than 4 thousand euros, from the current 80% with the current tariffs. According to the results of the survey, 31% of the enterprises consider that an increase in the prices of their products is inevitable, 21% will lay off employees, and around 8% will do both. Regarding households, the most endangered groups from the increase in the electricity tariffs are households under the poverty line. According to the 2015 report on consumption poverty in Kosovo, there are 76,000 households that live on less than 218 euros per month.[1] From them, there are 50,000 households that do not receive any assistance from the government. Based on the data presented by the Energy Regulatory Office (ERO) about the household bills from the Kosovo Electricity Distribution and Supply Company (KEDS), the average current price of electricity and the number of active consumers, the monthly electricity bill of these citizens will be around 21% (45 euros) of the household monthly income, from the current 13% (28 euros).

1 Kosovo Agency of Statistics. Consumption Poverty in the Republic of Kosovo 2012-2015. April, 2017. Source: https://bit.ly/2uEHrGU.

A short history of the project

The initial proposal to construct the "Kosova C" power plant was done in 2005, when with the Energy Strategy (2005-2015), the Government of Kosovo planned to construct a power plant with 2,100 MW capacity for a cost of 3.5 billion euros[2]. This proposal came out after a World Bank report published in August, 2001 titled Energy Sector Technical Assistance Project (ESTAP).[3]

In 2006, with the decision of the Special Representative of the Secretary-General, the Project Steering Committee was established. That same year, the first proposals were received and four large global consortiums were prequalified. With changes in the government at the end of 2008, the project for the power plant changed its name to "Kosova e Re" and the capacity. The initial proposal was for a 1,000 MW capacity, which later was changed to 600 MW. The Energy Strategy 2009-2018 foresaw that as part of the bidding package, together with the construction of the new power plant would be the "Kosova B" power plant and mining[4].

On December, 2009, the Government of Kosovo announced the Request for Expression of Interest for the Development of the Sibovc Lignite Field in Kosovo and the new Power Generation Capacity, which included:

- The construction of the "Kosova e Re" power plant (500MW + 500 MW)
- The immediate development of the lignite field in Sibovc
- The participation of the private sector in "Kosova B"[5]

In March of 2010, the four prequalified companies were announced:

1. **Adani Power / PT Adani Global Consortium** from India and Indonesia;
2. **AES Electric Ltd / Demir Export A.S. Consortium** from the USA and Turkey;
3. **Park Holding A.S.** from Turkey;
4. **PPC / Contour Global LLP Consortium** from Greece and United Kingdom/USA;

From the prequalification phase of the four companies in 2006 until 2011, 10.5 million dollars were spent from the World Bank for technical assistance of the project, and 6.5 million euros were spent from the Government of Kosovo[6]. On March, 2012, the Government of Kosovo sent the final call for bidding to the four prequalified companies. From those four, in November, 23rd, 2015, the only bidder – Contour Global – was announced.

Even though the call for bids was sent based on the Law on public procurement, which foresees a bidding process as successful when it has at least two offers, the government did not cancel the process despite it getting only one offer. Initially, the government justified its decision by stating that the process was announced and managed based on the rules of the World Bank; later, it changed the reasoning to stating that this is a public-private partnership project. After accepting the only offer, the project changed again by decreasing the generating capacity from 600 MW in 500 MW (or net 450 MW)[7]

The contract between the Government of Kosovo and the Contour Global company was signed in December, 20th, 2017. It took 12 years from the first announcement for the construction of the power plant until the signing of the contract. The entire process was characterized by blatant irregularities, frequent changes, lack of transparency and consultations with the public. In December, 2017, the Basic Court of Prishtina approved as founded a suit by GAP Institute against the Ministry of Economic Development submitted in 2013, for lack of transparency and access to the documents for the construction of the "Kosova e Re" power plant.[8]

2 KOSID. A SHORT history of a BIG failure of energy policies in Kosovo, 2017. Source: https://bit.ly/2utl2gs
3 World Bank. Kosovo - Energy Sector Technical Assistance Project (ERL), 2001. Burimi: https://bit.ly/2KXS6qh
4 MED. Energy Strategy of the Republic of Kosovo 2009 - 2018. Source: https://bit.ly/2zEpz4R
5 KOSID. A SHORT history of a BIG failure of energy policies in Kosovo, 2017. Source: https://bit.ly/2utl2gs
6 Ibid.
7 Ministry of Economic Development. The government signs Agreements for "Kosova e Re" Power Plant. Source: https://bit.ly/2NjQN-Qc
8 GAP Institute: https://bit.ly/2ndwMjL

The main points of the contract for the construction of TPP "Kosova e Re"

GAP Institute has analyzed the contract signed between the Government of Kosovo and Contour Global, whose main points are:

- **generating capacity** – TPP "Kosova e Re" will continuously have a gross generating capacity of 450 MW+/-20MW. The gross generating capacity shall not be lower than 430 MW or higher than 470 MW. However, the power plant must have the potential to offer 102% of the maximum generating capacity in up to three occasions during the year[9];
- **constructing period** – In 2018, the procurement phase for the selection of the constructor of the power plant will begin; the financial aspect and the location transfer date will be finalized in 2019. In 2019, the construction of the power plant will also begin; the power plant becomes operational in 2023[10];
- **targeted price** – The Government of Kosovo and Contour Global (GenCo) have agreed that the targeted price will be 80 euro per MWh. It should be noted that the definition of this price in the commercial contract, i.e. targeted price, due to the wording cannot be interpreted as price ceiling;
- **technical criteria** – "Kosova e Re" power plant will have a net efficiency over 40% and will reduce significantly dust, SO2 and NOx emissions compared to the current emissions of "Kosova A" and "Kosova B" power plants. Around 10% of the power output capacity, around 200 MWt, will be offered for co-generation to the Termokos district heating. The power plant will be supplied with lignite from the Sibovc field, which should have a gross calorific value of 8,548 GJ/ton[11].

Obligations in short-term

With the signing of the agreement between the Government of Kosovo and Contour Global, in December, 2017, the timelines for completing three activities have also started:

- Completion of the financial agreement in 12 to 18 months by the government of Kosovo;
- Bidding for the selection of the constructor of the power plant in six to eight months by Contour Global;
- Preparation of the Strategy for the Lignite Supply in three to six months by the government of Kosovo.

From the obligations listed above, which had to be completed throughout 2018 and 2019, the Strategy for Lignite Supply was supposed to have been completed last June. Until now, the Ministry of Economic Development has not announced whether a working group has been created and has not presented any drafts of the Lignite Supply strategy.

Meanwhile, the completion of the financial agreement cannot be done without finalizing the conditions of financing through the loan that Contour Global will obtain, among others. In case the deadline to complete these activities is not met, specifically, if the contract is terminated before the commencement of the construction of the power plant, the government of Kosovo has to pay a penalty fee of 19 million euros towards Contour Global, to cover the expenses for the conducted analyses and the preparation of legal documents.[12] As per the second activity, last June, Contour Global has initiated the bidding process for the selection of the power plant constructor.

9 Ministry of Economic Development. Purchasing Power Agreement. Source: https://bit.ly/2qvxOJj

10 Ministry of Economic Development. Key Facts. Source: https://bit.ly/2Lr4fRy

11 Ministry of Economic Development. Lignite Supply Agreement. Source: https://bit.ly/2vdQGBu

12 Koha Ditore. Minister Lluka calls "Kosova e Re" power plant a historic investment. Source: https://bit.ly/2L0JsY8

Impact on tariffs

The contract for the construction of "Kosova e Re" is a project with a versatile impact in the economy, state budget, health, environment, people displacement, and public debt, among others. Regarding public debt, if the government will offer state guarantee for the "Kosova e Re" project, the debt will reach the highest permitted level according to the Law on Public Financial Management and Accountability, which would diminish the opportunities for loans for other capital projects in the country.[13] However, in this analysis, GAP Institute has evaluated only the impact in electricity tariffs coming from the construction of the power plant according to the signed agreement and other investments in electricity market. Specifically, two scenarios, I and II, have been built. Scenario I considers only the impact of the TPP "Kosova e Re" in the electricity tariffs, whereas Scenario II considers other capital investments in electricity as well.

Since the contract's financial report has not been finalized yet, it is difficult to accurately calculate the price of electricity for when TPP "Kosova e Re" becomes operational. However, considering some parameters provided in the contract, the potential changes in the financial report will not have a great impact in the electricity prices.

When "Kosova e Re" becomes functional in 2023, it will not have a huge impact in increasing production and employment, since it will replace "Kosova A" power plant. Besides the production, it is important to note that in these predictions, there will still be a need for import in 2023 and 2024 until TPP "Kosova B" rehabilitates.

In the current tariffs, "Kosova A" and "Kosova B", which constitute the largest part of the market, produce electricity with a price of 28-30 euro per MWh[14]. The other part of the price comes from the Renewable Energy Sources (RES), hydropower plants and import. The prices of power from RES and import are higher than those of power form power plants; however, since their market share is low, the average wholesale price is around 35 euros per MWh.[15] This price is expected to be relatively stable until 2023, when after the decommission of "Kosova A" and instalment of "Kosova e Re", the wholesale price for production from "Kosova A" (28-30 euro MWh) will be replaced with the targeted price of TPP "Kosova e Re" of 80€/MWh.

However, the wholesale price is not the final tariff that the consumers pay. To reach the end customer, electricity goes through the Transmission System Operator (TSO), a service provided by KOSTT company.

For this, the citizens currently pay around 2.5 - 3€/MWh.[16] After this, the electricity goes through the Distribution System Operator (DSO) or the low transmission provided by KEDS company, for which the consumers pay around 24€/MWh.[17] In the end, it is the Public Electricity Supplier (PES) the one that delivers electricity in our houses. This service is carried out by KESCO for around 6-8€/MWh.[18]

In the scenarios presented by GAP Institute, the wholesale prices will vary in different years depending on the participation of the electricity generating units in the market. In Scenario I, the prices of the companies that carry out the services of delivering the electricity have been left unchanged throughout the years. Whereas in the model based on Scenario II, the prices of these companies have been changed based on the impact of investments in electricity.

13 Ministry of Finance. Medium Term Expenditures Framework 2019-2021. Source: https://bit.ly/2uFedYt

14 Energy Regulatory Office (ERO). Consultation Paper: The Tenth Electricity Tariffs Review. Source: https://bit.ly/2zIN9O0. Including, information received through a request sent to ERO, June, 2018.

15 Information received through a request sent to ERO, June, 2018.

16 Energy Regulatory Office (ERO). Consultation Paper: The Tenth Electricity Tariffs Review. Source: https://bit.ly/2zIN9O0. Including, information received through a request sent to ERO, June, 2018.

17 Ibid.

18 Ibid

Scenario I

Scenario I that represents the electricity price increase for the years 2017 -2026 is too conservative since it doesn't take into account the other investments that are planned in the energy sector, such as the decommission of "Kosova A" power plant, 300 million euros in investments in "Kosova B" power plant and other investments in mining, which would certainly reflect in tariffs. As such, the eventual decreases of the targeted price of 80€\ MWh will not result in lower tariffs than the ones presented in this analysis. Moreover, this analysis takes into account the prediction for consumption and production of electricity obtained from the Long Term Energy Balance 2017-2026 (the basic and high scenario)[19].

Figure 1 illustrates the slight increase of the retail price up to the construction of the "Kosova e Re" power plant. After that, the price paid by the end customers will experience a cumulative increase of 44% compared to the current price.

Scenario II

On the other hand, Scenario II which forecasts the electricity price increase for 2017-2026 includes:

- Investments in opening the new mine. According to MED, around 350 million euros are planned to invest in opening the new mine.[20] The impact of this investment in the Kosovo Energy Corporation (KEC) tariffs' increase has been calculated considering the durability of their assets as determined by the ERO. However, the scenario considers also the positive impact of the opening of the new mine in increasing work efficiency, specifically by lowering operational expenditures and maximum permitted income, and the increase in the generators' performance, which will neutralize to some degree the increase in KEC tariffs. As such, the average annual impact in the KEC tariff by this investment is expected to be around 6%;
- Rehabilitation of TPP "Kosova B" which is expected to cost around 300 million euros.[21] The investments are expected to begin when TPP "Kosova e Re" becomes operational to ensure that there is internal, continuous production. This is noticeable in the electricity production scenario prepared by MED, specifically in Energy Strategy 2017-2026, where the production capacity of TPP "Kosova B" decreases in 2023.[22] The impact of this investment in KEC tariff, of about 4%, is included in our scenario from 2023 and afterwards;
- Continuous capital investments carried out by KEDS according to the transaction contract. Up to now, KEDS has accomplished around 100 from 300 million euros in investments which are foreseen in the contract for a period of 15 years.[23] The completed investments by KEDS have had a wide impact on increasing the depreciation and return on capital with around 2-3% in annual basis, which was reflected in the increase of KEDS annual tariffs. We have included the same rate of growth in tariffs in our model for 2017-2023.
- The cost of KEDS permitted loss by ERO which will have a great impact on increasing the KEDS tariff in 2023. Since the amount of permitted KEDS losses is calculated using the wholesale price of electricity, which will be increased for around 73% in 2023, its increase will have a great impact in the KEDS tariff. However, the lowering of the loss target can have a neutralizing effect in this increase; nonetheless, the total annual consumption in Kosovo is continuously increasing[24];
- Stimulatory tariffs which are supposed to change according to the inflation rate in Eurozone[25] which is expected to be around 0.5 to 2% in the upcoming years;
- The variation that can stem from the KESCO tariff which takes in a 0.3% for retail electricity sale;
- Moreover, this analysis considers the consumption and electricity production obtained by the Electricity Long Term Balance 2017-2026 (the high scenario)[26].

As seen in figure 2, the impact on tariffs in 2023 from the construction of "Kosova e Re" power plant and other investments in energy sector will be around 60.4% higher compared to the current price. Specifically, from around 68 euro per MWh that the end customers pay right now, in 2023 this price is expected to increase to 116 euro per MWh.

19 Ibid.
20 Ministry of Economic Development. Energy Independence for Kosovo. Source: https://bit.ly/2ulchOR
21 Ibid
22 MED. Energy Strategy of the Republic of Kosovo 2009 - 2018. Source: https://bit.ly/2zEpz4R
23 Assembly of Kosovo. Committee for Economic Development, Infrastructure, Trade, Industry and Regional Development Meeting Minutes. Source: https://bit.ly/2KoQA14. And, KEDS. Energy 2017. Source: https://bit.ly/2yZp3y7.
24 See the increasing trend in the scenarios about energy consumption in the Energy Strategy of the Republic of Kosovo 2017 – 2026.
25 Energy Regulatory Office (ERO). Decision V_810_2016. Source: https://bit.ly/2KrXpPB.
26 Ministry of Economic Development. Energy Independence for Kosovo. Source: https://bit.ly/2ulchOR. And, administrative instruction (med) no. 05/2017 renewable energy source target. Source: https://bit.ly/2lMdaCh.

FIGURE 1: The retail electricity price for 2017-2026 according to **Scenario I**

Source: GAP Institute, based in data by ERO

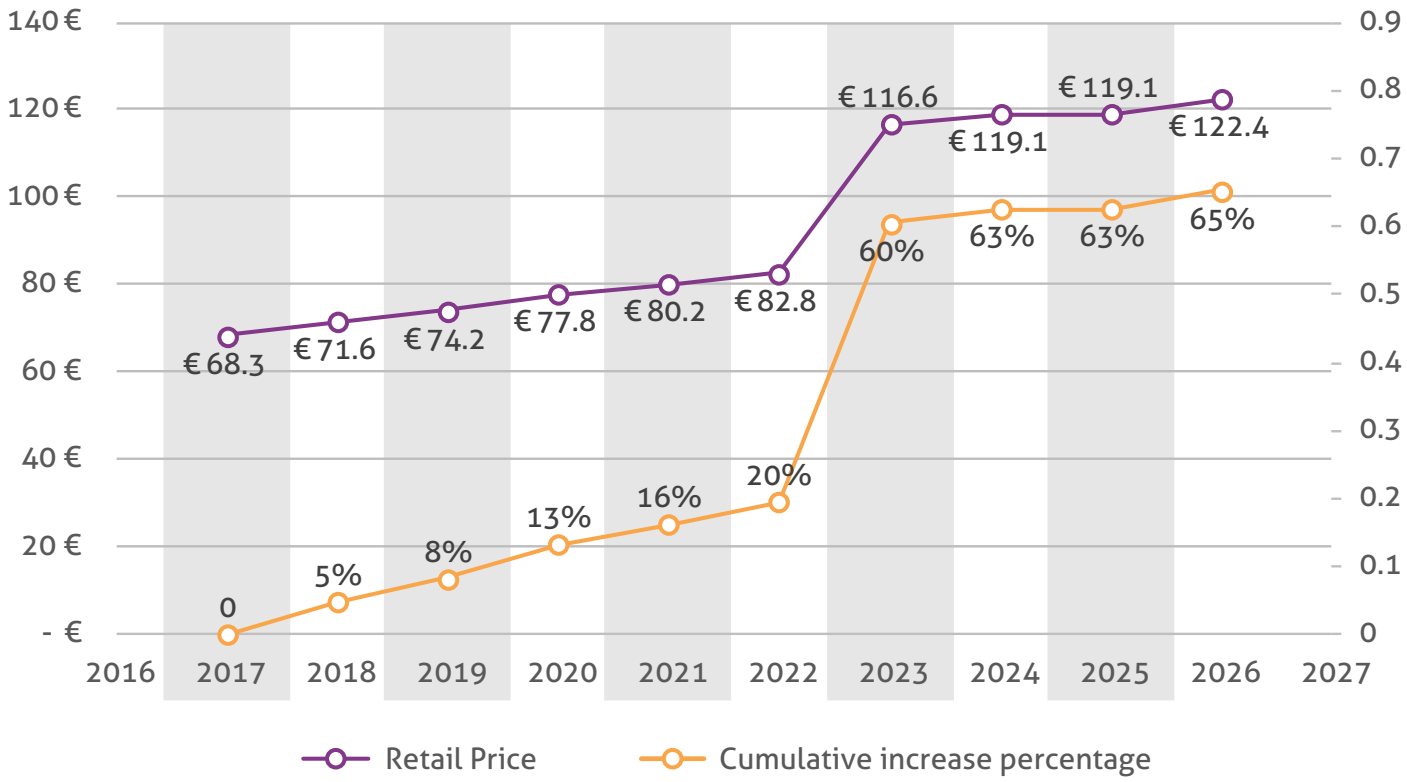
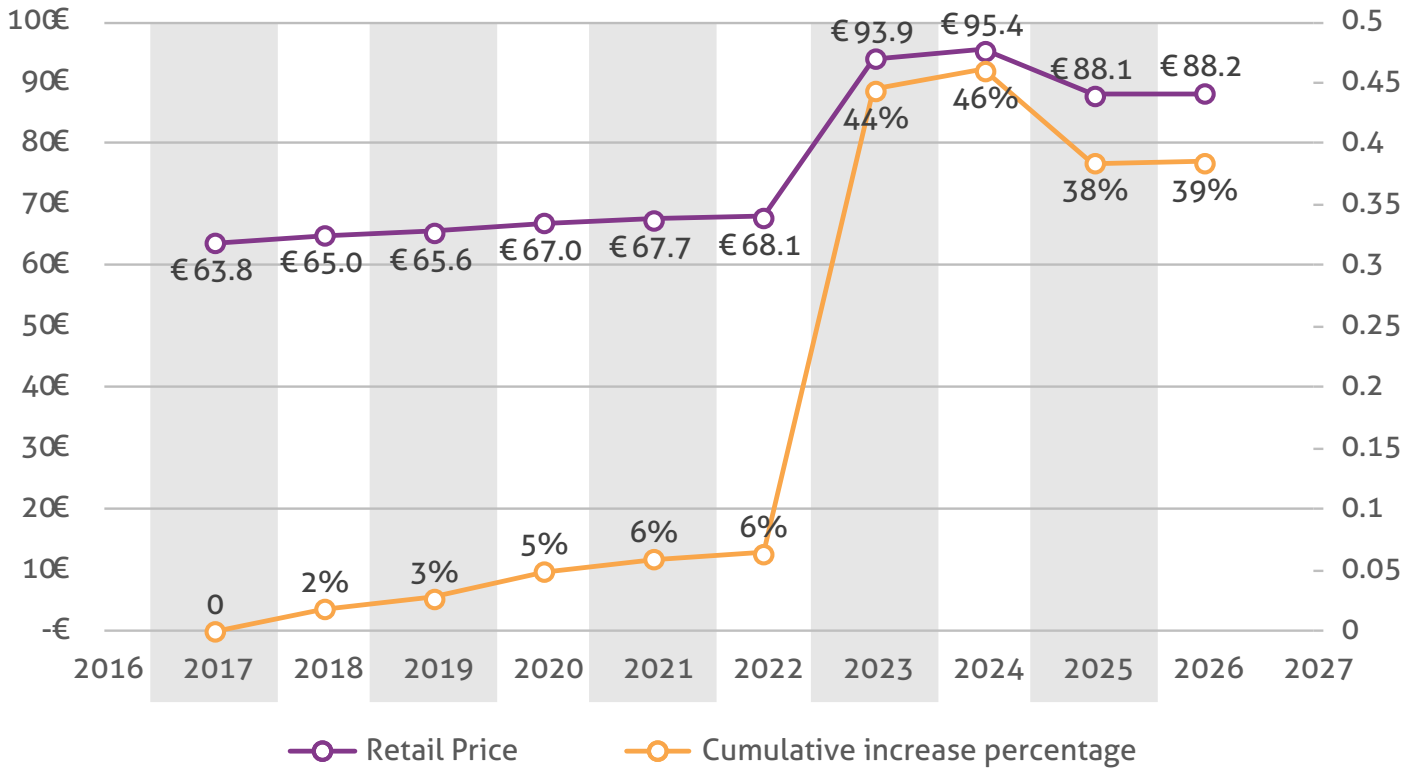


FIGURA 2: Retail electricity prices for 2017-2026 according to **Scenario II**

Source: GAP Institute, based in data by ERO



The impact of electricity prices in household economies

Currently, there are around 515 thousand electricity customers in Kosovo, of which 437 thousand (84%) are residential customers.[27] Based on residential annual consumption, around 2,214 GWh, and average price of selling electricity in 2017, 6.52 €cent/kWh (VAT included), the monthly electricity consumption (average) of a residential household is around 422 kWh.[28] In monetary value, the monthly average bill of a household in Kosovo is around 28 euros. As seen in table 1, the impact of the increase in electricity prices on household budgets will be more emphasized for households with monthly income up to 628 euro.

The most endangered groups from the electricity price increase are the families that live below the poverty line. According to the 2015 report on consumption poverty in Kosovo, there are around 76,000 families that live on less than 218 euro per month.[29] Based on the data presented by the Energy Regulatory Office (ERO) about the household bills from the Kosovo Electricity Distribution and Supply Company (KEDS), the average current price of electricity and the number of active consumers, the monthly electricity bill of these citizens will be around 21% (45 euros) of the household monthly income. As such, a lot of these families will face extreme poverty and hardened life conditions due to a decrease in electricity consumption or replacing it with basic products.

For the 26,000 families that are part of the Social Assistance Scheme (SAS), the government currently pays around 4.5 million euros to cover their electricity expenses.[30] Increasing the price in this case will negatively impact the state budget. Specifically, to subsidize the same amount of electricity as in 2018, in 2023 the government has to pay around 7.2. million euros.

TABLE 1: Monthly electricity bill as a percentage of monthly income before and after the construction of TPP "Kosova e Re"

Monthly household income	Monthly residential consumption	Average electricity price for households (VAT included)	Current monthly electricity bill as a percentage of monthly income	Monthly electricity bill as a percentage of monthly income after the **60.4%** price increase
218 €	422 kWh	6.52 €cent/kWh	13% (28 euro)	**21%** (45 euro)
500 €	537 kWh	6.52 €cent/kWh	7% (35 euro)	**11%** (56 euro)
628 €	614 kWh	6.52 €cent/kWh	6% (40 euro)	**10%** (64 euro)
1000 €	690 kWh	6.52 €cent/kWh	4.5% (45 euro)	**7%** (72 euro)

Source: GAP Institute, based on data by ERO

27 Energy Regulatory Office. Costumer services offered by KEDS and KESCO for the period January 2015 – June 2016. Source: https://bit.ly/2IUbgsl Energy Regulatory Office. Annual Report 2017.
28 Energy Regulatory Office. Annual Report 2017.
29 Kosovo Agency of Statistics. Consumption Poverty in the Republic of Kosovo 2012-2015. April, 2017. Source: https://bit.ly/2uEHrGU.
30 Ministry of Finance. The Budget of the Republic of Kosovo, 2018. Source: https://bit.ly/2K3jyDJ

The impact in businesses

For businesses in Kosovo, specifically the manufacturing ones, the electricity cost is one of the main factors impacting their operation. To present this impact, GAP Institute has conducted a survey with businesses from the main sectors in Kosovo such as manufacturing, processing, services, trade, and others. In this sample, 84 small and medium enterprises located in all of Kosovo have been included.

More than 14% of interviewed enterprises declared that electricity is the biggest monthly expenditure of the business, whereas 75% stated that the primary cost is the raw material followed by electricity. Jointly, around 90% of the businesses declared that electricity and raw material are the main expenditures for their enterprises followed by salaries and operational expenditures.

Around 80% of interviewed small and medium enterprises pay in average less than 4 thousand euros per month for electricity. With the increase of tariffs for 60.4% as a consequence of the TPP "Kosova e Re" and other investments in the energy sector, only 68% remain in the first category with electricity expenses less than 4 thousand euros. Figure 3 presents the percentage of businesses that pay varying amounts of electricity before and after the tariff increase. Currently, a manufacturing company of thermal insulation materials pays in average 33 thousand euros per month for electricity. With the increase of tariffs for 60.4%, the same company will have to pay around 53 thousand euros.

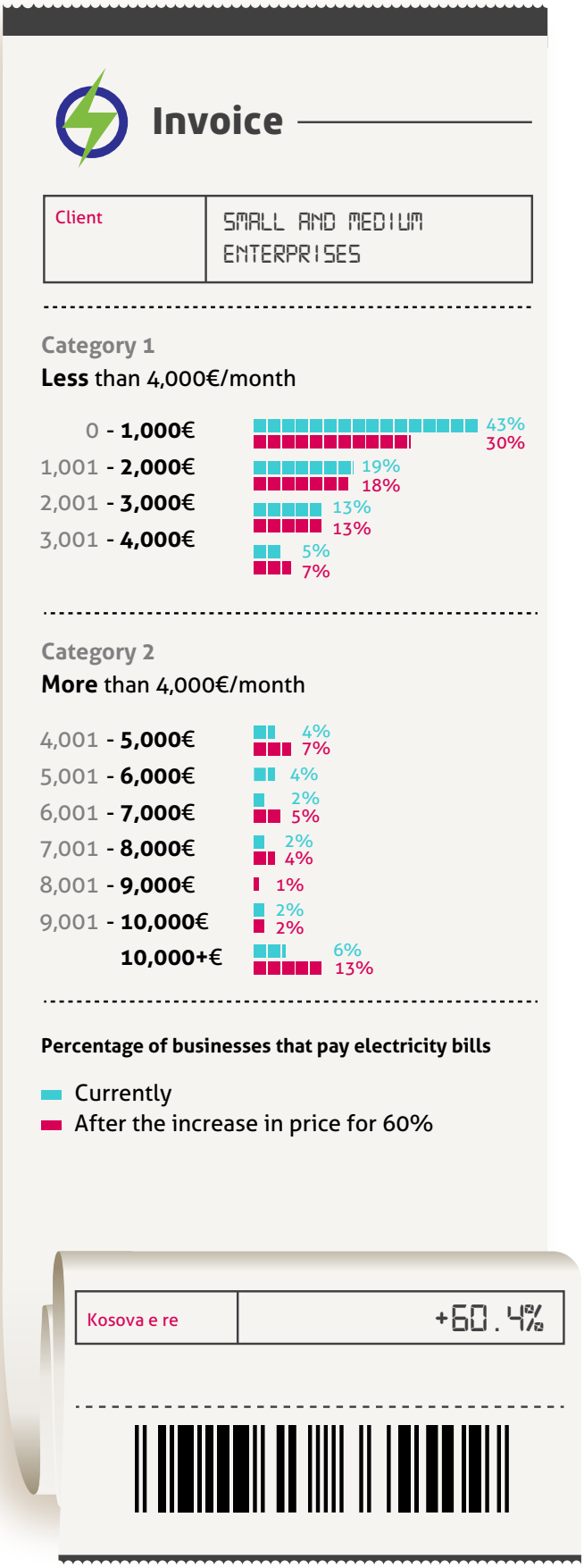
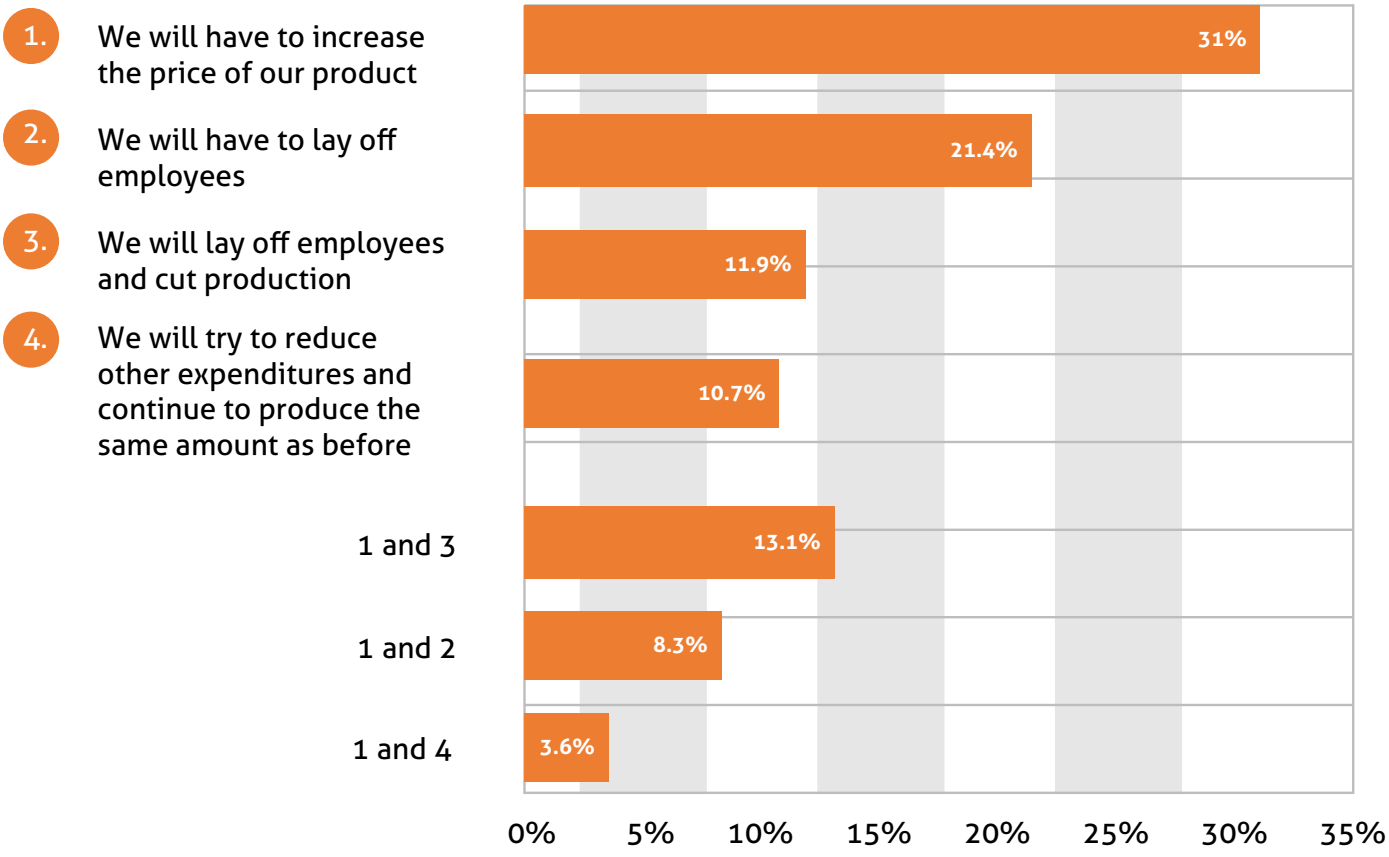


FIGURE 3: Average monthly expenditures of businesses in electricity bills

With the increase in electricity prices, the interviewed businesses stated that their operation will become very difficult. Figure 4 presents decisions businesses consider to undertake immediately after the tariff increase. In this figure, we see that 31% of the businesses stated that the increase in product prices will be inevitable, 21% will cut the number of employees, and around 8% will be forced to undertake both actions.

FIGURE 4: Business decisions after the electricity price increase for 60.4%



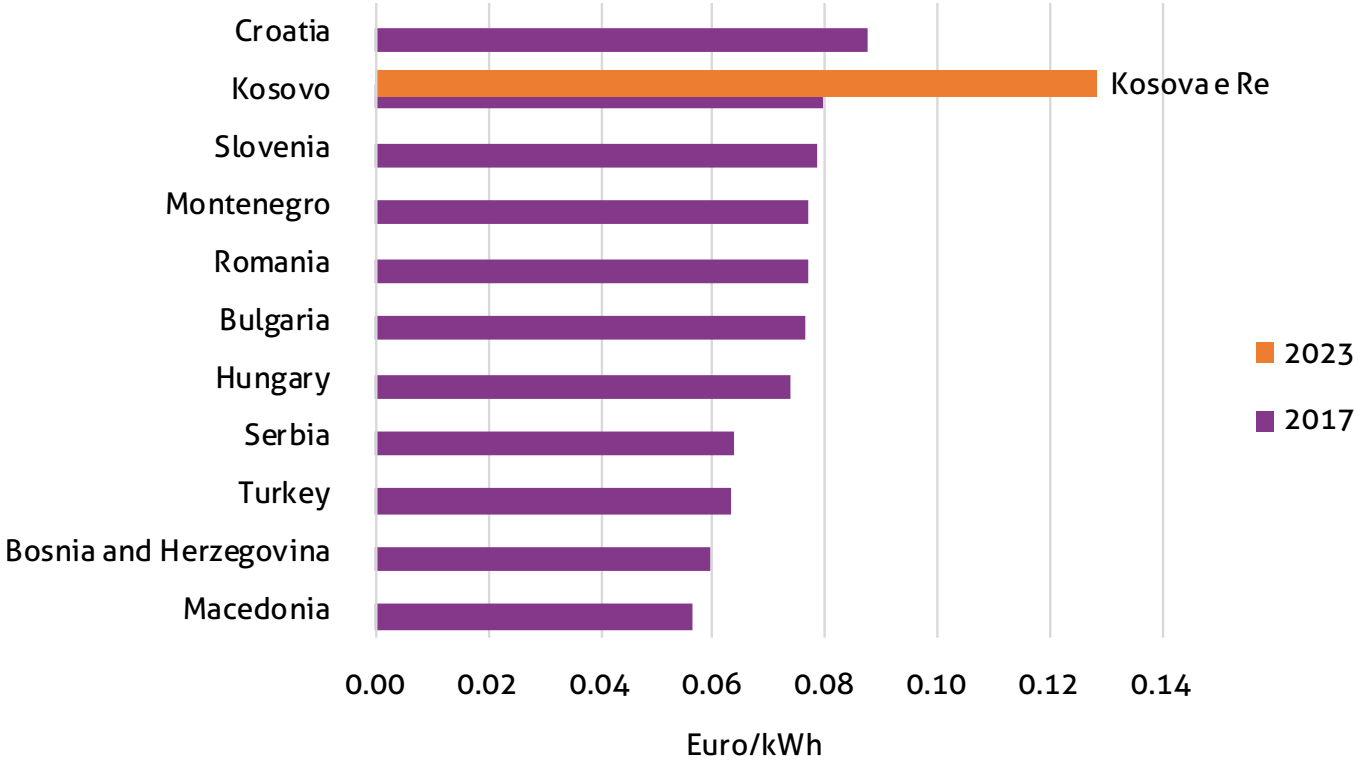
From the big foreign investors in Kosovo, also industrial consumers, Ferronikel and Sharrcem depend considerably in using electricity. Specifically, together they consume 12% of the electricity produced in the country and are supplied directly by the transmission network.[31] The price with which these two enterprises have been supplied for years has not surpassed 50 euro per MWh, a lower value than that for the retail electricity price for consumers and small businesses. In case "Kosova e Re" power plant is constructed, only the price for capacity, 60 euro per MWh, will be higher than the entire current supply price for Sharrchem and Ferronikel. The price these two enterprises will pay from 2023 will be at least 80 euro per MWh. In these conditions, the operation of these two industrial consumers becomes impossible. Considering the fact that Ferronikel and Sharrcem employ 1000 people, directly and indirectly, their departure from the market would harm the wellbeing of many Kosovo citizens.

31 Energy Regulatory Office (ERO). Consultation Paper: The Tenth Electricity Tariffs Review. Source: https://bit.ly/2zIN9O0.

Manufacturing enterprises, on the other hand, will face obstacles in development and enterprise growth and will be less competitive. To neutralize the increase in electricity, they will have to reduce other expenditures, including the number of employees, or will have to increase the sale price. In both cases it will be difficult for them to handle the competition with similar products from other countries which do not foresee such an increase in their electricity prices.

On the other hand, in case they transmit the cost of the increase in electricity prices in their products, they will face a strong competition from the products of neighboring countries. Enterprises in these other countries have either way advanced more in the manufacturing part due to the experience gained through the years. As seen in Figure 5, currently countries like Macedonia, Bosnia, Serbia and others, have more favorable electricity prices for industries. As such, besides the advantage in the market due to the experience of manufacturing enterprises and advancements in manufacturing methods, foreign products will have the advantage of cheaper production inputs. Therefore, with the increase of electricity prices in 2023 for at least 44%, Kosovo risks becoming the least attractive country in the region in this aspect for foreign investors.

FIGURE 5: Average prices of big industrial consumers (without VAT), January – June 2017



Source: GAP Institute based on Eurostat data

In 2023, as seen in Figure 5, electricity prices for industries in Kosovo will increase to 12.8 cent per kWh, which is around 6.5 cents higher compared to prices in Macedonia and Serbia.

Conclusion

Kosovo faces huge problems in the energy sector due to the obsolescence of current generating capacities and the lack of sufficient electricity capacities. Insufficient supply of electricity is one of the biggest problems for businesses in Kosovo.

Kosovo institutions took 12 years since the first call for construction of the new power plant to the signing of the construction contract. However, the conditions of the signed contract in December 2017 between the Government of Kosovo and Contour Global are too unfavorable for the country's economy. Based on findings by GAP Institute, the new power plant will significantly burden the household economies' budget, will increase the operational cost of the businesses and the unemployment rate, and will have a negative impact on the budget of Kosovo.

This analysis by GAP Institute has not analyzed the contract in its entirety; rather, it has focused solely on the impact the construction of TPP "Kosova e Re" will have in electricity tariffs. Such an analysis would have to be conducted and published by ERO prior to the signing of the contract between the Government of Kosovo and Contour Global.

Moreover, considering that the contract for TPP "Kosova e Re" will have budgetary implications, starting from direct payments from the budget for the bills of families with a challenging social situation, investments expected to happen in mining, the establishment of the new public enterprises for the purchase of energy from "Kosova e Re" and mining management, and others, the Assembly of Kosovo should request from the Ministry of Finance an Evaluation of the Financial Impact of the contract "Kosova e Re". The Ministry of Finance should evaluate the impact of TPP "Kosova e Re" in public debt, since it has not done this in its Medium Term Expenditures Framework 2019 – 2020, and thus, present the risks for access in finances for other capital projects. As it is right now, the agreement for the construction of TPP "Kosova e Re" can bring more negative consequences for the country's economy than positive impact.

Annex

Annex 1

TABLE 2: Prediction of wholesale production, price and cost of electricity GWh based on Scenario I

Electricity production												
		Unit\Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	TPP Kosova A	GWh	1982	1800	1800	1800	1800	1800	0	0	0	0
	TPP Kosova B	GWh	3563	3200	3200	3200	3200	3200	2000	1600	3400	3400
	TPP Kosova e Re	GWh	0	0	0	0	0	0	3370	3370	3370	3370
Total from power plants		GWh	5545	5000	5000	5000	5000	5000	5370	4970	6770	6770
	HC Ujmani	GWh	95	92	92	92	92	92	92	92	92	92
	HC other (Lumbardhi, Dikance, Burimi)	GWh	193	309	336	357	366	366	366	366	396	423
Total from hydropower plants		GWh	288	401	428	449	458	458	458	458	488	515
	Biomass	GWh	0	0	0	30	30	38	53	53	68	68
	Wind	GWh	2	61	109	123	193	193	210	210	228	268
	Solar	GWh	1	8	8	10	10	12	12	14	14	16
Total from renewable resources		GWh	3	69	117	163	233	243	275	277	310	352
Net total production			5836	5470	5545	5612	5691	5701	6103	5705	7568	7637
	Import	GWh	763	763	789	853	870	971	524	1036	100	100
	Export	GWh	-350	-350	-350	-350	-350	-350	-350	-350	-350	-350
Net available electricity			6249	5883	5984	6115	6211	6322	6277	6391	7318	7387

Electricity purchase price												
		Unit\Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
TC	TPP Kosova A	€/MWh	28	28	28	29	29	29	0	0	0	0
	TPP Kosova B	€/MWh	28	28	28	29	29	29	29	29	29	29
	TPP Kosova e Re	€/MWh	0	0	0	0	0	0	80	80	80	80
Hydro	HC Ujmani	€/MWh	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
	Existing (Lumbardhi, Dikance, Burimi, Radavci)	€/MWh	43.8	43.8	43.8	43.8	43.8	43.8	43.8	43.8	43.8	43.8
RES	Biomass	€/MWh	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3
	Wind	€/MWh	85	85	85	85	85	85	85	85	85	85
	Solar	€/MWh	136.4	136.4	136.4	136.4	136.4	136.4	136.4	136.4	136.4	136.4
	Import	€/MWh	55	55	55	55	55	55	55	55	55	55
	Export	€/MWh	37	37	37	37	37	37	37	37	37	37

Cost												
		Unit\Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
TC	TPP Kosova A	€'000	€ 55,496	€ 50,400	€ 50,400	€ 52,200	€ 52,200	€ 52,200	€ -	€ -	€ -	€ -
	TPP Kosova B	€'000	€ 99,764	€ 89,600	€ 89,600	€ 92,800	€ 92,800	€ 92,800	€ 58,000	€ 46,400	€ 98,600	€ 98,600
	TPP Kosova e Re	€'000	€ -	€ -	€ -	€ -	€ -	€ -	€269,600	€269,600	€269,600	€269,600
Hydro	HC Ujmani	€'000	€ 2,613	€ 2,530	€ 2,530	€ 2,530	€ 2,530	€ 2,530	€ 2,530	€ 2,530	€ 2,530	€ 2,530
	Existing (Lumbardhi, Dikance, Burimi, Radavci)	€'000	€ 8,453	€ 13,534	€ 14,717	€ 15,637	€ 16,031	€ 16,031	€ 16,031	€ 16,031	€ 17,345	€ 18,527
RES	Biomass	€'000	€ -	€ -	€ -	€ 2,139	€ 2,139	€ 2,709	€ 3,779	€ 3,779	€ 4,848	€ 4,848
	Wind	€'000	€ 170	€ 5,185	€ 9,265	€ 10,455	€ 16,405	€ 16,405	€ 17,850	€ 17,850	€ 19,380	€ 22,780
	Solar	€'000	€ 136	€ 1,091	€ 1,091	€ 1,364	€ 1,364	€ 1,637	€ 1,637	€ 1,910	€ 1,910	€ 2,182
	Import	€'000	€ 41,965	€ 41,965	€ 43,395	€ 46,915	€ 47,850	€ 53,405	€ 28,820	€ 56,980	€ 5,500	€ 5,500
	Export	€'001	€(12,950)	€(12,950)	€(12,950)	€(12,950)	€(12,950)	€(12,950)	€(12,950)	€(12,950)	€(12,950)	€(12,950)
	Total	€'002	€195,647	€191,355	€198,048	€211,090	€218,369	€224,767	€385,297	€402,129	€406,763	€411,618
	Wholesale average price		€ 31.3	€ 32.5	€ 33.1	€ 34.5	€ 35.2	€ 35.6	€ 61.4	€ 62.9	€ 55.6	€ 55.7

Source: GAP Institute, based on data by ERO and KOSTT

TABLE 3: Prediction of wholesale production, price and cost of electricity GWh based on Scenario II

Electricity production											
		Unit\Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	TPP Kosova A	GWh	1800	1800	1800	1800	1800	1800	0	0	0	0
	TPP Kosova B	GWh	3200	3200	3200	3200	3200	3200	2000	1600	3400	3400
	TPP Kosova e Re	GWh	0	0	0	0	0	0	3370	3370	3370	3370
Total from power plants		GWh	5000	5000	5000	5000	5000	5000	5370	4970	6770	6770
	HC Ujmani	GWh	95	92	92	92	92	92	92	92	92	92
	HC other (Lumbardhi, Dikance, Burimi)	GWh	193	309	336	357	366	366	366	366	396	423
Total from hydropower plants		GWh	288	401	428	449	458	458	458	458	488	515
	Biomass	GWh	60	75	90	150	152	153	155	156	158	159
	Wind	GWh	123	231	260	302	305	308	311	314	318	321
	Solar	GWh	14	16	19	62	62	63	64	64	65	65
Total from renewable resources		GWh	197.4	322.8	368.4	513.9	519.039	524.229	529.472	534.766	540.114	545.515
Net total production			5485	5724	5796	5963	5977	5982	6357	5963	7798	7831
	Import	GWh	763	763	789	853	870	971	524	1036	100	100
	Export	GWh	-350	-350	-350	-350	-350	-350	-350	-350	-350	-350
Net available electricity			5898	6137	6235	6466	6497	6603	6531	6649	7548	7581

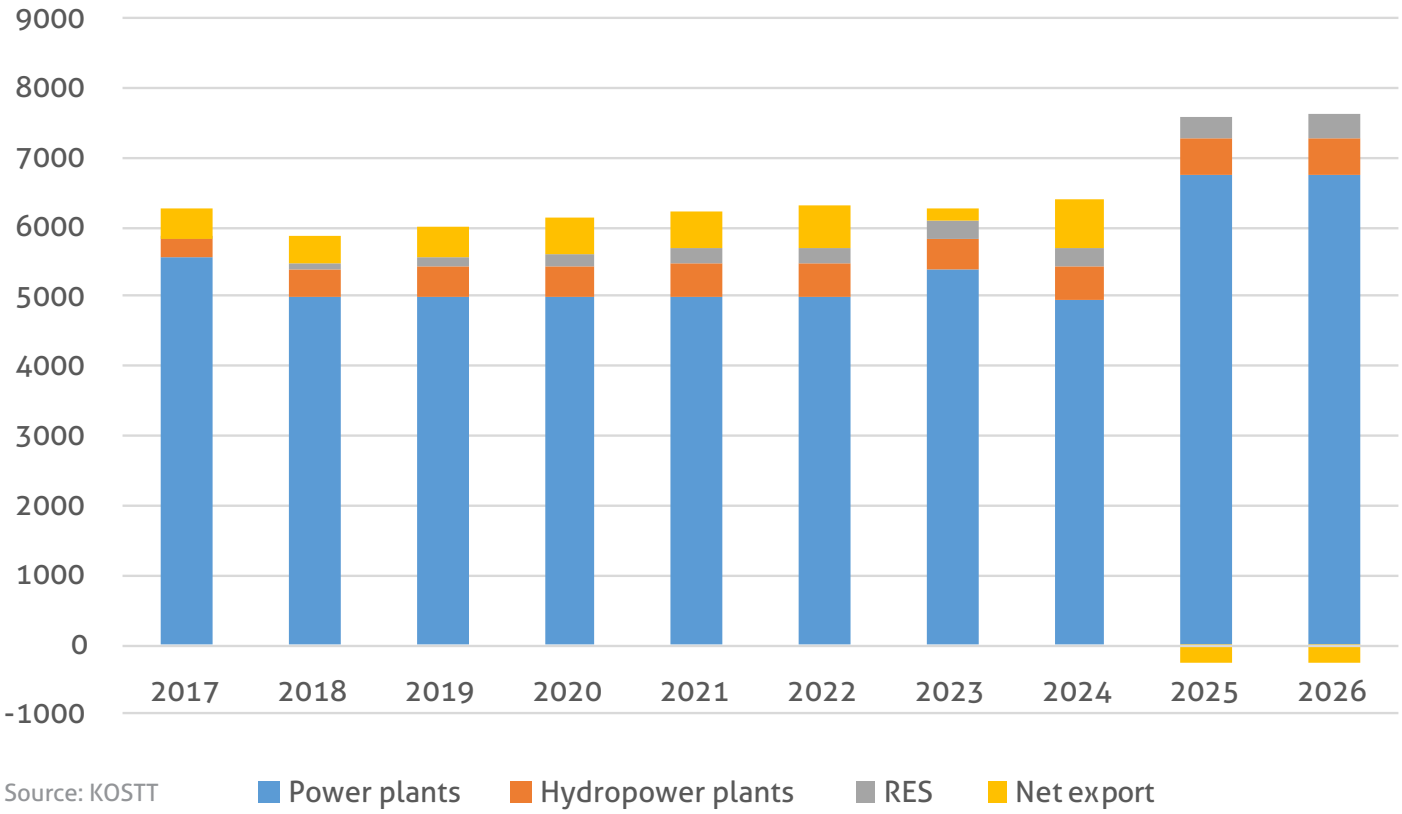
Electricity purchase price											
		Unit\Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
TC	TPP Kosova A	€/MWh	30.4	32.224	34.15744	36.207	38.3793	40.682	0	0	0	0
	TPP Kosova B	€/MWh	30.4	32.224	34.15744	36.207	38.3793	40.682	44.750	49.2253	54.148	59.563
	TPP Kosova e Re	€/MWh	0	0	0	0	0	0	80	80	80	80
Hydro	HC Ujmani	€/MWh	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
	Existing (Lumbardhi, Dikance, Burimi,	€/MWh	43.8	44.238	44.68038	45.127	45.578	46.034	46.495	46.959	47.429	47.903
RES	Biomass	€/MWh	71.3	72.013	72.73313	73.460	74.195	74.937	75.686	76.443	77.208	77.979
	Wind	€/MWh	85	85.85	86	86.86	87	87.87	88	88.88	89	89.89
	Solar	€/MWh	136.4	137.764	137.4	138.774	138.4	139.784	139.4	140.794	140.4	141.804
	Importi	€/MWh	55	55	55	55	55	55	55	55	55	55
	Exporti	€/MWh	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8

Cost											
		Unit\Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
TC	TPP Kosova A	€'000	€ 54,720	€ 58,003	€ 61,483	€ 65,172	€69,083	€ 73,228	€ -	€ -	€ -	€ -
	TPP Kosova B	€'000	€ 97,280	€103,117	€ 109,304	€115,862	€122,814	€ 130,183	€ 89,501	€ 78,760	€ 184,103	€ 202,513
	TPP Kosova e Re	€'000	€ -	€ -	€ -	€ -	€ -	€ -	€ 269,600	€ 269,600	€ 269,600	€ 269,600
Hydro	HC Ujmani	€'000	€ 2,613	€ 2,530	€ 2,530	€ 2,530	€ 2,530	€ 2,530	€ 2,530	€ 2,530	€ 2,530	€ 2,530
	Existing (Lumbardhi, Dikance, Burimi, Radavci)	€'000	€ 8,453	€ 13,670	€ 15,013	€16,110	€16,682	€ 16,849	€ 17,017	€ 17,187	€ 18,782	€ 20,263
RES	Biomass	€'000	€ 4,278	€ 5,401	€ 6,546	€11,019	€11,241	€ 11,466	€ 11,697	€ 11,932	€ 12,172	€ 12,417
	Wind	€'000	€ 10,455	€ 19,866	€ 22,351	€26,249	€26,554	€ 27,088	€ 27,399	€ 27,950	€ 28,268	€ 28,836
	Solar	€'000	€ 1,964	€ 2,259	€ 2,542	€ 8,562	€ 8,625	€ 8,798	€ 8,862	€ 9,040	€ 9,105	€ 9,288
	Importi	€'000	€ 41,965	€ 41,965	€ 43,395	€ 46,915	€47,850	€ 53,405	€ 28,820	€ 56,980	€ 5,500	€ 5,500
	Exporti	€'001	€(13,230)	€(13,230)	€ (13,230)	€(13,230)	€(13,230)	€ (13,230)	€ (13,230)	€ (13,230)	€ (13,230)	€ (13,230)
	Total	€'002	€208,498	€233,581	€ 249,934	€279,190	€292,148	€ 310,316	€ 442,196	€ 460,750	€ 516,829	€ 537,716
	Wholesale average price		€ 35.3	€ 38.1	€ 40.1	€ 43.2	€ 45.0	€ 47.0	€ 67.7	€ 69.3	€ 68.5	€ 70.9

Source: GAP Institute, based on data by ERO, MED, and Administrative Instruction (MED) nr. 05/2017

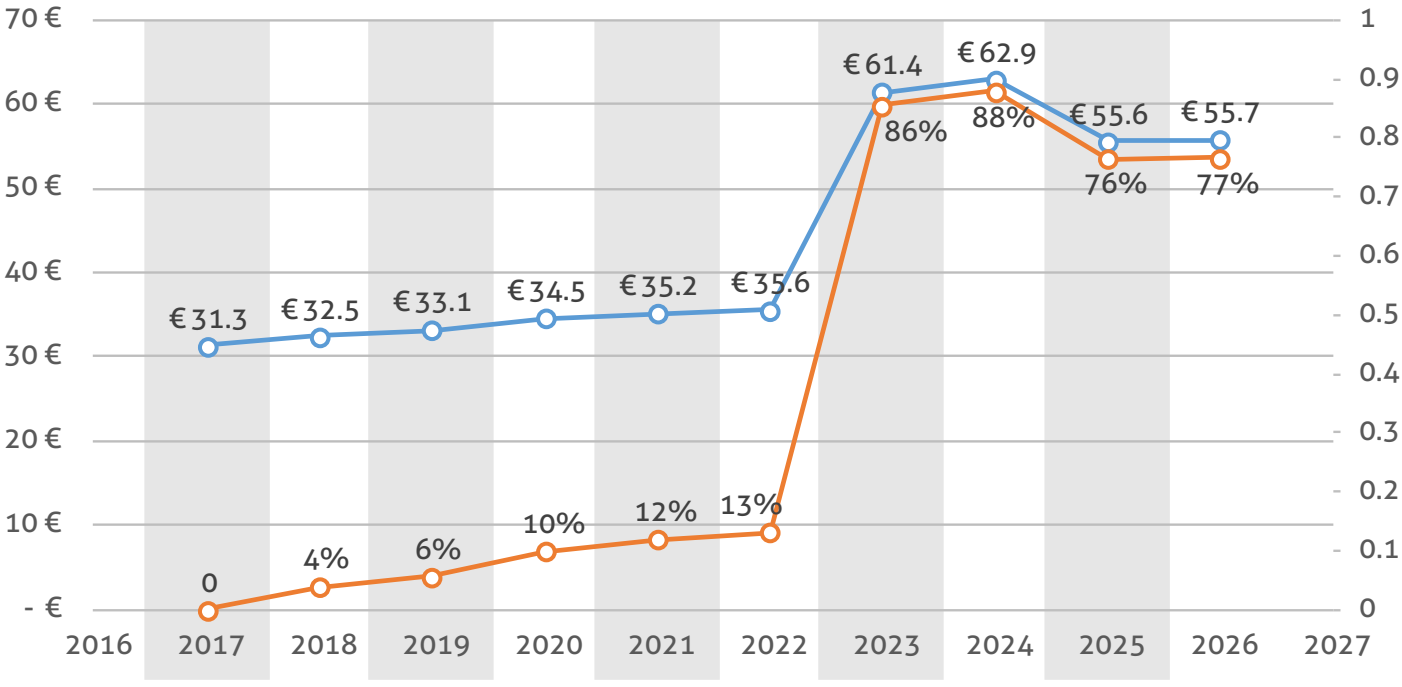
Annex 2

FIGURE 6: Electricity production GWh based on Scenario I



Source: KOSTT

FIGURE 7: Wholesale electricity prices for 2017-2026 according to Scenario I



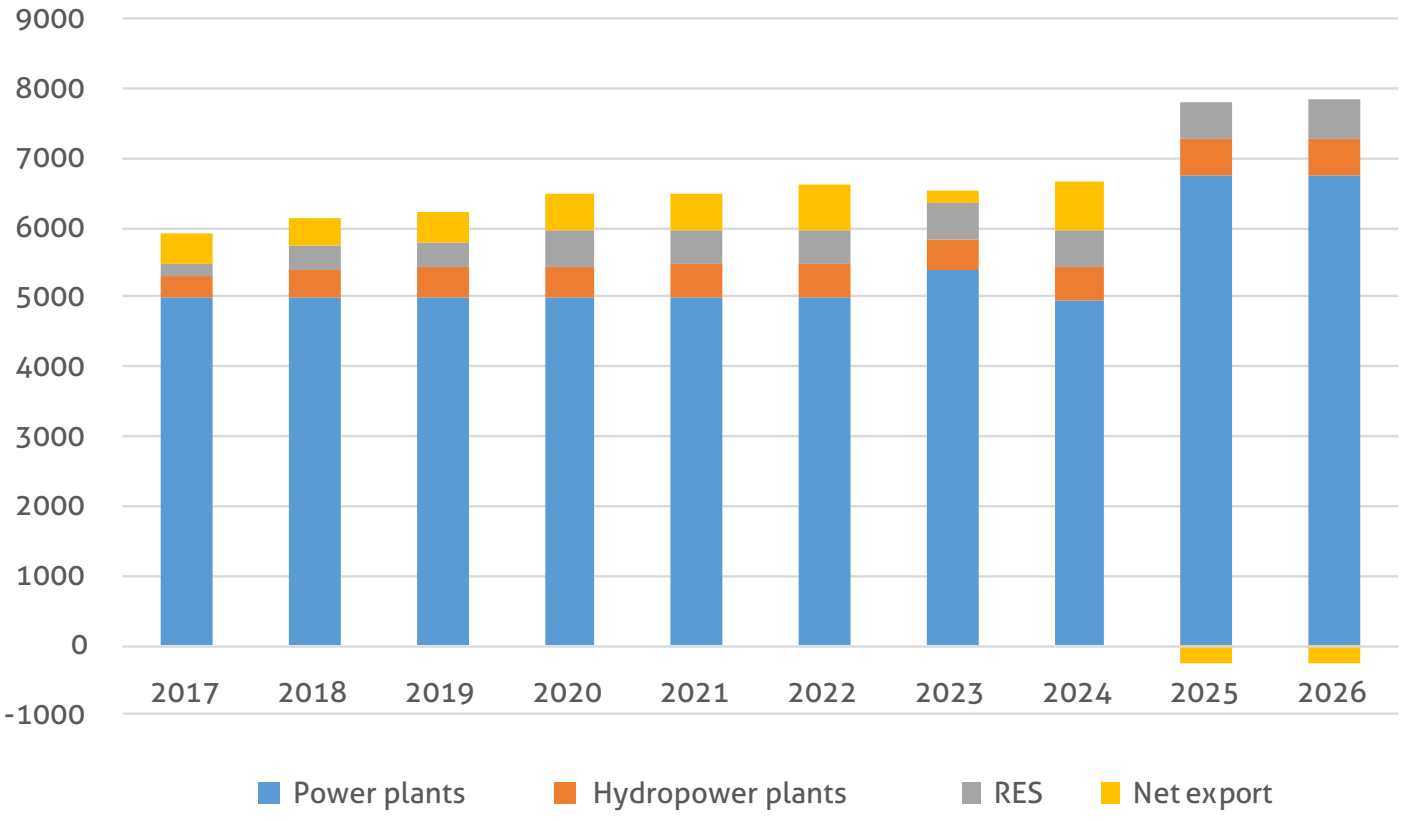
Source: GAP Institute, based on data by ERO

TABLE 4: Average retail price according to Scenario I

		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Average wholesale price	€/MWh	30.00	31.20	31.80	32.50	33.10	33.60	60.60	62.30	54.40	54.60
TSO (KOSTT)	€/MWh	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
DSO (KEDS)	€/MWh	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
PES (KESCO etj.)	€/MWh	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Average retail price	**€/MWh**	**65.00**	**66.20**	**66.80**	**67.50**	**68.10**	**68.60**	**95.60**	**97.30**	**89.40**	**89.60**

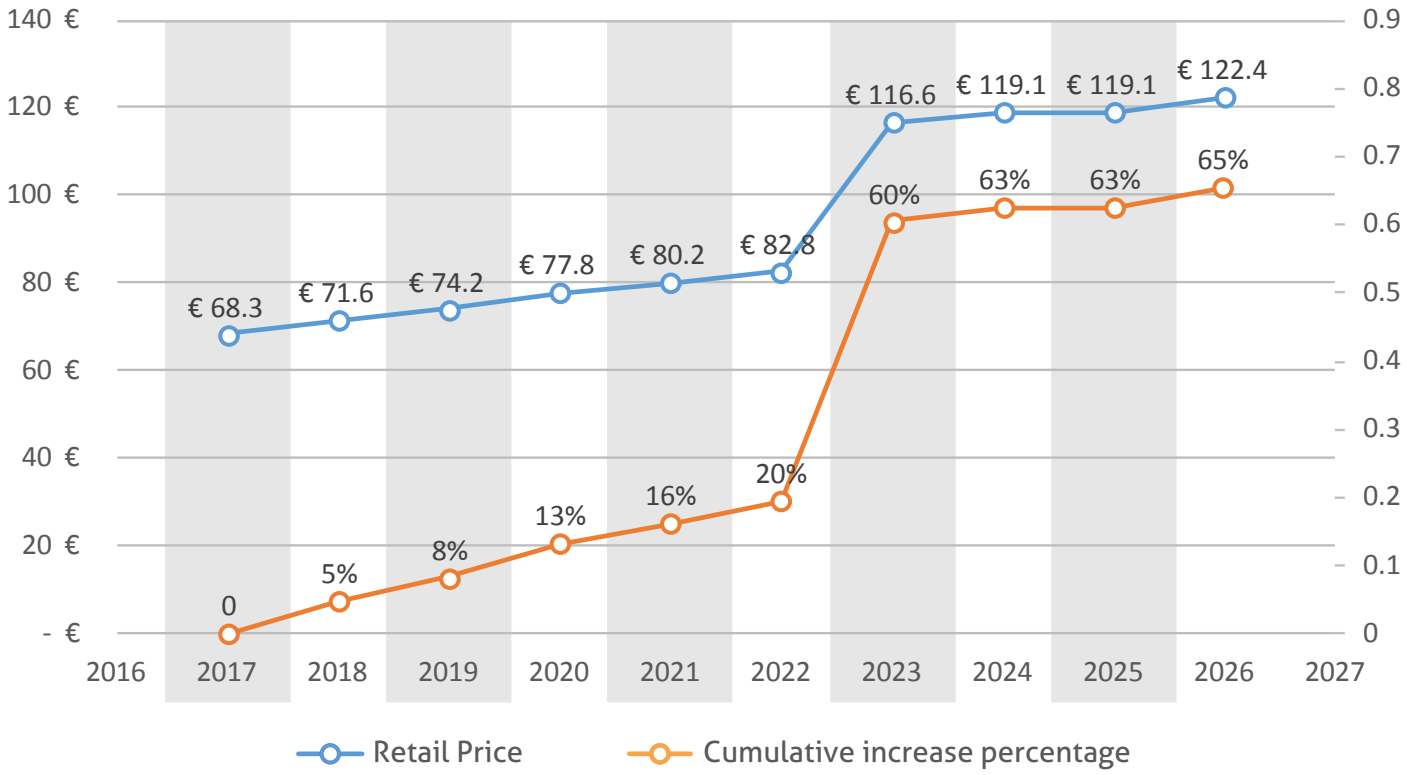
Source: GAP Institute, based on data by ERO

FIGURE 8: Production of electricity GWh based on Scenario II



Source: GAP Institute, based on data by MED, and Administrative Instruction (MED) nr. 05/2017

FIGURE 9: Wholesale electricity prices for 2017-2026 according to Scenario II



Source: GAP Institute, based on data by ERO

TABLE 5: Average retail price according to Scenario II

		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Average wholesale price	€/MWh	35.35	38.06	40.08	43.18	44.97	46.99	67.70	69.30	68.47	70.93
TSO (KOSTT)	€/MWh	2.50	2.51	2.52	2.53	2.54	2.55	2.56	2.57	2.58	2.59
DSO (KEDS)	€/MWh	23.50	24.02	24.55	25.09	25.64	26.20	39.30	40.17	40.97	41.79
PES (KESCO etj.)	€/MWh	7.00	7.01	7.02	7.03	7.04	7.05	7.06	7.07	7.08	7.09
Average retail price	**€/MWh**	**68.35**	**71.60**	**74.17**	**77.82**	**80.18**	**82.80**	**116.62**	**119.11**	**119.10**	**122.40**

Source: GAP Institute, based on data by ERO

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July 2018

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