SMART Balkans
Civil Society for Shared Society in the Western Balkans

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GOVERNMENTS' SUPPORT TO IMPROVING ENERGY EFFICIENCY AS A RESPONSE TO MITIGATING (FUTURE) ENERGY SHOCKS WESTERN BALKAN 6

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GOVERNMENTS' SUPPORT TO IMPROVING ENERGY EFFICIENCY AS A RESPONSE TO MITIGATING (FUTURE) ENERGY SHOCKS WESTERN BALKAN 6

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ABBREVIATIONS

BiH	Bosnia and Hercegovina
CO2	Carbon Dioxide
DSO	Distribution System Operator
EBRD	European Bank for Regional Development
EE	Energy Efficiency
EnC	Energy Community
EPCG	Montenegro National Energy Company
EPS	Serbian Energy Cooperation
ERO	Energy Regulatory Office
EU	European Union
EUR	Euro
GDP	Gross Domestic Product
GEFF	Green Economy Financing Facility
GIZ	German Development Cooperation
GWh	Gigawatt hours
HUPX	Hungarian Power Exchange Company Limited by Shares
IFI	International Financial Institution
IPA	Instrument for Pre-accession Assistance
KEDS	Kosovo Electricity Distribution Company
KESCO	Kosovo Electricity Supply Company
KESH	Albania Energy Corporation
KOSTT	Transmission, System and Market Operator of the Republic of Kosovo
Ktoe	Kilotonnes of oil equivalent
kWh	Kilowatt hour
LEERUE	Law on Energy Efficiency and Rational Use of Energy
MCC	Millennium Challenge Corporation
Mtoe	Mega tonnes of oil equivalent
MWh	Megawatt-hour
NECP	National Energy and Climate Plan
NEEAP	National Energy Efficiency Action Plan
RES	Renewable Energy Systems
toe	Tons of oil equivalent
TSO	Transmission System Operator
VAT	Value-Added Tax
WB6	Western Balkan 6- Kosovo, Serbia, Bosnia and Hercegovina, North Macedonia, Albania, and Montenegro.

EXECUTIVE SUMMARY

The Western Balkan region is characterized by high coal and energy intensity levels, surpassing the EU average by threefold. Recent energy market fluctuations have exacerbated challenges, particularly impacting vulnerable populations through increased electricity prices and energy poverty. Despite governmental efforts, and the electricity prices stabilizing since reaching the peak in 2022, many challenges persist, impacting the energy security of the region.

Implementing Energy Efficiency measures is vital not only for meeting international obligations but also for driving economic development, energy stability, and independence. The yearly increase in energy demand, and the high energy intensity, three times larger than the EU average, make the investment in EE a priority sector for WB6 countries. The latest energy crisis has further demonstrated the vulnerability of the system, where more than 500 million EUR (approx. half the investment made in WB6 throughout last ten years) were needed to offset the impact of the crisis and ultimately the electricity price has increased on average 10 percent for the end-consumers throughout the WB6.

Policy-wise, WB6 countries have aligned their policies with the third energy package. However, challenges continue in meeting set targets, especially in the building sector, where substantial renovation investments are required. Despite international support, investment needs remain unmet, with only 30percent of the required funds allocated between 2010 and 2020. However, the energy saved from the investments made during this period is equivalent to hundreds of millions of euros. The government investments in EE have been heavily directed towards public buildings with more than 771.1 million invested in the public sector as compared to 288.8 million EUR in the residential/ commercial sector.

In terms of investments, Bosnia and Herzegovina (BiH) has invested 253 million EUR, with 22percent in the residential sector through Banks and Growth Green Fund. Kosovo has invested 48.8 million EUR in the public sector and 130 million EUR in the residential sector through various initiatives. Montenegro has allocated 85 million EUR for EE in public buildings and distribution network improvement, with only four projects implemented through commercial banks. North Macedonia has invested 40 million EUR in the residential sector through soft loans and donor-funded projects, and 120 million EUR in the public sector. Serbia has implemented projects totaling 415 million EUR, with approximately 95 million EUR invested in the residential sector.

Looking ahead to 2030 targets, EE emerges as a crucial and no-regret policy for sustainable development in the WB6 region. While progress is evident, there is a significant investment gap of approximately 2.4 billion EUR over the next decade. Achieving these targets is projected to result in substantial energy demand reduction, budgetary savings, and job creation opportunities, benefiting both the economy and local communities. With approximately 40,000 new jobs (4,073 in Kosovo, 6,250 in Serbia, 7,450 in Albania, 5,819 in BiH, 2,091 in North Macedonia, 5,558 in Montenegro, and 10,000

indirect long-term jobs throughout 6 countries) being induced and energy savings of more than 1 billion EUR for the next 10 years, EE becomes a no-regret policy alternative.

However, challenges persist, including budgetary constraints and the need to empower the private sector to engage actively in EE initiatives. To address this, greater emphasis is required on building the private sector's capacity and facilitating financing mechanisms. This entails supporting financial institutions, enhancing loan offers similar to the ones offered in Kosovo and BiH, establishing guarantee funds, and providing grants/subsidies. Additionally, preparing an able workforce is essential to ensure the safety, sustainability, and quality of EE services, with over 30 thousand workers needed for scheme implementation.

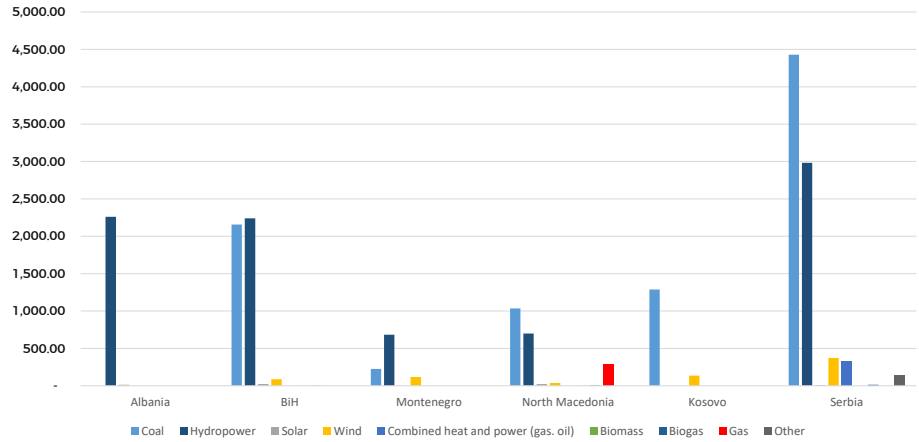
1. INTRODUCTION TO THE ENERGY SECTOR OF THE WESTERN BALKANS

The energy sector of the Western Balkans, a region in Southeast Europe comprising Albania, Bosnia and Herzegovina, Croatia, Kosovo, Montenegro, North Macedonia, and Serbia, plays a crucial role in the region's economic development and energy security. Historically, the region has heavily relied on conventional fossil fuels such as coal to meet its energy demands. However, in recent years, there has been a growing shift towards diversifying the energy mix, improving energy efficiency, and integrating renewable energy sources.

The Western Balkans present a complex energy landscape characterized by a mix of state-owned companies, privatization efforts, and ongoing infrastructure development projects. Challenges such as outdated infrastructure, inefficient energy production, and environmental concerns have prompted efforts to modernize and reform the sector. The energy supply in the region is over-reliant on coal, with renewable energy being dominated by hydro generation. All six Western Balkan economies (WB6) rely on domestic coal for a large share of their total energy except for Albania, which relies primarily on hydropower. As per the Figure 1, excluding the energy imports, in 2022, coal was the predominant source of generated electricity across the WB6 countries, with the installed capacity comprising more than 46 percent of the total, with varying proportions ranging from 48 percent in BiH, 21 percent in Montenegro, 49 percent in North Macedonia, 89 percent in Kosovo and 53 percent in Serbia. However, natural gas plays a notably smaller role in the primary energy consumption mix of the WB6 compared to the European Union (EU). This difference is largely attributed to the absence of a natural gas market in Kosovo and Montenegro, and Albania's just recent connection to an international natural gas pipeline through the Trans-Adriatic Pipeline.[1]

1 OECD. Clean energy transition in the Western Balkans. Source: https://t4.oecd.org/south-east-europe/programme/OECD-BN-Clean-Energy-Transition-Oct2022.pdf (Last accessed on: Jan 24, 2024)

Figure 1- Installed Capacity in WB6 per Source (MWh) for 2022.



Source: Eurostat

The European Union (EU) has been actively engaged in supporting the energy transition in the Western Balkans through initiatives such as the Energy Community Treaty, which aims to integrate the region into the EU energy market as well as promote sustainable energy practices[2]. Additionally, the EU's Instrument for Pre-accession Assistance (IPA) provides financial and technical support for energy infrastructure projects and regulatory reforms[3].

Renewable energy sources, including hydropower, wind, solar, and biomass, are increasingly being recognized as key drivers of the region's energy transition. Investments in renewable energy projects have been growing, supported by favorable regulatory frameworks, incentives, and partnerships with international stakeholders[4].

Despite progress, the energy sector in the Western Balkans faces ongoing challenges, including political and regulatory complexities, financing constraints, and the need for improved governance and transparency. Addressing these challenges will be essential to unlocking the region's energy potential, enhancing energy security, and supporting sustainable economic growth.

As per the figure 1, renewable energy accounted for a relatively high share of WB6's energy mix in 2022, with an installed capacity ranging from 10percent in Kosovo, 37percent in North Macedonia, 41percent in Serbia, 52percent in BiH, 78percent in Montenegro to 100percent in Albania. However, most of this energy was generated by utilizing hydro generators, a longstanding energy source in the WB6 region, despite the considerable potential for wind and solar energy generation. Non-hydro renewable energy generation is still in its early stages of development, with only 5 percent of the installed capacity being solar/wind.

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2 Energy Community. Treaty establishing Energy Community. Source: https://www.energy-community.org/legal/treaty.html (Last accessed on: Feb 1, 2024)

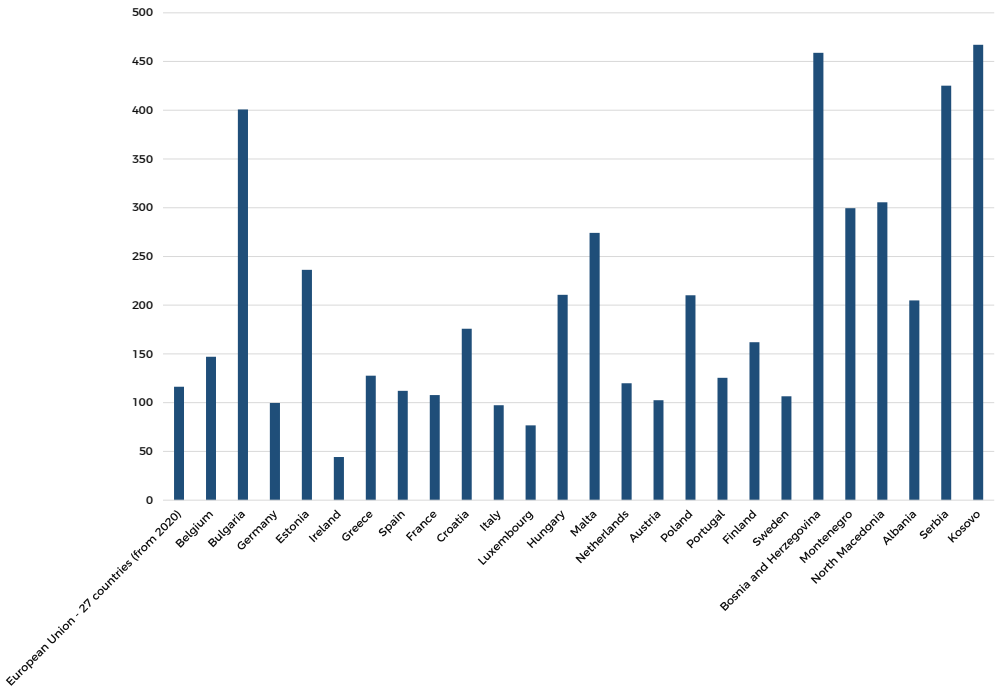
3 European Commission. Instrument for Pre-accession Assistance. Source: https://neighbourhood-enlargement.ec.europa.eu/enlargement-policy/overview-instrument-pre-accession-assistance_en (Last accessed on: Feb 4, 2024)

4 Energy Community. WB6 Energy Transition Tracker. Source: https://www.energy-community.org/dam/jcr:c7db8188-0b04-443b-9f41-728ee182fc90/EnC_WB6_ETT3_062021.pdf (Last accessed on: Jan 30, 2024)

In 2020, final energy consumption in the WB6 averaged 3096 thousand tonnes of oil equivalent (toe). Unlike the European Union, where energy consumption has seen a downward trend in recent years, consumption in the WB6 slightly increased over the past decade, with an average of 2985 thousand toe in 2011[5]. Moreover, all WB6 economies had higher energy intensity of GDP than the EU in 2020, making their industries more vulnerable to rising energy prices[6].

The region experiences high energy intensity due to several factors: inexpensive electricity sourced from lignite and hydro, depreciated energy infrastructure, limited economic development, and a slow pace of investments in energy efficiency measures. With the highest energy intensity being in Kosovo (467.24 KGOE per thousands of EUR), followed closely by Bosnia and Hercegovina (458.96 KGOE per thousands of EUR) and Serbia (425.18 KGOE per thousands of EUR) as compared to the European average of 116.33 KGOE per thousands of EUR[7], this energy intensity is a testament of the policy actions being focused on the supply side as to rather demand side of the energy.

Figure 2- WB6 Energy Intensity (KGOE per thousands of EUR) in 2020

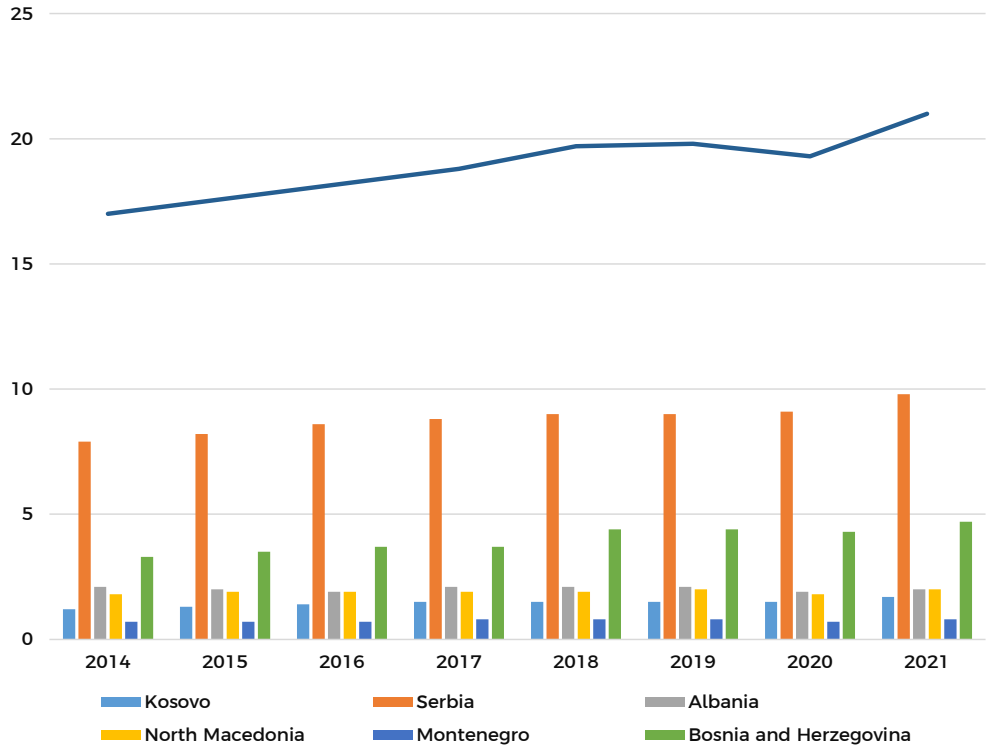


Source: Eurostat

5 OECD. Clean energy transition in the Western Balkans. Source: https://t4.oecd.org/south-east-europe/programme/OECD-BN-Clean-Energy-Transition-Oct2022.pdf (Last accessed on: Jan 24, 2024)
6 Eurostat. Energy intensity. Source: https://ec.europa.eu/Eurostat/databrowser/view/nrg_ind_ei/default/table?lang=en (Last accessed on: Feb 1, 2024)
7 Ibid.

As per the figure 3, the final energy consumption on the WB6 has been gradually increasing, this increased energy demand, can be attributed to the gradual economic development of the region, market expansion, urbanization, and overall wellbeing of the citizens. With annual average growth in final energy consumption at 2.7[8] percent and inadequate investment in energy infrastructure, energy efficiency, and market expansion, the Western Balkan countries are increasingly vulnerable to energy crises. This is especially the case when looking at the consumption patterns, where the lacof diversity of energy resources and the inflexibility of energy system, leaves the lack of WB6 energy markets vulnerable to market energy shocks during the winter peak months.

Figure 3- Final Energy Consumption in Western Balkans (Million tonnes of oil equivalent)



Source: Eurostat

8 Eurostat. Final energy consumption by sector. Source: https://ec.europa.eu/Eurostat/databrowser/view/ten00124/default/table?lang=en (Last accessed on: Feb 1, 2024)

2. ENERGY CRISIS IN WB6, TOOLS USED TO NAVIGATE THE CRISIS

In the latter half of 2021 and continuing into 2023, energy prices in Europe have surged to unprecedented levels, driven by a combination of short-and long-term factors that have caused fluctuations in both demand and supply. These factors include the increased global demand for natural gas as economies recover from the pandemic, insufficient gas reserves, and rising prices of emission allowances within the EU[9]. More recently, Russia's ongoing large-scale aggression in Ukraine and the resulting international sanctions imposed on Russia, a significant producer and exporter of both oil and natural gas, have disrupted global energy markets and had an impact on retail energy prices.

The Western Balkan economies exhibit varying degrees of vulnerability to energy price fluctuations, but overall, their energy supply remains relatively unaffected. Despite being predominantly reliant on Russia as the sole supplier of gas, the role of natural gas in the energy portfolios of the region is modest. Consequently, the WB6 are not highly vulnerable to significant disruptions in energy provision, even in scenarios where gas imports from Russia are limited or absent. However, Serbia and North Macedonia have experienced an increasing dependence on Russian gas imports over the past decade, constituting approximately 12.5percent and 10.7percent of their total energy mix in 2020[10].

The region faces vulnerability to changes in the price of crude oil and oil products, primarily due to their extensive use in transportation and limited regional production. However, despite this reliance, Russia's contribution to total imports of oil and oil products in the region remained modest, representing just 3percent from 2018 to 2020. In August 2022, the Euro area experienced a sharp rise in energy inflation, reaching 38.3percent[11].

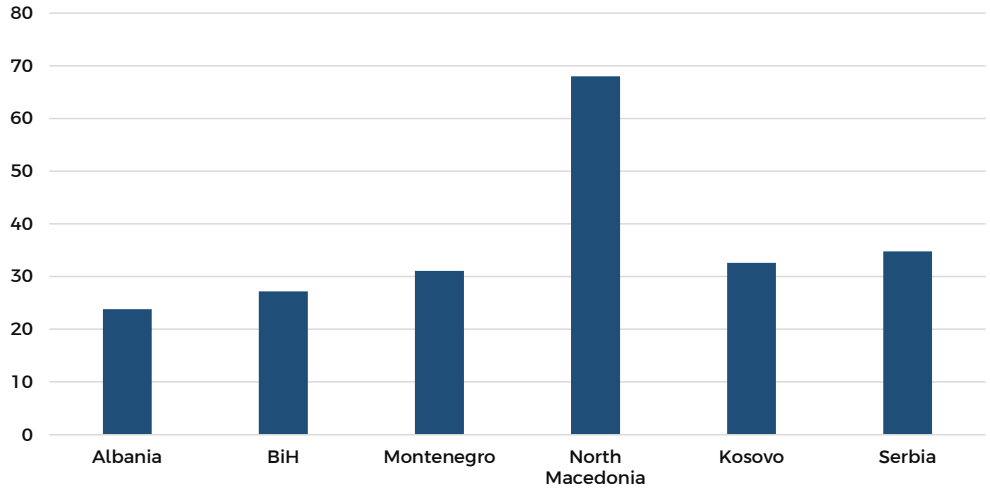
Nevertheless, most WB6 economies are highly exposed to increases in the cost of energy imports, particularly in electricity. Most of the region heavily relies on imported electricity, with import dependency ranging from 23 percent in Albania to 68 percent in North Macedonia as per figure 4.

9 UK Parliament. Gas and electricity prices during the 'energy crisis' and beyond. Source: https://commonslibrary.parliament.uk/research-briefings/cbp-9714/ (Last accessed on: Jan 28, 2024)

10 OECD. Clean energy transition in the Western Balkans. Source: https://t4.oecd.org/south-east-europe/programme/OECD-BN-Clean-Energy-Transition-Oct2022.pdf (Last accessed on: Jan 24, 2024)

11 Ibid.

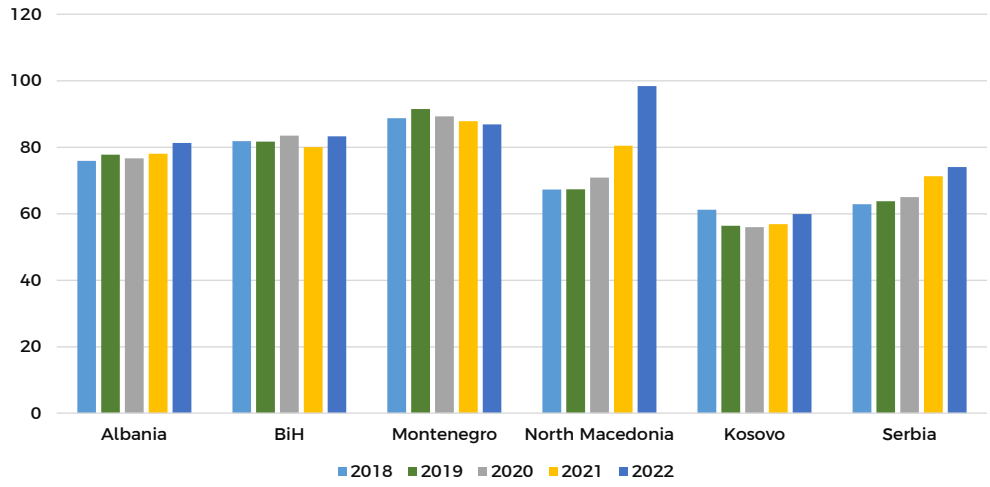
Figure 4- Import Dependency (percentage) of WB6 in 2022



Source: Eurostat

The dependency on the regional energy markets, and the fluctuation of prices during the energy crisis of 2021-2022, has led to a gradual increase of the electricity prices for end consumers. As figure 5 shows, the highest increase with 12.29 was witnessed in North Macedonia attributed to its dependency on electricity imports.

Figure 5- Electricity prices for households - euro/MWh (excluding taxes and levies)

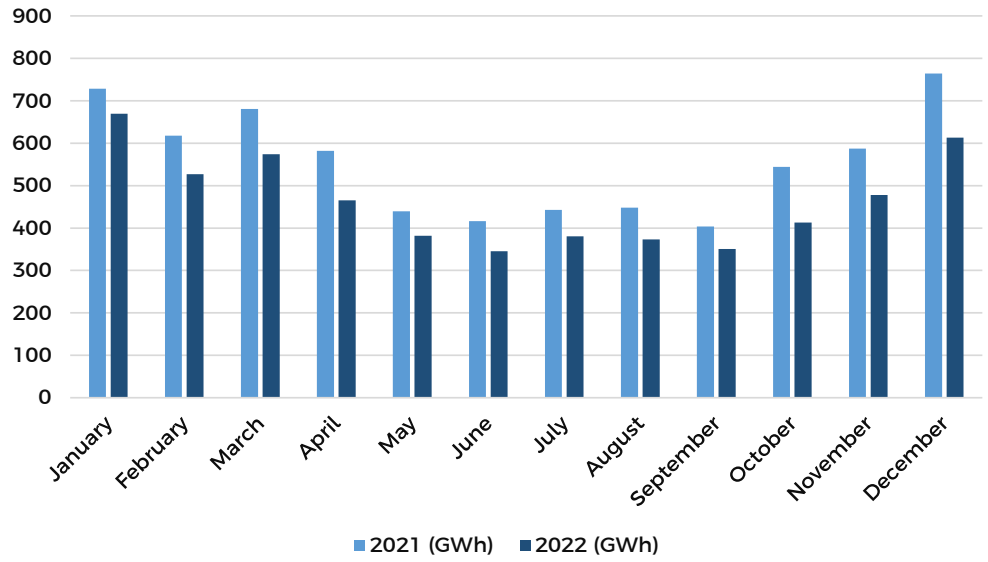


Source: Eurostat

As figure 6 shows, Kosovo, due to the prevalent use of inefficient electric heating and high demand during the winter months, is compelled to also import substantial electricity in the months of October-April. Similar trends follow all the other countries in the region[12].

12 IMF Kosovo's Electricity Sector Challenges and Opportunities. Source: https://www.imf.org/-/media/Files/Publications/Selected-Issues-Papers/2023/English/SIPEA2023025.ashx (Last accessed on: Feb 24, 2024)

Figure 6- Kosovo Energy Consumption during the year.



Source: Eurostat

Furthermore, adverse weather conditions and accidents at thermal power plants in Serbia necessitated large electricity imports in late 2021 and early 2022[13].

Additionally, industrial sectors in the WB6 are vulnerable to increased energy prices, particularly those economies hosting energy-intensive industries like steel, aluminum, or fertilizer production, where due to the energy crisis, many companies were forced to close their operation temporarily or permanently.

2.1 IMPACT OF THE ENERGY CRISIS ON THE WESTERN BALKAN COUNTRIES

2.1.1 Albania

With a population of around 2.85 million, Albania predominantly depends on hydropower for its electricity production. While this reliance provides a benefit in terms of carbon emissions in the electricity industry, it also leaves the nation highly vulnerable to climate change. The considerable fluctuations in hydropower output imply that despite the addition of numerous energy producing facilities added in the recent years, Albania often finds itself requiring electricity imports[14].

13 World Bank. Serbia Policy Notes. Source: https://documents1.worldbank.org/curated/en/099405505042315889/pdf/IDU042c6815203699044e709b4206703e04a8259.pdf (Last accessed on: Jan 28, 2024)

14 Bankwatch Network. The energy sector in Albania. Source: https://bankwatch.org/beyond-fossil-fuels/energy-sector-in-albania (Last accessed on: Feb 1, 2024)

In Albania, the segment of the market responsible for universal supply benefits from the public service obligation upheld by the state-owned hydro producer, KESH. Prices within this segment are determined by costs rather than being directly influenced by global or regional market prices, making them vulnerable primarily to weather conditions. However, as production by KESH alone cannot meet the entirety of demand within the universal supply segment, the universal supplier must secure a portion of its portfolio from the market, often through imports[15]. This exposes the universal supplier to price risks and potential revenue shortfalls.

On the other hand, industrial consumers and other consumers operating within the free market are subject to purchasing electricity at regional market prices. Consequently, any significant price increases directly impact their operations.

In October 2021, the Albanian Government declared a state of emergency effective until April 2022[16]. Following this, an emergency public service obligation act was enacted, directing all electricity produced by KESH to be allocated to the universal supplier. Under this act, any surpluses generated by KESH had to be stored through a commercial agreement and utilized by the universal supplier. Additionally, the Government allocated EUR 100 million in 2021, to facilitate the import of electricity at elevated prices. A further EUR 100 million was allocated for the first quarter of 2022[17].

Furthermore, in accordance with the Government decision, the transmission and distribution system operators were instructed to review their investment plans and postpone any non-urgent investments.

While the government has intervened with two financial packages to decrease the impact of the regional prices on the region, the electricity tariffs have been reviewed and increased slightly for both residential and commercial consumers[18].

15 Energy Regulator Authority. The Situation of the Power Sector and ERE Activity during 2020. Source: https://www.ere.gov.al/images/files/2021/08/23/Annualpercent20reportpercent202020.pdf (Last accessed on: Feb 1, 2024)

16 Alice Taylor. Albania declares state of energy emergency amid energy crisis. Source: https://www.euractiv.com/section/politics/short_news/albania-declares-state-of-energy-emergency-amid-energy-crisis/. (Last accessed on: Feb 1, 2024)

17 English News. Albania introduces set of measures to cope with rising prices. Source: https://english.news.cn/europe/20220313/b698057911cd49b5aa6058688cbf91f6/c.html (Last accessed on: Feb 1, 2024)

18 Energy Regulator Authority. Annual Report. Source: https://www.ere.gov.al/images/files/2022/09/16/Annualpercent20reportpercent202021.pdf (Last accessed on: Feb 3, 2024)

2.1.2 Bosnia and Herzegovina

Bosnia and Herzegovina, a nation with a population of approximately 3.5 million people, currently stands as the sole net exporter of electricity within the Western Balkans region. Its electricity generation capacity is predominantly sourced from hydropower, constituting over half of the total capacity, while the remaining portion comes from five lignite power plants[19].

As of 2022, the country boasted a net installed hydropower capacity exceeding 10 MW, totaling approximately 2076 MW, alongside 2065 MW of lignite capacity. Additionally, smaller-scale energy sources included 182 MW of small hydropower, 135 MW from wind power, 102 MW from solar power, and 93 MW from industrial power generation[20]. The distribution of electricity generation typically leans towards two-thirds coal and one-third hydropower, contingent upon the prevailing hydrological conditions.

During this period of price escalation, electricity producers in Bosnia and Herzegovina have achieved their highest revenues on record, as the rise in regional prices translates into higher-priced exports from Bosnian production companies. Additionally, these companies have benefited from the absence of carbon pricing on electricity generated from fossil fuels, rendering it more competitive in neighboring EU markets.

The retail electricity market in Bosnia and Herzegovina primarily relies on domestically sourced electricity reserved for retail supply. The key players in this market are vertically integrated companies that encompass generation, supply, and trade functions. Therefore, the impact of the energy crisis was felt to a lesser extent in Bosnia than in the other countries in the region.

2.1.3 Kosovo

Kosovo, with a population of approximately 1.7 million residents, heavily relies on electricity generation from two aging lignite plants: Kosova A, featuring five units with a combined installed capacity of 800 MW, and Kosovo B, consisting of two units with a total installed capacity of 678 MW. Currently, the actual capacity of these plants stands at approximately 915 MW collectively. The power plants are notorious for their significant contribution to air pollution, with Kosovo B being among the highest dust emitters among all coal plants in the Western Balkans[21]

The country generally operates as a net importer of electricity, a trend especially no-

19 Bankwatch Network. The energy sector in Bosnia and Herzegovina. Source: https://bankwatch.org/beyond-fossil-fuels/the-energy-sector-in-bosnia-and-herzegovina (Last accessed on: Feb 1, 2024)

20 Bosnia and Herzegovina - State Electricity Regulator Authority. Reports on the activity of the State Electricity Regulator Authority. Source: https://www.derk.ba/DocumentsPDFs/BIH-SERC-Annual-Report-2022.pdf (Last accessed on: Feb 2, 2024)

21 Bankwatch Network. The energy sector in Kosovo. Source: https://bankwatch.org/beyond-fossil-fuels/the-energy-sector-in-kosovo (Last accessed on: Jan 28, 2024)

table during winter periods when demand is higher, resulting in elevated prices. Presently, Kosovo imports electricity through all its interconnections except the one with Serbia, where the neighboring Transmission System Operator has set the net transmission capacity to zero[22].

The majority of the universal service supply is met by domestic generation at relatively low prices, supplemented by electricity imports during peak hours and particularly cold weather. Following the regular tariff review conducted by the regulator, the universal service supplier sought an extraordinary tariff review due to the rise in wholesale energy prices. Network operators are also affected, as they procure electricity to cover network losses from the market. This situation particularly impacts the Transmission System Operator, KOSTT, as supply in the northern part of the country is acquired via transmission network losses.

The national regulatory authority, Energy Regulatory Office (ERO), has concluded its tariff review for the regulated segment, which includes the Transmission System Operator, Market Operator, Distribution System Operator, and Universal Service Supplier. In this review, ERO raised the assumption on the import price to €90/MWh and allocated an additional fund of €5 million for the universal service as a contingency measure in case of further increases in electricity costs[23]. ERO accepted all actual electricity costs for the parties up to June 2021, while also adjusting the average import energy prices for the remainder of 2021.

Additionally, the Ministry of Economy has initiated an ad-hoc group comprising key stakeholders, led by the regulator, to evaluate the impact of the price surge and propose potential support measures, alongside ongoing efforts to promote energy savings through a general campaign. Therefore, in December 2021 alone, KEDS and KESCO imported electricity worth 32.3 million EUR[24]. The Government has subsidized an amount of 120 million EUR to the energy sector, which were directly distributed to consumers through discounts on their final electricity bills and import subsidies[25].

22 Di Bella at al. Kosovo's Electricity Sector Challenges and Opportunities. Source: https://www.elibrary.imf.org/view/journals/018/2023/025/article-A001-en.xml. (Last accessed on: Jan 28, 2024)

23 Energy Regulator Office. Annual Report 2021. Source: https://www.ero-ks.org/zrre/sites/default/files/Publikimet/Raportetpercent20Vjetor/Annualpercent20Reportpercent202021.pdf (Last accessed on: Jan 28, 2024)

24 Ibid.

25 GAP Institute. Economic payoffs of energy efficiency in Kosovo. Source: https://www.institutigap.org/documents/58261_eficienca_energjise_EN_(draft3).pdf (Last accessed on: Jan 25, 2024)

2.1.4 Montenegro

With a population of approximately 621,000 inhabitants, Montenegro primarily relies on state-owned utility Elektroprivreda Crne Gore (EPCG) to meet its electricity needs. EPCG operates the 225 MW lignite power plant in Pljevlja, alongside the 307 MW Perućica and 342 MW Piva hydropower plants[26].

Until 2009, Montenegro heavily imported electricity, largely driven by the demand of the KAP aluminum plant, which once consumed up to 40percent of the country's electricity. However, the plant's ongoing crisis has led to uncertainty regarding its future. Although its demand has decreased since 2011, accounting for 17percent of the country's electricity consumption in 2020, it ceased operations completely in 2023 after transitioning to minimal operations in December 2021[27].

Montenegro's ability to fulfill its electricity demand domestically has fluctuated since 2010, depending on hydrological conditions. Rainy years such as 2010, 2013, and 2018 allowed for domestic demand to be met, while dry years like 2011, 2012, and 2017 necessitated significant electricity imports[28].

Nevertheless, based on energy data from 2021, Montenegro's domestic production and consumption nearly equaled each other.

Household and small consumer electricity prices have remained unchanged since 2019, as stipulated by the Energy Law. This legislation provides specific protection for households and small commercial consumers. This protection is due to the limited competition in the retail market, ensuring that potential increases in electricity prices for these consumer categories are capped at 6percent.

While high energy prices in the wholesale market have not yet impacted retail prices for households and small commercial consumers, they have affected the TSO and DSO. This impact stems from the unexpected rise in energy prices required to cover losses in the transmission and distribution network. The energy crisis impacted the state-owned company, resulting on a loss of more than 60 million EUR during 2022[29]. The increased costs incurred for energy purchases to cover these losses are anticipated to influence tariffs for the usage of transmission and distribution systems in the upcoming regulatory period from 2023 to 2025[30].

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26 Bankwatch Network. The energy sector in Montenegro. Source: https://bankwatch.org/beyond-fossil-fuels/the-energy-sector-in-montenegro (Last accessed on: Jan 26, 2024)

27 Energy and Water Regulatory Agency of Montenegro. Energy Sector Report. Source: https://regagen.co.me/wp-content/uploads/2022/12/20221229_ENERGY-SECTOR-REPORT-MONTENEGRO-2021.pdf (Last accessed on: Jan 28, 2024)

28 Bankwatch Network. The energy sector in Montenegro. Source: https://bankwatch.org/beyond-fossil-fuels/the-energy-sector-in-montenegro (Last accessed on: Jan 26, 2024)

29 China CEE Institute. Energy Crisis and CEE Countries Response – Montenegro study. https://china-cee.eu/2022/11/09/montenegro-social-briefing-energy-crisis-and-cee-countries-response-montenegro-study/ (Last accessed on: Jan 28, 2024)

30 Energy and Water Regulatory Office of Montenegro. Energy Sector Report Montenegro 2021. Source: https://regagen.co.me/wp-content/uploads/2022/12/20221229_ENERGY-SECTOR-REPORT-MONTENEGRO-2021.pdf (Last accessed on: Jan 28, 2024)

Thus far, there hasn't been a significant increase in imbalances among balancing responsible parties. However, the methodology for determining prices, deadlines, and conditions for supplying ancillary and balancing services to the TSO ties prices to day-ahead market prices (HUPX index). Consequently, the decision for increase regarding the period from 2023 to 2025 has been enacted since January 2024[31].

Apart from a few Energy Efficiency measures taken, the government has yet to take any decision regarding energy crisis and preparation for future energy shocks.

2.1.5 North Macedonia

North Macedonia, a landlocked country with a population of about 2 million, primarily depends its energy source on fossil fuels such as low-grade lignite and gas, as well as hydropower, and relies on heavily on imported electricity. In 2022, with an additional 1,471 GWh imported country generated a total of 5,634 GWh of electricity to meet the overall domestic electricity demand[32].

In recent years, the country has experienced a gradual decline in electricity generation, primarily due to factors contributing to a challenging energy landscape. The diminishing reserves and declining quality of lignite have posed significant challenges to the country's energy sector. Additionally, fluctuations in hydrological conditions have affected the performance of hydroelectric capacities, further impacting electricity production.

As a result of these challenges, North Macedonia has increasingly relied on electricity imports to meet its domestic consumption needs. In 2020, imports accounted for 32percent of the country's gross domestic consumption, with this figure rising to 37percent in 2021[33]. This heightened dependence on imports underscores the vulnerability of the country's energy sector to external factors and highlights the importance of implementing measures to enhance domestic energy production and resilience.

Small commercial consumers and households play a crucial role in the energy landscape, benefiting from the universal service obligation provided by a privately owned company acting as the universal supplier. This ensures a reliable supply of electricity to these essential sectors of the economy. However, the regulatory framework governing energy prices and supply dynamics is subject to ongoing adjustments and considerations, reflecting the evolving needs and challenges within the sector.

Moreover, the reliance of the universal supplier on the largest domestic electricity producer, a state-owned entity, underscores the interconnectedness of various stakeholders within the energy market. As mandated by the Energy Law, the universal supplier's dependence on the state-owned producer gradually decreases over time, reflecting efforts to diversify energy sources and mitigate risks associated with over-reliance on a single supplier[34].

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31 SeeNews. Montenegro to hike electricity prices by 5.6percent from Jan 1 – report. Source: https://seenews.com/news/montenegro-to-hike-electricity-prices-by-5-6-percent-from-jan-1-report-1239857 (Last accessed on: Jan 28, 2024)

32 Energy and water services regulatory commission of the Republic of North Macedonia. Yearly Report 2022. Source: https://www.erc.org.mk/odluki/2023.04.26_RKEpercent20GIpercent202022-FINALpercent20ALB.pdf (Last accessed on: Jan 28, 2024)

33 Ibid.

34 Ibid.

Furthermore, the balancing market, a critical component of the energy sector, has experienced significant impacts from wholesale electricity price increases. Balancing prices play a crucial role in maintaining grid stability and ensuring efficient energy distribution. However, imbalances between market prices and balancing prices have led to operational challenges, including the utilization of all available balancing capacity within short timeframes and historically low levels of hydro-accumulation[35].

In November 2021, the Government of North Macedonia declared a one-month state of emergency in the power sector, and subsequently provided financial assistance to the primary producer, ESM JSC, and the transmission system operator, MEPSO. During the 2022, the government has allocated around 222,7 million Euro to hinder the effect of energy crisis[36] in addition to the 12.29 percent increase on the electricity as compared to the prices of 2021[37].

2.1.6 Serbia

Serbia, with a population of approximately 6.9 million, predominantly meets its electricity needs through domestic sources. The country heavily relies on low-grade lignite coal for about 70 percent of its electricity production, leading to significant pollution concerns. Hydropower plants contribute to most of the remaining generation. Despite notable advancements in wind power, which has experienced robust growth in recent years, it accounted for just 2.8 percent of total electricity generated in 2021[38].

The day-ahead market prices in Serbia managed by SEEPEX maintain a significant correlation with regional pricing trends. There is a probable rise in prices expected for industrial and commercial consumers, particularly in instances where supply contracts are nearing expiration.

To protect directly impacted consumers, the Serbian Government has taken measures such as freezing specific prices in the open market, facilitated through EPS, the state-owned generation and supply company. The Transmission System Operator has also revised its protocols for increasing the financial security required by balanced responsible parties to mitigate risks associated with higher exposure in the balancing market.

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35 Government of North Macedonia. National Energy and Climate Plan. Source: https://www.energy-community.org/dam/jcr:bbb63b32-6446-4df8-adc6-c90613daf309/Draft_NECP_NM_percent202020.pdf (Last accessed on: Jan 28, 2024)

36 Government of North Macedonia. Kovaçevski: Askush nuk do të lihet vetëm në kushte të krizës, masat kundër krizës kanë efekt. Source: https://vlada.mk/node/31146?ln=sq. (Last accessed on: March 12, 2024)

37 Energy and water services regulatory commission of the Republic of North Macedonia. Yearly Report 2022. Source: https://www.erc.org.mk/odluki/2023.04.26_RKEpercent20GIpercent202022-FINALpercent20ALB.pdf (Last accessed on: Jan 28, 2024)

38 Eurostat. Share of renewable energy in gross final energy consumption by sector. Source: https://ec.europa.eu/eurostat/databrowser/view/sdg_07_40/default/table?lang=en&category=t_nrg.t_nrg_sdg_07 (Last accessed on: Feb 4, 2024)

As per the Government's recommendation, EPS has accepted that the price for commercial supply customers from May 1, 2023, will be 110.81 EUR/MWh. Additionally, the price of the supply-of-the-last-resort was increased from 67 to 97 EUR/MWh, with a conclusion adopted related to the supply-of-the-last-resort recommending EPS to enable the supply-of-the-last-resort to final electricity customers who are not entitled to guaranteed supply after January 1, 2022, at the price of 97.50 EUR/MWh without VAT, previously 66.72 EUR/MWh[39].

In the gas sector, the import price for gas or price of gas produced in Serbia is set by Government Decree at the level of November 2019, with any surcharge for procurement of gas being recovered by the Government as of December 2021. Following the initial Decree, several amendments were made that gradually increased the prescribed wholesale gas price.

In November 2023, Serbia entered into an agreement with Azerbaijan to acquire 400 million cubic meters of natural gas annually starting from 2024. Serbia has long envisioned procuring gas from Azerbaijan upon the completion of an interconnector to Bulgaria's pipeline[40].

39 Energy Agency of the Republic of Serbia. National Impact of the High Energy Prices. Source https://erranet.org/wp-content/uploads/2022/04/High_Energy_Prices_ERRA_roundtable_by_members__CPWG_Apr2022.pdf, (Last accessed on: Feb 4, 2024)

40 Reuters. Serbia signs gas supply deal with Azerbaijan. Source: https://www.reuters.com/business/energy/serbia-signs-gas-supply-deal-with-azerbaijan-2023-11-15/ (Last accessed on: Feb 4, 2024)

3. HISTORICAL OVERVIEW OF ENERGY EFFICIENCY IN THE WESTERN BALKANS (2010 TO 2020)

In the Sofia Declaration on the Green Agenda for the Western Balkans, agreed upon in November 2020, all six countries of the Western Balkans committed themselves to ambitious environmental and climate goals, structured along five pillars:

- climate, energy, and transportation.
- circular economy.
- pollution reduction.
- sustainable agriculture and food production; and
- biodiversity preservation.

In line with the Paris Agreement, the WB6 have agreed to achieve climate neutrality by 2050, cutting greenhouse gas emissions 55percent by 2030. In this regard, WB6 governments have committed to pursuing a clean energy transition[41].

To ensure coordinated and sustainable progress, the region has committed to enhancing cross-sector governance, integrating green and low-carbon transition goals into public administration, financial management, and economic reform programs. Additionally, WB6 aims to strengthen administrative capacities to implement the Green Agenda, ensuring compliance with environmental obligations, fostering public participation, and enhancing environmental reporting mechanisms. Active engagement in pan-European networks, Horizon 2020, regional organizations, macro-regional strategies, and initiatives like the Covenant of Mayors is also prioritized.

41 Regional Cooperation Council. Sofia Declaration on the Green Agenda for the Western Balkans. Source: https://www.rcc.int/download/docs/Leaderspercent20Declarationpercent20onpercent20theper-cent20Greenpercent20Agendapercent20forpercent20thepercent20WB.pdf/196c92cf0534f629d43c460079809b20.pdf (Last accessed on: Feb 9, 2024)

On the other hand, the EU has devised a range of strategies to facilitate this transition within the Western Balkans region. These include aligning with the Energy Community's acquis to advance decarbonization efforts in the energy sector and developing tailored National Energy and Climate Plans for each country. Additionally, deriving from the obligations taken at the Energy Community, programmes to address both public and private building renovation schemes, with a focus on securing adequate financing, inspired by the successful "EU renovation wave" and extended to the Western Balkans will be launched[42].

Efficient energy consumption is imperative for residential consumers in the Western Balkans economies, particularly since the residential sector composes 34 percent followed by the industry sector with 22 percent of the total consumption[43] (Figure 7). The inability to afford higher energy prices and the fluctuation of consumption during the seasonal changes poses a significant challenge, with North Macedonia reporting the highest share of households in Europe unable to adequately heat their homes in 2019[44]. This highlights the pressing need for effective measures to address energy affordability and accessibility issues in the region. However, existing challenges, such as the reliance on fossil fuels, limited renewable energy adoption, and environmental degradation, underscore the urgency of implementing comprehensive energy efficiency measures. Government-funded programs aimed at replacing outdated heating systems are limited, with the first ones being implemented through EU direct budgetary support due to the energy crisis in WB6[45].

The high share of energy consumption on the household and industry sector, also shows opportunity to improve the energy intensity of the region, by stimulating the private sector in investing on EE measures.

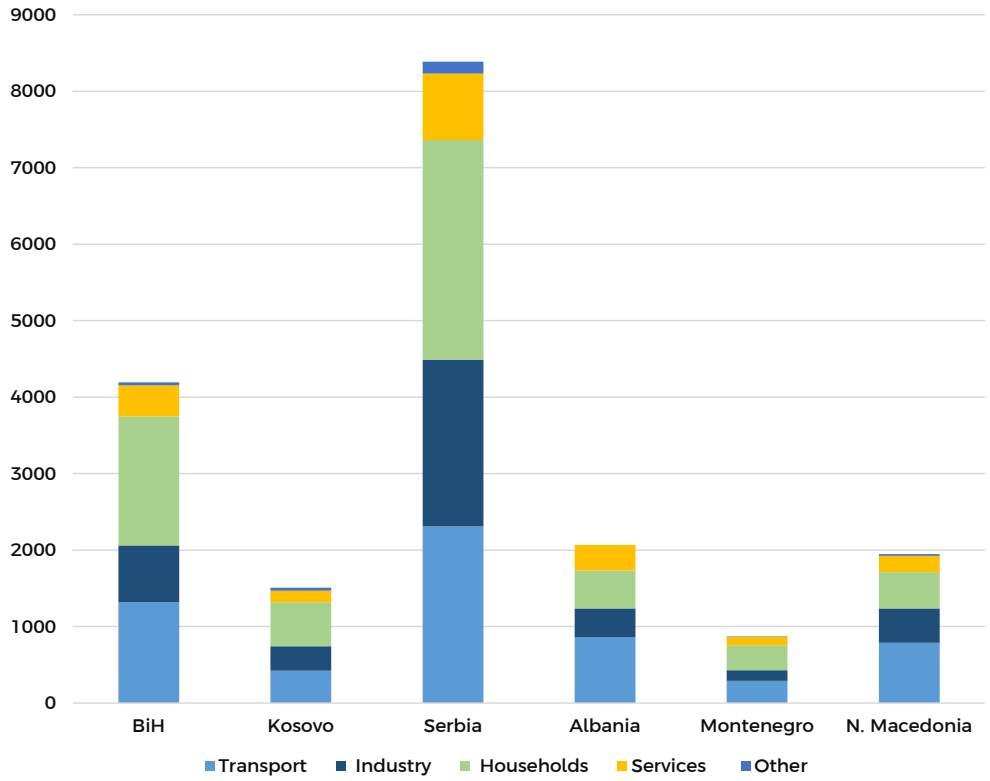
42 Energy Community. Riding the Renovation wave in the Western Balkans Proposal for boosting energy efficiency in the residential building sector. Source: https://www.energy-community.org/dam/jcr:d533ab6e-5c1c-43e6-8c1c-dc03d72e8fa6/DP012021.pdf. (Last accessed on: Feb 22, 2024)

43 Eurostat. Final energy consumption by sector. Source: https://ec.europa.eu/Eurostat/databrowser/view/ten00124/default/table?lang=en (Last accessed on: Feb 7, 2024)

44 ComAct. Overview report on the energy poverty concept. Source: https://www.bpie.eu/wp-content/uploads/2021/05/ComAct-D1.1_Overview-report-on-the-energy-poverty-concept_Final-version_UPDATED-1.pdf (Last accessed on: Feb 24, 2024)

45 European Union. Energy Support Package. Source: https://neighbourhood-enlargement.ec.europa.eu/document/download/6fb6e0a6-fb15-49dd-80e5-dd0d9fbf4ebe_en. (Last accessed on: Feb 24, 2024)

Figure 7- Final Energy Consumption (Thousand tonnes of oil equivalent) by Sector in WB6 in 2021.



Source: Eurostat

While the benefits of energy efficiency are well recognized, including its ability to provide a rapid return on investment, generate employment opportunities, improve human health and well-being, and reduce uncertainty during market shocks, the adoption of policies and programs supporting energy efficiency in the Western Balkans has been slow. Despite the evident advantages, there remains a gap in the implementation of effective measures to promote energy efficiency in the region. The section below will further analyze the policies and programs that have been taken to improve EE in WB6 during the period 2010-2020, while section 4 will further analyze the benefits of reaching the 2030 EE targets.

3.1 POLICIES AND PROGRAMMES IMPLEMENTED TO IMPROVE EE IN WB6

In examining the energy efficiency initiatives across Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia, several commonalities and distinctions emerge, reflecting each country's unique approach and progress towards achieving energy efficiency targets. During the last decade (2010-2020) all the WB6 countries have made notable progress in adjusting the national legislation as per the EU requirements, including the transposition of numerous energy legislation packages. In the meantime, few programmes have been implemented to enhance energy efficiency.

When comparing the types of investments in energy efficiency between the public and residential sectors across the Western Balkan countries, we can observe variations in focus and allocation of resources. Most countries have prioritized investments in the public sector, particularly in public buildings, hospitals, and institutional structures, accounting for more than 70 percent of total investments. This reflects a strategic approach to improving energy efficiency in government-owned assets, aiming to set an example and lead by instance. Investments in the public sector often involve collaborations with international partners and financial institutions, such as the European Bank for Reconstruction and Development and the World Bank. Funding for public sector investments primarily comes from donor-funded projects, government budgets, and loans from international financial institutions. This highlights a reliance on external funding to support energy efficiency initiatives in public buildings and infrastructure.

While investments in the residential sector are evident, they often receive less attention compared to the public sector. Initiatives such as subsidies, refunds, and soft loans are implemented to incentivize energy-efficient practices among households. These programs aim to overcome financial barriers and encourage individuals to invest in energy-saving technologies and upgrades. Furthermore, external funding was needed to uptake such projects. In addition to financial support from governments and international organizations, investments in the residential sector may involve consumer co-financing schemes. This requires homeowners to contribute a portion of the investment cost, demonstrating their commitment to energy efficiency improvements in their properties. The following section will analyze in detail the investment made in each country throughout the 2010-2020 period.

3.1.1 Albania

Albania recognizes the necessity to reduce dependency on energy imports and transition towards a diversified energy system, emphasizing alternative resources such as gas and renewables to lower greenhouse gas emissions. This shift is crucial for implementing cost-effective energy efficiency measures, which in turn should be instrumental in bolstering domestic production and ensuring affordability for consumers, thereby contributing to poverty reduction.

The Albanian Energy Strategy outlines clear objectives to enhance energy security by diversifying electricity production, reducing technical and non-technical losses in the

power network, and increasing overall energy efficiency[46]. The strategy prioritizes the promotion of renewable energy sources through least cost planning to minimize energy imports and improve energy intensity while reducing greenhouse gas emissions. Key policy documents, including the Energy Efficiency Law, provide the framework for implementing energy efficiency measures, with ongoing efforts to revise and develop supporting by-laws to facilitate implementation.

Notably, the establishment of the Energy Efficiency Fund and financing mechanisms such as the EBRD's Green Economy Financing Facility (GEFF) demonstrate Albania's commitment to promoting energy efficiency in both the residential and commercial sectors[47] with a three €3 million credit line to ProCredit Bank. In 2018, the municipality of Tirana provided a fund of €565,000 that is an incentive for the citizens who want to invest in energy efficiency. The municipality subsidized a portion of the total investment[48]. Additionally, pilot projects like the one in the municipality of Durrës, focused on improving energy efficiency in wastewater treatment plants, underscore Albania's proactive approach in implementing energy-saving initiatives across various sectors[49].

While few improvements were made to enhance energy efficiency in Albania, the country was the furthest away in the region in achieving both national and EnC set targets for 2020, achieving less than 60 percent of the set targets (both legislative and non-legislative). The total investment in Albania during the period 2010-2020 was amounted to 54 million euro in Energy Efficiency, while the total investment needed to reach the ambitious targets set by the EnC accounted for 388 million euro[50].

3.1.2 Bosnia and Hercegovina

In alignment with Bosnia and Herzegovina's obligations under the Energy Community Treaty and its directives, including Directive 2006/32/EC on final energy consumption and energy efficiency services (ESD), Directive 2010/31/EU on energy efficiency of buildings (EPBD), and Directive 2012/27/EU on energy efficiency (EED), Bosnia and Herzegovina has developed and adopted an Action Plan for Energy Efficiency for the period 2016-2018[51]. This plan aimed to drive planned, systematic, and sustained efforts toward rational energy use and increased efficiency across all sectors. Furthermore,

46 Ministry of Infrastructure and Energy and Ministry of Tourism and Environment. National Energy and Climate Plan of the Republic of Albania. Source: https://www.energy-community.org/dam/jcr:a0c-2b8a8-96c8-4423-993a-537cf51daa65/Draft_NECP_AL_percent202021.pdf (Last accessed on: Jan 27, 2024)

47 Agency for Energy Efficiency. 5th Annual Report under the Energy Efficiency Directive. Source: https://www.energy-community.org/dam/jcr:432a1625-0935-46cf-84e6-6832aa0a1f03/AL_5thEED_AR_1221.pdf (Last accessed on: Jan 27, 2024)

48 Ibid.

49 Agency for Energy Efficiency. 4th Annual Report under the Energy Efficiency Directive. Source: https://www.energy-community.org/dam/jcr:49f48604-be82-449f-bef2-530c9e94ad94/4thEED_AR_AL_062020.pdf (Last accessed on: Jan 27, 2024)

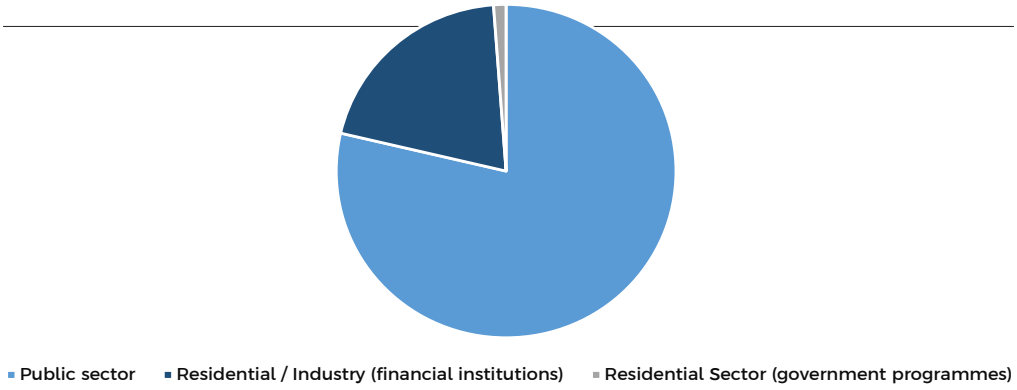
50 4 Agency for Energy Efficiency. 4th Annual Report under the Energy Efficiency Directive https://www.energy-community.org/dam/jcr:2077a2ba-805a-4ca2-afcb-91c90ecc0878/EnC_WB6_ETT1_072020.pdf (Last accessed on: Jan 27, 2024)

51 Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina. 5th Annual Report under the Energy Efficiency Directive. Source: https://www.energy-community.org/dam/jcr:816a7cad-e70a-4808-9e6a-9ffb1afbcfaa/BiH_5thEED_AR_11202.pdf (Last accessed on Jan 29, 2024)

BiH has enacted the main legislation concerning and governing Energy Efficiency, including Law on Energy Efficiency of the Federation of Bosnia and Herzegovina, Law on Spatial Planning and Land Use of the Federation of Bosnia and Herzegovina, Law on Electricity in the Federation of Bosnia and Herzegovina, Law on Energy of Republika Srpska. Law on Energy Efficiency of Republika Srpska, Law on Spatial Planning and Construction of Republika Srpska, Law on Electricity, and the Law on Road Transport of Republika Srpska[52].

Regarding non-legislative measures, BiH is the only country in the WB6 that has managed to fulfill the EE target set by the EnC. During the past decade, BiH has implemented numerous activities in increasing the EE on the supply side and to a lesser extent on the demand side. However, few programs have been implemented to support the residential sector on EE measures and retrofitting public buildings. While the target has been reached, only 253 million out of predicted 783 million have been utilized[53], of which as the figure 8 shows, 78 percent are investments on public buildings and investment on Energy Efficiency in the transmission/ distribution and 22 percent investment on residential sector. Furthermore, most of these investments on the residential/ commercial sectors are done through financial programs carried out by Financial Institutions such as EBRD, KfW, Growth Green Fund etc.[54].

Figure 8- Energy Efficiency Programmes in BiH (mil/EUR)from 2010 to 2020



Source: Energy Community (BiH Yearly EE Report)

52 Government of Bosnia and Herzegovina. Bosnia and Herzegovina Integrated Energy and Climate Plan. Source: https://www.energy-community.org/dam/jcr:fffa65bf-d137-454d-aad7-992eee783af6/NECPpercent20BiHpercent20v.7_ENG.pdf (Last accessed on Jan 29, 2024)

53 Energy Community. WB6 Energy Transition Tracker. Source: https://www.energy-community.org/dam/jcr:2077a2ba-805a-4ca2-afcb-91c90ecc0878/EnC_WB6_ETT1_072020.pdf (Last accessed on Jan 29, 2024)

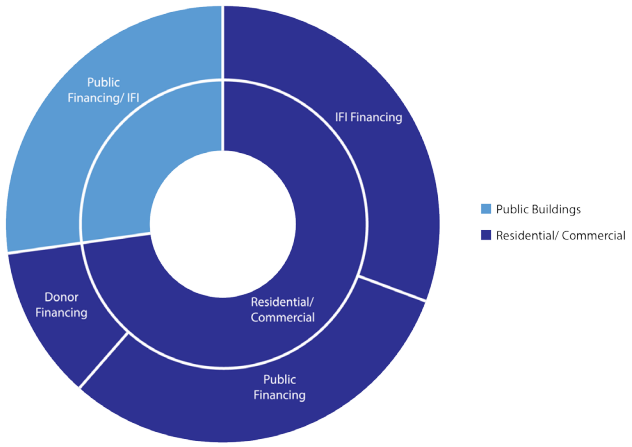
54 Energy Community. 5th Annual Report under the Energy Efficiency Directive. Source: https://www.energy-community.org/dam/jcr:816a7cad-e70a-4808-9e6a-9ffb1afbcfaa/BiH_5thEED_AR_11202.pdf. (Last accessed on February 18, 2024)

3.1.3 Kosovo

Kosovo has made significant strides in addressing energy sector challenges and fulfilling its obligations under the Energy Community Treaty and the Stabilization and Association Agreement. Notable progress has been achieved in energy efficiency through the enactment of key policies and regulations, including the adoption of several laws such as the Law on Energy, Law on Electricity, Law on Energy Efficiency, Law on Energy Performance of Buildings, and Law on Thermal Energy[55]. In addition to legislative measures, Kosovo has taken proactive steps by preparing a draft version of the 5th National Energy Efficiency Action Plan (NEEAP) 2022-2024 at the beginning of 2023. Furthermore, the country has formulated an Energy Strategy and drafted the National Energy and Climate Plan (NECP), demonstrating its commitment to advancing energy efficiency initiatives[56].

Additionally, over the past decade, various government-led projects in the field of energy efficiency have been executed. However, these initiatives primarily targeted the public sector and public lighting, with limited focus on the residential and industrial sectors. As figure 9 shows, throughout this period, these projects facilitated energy savings amounting to 8.01 ktoe (kiloton of oil equivalent) in the public sector, requiring an investment of 48.8 million EUR. In the residential and private/commercial sectors, energy savings of 21.6 ktoe were realized, supported by investments totaling 130 million EUR, which were made possible through initiatives such as the Millennium Challenge Corporation (MCC) project, consumer co-financing, and accessible green loans offered by commercial banks and EBRD[57].

Figure 9- Energy Efficiency Programmes in Kosovo (mil/EUR) from 2010 to 2020.



Source: Energy Community (Kosovo Yearly EE Report) and Government of Kosovo (Ministry of Economy)

55 Government of Kosovo. National Strategy and Climate Plan of the Republic of Kosovo 2025-2030. Source: https://www.energy-community.org/dam/jcr:e6badfbe-313d-4ebc-a450-416dcdbd5499/20230714_Finalpercent20Version_Firstpercent20Draftpercent20NECPpercent202025-2030percent20ofpercent20Kosovo.pdf (Last accessed on: Jan 25, 2024)

56 Ibid.

57 GAP Institute. Economic payoffs of energy efficiency in Kosovo. Source: https://www.institutigap.org/documents/58261_eficienca_energjise_EN_(draft3).pdf (Last accessed on: Jan 25, 2024)

Furthermore, during the past year, Kosovo has launched several projects targeting EE in the residential sector including the EE heating systems, home appliances, water solar heating and EE measures in residential sector through the EU direct budgetary support (40 out of 75 million EUR)[58].

While many projects have been implemented in Kosovo during the past ten years, the country managed to reach only 83 percent of the EE targets (both legislative and non-legislative) by implementing projects on the total amount of 178 million euro as compared to the required amount of 328 million euro[59].

3.1.4 Montenegro

Progress in establishing a legislative and regulatory framework for energy efficiency has been made through the adoption of the Law on Efficient Use of Energy and its accompanying secondary legislation. Additionally, interventions were implemented by amending certain laws, such as the Law on Spatial Planning and Construction of Structures, Law on Concessions, Law on Public Procurement, and Law on Market Inspection. The development of regulations regarding energy efficiency in buildings is of particular significance[60]. The enforcement of these regulations is expected to yield substantial energy savings in the future, along with various other benefits, including reduced energy demand, positive environmental impact, enhanced comfort, fostering entrepreneurship, and the introduction of new materials and technologies.

Furthermore, additional regulations have been developed, including the rulebook on energy labeling and eco-design for appliances such as ovens, hobs, and hoods[61]. On the non-legislative front, Montenegro has made strides in implementing measures to improve energy efficiency in public buildings, including hospitals and institutional structures. Over the past decade, Montenegro has collaborated with international partners and financial institutions to invest approximately 120 million in promoting energy efficiency[62]. Overall, Montenegro has achieved around 75 percent of its EnC target. However, most of these measures have amounted to donor/government funded projects on improving EE in public buildings (85 million EUR- figure 10) and improving EE on supply/ distribution network, with only four projects being implemented through commercial banks (government funded) and promoting EE heating programme in the amount of 4 million EUR[63].

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58 Ibid.

59 Energy Community. WB6 Energy Transition Tracker. Source: https://www.energy-community.org/dam/jcr:2077a2ba-805a-4ca2-afcb-91c90ecc0878/EnC_WB6_ETT1_072020.pdf (Last accessed on Jan 29, 2024)

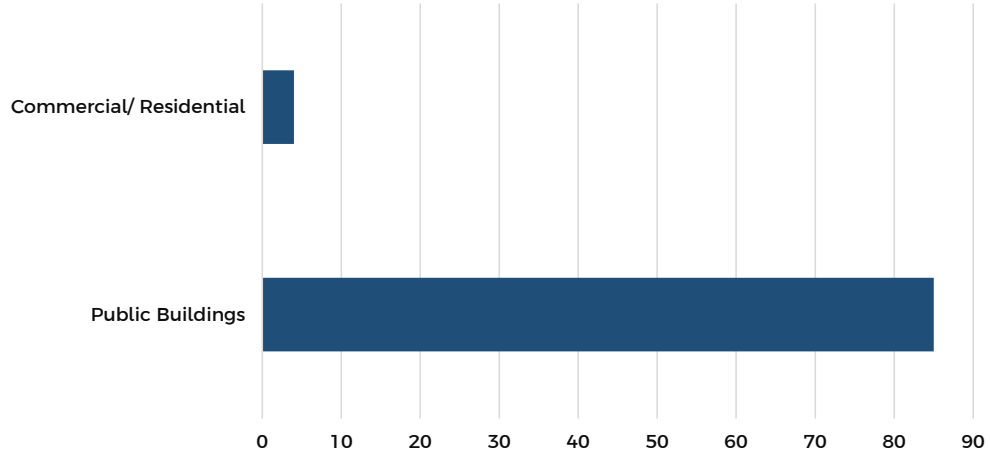
60 Ministry of Capital Investments. 5th Annual Report under the Energy Efficiency Directives. Source: https://www.energy-community.org/dam/jcr:cc9b983d-94e2-45d5-92eb-a982187aa14b/5AR_EED_ME_062021.pdf (Last accessed on: Jan 25, 2024)

61 Ministry of Economy. Energy Efficiency Action Plan Montenegro for period 2019-2021. Source: https://www.energy-community.org/dam/jcr:c1fa6e92-54fe-467a-9c08-53cd3fad957d/4thNEEAP_MO_201907.pdf (Last accessed on: Jan 28, 2024)

62 Energy Community. WB6 Energy Transition Tracker. Source: https://www.energy-community.org/dam/jcr:2077a2ba-805a-4ca2-afcb-91c90ecc0878/EnC_WB6_ETT1_072020.pdf (Last accessed on Jan 29, 2024)

63 Energy Community. 5th Annual Report under the Energy Efficiency Directive. Source: https://www.energy-community.org/dam/jcr:cc9b983d-94e2-45d5-92eb-a982187aa14b/5AR_EED_ME_062021.pdf. (Last accessed on February 18, 2024)

Figure 10- Energy Efficiency Programmes in Montenegro (mil/EUR)from 2010 to 2020.



Source: Energy Community (Montenegro Yearly EE Report)

3.1.5 North Macedonia

In the realm of energy efficiency, North Macedonia is committed to maximizing savings in both primary and final energy consumption. Projections based on current policies indicate an anticipated increase of 38percent in primary energy consumption and 55percent in final energy consumption by 2040 compared to 2017 levels, driven by ongoing economic growth[64]. Given the limited availability of lignite and biomass, the country's primary domestic energy resources, North Macedonia places particular emphasis on energy efficiency[65]. To achieve this, a series of policies and measures will be implemented from 2020 to 2040, targeting energy consumption reduction in buildings (including households, commercial, and public structures), the industrial sector, and transportation, as well as minimizing losses in energy transformation, transmission, and distribution networks.

Despite the absence of secondary legislation that should outline targets and roadmaps for energy efficiency, as mandated by the new Energy Efficiency Law, the National Energy and Climate Plan (NECP) outlines indicative savings achievable once legislative requirements come into effect. North Macedonia prioritizes the principle of prioritizing energy efficiency within its NECP[66].

64 Government of the Republic of North Macedonia. National Energy and Climate Plan. Source: https://www.energy-community.org/dam/jcr:bbb63b32-6446-4df8-adc6-c90613daf309/Draft_NECP_NM_percent202020.pdf. (Last accessed on February 18, 2024)
65 Government of the Republic of North Macedonia. National Energy Efficiency Action Plan. Source: https://www.energy-community.org/dam/jcr:70ecdc38-453f-4f5c-ac4e-6e2c13eb557a/4NEEAPpercent-20finalpercent20adopted_EN.pdf (Last accessed on: Jan 29, 2024)
66 Government of the Republic of North Macedonia. National Energy and Climate Plan. Source: https://www.energy-community.org/dam/jcr:bbb63b32-6446-4df8-adc6-c90613daf309/Draft_NECP_NM_percent202020.pdf. (Last accessed on February 18, 2024)

The Energy Efficiency Law, which incorporates directives on energy efficiency and building performance, was enacted in February 2020. The Ministry of Economy has initiated the development of secondary legislation in accordance with this law's provisions. Technical assistance from GIZ has supported the preparation of the Fourth Energy Efficiency Action Plan. Additionally, a Strategy for Energy Development until 2040 has been adopted, which includes a dedicated dimension for energy efficiency[67].

In terms of practical initiatives, various programs have been launched to incentivize energy-efficient practices in households. For instance, subsidies and refunds were provided for the purchase and installation of solar thermal collector systems, PVC or aluminum windows, and pellet stoves. Financial support from the state budget facilitated these programs[68].

Furthermore, projects funded by international organizations, such as the European Investment Bank, aim to promote energy efficiency in the residential sector. These initiatives include feasibility studies, technical assistance, and financial support for energy-efficient projects. The focus extends to renewable energy sources and measures to reduce air pollution, particularly in highly polluted urban areas. Additionally, projects targeting energy efficiency in public buildings and infrastructure are underway, supported by regional and international partnerships[69].

Overall, North Macedonia has achieved around 75 percent of its EnC target, with the total joint investment (government, private sector, international development partners and international financial institutions) of 160 million EUR[70]. As figure 11 shows, approximately 40 million EUR have gone in investment in residential sector through soft loans, donor funded projects and projects funded by the government and the others in public sector such as public lighting, retrofitting of government buildings and educational/ healthcare centers[71].

67 Ibid.

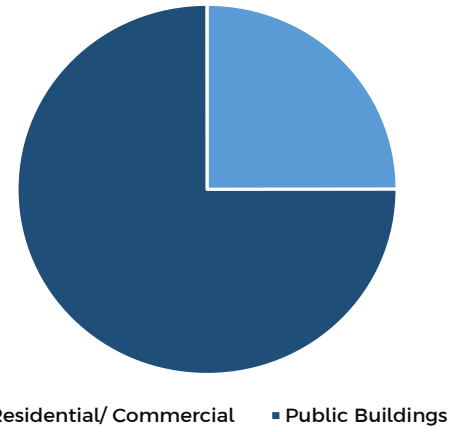
68 Ministry of Economy - Republic of North Macedonia. 5th Annual Report under the Energy Efficiency Directive Source: https://www.energy-community.org/dam/jcr:6b8b8684-9030-4334-bc13-ae-5b631e8528/5thEED_AnnualReport_072021_NM.pdf (Last accessed on: Feb 2, 2024)

69 Ibid.

70 Energy Community. WB6 Energy Transition Tracker. Source: https://www.energy-community.org/dam/jcr:2077a2ba-805a-4ca2-afcb-91c90ecc0878/EnC_WB6_ETT1_072020.pdf (Last accessed on Jan 29, 2024)

71 Ministry of Economy - Republic of North Macedonia. 5th Annual Report under the Energy Efficiency Directive Source: https://www.energy-community.org/dam/jcr:6b8b8684-9030-4334-bc13-ae-5b631e8528/5thEED_AnnualReport_072021_NM.pdf (Last accessed on: Feb 2, 2024)

Figure 11- Energy Efficiency Programmes in North Macedonia (mil/EUR) from 2010 to 2020.



Source: Energy Community (North Macedonia Yearly EE Report)

3.1.6 Serbia

Elevating energy efficiency to a top priority underscores the imperative of enacting policies and measures that offer the most economically and socially effective solutions across all sectors. Projections indicate that by 2030, final energy consumption will not exceed 9.6 Mtoe, with primary energy consumption capped at 14.68 Mtoe[72]. The benefits of enhancing energy efficiency are manifold, encompassing reductions in greenhouse gas emissions, energy costs, and improvements in building comfort, along with increased value added, employment, and business competitiveness, ultimately contributing to poverty reduction. The enactment of the Law on Energy Efficiency and Rational Use of Energy (LEERUE) in 2021, replacing the previous legislation, represents a pivotal step in this direction[73]. LEERUE serves as a comprehensive legislative framework, establishing terms and conditions for efficient energy use, energy management, and various policy measures. Moreover, it lays the groundwork for financing energy efficiency initiatives through the creation of the Directorate for Financing and Promoting Energy Efficiency and sets conditions for contracting energy services. LEERUE aligns substantially with the Energy Efficiency Directive 2012/27/EU and other relevant EU regulations, ensuring compliance and facilitating the adoption of energy efficiency targets beyond 2021 and enabling the eco-design requirements to be set[74]. Notably, the law enables the implementation of pilot projects aimed at providing incentives for energy rehabilitation in residential buildings and the installation of solar panels, with substantial subsidies allocated from the national budget. These initiatives are bolstered by partnerships with international financial institutions, such as the World Bank and the EBRD, further enhancing the scale and impact of energy efficiency measures. Additionally, efforts to improve energy efficiency extend to the public sector, with dedicated funds allocated for the rehabilitation of public buildings in municipalities[75].

Over the past decade, Serbia has facilitated the execution of seven public calls aimed at allocating funds for enhancing energy efficiency in locally significant buildings. These efforts have resulted in the implementation of 107 projects, totaling approximately 14.4 million EUR. Moreover, pilot initiatives to bolster energy efficiency in the residential sector have been initiated, with the government offering incentives of up to 50percent. This has benefited around 5,000 households, with a combined investment of approximately 6 million EUR.[76] Consequently, there has been a substantial increase in funds allocated for energy efficiency financing from the Republic of Serbia's 2022

72 Government of the Republic of Serbia. Integrated National Energy and Climate Plan of the Republic of Serbia for the period 2030 with the projections up to 2050. Source: https://www.energy-community.org/dam/jcr:01992fc5-4981-4ee3-84f8-f1f96830b4ba/INECP_Serbia_ENG_13.06.23percent20.pdf (Last accessed on: Feb 3, 2024)

73 Government of the Republic of Serbia. 4th Energy Efficiency Action Plan of the Republic of Serbia for the period until 31 December 2021. Source: https://www.energy-community.org/dam/jcr:40aa7e23-a6c4-49fc-a773-5659b8906693/RS_4thNEEAP_092021.pdf (Last accessed on: Feb 3, 2024)

74 Ibid.

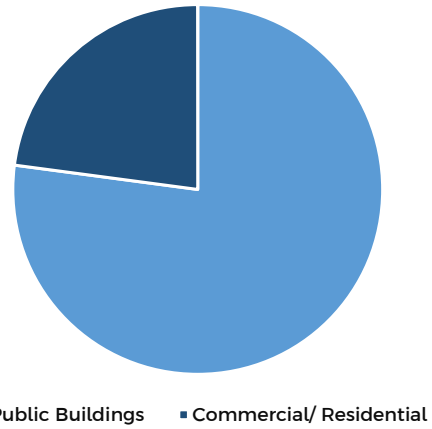
75 Government of the Republic of Serbia. Integrated National Energy and Climate Plan of the Republic of Serbia for the period 2030 with the projections up to 2050. Source: https://www.energy-community.org/dam/jcr:01992fc5-4981-4ee3-84f8-f1f96830b4ba/INECP_Serbia_ENG_13.06.23percent20.pdf (Last accessed on: Feb 3, 2024)

76 Government of the Republic of Serbia. 4th Energy Efficiency Action Plan of the Republic of Serbia for the period until 31 December 2021. Source: https://www.energy-community.org/dam/jcr:40aa7e23-a6c4-49fc-a773-5659b8906693/RS_4thNEEAP_092021.pdf (Last accessed on: Feb 3, 2024)

budget, amounting to approximately 17 million EUR, with around 10 million EUR collected annually from compensation charges. In 2022, these funds have been utilized for renovating residential apartments, family homes, and residential buildings, as well as installing solar panels in 20,000 households, with an expected annual energy savings of 196,276,070 kWh[77]. Furthermore, the implementation of the 8th public call for improving energy efficiency in local self-government buildings in 2022 marked the first implementation under the Energy Efficiency Directive. Approximately 5.8 million EUR from the directive have been allocated for financing 38 public importance buildings, resulting in an anticipated energy savings of 9 million kWh per year and a reduction of approximately 4,500 tons of CO2 emissions annually[78]. Additionally, these efforts have secured a 43 million EUR World Bank loan and a 43 million EUR European Bank for Reconstruction and Development (EBRD) loan for projects focused on clean energy, energy efficiency, and the rehabilitation of residential and public buildings connected to district heating systems. These projects aim to support socially vulnerable groups and promote the transition to billing based on energy consumption, with subsidies expected to benefit around 100,000 households[79].

While many projects have been implemented in Serbia during the past ten years, the country managed to reach only 80 percent of the EE targets (both legislative and non-legislative) by implementing projects on the total amount of 415 million euro as compared to the required amount of 1.6 billion euro[80]. From them, it is estimated that around 95 million EUR has been invested in the residential sector and the others in the public sector (figure 12).

Figure 12- Energy Efficiency Programmes in Serbia (mil/EUR) from 2010 to 2020



Source: Energy Community (Serbia Yearly EE Report) and Government of Serbia (National Energy and Climate Plan)

77 Ibid.

78 ibid

79 Ibid.

80 Energy Community. WB6 Energy Transition Tracker. Source: https://www.energy-community.org/dam/jcr:2077a2ba-805a-4ca2-afcb-91c90ecc0878/EnC_WB6_ETT1_072020.pdf (Last accessed on Jan 29, 2024)

4. LOOKING AHEAD- REACHING THE 2030 EE TARGETS, PROMOTING EMPLOYMENT AND SUSTAINABLE ECONOMIC DEVELOPMENT IN WB6

4.1 INTRODUCTION

The Western Balkans (WB6) have robust legislative and policy frameworks governing their energy sectors, which are continuously updated to align with evolving developments and objectives outlined in their National Energy and Climate Plans and the obligations deriving from international commitments. All WB6 governments have committed to the European Green Deal and the goal of achieving carbon neutrality by 2050[81]. Notably, the WB6 have made significant progress in transposing the EU's Third Energy Package, with the Energy Community reporting an increase in transposition rates from 48percent in 2018 to 55percent in 2020, thus bringing the energy sector in line with EU regulations and international standards[82].

Efforts towards implementing international best practices, particularly regarding unbundling and ensuring non-discriminatory access to infrastructure owned by natural monopolies, are nearing completion in WB6. Moreover, the establishment of power exchanges in Montenegro, Albania, and Kosovo reflects the region's strides towards fostering EU-style organized energy markets. Although energy efficiency improvements are gradually taking place, particularly in public buildings, recent momentum in strategic documents and financing programs is extending these efforts to the private sector across most WB6 economies[83].

However, challenges persist due to shortages in technical expertise and limited funding in relevant institutions, as well as obstacles such as the absence of building certifications and trained auditors, which hinder energy efficiency initiatives[84].

81 Regional Cooperation Council. Green Agenda for the Western Balkans. Source: https://www.rcc.int/download/docs/Leaders%20Declaration%20on%20the%20Green%20Agenda%20for%20the%20WB.pdf/196c-92cf0534f629d43c460079809b20.pdf. (Last accessed on: Jan 24, 2024)

82 OECD. Energy policy. Source: https://www.oecd-ilibrary.org/docserver/0c8c0d7a-en.pdf?expires=1708888602&id=id&accname=guest&checksum=512B33B590F5297F36FBEA04C56D6D9E. (Last accessed on: Feb 1, 2024)

83 OECD. Clean energy transition in the Western Balkans. Source: https://t4.oecd.org/south-east-europe/programme/OECD-BN-Clean-Energy-Transition-Oct2022.pdf (Last accessed on: Jan 29, 2024)

84 Ibid.

In the field of energy efficiency (EE) investments, private companies and individuals typically prioritize projects with a favorable return period, usually between 4-6 years. Longer return periods may be acceptable if investments yield additional non-energy benefits such as modernizing production lines, improving service quality, etc. The average investment return period for EE projects is around 5 years, though certain initiatives like cogeneration in industrial settings may have longer return periods of 7 to 10 years.

To incentivize investments with longer payback periods, governments must provide financial support in the form of grants, tax benefits, subsidized loan interest rates, etc. These incentives should aim to reduce the consumer's investment return period to an acceptable level of approximately 5 years. Furthermore, incentives can be facilitated through third-party financing or energy performance contracting, ensuring they are balanced to avoid excessive reliance on public funds for consumer profit.

All the countries within the Western Balkans Six are currently in the process of formulating their national contributions towards energy efficiency, renewable energy sources, and greenhouse gas emissions reduction. The European Union and the Energy Community have placed significant emphasis on EE within their policies. As a result, each WB6 country has outlined its national cumulative or cap targets related to EE in their respective national policies.

In this section, we will analyze the identified targets by calculating the investment required to achieve them, assessing the return on investment considering crisis prices versus normal prices, and evaluating the impact of these investments on short- and long-term employment rates.

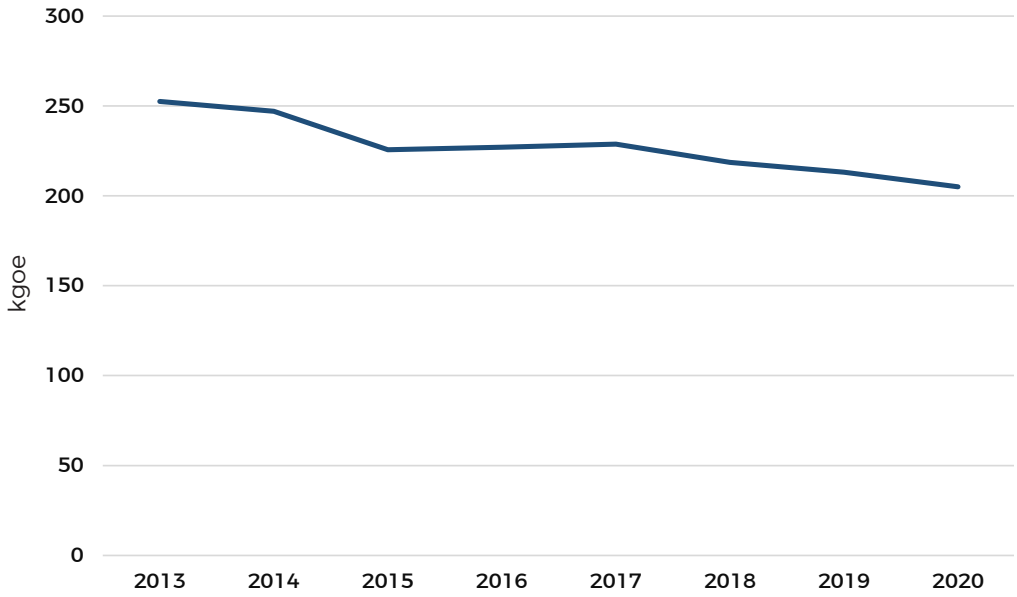
The calculations utilize the cumulative savings methodology, where the investments in the early years get carried out in the following years. Therefore, this methodology favors early interventions. While this methodology makes the calculations of the targets easy to be measured, there are many limitations that decrease the confidence of the calculations, including the risk of overestimation, external factors such as behavioral changes of the people, technological performance and improvement, data availability in verifying the savings and policy changes when reporting to the Energy community secretariat etc. Despite these limitations, the cumulative targets on energy efficiency can still be a valuable tool for driving the policy discussion on energy efficiency measures, it can enable the policy makers understand the urgency of investing on Energy Efficiency, and the overall impact on the economic development of the respective WB6 countries.

The calculations for the EE targets were conducted under two scenarios. In the baseline scenario (sub table-a), consideration was given to a more rapid adoption of EE measures, including those introduced through EU direct budgetary support in response to the energy crisis. Sub table b considers a slower uptake of the measures, and it's done for illustrative purposes, to understand the increased cost of reaching EnC set EE targets. Given the multitude of programs and investment opportunities in the region, as well as the unique conditions involved, precise calculations are challenging at this juncture. As a result, a rule of thumb was applied, estimating that for every ktoe saved, an investment of approximately 6.1 million EUR would be required.

4.2 ALBANIA

Albania has taken proactive steps towards energy efficiency and climate action with the introduction of its 2030 energy efficiency targets and associated policies and measures, outlined in the NECP adopted in February 2022. These measures, however, are not aligned with the 2030 targets set by the Energy Community[85].
With the primary energy consumption in Albania being growing slowly in the past 20 years, with an annual average growth of 0.5 percent[86] and the accumulative EE targets set for 599.54 ktoe[87], Albania is set to become one of the least energy intensive countries in the region.

Figure 13- Energy Intensity of Albania



Source: Eurostat

The energy intensity in Albania has been decreasing for annual average of 3 percent, accounting for 204.95 KGOE per thousand euro, as compared to the EU average (116.33 KGOE per thousand euro), but also higher than the average of the countries in the region (360.21 KGOE per thousand euro)[88].

85 Government of the Republic of Albania. Draft of the National Energy and Climate Plan of the Republic of Albania. Source: https://www.energy-community.org/dam/jcr:a0c2b8a8-96c8-4423-993a-537cf-51daa65/Draft_NECP_AL_percent202021.pdf. (Last accessed on: Jan 29, 2024)
86 Eurostat. Primary energy consumption. Source: https://ec.europa.eu/Eurostat/web/products-datasets/-/sdg_07_10. (Last accessed on: Jan 29, 2024)
87 Government of the Republic of Albania. Draft of the National Energy and Climate Plan of the Republic of Albania. Source: https://www.energy-community.org/dam/jcr:a0c2b8a8-96c8-4423-993a-537cf-51daa65/Draft_NECP_AL_percent202021.pdf. (Last accessed on: Jan 29, 2024)
88 Eurostat. Energy intensity. Source: https://ec.europa.eu/Eurostat/databrowser/view/nrg_ind_ei/default/table?lang=en. (Last accessed on: Jan 24, 2024)

According to the National Energy and Climate Plan, the government of Albania has set a cumulative target of 599.54 ktoe for the year 2031, meaning that a faster uptake of the EE measures could lead to reaching the EE targets with an approximate 588.89 mil euro investment as compared to 637.69 mil euro for a slower uptake, as per the table below.

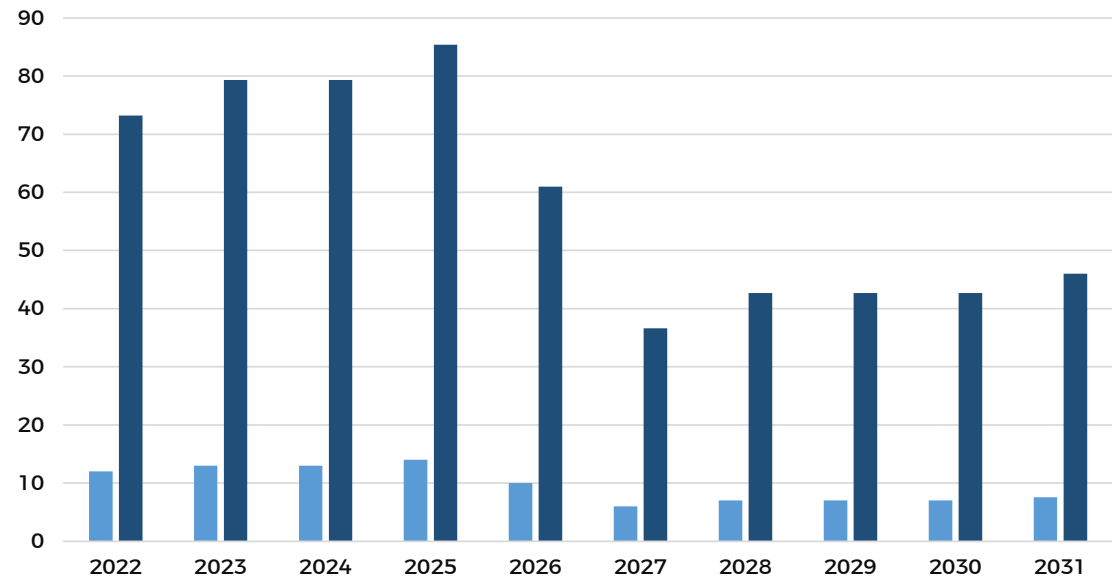
Table 1-EE Target Scenarios in Albania

Sub table (a)	22	23	24	25	26	27	28	29	30	31	Total Cumulative savings (ktoe)	Sub table (b)	22	23	24	25	26	27	28	29	30	31
22	12	12	12	12	12	12	12	12	12	12		22	10	10	10	10	10	10	10	10	10	10
23	X	13	13	13	13	13	13	13	13	13		23	X	9	9	9	9	9	9	9	9	9
24	X	X	13	13	13	13	13	13	13	13		24	X	X	12	12	12	12	12	12	12	12
25	X	X	X	14	14	14	14	14	14	14		25	X	X	X	12	12	12	12	12	12	12
26	X	X	X	X	10	10	10	10	10	10		26	X	X	X	X	12	12	12	12	12	12
27	X	X	X	X	X	6	6	6	6	6		27	X	X	X	X	X	15	15	15	15	15
28	X	X	X	X	X	X	7	7	7	7		28	X	X	X	X	X	X	10	10	10	10
29	X	X	X	X	X	X	X	7	7	7		29	X	X	X	X	X	X	X	10	10	10
30	X	X	X	X	X	X	X	X	7	7		30	X	X	X	X	X	X	X	X	7	7
31	X	X	X	X	X	X	X	X	X	7.54		31	X	X	X	X	X	X	X	X	X	7.54
Total (ktoe)	12	25	38	52	62	68	75	82	89	96.54	599.54	Total (Ktoe)	10	19	31	43	55	70	80	90	97	104.54

Source: compiled and calculated by GAP

On average, the government of Albania in collaboration with the private sector, IFI, local financial institutions and development partners should invest around 58 million EUR yearly on programmes and schemes to promote EE.

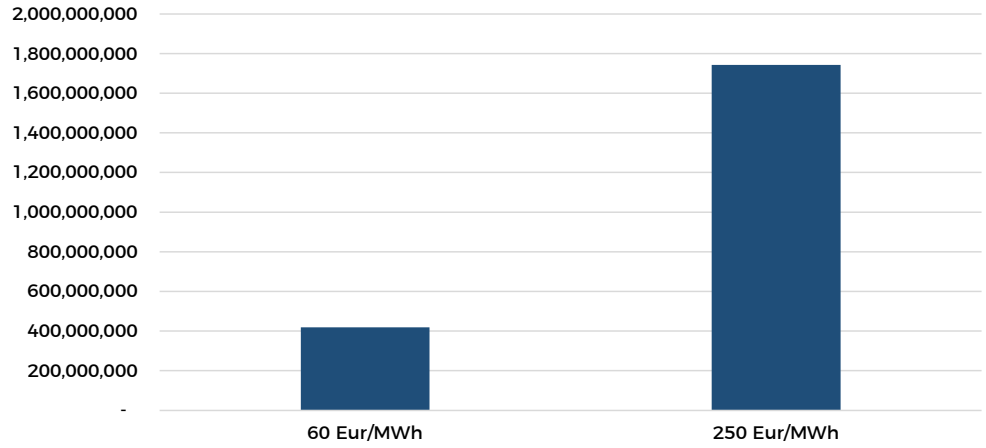
Figure 14- Estimated future investment on EE per year (mil/euro) in Albania to reach the set EE targets.



Source: compiled and calculated by GAP

The energy saved due to implemented measures amounts to 6,972,650.20 MWh. In a baseline scenario, if this electricity were to be imported, it would cost customers/ government approximately 418 million EUR during typical years, based on a Hupex average electricity price of 60 EUR/MWh (in 2023). However, during market fluctuations periods (2021-2022) where the average electricity price was at 250 EUR per MWh, the cost would average around 1.7 billion EUR.

Figure 15- Cost of the energy saved in Albania if it was imported in EUR.



Source: compiled and calculated by GAP

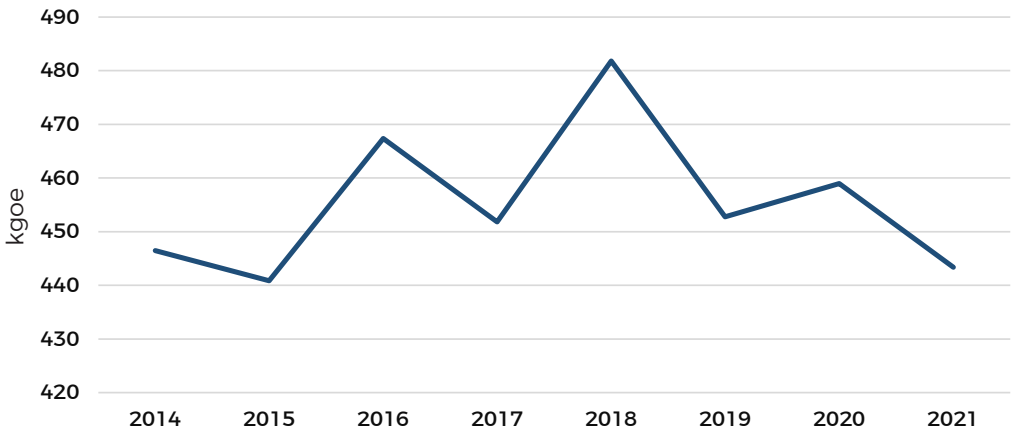
4.3 BOSNIA AND HERCEGOVINA

Bosnia and Herzegovina (BiH) is making concerted efforts to enhance energy efficiency across diverse sectors, aiming to bolster sustainability, diminish energy usage, and alleviate environmental repercussions. Despite recent advancements, BiH grapples with challenges in optimizing its energy utilization due to outdated infrastructure, inefficient practices, and a lack of comprehensive policies.
To tackle these hurdles, the Bosnian government, in collaboration with international partners and stakeholders, has been rolling out measures to advance energy efficiency. These endeavors encompass a spectrum of initiatives targeting improved energy performance in buildings, enhanced industrial processes, and the promotion of sustainable transportation systems.

Moreover, BiH is actively striving to harmonize its energy efficiency policies and strategies with European Union standards and directives, aligning with its broader integration efforts with the EU. However, over the past decade, primary energy consumption has witnessed an annual average increase of 2.69percent[89]. Similarly to Kosovo, the energy sector in BiH exhibits one of the highest levels of energy intensity in the region and Europe. Although there has been a decline in energy intensity over the past three years, it remains significant at 443.36 KGOE per thousand euro[90].

89 Eurostat. Primary energy consumption. Source: https://ec.europa.eu/eurostat/web/products-datasets/-/sdg_07_10. (Last accessed on: Jan 29, 2024).
90 Eurostat. Energy intensity. Source: https://ec.europa.eu/Eurostat/databrowser/view/nrg_ind_ei/default/table?lang=en. (Last accessed on: Jan 24, 2024)

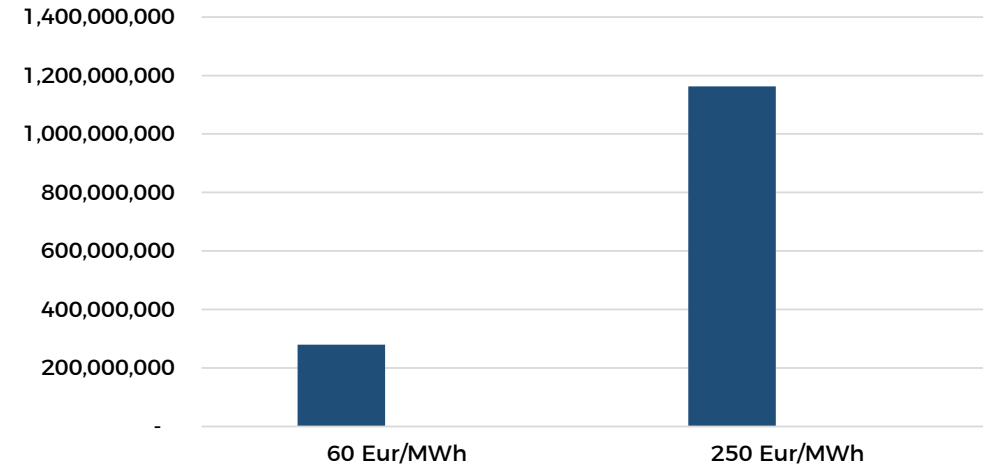
Figure 16- Energy Intensity in BiH



Source: Eurostat

Currently BiH is in the process of developing their national strategies, including the Energy and Climate Plan. Therefore, up to date there are no official targets for Energy Efficiency, making it impossible to calculate precisely the investment needed for the upcoming period of ten years. However, if the similarities with the region persist, it is expected that BiH will be reaching an average target of cumulative 400 ktoe and a joint total investment of around 460 million EUR up to 2031.

Figure 17- Cost of the energy saved in BiH if it was imported in EUR.



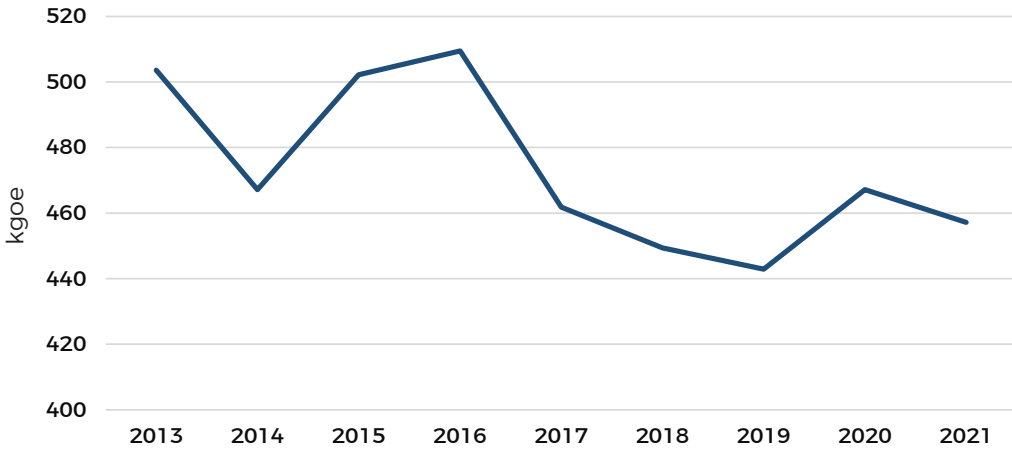
Source: compiled and calculated by GAP

It is estimated that the energy saved due to reaching the targets amounts to 4,652,000 MWh. In a baseline scenario, if this electricity were to be imported, it would cost customers/government approximately 280 million EUR during typical years, based on a Hupex electricity price of 60 EUR/MWh. However, during market fluctuations, the cost would average around 1.2 billion EUR.

4.4 KOSOVO

During the pass decades, the Primary energy consumption has been increased by an annual average of 1.4percent between 2008 and 2020[91]. The growth rate moderated at the end of the decade but was also affected by short-term effects (the COVID-19 pandemic). Final energy consumption has had a similar trend in this period, with an average annual increase rate of 2.3percent, reaching 1,525 ktoe in 2020[92]. Although energy intensity in Kosovo has improved significantly since 2008, it is still very high compared to the EU average (116.33 KGOE per thousand euro), but also higher than the average of the countries in the region (360.21 KGOE per thousand euro)[93].

Figure 18- Energy Intensity of Kosovo



Source: Eurostat

Most of this increase in the primary and final energy consumption can be attributed to the economic development of Kosovo, the trend on high energy intensity and the lack of investment on energy efficiency measures in the household sector.

While as mentioned earlier, Kosovo has introduced several policies and programmes in the last years, to promote energy efficiency, there is still more to be done to reach the EE targets. In defining the targets, the energy strategy has employed a methodology that benefits earlier investments compared to those made in the later years. As seen on the table below, if Kosovo were to take a more proactive approach would fulfill the target of 283 ktoe cumulative saved[94] with a total investment of 322 million as compared to 366 million for slower uptake.

91 Eurostat. Primary energy consumption. Source: https://ec.europa.eu/eurostat/web/products-datasets/-/sdg_07_10. (Last accessed on: Jan 29, 2024).

92 Eurostat. Final energy consumption by sector. Source: https://ec.europa.eu/Eurostat/databrowser/view/ten00124/default/table?lang=en. (Last accessed on: Jan 29, 2024).

93 Eurostat. Energy intensity. Source: https://ec.europa.eu/Eurostat/databrowser/view/nrg_ind_ei/default/table?lang=en. (Last accessed on: Jan 24, 2024)

94 Republic of Kosovo. Energy Strategy of the Republic of Kosovo. Source: https://me.rks-gov.net/wp-content/uploads/2023/04/Energy-Strategy-of-the-Republic-of-Kosovo-2022-2031-1-1.pdf. (Last accessed on: Jan 29, 2024).

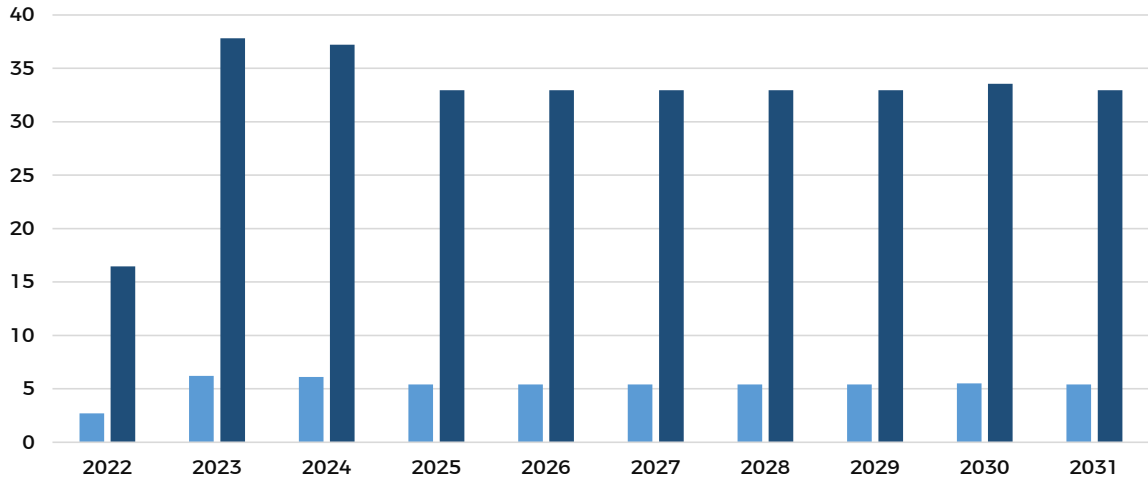
Table 2- EE Target Scenarios in Kosovo

Sub table (a)	22	23	24	25	26	27	28	29	30	31	Total Cumulative savings (ktoe)	Sub table (b)	22	23	24	25	26	27	28	29	30	31
22	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7		22	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
23	X	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		23	X	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
24	X	X	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1		24	X	X	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
25	X	X	X	5.4	5.4	5.4	5.4	5.4	5.4	5.4		25	X	X	X	5.4	5.4	5.4	5.4	5.4	5.4	5.4
26	X	X	X	X	5.4	5.4	5.4	5.4	5.4	5.4		26	X	X	X	X	5.4	5.4	5.4	5.4	5.4	5.4
27	X	X	X	X	X	5.4	5.4	5.4	5.4	5.4		27	X	X	X	X	X	5.4	5.4	5.4	5.4	5.4
28	X	X	X	X	X	X	5.4	5.4	5.4	5.4		28	X	X	X	X	X	X	5.4	5.4	5.4	5.4
29	X	X	X	X	X	X	X	5.4	5.4	5.4		29	X	X	X	X	X	X	X	8	8	8
30	X	X	X	X	X	X	X	X	5.5	5.5		30	X	X	X	X	X	X	X	X	9	9
31	X	X	X	X	X	X	X	X	X	5.4		31	X	X	X	X	X	X	X	X	X	8.5
Total	2.7	8.9	15	20.4	25.8	31.2	36.6	42	47.5	52.9	283	Total	2.7	7.8	12.9	18.3	23.7	29.1	34.5	42.5	51.5	60

Source: compiled and calculated by GAP

In the faster uptake scenario, to achieve the savings targeted on the energy strategy, the Government of Kosovo jointly with the financial institutions, development partners and private sector must invest around 322 million EUR, with an estimated average of 32 million per year, as per the graph bellow.

Figure 19- Estimated future investment on EE per year (mil/euro) in Kosovo to reach the set EE targets.

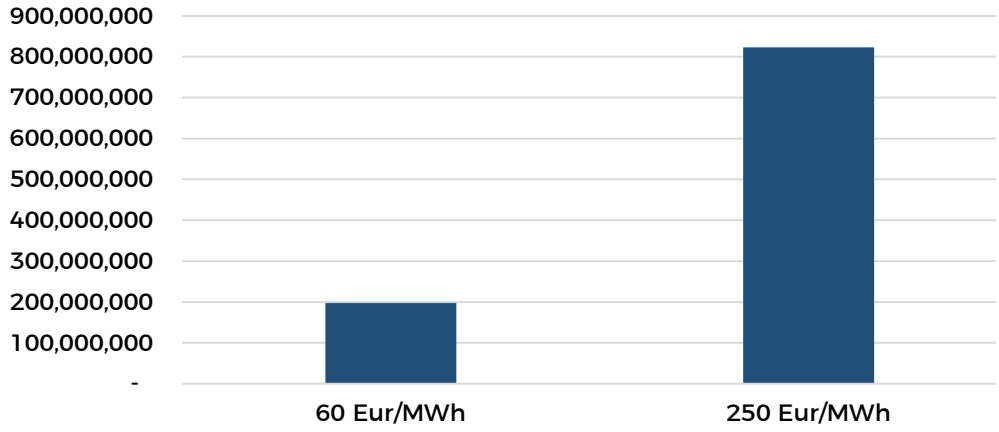


Source: compiled and calculated by GAP

The energy saved due to implemented measures amounts to 3,291,290 MWh. In a baseline scenario, if this electricity were to be imported, it would cost customers/government approximately 200 million EUR during typical years, based on a Hupex electricity price of 60 EUR/MWh. However, during market fluctuations (when prices go as high as 250 EUR/MWh[95]), the cost would average around 800 million EUR, making the investment necessary, smart, and affordable.

95 HupX. Historical Data. Source: https://hupx.hu/en/market-data/dam/historical-data. (Last accessed on: Feb 24, 2024)

Figure 20- Cost of the energy saved in Kosovo if it was imported in EUR.

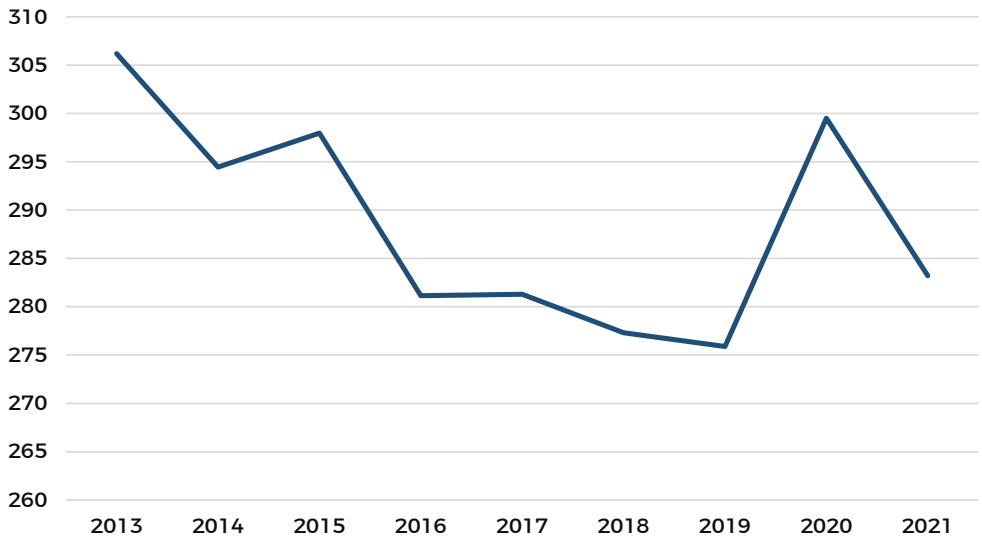


Source: compiled and calculated by GAP

4.5 MONTENEGRO

Promoting energy efficiency (EE) in Montenegro is crucial for achieving sustainability, reducing energy costs, and meeting climate goals. Montenegro is one of the countries with the lowest energy intensity on the region, accounting for 283.2 KGOE per thousand euro compared to the EU average[96]. The country should further enhance its policy regulations in advancing the EE implementation targets.

Figure 21- Energy Intensity of Montenegro

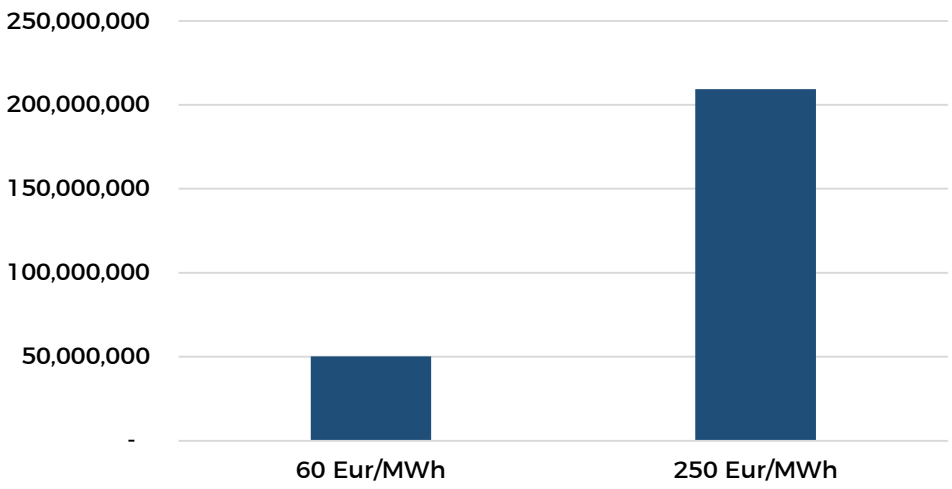


Source: Eurostat

96 Eurostat. Energy intensity. Source: https://ec.europa.eu/Eurostat/databrowser/view/nrg_ind_ei/default/table?lang=en. (Last accessed on: Jan 24, 2024)

While Montenegro is still finalizing its draft NECP, which must harmonize the 2030 energy efficiency targets with the 2030 targets set by the Energy Community, the government of Montenegro is yet to define its cumulative targets and possible scenarios of implementation. However, on the Energy Strategy, the government of Montenegro aims to invest around 439.4 million of EUR on Energy Efficiency up to 2030, reaching a calculated average cumulative target of around 390 ktoe[97].

Figure 22- Cost of the energy saved in Montenegro if it was imported in EUR.



Source: compiled and calculated by GAP

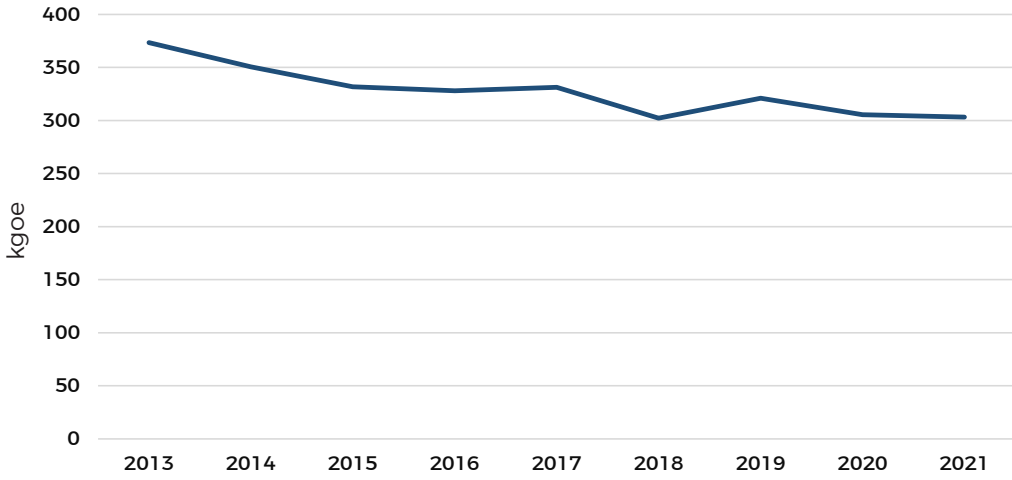
The energy saved due to implemented measures amounts to 837,709 MWh, leading to savings from 50 million to 210 million EUR for the next ten years.

97 Government of Montenegro. Energy Development Strategy of Montenegro until 2030. Source: https://faolex.fao.org/docs/pdf/mne208502.pdf. (Last accessed on: February 01, 2024)

4.6 NORTH MACEDONIA

With the primary energy consumption in North Macedonia falling slowly in the past 20 years, with an annual average fall of 0.5 percent[98] and the accumulative targets set for 147.2 ktoe[99], North Macedonia is the least energy intensive country in the region.

Figure 23- Energy Intensity of North Macedonia



Source: Eurostat

The energy intensity in North Macedonia has been decreasing for annual average of 2.7 percent, accounting for 204.95 KGOE per thousand euro, as compared to the EU average (116.33 KGOE per thousand euro), but also lower than the average of the countries in the region (360.21 KGOE per thousand euro) [100].

Since joining the EnC, North Macedonia has improved its national legislation, and lately has adopted the 2030 energy efficiency targets in the adopted NECP, aligning it with the 2030 targets set by the Energy Community. According to the National Energy and Climate Plan, the government of North Macedonia has set a cumulative target of 147.2 ktoe for the year 2031[101], meaning that a faster uptake of the EE measures could lead to reaching the EE targets with an approximate 165.31 million EUR investment.

98 Eurostat. Primary energy consumption. Source: https://ec.europa.eu/eurostat/web/products-datasets/-/sdg_07_10. (Last accessed on: Jan 29, 2024).

99 Government of North Macedonia. National Energy and Climate Plan. Source: https://www.energy-community.org/dam/jcr:bbb63b32-6446-4df8-adc6-c90613daf309/Draft_NECP_NM_percent202020.pdf. (Last accessed on: Jan 24, 2024)

100 Eurostat. Energy intensity. Source: https://ec.europa.eu/Eurostat/databrowser/view/nrg_ind_ei/default/table?lang=en. (Last accessed on: Jan 24, 2024)

101 Government of North Macedonia. National Energy and Climate Plan. Source: https://www.energy-community.org/dam/jcr:bbb63b32-6446-4df8-adc6-c90613daf309/Draft_NECP_NM_percent202020.pdf. (Last accessed on: Jan 24, 2024)

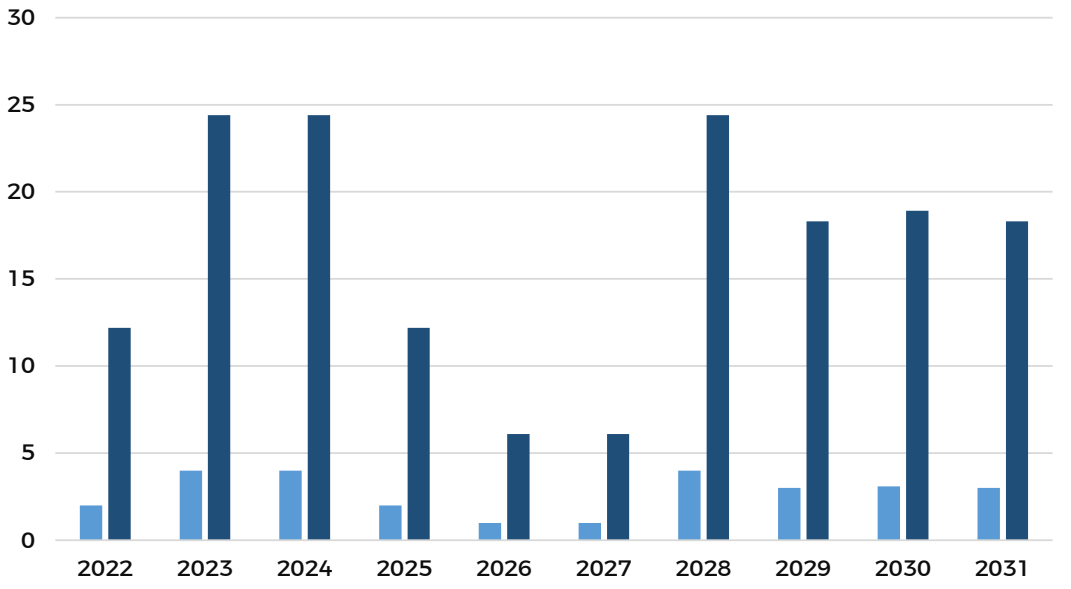
Table 3- EE Target Scenarios in North Macedonia

Sub table (a)	22	23	24	25	26	27	28	29	30	31		Sub table (b)	22	23	24	25	26	27	28	29	30	31
22	2	2	2	2	2	2	2	2	2	2		22	2	2	2	2	2	2	2	2	2	2
23	X	4	4	4	4	4	4	4	4	4		23	X	2	2	2	2	2	2	2	2	2
24	X	X	4	4	4	4	4	4	4	4		24	X	X	3	3	3	3	3	3	3	3
25	X	X	X	2	2	2	2	2	2	2		25	X	X	X	2	2	2	2	2	2	2
26	X	X	X	X	1	1	1	1	1	1	147.2	26	X	X	X	X	3	3	3	3	3	3
27	X	X	X	X	X	1	1	1	1	1		27	X	X	X	X	X	3	3	3	3	3
28	X	X	X	X	X	X	4	4	4	4		28	X	X	X	X	X	X	5	5	5	5
29	X	X	X	X	X	X	X	3	3	3		29	X	X	X	X	X	X	X	3	3	3
30	X	X	X	X	X	X	X	X	3.1	3.1		30	X	X	X	X	X	X	X	X	3.1	3.1
31	X	X	X	X	X	X	X	X	X	3		31	X	X	X	X	X	X	X	X	X	3
Total	2	6	10	12	13	14	18	21	24.1	27.1		Total	2	4	7	9	12	15	20	23	26.1	29.1

Source: compiled and calculated by GAP

On average, the government of North Macedonia in collaboration with the partners should invest around 16 million EUR yearly on programmes and schemes to promote EE.

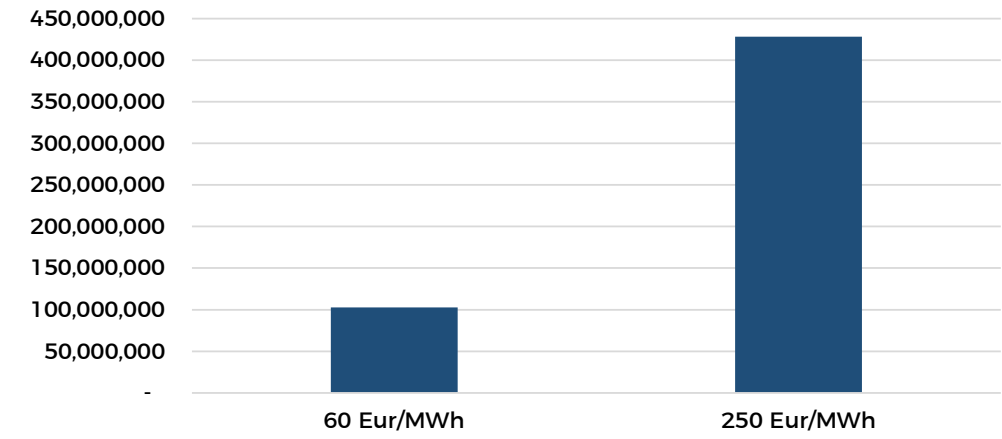
Figure 24- Estimated future investment on EE per year (mil/euro) in North Macedonia to reach the set EE targets.



Source: compiled and calculated by GAP

The energy saved due to implemented measures amounts to 1,711,936.00 MWh. In a baseline scenario, if this electricity were to be imported, it would cost customers/government approximately 1.2 million EUR as compared to 427 million during market fluctuations.

Figure 25- Cost of the energy saved in North Macedonia if it was imported in EUR.

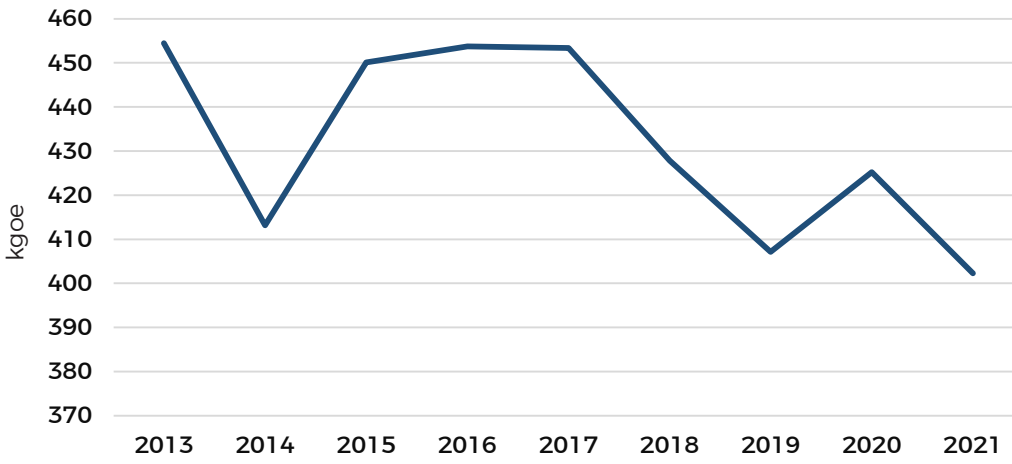


Source: compiled and calculated by GAP

4.7 SERBIA

During the past decade, the primary energy consumption in Serbia has increased steadily by an annual average of 2.4percent[102]. Furthermore, the energy intensity has also decreased slowly, while still being one of the highest compared to the EU average (116.33 KGOE per thousand euro), but also higher than the average of the countries in the region (360.21 KGOE per thousand euro)[103].

Figure 26- Energy Intensity of Serbia



Source: Eurostat

102 Eurostat. Primary energy consumption. Source: https://ec.europa.eu/eurostat/web/products-datasets/-/sdg_07_10. (Last accessed on: Jan 29, 2024).

103 Energy intensity. Source: https://ec.europa.eu/Eurostat/databrowser/view/nrg_ind_ei/default/table?lang=en. (Last accessed on: Jan 24, 2024)

According to the Energy Strategy, the government of Serbia has set a cumulative target of 506 ktoe for the year 2031[104], meaning that a faster uptake of the EE measures could lead to reaching the EE targets with an approximate 494.1 million EUR investment as compared to 677.1 mil euro for a slower uptake, as per the table below.

Table 4- EE Target Scenarios in Serbia Table 4- EE Target Scenarios in Serbia

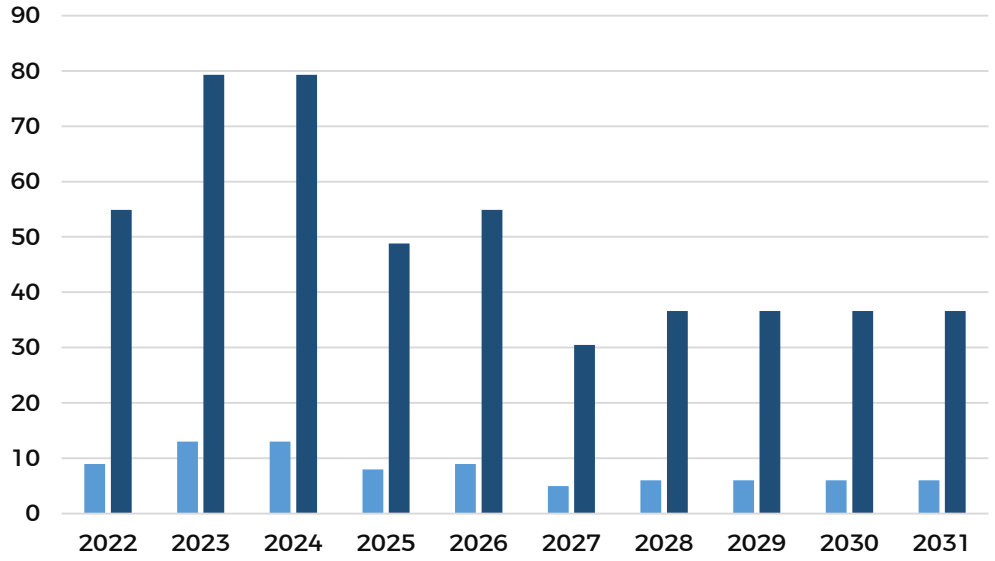
Sub table (a)	22	23	24	25	26	27	28	29	30	31	Total Cumulative savings (ktoe)	Sub table (b)	22	23	24	25	26	27	28	29	30	31
22	9	9	9	9	9	9	9	9	9	9		22	6	6	6	6	6	6	6	6	6	6
23	X	13	13	13	13	13	13	13	13	13		23	X	6	6	6	6	6	6	6	6	6
24	X	X	13	13	13	13	13	13	13	13		24	X	X	6	6	6	6	6	6	6	6
25	X	X	X	8	8	8	8	8	8	8		25	X	X	X	7	7	7	7	7	7	7
26	X	X	X	X	9	9	9	9	9	9		26	X	X	X	X	13	13	13	13	13	13
27	X	X	X	X	X	5	5	5	5	5		27	X	X	X	X	X	14	14	14	14	14
28	X	X	X	X	X	X	6	6	6	6		28	X	X	X	X	X	X	15	15	15	15
29	X	X	X	X	X	X	X	6	6	6		29	X	X	X	X	X	X	X	14	14	14
30	X	X	X	X	X	X	X	X	6	6		30	X	X	X	X	X	X	X	X	15	15
31	X	X	X	X	X	X	X	X	X	6		31	X	X	X	X	X	X	X	X	X	15
Total	9	22	35	43	52	57	63	69	75	81	506	Total	6	12	18	25	38	52	67	81	96	111

Source: compiled and calculated by GAP

On average, the government of Serbia in collaboration with the private sector, IFIs, local financial institutions and development partners should invest around 50 million EUR yearly on programmes and schemes to promote EE.

104 Government of Serbia. Energy Sector Development Strategy of the Republic of Serbia for the period by 2025 with projections by 2030. Source: https://meemp-serbia.com/wp-content/uploads/2018/09/Legislative-Energy-Sector-Development-Strategy-of-the-Republic-of-Serbia-for-the-period-by-2025-with-projections-by-2030.pdf. (Last accessed on: Jan 21, 2024)

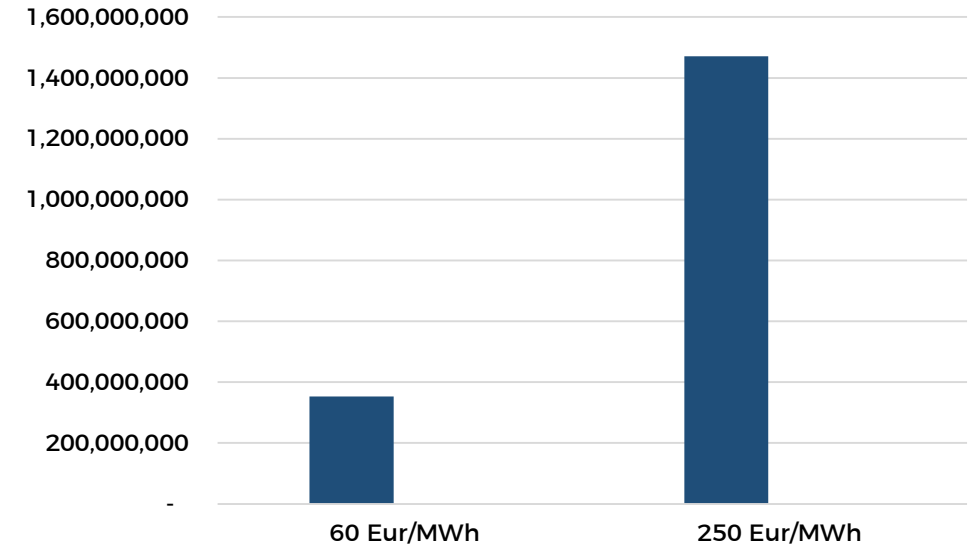
Figure 27- Estimated future investment on EE per year (mil/euro) in Serbia to reach the set EE targets.



Source: compiled and calculated by GAP

The energy saved due to implemented measures amounts to 5,884,780 MWh. In a baseline scenario, if this electricity were to be imported, it would cost customers/ government approximately 353 million EUR during typical years, based on a Hupex electricity price of 60 EUR/MWh. However, during market fluctuations, the cost would average around 1.4 billion EUR.

Figure 28- Cost of the energy saved in Serbia if it was imported in EUR.



Source: compiled and calculated by GAP

4.8 EMPLOYMENT OPPORTUNITIES TO ENHANCE SUSTAINABLE ECONOMIC DEVELOPMENT.

The elevated unemployment levels in the Western Balkans (WB6), averaging 15.5percent, were exacerbated by the COVID-19 pandemic's impact on the labor market. Several factors contribute to this high unemployment rate, including limited economic opportunities, inadequate investment, weak education and training systems, and political instability. The region's small and underdeveloped economy, coupled with limited resources and infrastructure, presents challenges in creating enough formal employment opportunities to meet the demand.

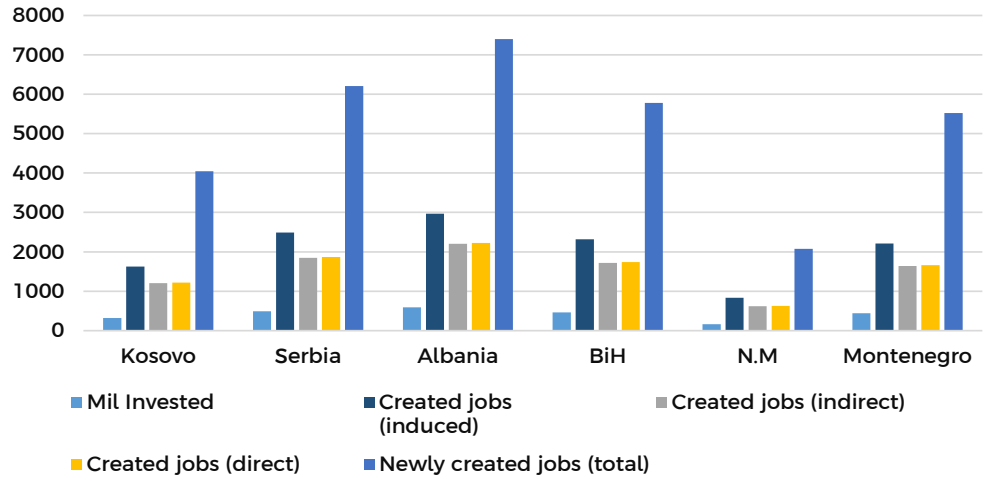
Of particular concern is the high rate of youth unemployment. However, investments in energy efficiency offer benefits beyond improving living conditions and reducing energy poverty. They also inject funds to stimulate economic growth and can support numerous families through direct, indirect, and induced job opportunities.

Employment growth resulting from energy efficiency measures, particularly in the building and renovation sectors, can have a positive ripple effect on related industries. For instance, investing in the replacement of windows with more efficient ones can create direct full-time employment in relevant companies, leading to indirect employment growth in sectors like plastics production. This, in turn, generates further job opportunities in industries such as restaurants, hotels, and retail.

A study categorizes investments in energy efficiency into three main sectors: residential, commercial, and industrial. It finds that investments in the residential sector have a greater direct impact on employment due to the intensive manual labor required for device installation. However, across all sectors, induced employment—resulting from the flow of money into family economies—has a larger impact on job creation compared to direct employment.

For instance, when calculating the impact of the investment of 2.4 billion EUR as per the earlier calculations in energy efficiency across sectors (industrial, residential, and commercial) underscores the high potential for job creation. While direct employment impacts vary across sectors, the overall effect on job creation, particularly through induced employment, is significant, highlighting the potential of energy efficiency investments to address unemployment challenges in the Western Balkans.

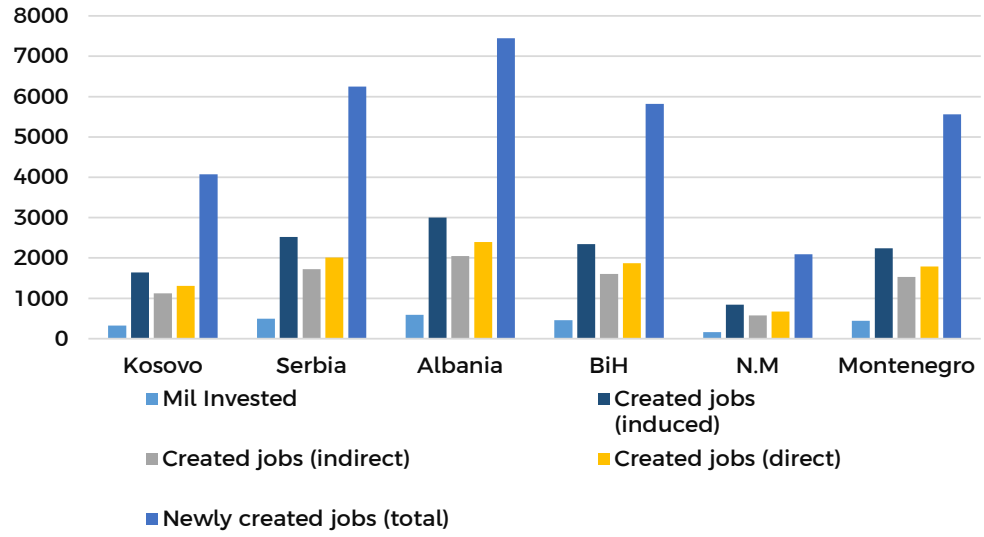
Figure 29- Jobs created by the Investment in EE- Residential Sector (2021 to 2031).



Source: compiled and calculated by GAP

According to the IMPLAN methodology illustrated in Figure 29, an estimated 31,000 net jobs (comprising direct, indirect, and induced employment) are projected to be created with a total investment of 2.4 billion EUR. This translates to approximately 12.5 net jobs for every million EUR invested, including 3.7 direct jobs, 3.8 indirect jobs, and 5 induced jobs. These calculations indicate a relatively equal impact on job creation across all three sectors (residential, industrial, and commercial).

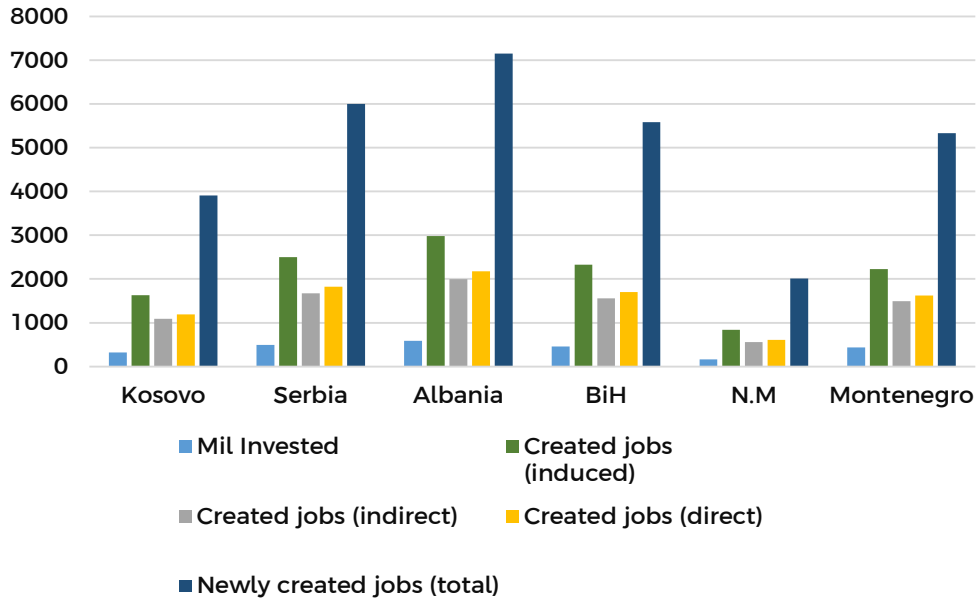
Figure 30-Jobs created by the Investment in EE- Commercial Sector (2021 to 2031).



Source: compiled and calculated by GAP

Among the sectors, the one with the highest number of employments generated is the Commercial sector, however, the sector with the highest impact on flattening the curve of the energy demand is that of the household sector due to the nature of the energy consumption on the WB6.

Figure 31- Jobs created by the Investment in EE- Industrial Sector (2021 to 2031).



Source: compiled and calculated by GAP

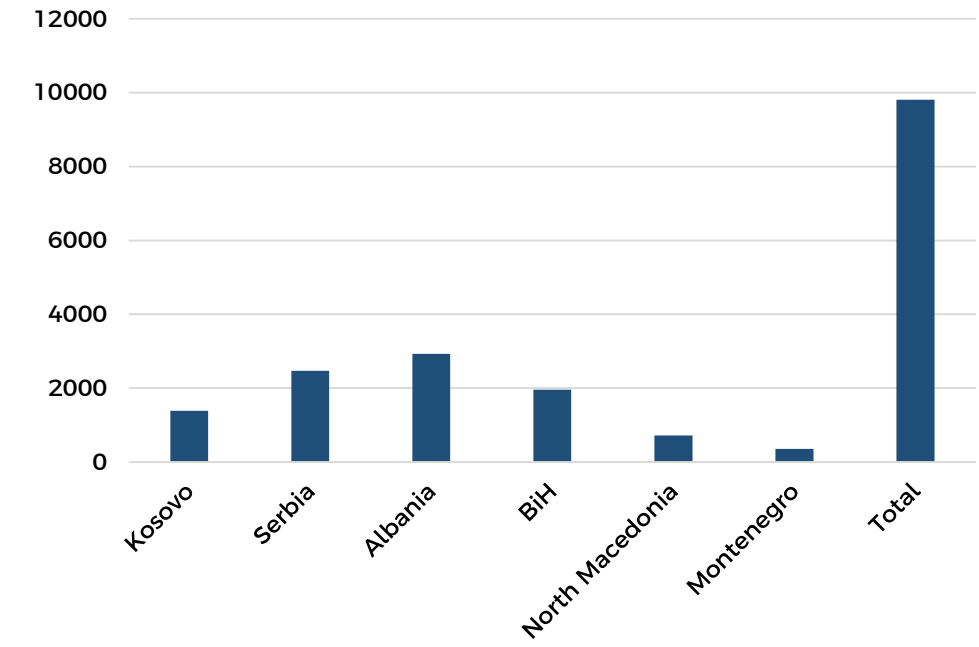
However, these projections overlook the employment opportunities stemming from capital savings resulting from energy efficiency (EE) measures, particularly in the commercial and industrial sectors, where the potential impact is deemed substantial. This methodology examines investments across over 70 sectors of the economy and categorizes them according to type (such as roofing, insulation, solar, doors, and windows, etc.). While this approach offers numerous advantages, it also possesses a few limitations. These include its static nature, as IMPLAN does not incorporate price fluctuations. Moreover, the methodology was developed with a focus on market prices in the United States.

Research conducted by the American Council for Energy Efficiency suggests that EE investments have the potential to create approximately 7 net jobs for every million EUR saved through such measures[105]. These jobs are a result of reduced electricity expenses, with the saved funds being reinvested in various areas such as expanding the workforce, boosting manufacturing output, or other expenditures.

Therefore, by achieving the target of 2008 ktoe (equivalent to saving 23,353.51 GWh) at a minimum price of 60 EUR per MWh, the Western Balkans could potentially generate up to 9,808 jobs over a 20-year period, considering the estimated lifespan of the EE measures.

105 ACEEE. How energy efficiency creates jobs. Source: https://www.aceee.org/files/pdf/fact-sheet/ee-job-creation.pdf. (Last accessed on: Jan 21, 2024)

Figure 32- Long term jobs created by the investment in EE (2031-2051)



Source: compiled and calculated by GAP

CONCLUSION

The WB6 region stands out as one of the highest coal and energy-intensive regions in the European Union, with energy intensity levels three times higher than the EU average. Due to the inflexible and unreliable energy system and the recent energy market fluctuations, the vulnerable population within the WB6 has been significantly impacted, leading to increased energy poverty. Despite governmental efforts to address the crisis through various policies and programs, the burden remains undeniable. Over the past two years, WB6 countries have allocated more than 500 million EUR to mitigate the energy crisis; however, market fluctuations have led to an average 10 percent rise in electricity prices throughout the WB6 countries.

Implementing EE measures emerges as a crucial strategy not only to meet international obligations but also to drive economic development, energy stability, and independence. As signatories to the Energy Community Treaty, the WB6 are obligated to adopt EE directives, yet challenges persist in meeting set targets, particularly in the building sector where substantial renovation investments are needed.

While international support has been forthcoming, it falls short of addressing the region's investment needs. Apart from Bosnia and Herzegovina, all countries in the region fall short of meeting the EnC target. The investments needed to reach the targets amounted to approximately EUR 1.06 billion EUR between 2010 and 2020, representing only 30 percent of the identified investment needs. Furthermore, this investment has been heavily directed towards public buildings, with very little support being given to the private sector. This investment equates to approximately 10,711,230 MWh cumulative energy saved or 643 million EUR in energy import savings during regular market periods, and 2.67 billion EUR during market fluctuations such as in the years 2021 and 2022.

Moving forward, the WB6 countries have identified policy targets and have approved their national energy and climate plans. Therefore, prioritizing, and accelerating investments in building renovations and EE measures have been identified imperative to achieve higher living standards, energy savings, and overall economic development. On those strategic documents, energy efficiency emerges as a crucial and no-regret policy for the Western Balkans region, offering a pathway towards sustainable development and alignment with European Union and Energy Community policies. While Serbia leads the way in this progression, other WB6 countries have also set policies and targets for EE, laying the groundwork for program implementation.

The investment required to achieve EE targets in the WB6 region is estimated at approximately 2.4 billion EUR over the next decade, resulting in a substantial decrease in cumulative energy demand by 23,353.51 GWh. These efforts are expected to yield significant budgetary savings of 1.4 billion EUR during regular years and 5.8 billion EUR during periods of price fluctuations.

Importantly, the benefits of EE extend beyond economic considerations, encompassing employment generation, local economic development, and community inclusivity. It is projected that around 31,000 net jobs will be created directly in EE-related

activities over the next decade, with an additional 9,808 gaining indirect employment opportunities through energy savings in the private sector.

Despite the progress made, a significant gap remains in achieving EE targets, primarily due to budgetary constraints faced by governments in the WB6 region. As a result, there is a pressing need for greater focus on building and empowering the private sector, as well as facilitating financing mechanisms to enable its active engagement in EE initiatives. This can be achieved by supporting financial institutions in further enhancing loan offers, establishing guarantee funds to de-risk investments, building investment schemes without upfront costs (pay-as-you-save), and providing grants/subsidies. However, to do so, an able workforce of more than 30 thousand workers should be prepared to implement the schemes, ensuring safety, sustainability, and quality of services.

RECOMMENDATIONS

These recommendations aim to promote the effective implementation of energy efficiency targets in the respective countries, contributing to the set targets on the EE, improved employment opportunities, enhance sustainable development and energy security in the region.

Albania: To enhance energy efficiency in Albania, several actions should be taken. Firstly, the national legislation should be revised to empower the private sector in driving the energy transition. Additionally, activating the dedicated Energy Efficiency Fund would provide essential financing and incentives for energy efficiency projects. This fund can be capitalized through various means, including government funds, international grants, and contributions from private sector partners. Moreover, promoting the growth of Energy Service Companies would facilitate the delivery of energy efficiency solutions without upfront costs for the private sector. Lastly, drawing from experience with EU-funded schemes, regular energy efficiency programs should be established and implemented.

Bosnia and Herzegovina: In BiH, efforts to advance energy efficiency targets are underway, but more action is needed. Secondary legislation should be adopted to address implementation gaps, particularly in areas such as public procurement and standardized ESCO contracts. Transposing amended Energy Efficiency Directive and Energy Labelling Regulation into national legislation is crucial. Additionally, facilitating private sector investment in EE projects through financial mechanisms, such as green loans, will be beneficial.

Kosovo: To bolster energy efficiency in Kosovo, new financing mechanisms tailored to the industry and transportation sectors should be introduced. Ensuring a consistent flow of funding in the Energy Efficiency Fund and expanding its scope to support broader energy transition initiatives is essential. Developing a viable market for ESCO firms and enhancing support provided by the Credit Guarantee Fund can further mitigate risks associated with private sector investments. Complementary strategies to promote energy efficiency in the transportation and industrial sectors should also be developed.

Montenegro: Expanding and enhancing non-obligatory EE schemes can strengthen Montenegro's energy efficiency efforts. Tailored action plans for the industry and transportation sectors, diversifying financing for EE projects, and promoting public awareness are vital steps. Strengthening monitoring and evaluation mechanisms and facilitating public-private partnerships will also contribute to effective EE implementation.

North Macedonia: Prioritizing the development of energy efficiency schemes for the Energy Efficiency Fund and establishing monitoring mechanisms for new buildings are essential in North Macedonia. Legislative improvements should be prioritized, along with promoting energy efficiency initiatives in the transportation and industrial sectors.

Serbia: Updating national legislation to align with Energy Community standards and enhancing national programs aimed at promoting investment in energy efficiency measures are top priorities in Serbia. Establishing a revolving fund dedicated to financing EE measures within the industrial sector would provide accessible financing options for businesses. By facilitating access to capital, Serbia can accelerate the adoption of energy-efficient practices across industries.