

Frey, Barbara

**Research Report**

## The energy transition in the Western Balkans: The status quo, major challenges and how to overcome them

Policy Notes and Reports, No. 76

**Provided in Cooperation with:**

The Vienna Institute for International Economic Studies (wiiw) - Wiener Institut für Internationale Wirtschaftsvergleiche (wiiw)

*Suggested Citation:* Frey, Barbara (2024) : The energy transition in the Western Balkans: The status quo, major challenges and how to overcome them, Policy Notes and Reports, No. 76, The Vienna Institute for International Economic Studies (wiiw), Vienna

This Version is available at:

<https://hdl.handle.net/10419/296582>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# The Energy Transition in the Western Balkans:

## The Status Quo, Major Challenges and How to Overcome them

Barbara Frey





# The Energy Transition in the Western Balkans: The Status Quo, Major Challenges and How to Overcome them

BARBARA FREY

Barbara Frey is Researcher at the University of Regensburg, Germany.

The author would like to thank Mario Holzner and Branimir Jovanović for their comments on the initial version of this brief.



# Abstract

The Western Balkan (WB) countries, with the exception of Albania, generate most of their energy from lignite, which contributes to the highest levels of air pollution in Europe. Energy shortages and high electricity costs are major issues in the WB region, with significant political implications. The region's reliance on coal does not comply with the EU acquis or the Paris Agreement, leading to potential delays in EU accession negotiations. The transition to renewable energy sources also faces many legislative and political obstacles. It is consequently imperative that the current energy systems be transformed. In order to facilitate private-sector investment and an efficient, cost-effective energy supply, this shift will require regional collaboration in the production, transfer and supply of energy as well as the quick and resolute adoption of renewable energy sources. To increase renewable energy use, WB governments need to increase related public spending, ensure that a reliable regulatory framework is in place, modernise energy infrastructure and pursue energy-efficiency measures. International partners should adjust their approach to the region, providing much more financial support and helping to streamline energy policies based on local needs. By sharing its experience with all these issues, Austria could become a key partner of the Western Balkan countries on their path towards achieving an environmentally sustainable energy future.

**Keywords:** Western Balkans, Energy Transition, Renewable Energy Sources, Energy Infrastructure Modernisation, Energy Efficiency

**JEL classification:** Q41, Q48, Q58



## CONTENTS

<b>1.</b>	<b>Introduction .....</b>	<b>9</b>
<b>2.</b>	<b>The Western Balkans and the green transition – the status quo .....</b>	<b>10</b>
2.1.	Conventional power sources and renewable energy sources .....	10
2.2.	Energy market and grid infrastructure.....	14
2.3.	Societal awareness and political priorities .....	16
<b>3.</b>	<b>Key obstacles to the green transition in the WB .....</b>	<b>17</b>
3.1.	Expansion of renewables – creating markets and driving sector investment .....	17
3.2.	Energy infrastructure for future networks and regional cooperation .....	18
3.3.	Energy efficiency – industry, households and the public sector .....	18
3.4.	Acceptance and awareness – energy transition through energy literacy and energy democracy .....	19
<b>4.</b>	<b>Policy recommendations (and Austria’s potential contributions to the green transition in the WB).....</b>	<b>19</b>
4.1.	Promote renewable energy sources more vigorously.....	19
4.2.	Stimulate the modernisation and expansion of the energy infrastructure .....	21
4.3.	Push for more energy efficiency .....	21
4.4.	Raise awareness among local stakeholders and offer needed trainings.....	22
4.5.	Increase financial support from the EU.....	23
4.6.	Streamline international decarbonisation policies in the WB .....	24
<b>5.</b>	<b>Conclusion .....</b>	<b>25</b>
	<b>References .....</b>	<b>27</b>



## TABLES AND FIGURES

Table 1 / Coal-powered energy production in the Western Balkans in 2021 .....	11
Table 2 / The energy mixes of the Western Balkan countries in 2020 (share of total energy supply) .....	12
Table 3 / Renewable electricity generation capacity in megawatts in 2022 .....	12
Table 4 / Number of prosumers with installed equipment in the Western Balkans and Romania, as a comparison, in 2022.....	16
Figure 1 / The energy mix of the Western Balkan countries in 2020 .....	10
Figure 2 / NECPs status in detail in 2023 .....	11
Figure 3 / Percentage of households using biomass for heating in 2022 .....	13
Figure 4 / Market share in the wholesale and retail electricity market in 2018.....	15
Figure 5 / Volume of EU financial support for facilitating the green transition (in bn EUR).....	24

# The energy transition in the Western Balkans: The status quo, major challenges and how to overcome them

## 1. INTRODUCTION

This policy brief assesses the energy sectors in Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia, which together make up the Western Balkans region (WB). More precisely, this brief will address the existing situation and the persisting issues in the energy sector as well as viable solutions for a quicker, more efficient and just energy transition in the region.

In October 2020 – as a part of the Berlin Process, which serves as an intergovernmental initiative launched by Germany in 2014 to promote more political and economic cooperation in the WB region – the leaders of the WB countries committed to transform their energy sectors so that they could achieve carbon neutrality by 2050, just as the EU member states had committed to do (RCC 2020). In fact, the leaders committed to implement the Green Agenda for the Western Balkans, which represents a segment of a new growth strategy for the region consisting of five pillars: (1) protecting the climate and decarbonising, reducing greenhouse gas (GHG) emissions and aligning with the EU's goal of achieving carbon neutrality by 2050; (2) promoting a circular economy; (3) combatting air, water and soil pollution; (4) fostering sustainable food production; and (5) protecting biodiversity and ecosystems (European Commission 2023).

This commitment comes as a part of the political ambition of the WB countries to join the EU in the near future and to align their energy and environmental policies with those of the EU so as to prepare themselves for EU accession. This energy transition, which aims to contribute to combatting the global climate crisis, includes measures such as introducing carbon pricing, switching from coal to renewable energy sources (RESs), expanding green infrastructure and revising outdated regulations. In theory, these measures would also contribute to the energy security and independence of the WB region, as its countries would tap into local energy sources – solar, wind and hydropower. In addition, the green transition would open up new economic possibilities, mainly in the form of new foreign direct investments (FDIs) in the green energy sector, and it would increase exports of green energy to the EU, which would help to advance the economic integration and development of the region. Finally, the green transition would improve the natural environment in the WB, especially air quality, which is one of the major issues for the region (and Europe).

Despite the potential economic, political and health benefits of transforming their energy sectors, the WB countries have made little progress in advancing the Green Agenda, as they remain largely 'locked in' by fossil fuels, so to speak, which play a dominant role in energy generation (ranging from 41% to 95%). This indicates that the region is lacking in implementation capacities for various reasons, which can be clustered into three groups: chronic underinvestment, persistent mismanagement and geopolitical entrapment (Bechev 2023a). Nevertheless, certain steps have been taken in the region, and some

progress should be acknowledged. For example, the share of RESs in the energy mixes is steadily increasing (Eurostat 2021), the governments continue to adopt new energy laws that are aligned with EU legislation (Spasić 2021), and public awareness of the benefits of green energy continues to grow (Vukadinovic 2023).

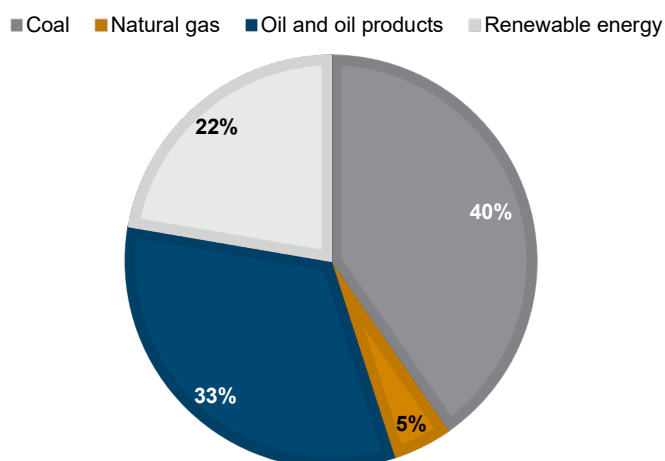
In the following brief, these issues will be addressed and analysed in order to develop a comprehensive set of policy recommendations that would help to advance the green transition in the WB region.

## 2. THE WESTERN BALKANS AND THE GREEN TRANSITION – THE STATUS QUO

### 2.1. Conventional power sources and renewable energy sources

With the exception of Albania, all WB economies primarily rely on highly polluting fossil fuels to generate electricity, whereas the production of renewable energy and gas accounts for either a negligible percentage or none at all (Figure 1). Achieving the EU's long-term goal of carbon neutrality by 2050 will require the decarbonisation of the energy systems, particularly given that coal makes up between 41 and 95% of the electricity mix in the WB countries. Kosovo has the biggest reliance on coal for electricity generation (95%), followed by Serbia (67%), Bosnia and Herzegovina (65%), North Macedonia (51%) and Montenegro (41%). Albania does not use coal or peat for power generation, as it depends instead on hydropower augmented by imports (Ruiz et al. 2021). Furthermore, the antiquated and inefficient thermal (coal-powered) power plants (TPPs) of these countries need expensive restructuring and modernisation.

**Figure 1 / The energy mix of the Western Balkan countries in 2020**



Source: OECD 2022a

On one hand, the WB region is characterised by high energy consumption, which increases the susceptibility of their industries to rising energy costs (OECD 2022a). This high level of energy consumption is mainly due to the lack of cost-reflective electricity pricing. Another key characteristic of the WB energy systems is their low degree of energy efficiency, which is mostly reflected in energy losses during power distribution (Sanfey et al. 2016). In addition, the poorly maintained and outdated

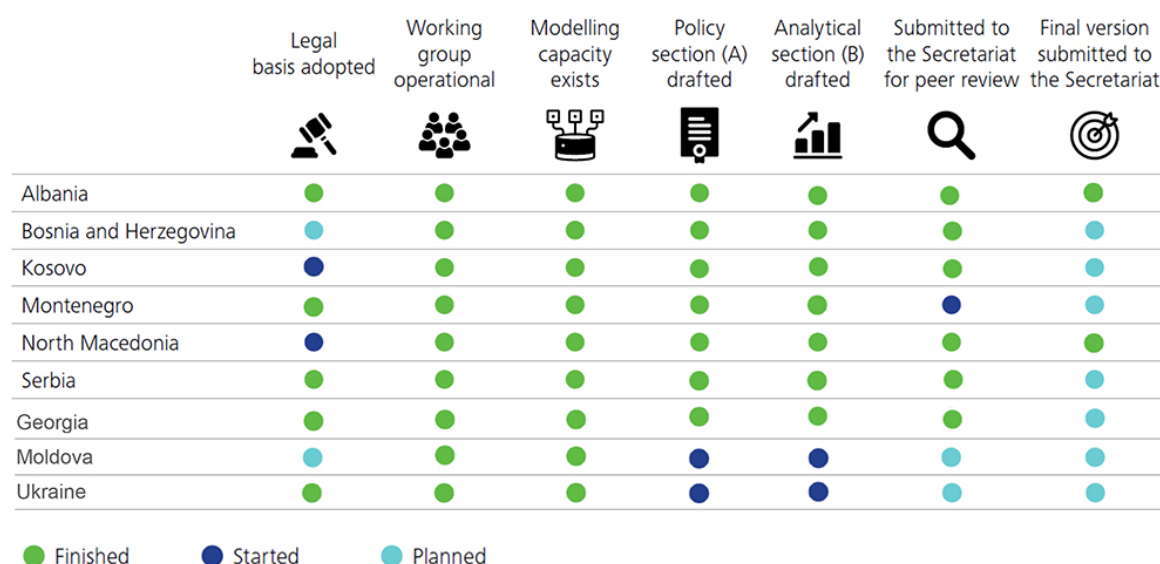
energy infrastructure results in a much greater energy intensity than the EU average (Eurostat 2023). On the other hand, the region's energy productivity is low compared to the EU average (ibid.). In addition, there are still subsidies for the production of electricity from coal, with an estimated EUR 72.71 million in combined direct subsidies going to producers of electricity from coal and lignite in the WB economies (except Albania's) in 2019 (Miljević 2020). This distorts the energy market and promotes the production of electricity using coal even more. Low energy costs, made possible by inexpensive home electricity supplies, have produced long-term disincentives that impede operational upgrades, investments in energy efficiency, and short-term energy-conservation measures. Furthermore, the region's increased reliance on gas imports from other countries, including Russia, is a result of its limited natural resources.

**Table 1 / Coal-powered energy production in the Western Balkans in 2021**

Country	Number of coal power plants	Coal power plant capacity (gigawatts)	Share of coal in power generation (%)
Albania	0	0	0
Bosnia and Herzegovina	5	2	65
Kosovo	2	1.2	95
Montenegro	1	0.2	41
North Macedonia	2	0.8	51
Serbia	6	4.3	67

Source: Ruiz et al. 2021

**Figure 2 / NECPs status in detail in 2023**



Source: Energy Community 2023

However, due to their commitment to achieve carbon neutrality by 2050, the WB governments have agreed to gradually phase out the use of coal. To do so, these countries have to adopt the EU standards on energy and climate; more precisely, they need to align with the EU Emissions Trading System (ETS), or carbon pricing, and to introduce local and regional instruments, such as modernising existing capacities by installing filters and eventually decommissioning the TPPs (Table 1). At present, these processes are advancing slowly, with many countries still heavily relying on their coal deposits and the

cheap energy they can (currently) generate from this source (Kušljugić et al. 2023). However, certain steps forward have been made. For example, no new investments have been made in new coal capacities, except in Bosnia and Herzegovina, and all the WB countries are currently formulating their national energy and climate plans (NECPs) (Energy Community 2023) (Figure 2). The NECPs are governance tools that the WB are obligated to adopt as contracting parties of the Vienna-based Energy Community, which is in charge of creating an integrated pan-European energy market together with the EU and its neighbours.

In 2020, the WB countries consumed 22% of their gross final energy from renewable sources, with Albania being the region's leader in the production of electricity from RESs (Eurostat 2022). This country exclusively uses hydropower for electricity production, though there is room for increased and more efficient use. Nonetheless, Albania is largely dependent on imports of gas and fossil fuels for several industries, including transportation and heating. Regarding other nations, there are significant differences in the percentage of renewable energy in the energy mix across the Western Balkan region (Table 2).

**Table 2 / The energy mixes of the Western Balkan countries in 2020 (share of total energy supply)**

	Coal	Oil and oil products	Natural gas	Renewable energy	Nuclear
Albania	7.7%	53.0%	2.1%	37.3%	
Bosnia and Herzegovina	53.8%	20.6%	2.3%	23.2%	
Kosovo	57.4%	27.6%		15.0%	
Montenegro	37.8%	32.5%		29.7%	
North Macedonia	31.6%	41.4%	11.7%	15.2%	
Serbia	49.6%	22.0%	12.5%	15.8%	
EU average	11.0%	31.9%	25.0%	18.5%	13.6%

Source: IEA 2022

In all the WB countries, most of the renewable energy comes from hydropower and biomass. Wind and solar energy are used very infrequently and in much smaller relative amounts, but significant growth in wind and solar power is anticipated in addition to a continued increase in the use of biomass. Kosovo is a notable exception, as most of the RESs there involve wind and solar energy (Table 3).

**Table 3 / Renewable electricity generation capacity in megawatts in 2022**

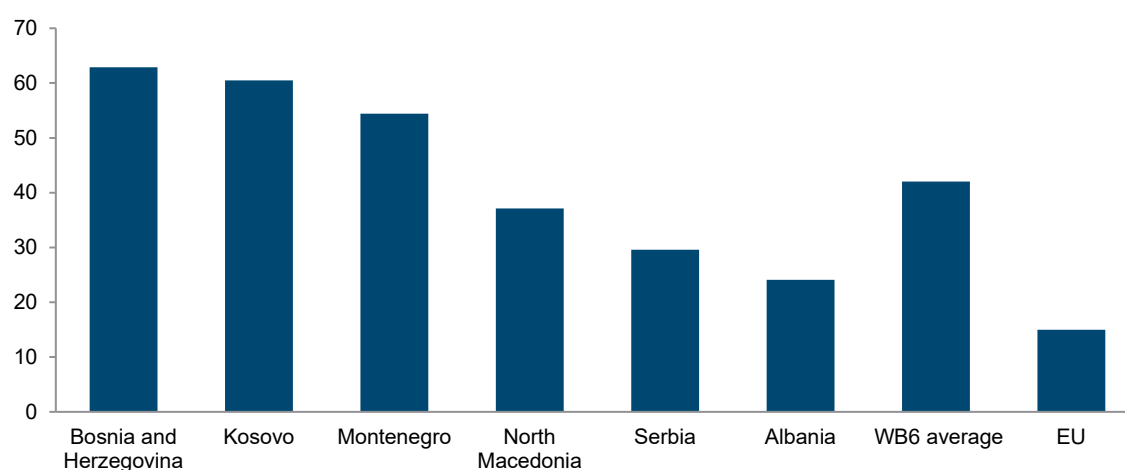
	Hydropower	Wind energy	Solar energy	Bioenergy
Albania	2,507	-	29	1
Bosnia and Herzegovina	1,837	135	107	2
Kosovo	110	139	10	-
Montenegro	697	118	26	-
North Macedonia	689	37	94	10
Serbia	2,483	398	137	36

Source: IRENA 2023

Recently, the WB governments have increased legal and financial incentives for more RES development, albeit mostly for small hydropower facilities (Pavlaković et al. 2022). As a result, between 2009 and 2018, the number of these plants more than quadrupled, rising from 108 to at least 488 (CEE Bankwatch Network 2019). However, since hydropower resources are already scarce – and are expected to become even scarcer as a result of climate change and decreased precipitation – future planning will focus more on solar and wind power. In addition, small hydropower facilities have not made a significant contribution to the intended goals. In fact, their average share of electricity generation in the Western Balkans was only 5.4% in 2018, with the exception of Albania, where the share was 16% (OECD 2022b). What's more, local communities are becoming more and more opposed to currently planned projects for both small and large hydropower plants owing to fears about the potential detrimental effects on nearby and downstream ecosystems and natural environments (Kurtić 2022). A reduced emphasis on hydropower and stronger promotion of solar- and wind-energy alternatives could guarantee a more equitable shift to RESs, with more local support from affected communities and end users. After all, there are plenty of solar- and wind-energy resources in the region, and their potential is much higher.

Things get complicated when it comes to biomass. Burning biomass is frequently portrayed as being environmentally friendly. In truth, however, the air pollution that comes from burning biomass has a detrimental effect on people's health (HEAL 2022). These health effects are substantial because wood is used for heating in an astounding 42% of homes on average throughout the Western Balkans, or for 3 million heating stoves (Figure 3). To make matters worse, the severe health problems and air pollution are also caused by an amalgamation of outdated, inefficient cooking and heating stoves and technology. Furthermore, there is not enough biomass on hand to meet the world's energy needs. Another issue is that, in order to give forests and other resources enough time to replenish and recover, biomass must be used sustainably. For these reasons, biomass is not the best option for the energy transition.

**Figure 3 / Percentage of households using biomass for heating in 2022**



Source: HEAL 2022

## 2.2. Energy market and grid infrastructure

The energy market in the WB countries could best be described with two words: fragmented and monopolised. Nevertheless, the countries are slowly introducing EU market standards and mechanisms (OECD 2022a).

In order to comprehend energy generation in the WB, one must take the system's historical growth into account. With the exception of Albania, Yugoslavia's energy sector was designed and built as a unified, interconnected infrastructure during its time as a unified nation. The former Yugoslav countries' systems were created to cooperate in order to give their citizens the best possible service. It was seen as a single system, as opposed to six separate national systems, and it had a carefully thought-out arrangement of reservoirs, power plants and hydropower stations. When the country fell apart, the energy systems were indiscriminately divided along the new national borders. As a result, some nations were left without enough supply to meet demand, while others had an overabundance. The markets became de facto completely fragmented in the 1990s.

As a result, the WB energy sector is made up of small yet rapidly expanding markets. When it comes to electricity, the majority of WB countries rely on imports, while some have acute shortages. Only Bosnia and Herzegovina regularly exports power and has surpluses. Nonetheless, Serbia has the highest comparative weight for the energy transition in the WB region due to its size – accounting for 45% of the region's GDP, 39% of its population, and 49% of its combined energy supply (RES Foundation 2023) – and it is not doing well when it comes to generating electricity.

All public and private buildings in the Western Balkans are part of the building sector, which is the region's largest final energy consumer. More specifically, the residential building industry accounts for between 30% and 60% of the total final national energy consumption, compared to an average of 40% in the EU (Energy Community 2021). As a result, improving buildings' energy efficiency and renovating them in accordance with basic energy-performance criteria could have a big impact on the region's reduction of overall emissions while also improving the residents' financial and health conditions.

To structure electricity markets in a more eco-friendly way, regional power trading is a prerequisite. However, most WB countries continue to lag behind when it comes to establishing organised markets, which is a necessary prerequisite for effective power trading. The significant degree of market fragmentation is reflected in the region's below-potential cross-border trading in electricity. Even though there has been a significant amount of restructuring, which has led to some price deregulation and market liberalisation, genuine competition has yet to emerge (OECD 2022a).

In the WB region, state-owned enterprises dominate the monopolised electricity markets (Spasić 2017). The majority of electricity companies in the WB countries are state-owned, as are all electricity transmission systems. These businesses hold yearly, monthly and daily auctions at which they sell cross-border transfer capacities. Of all the electricity produced in the WB, 93% is held by eight incumbent producers in the region: three in Bosnia and Herzegovina and one in each of the remaining five WB countries (Energy Community 2020). Since these utilities provide universal service, they continue to supply nearly all final consumers with electricity (Figure 4). Market liberalisation could facilitate the dissolution of monopolies and enable the establishment of smaller businesses in charge of distinct market niches, which could improve the service. However, at least in the beginning, this would

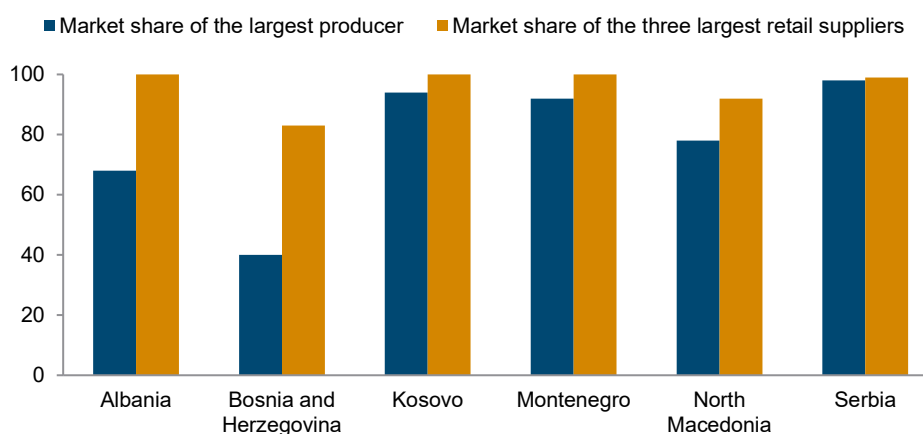
likely lead to a surge in prices, which is not entirely socially acceptable. In any case, a certain amount of progress has been made towards establishing energy markets arranged like those in the EU, with most markets being in the process of partial liberalisation. This should lead to price deregulation. Lastly, Albania, Montenegro and Kosovo have recently introduced power exchanges (OECD 2022a).

Since Serbia served as the hub for transmission during the Yugoslav era, it has a central position in the WB energy infrastructure. Not much has changed since then, as funds are lacking for the expensive infrastructure needed to build new lines. Overall, the energy infrastructure in the WB is outdated and fragmented and the grids are in dire need of modernisation and expansion. This is important for two main reasons: regional interconnectivity and absorption of newly generated electricity from RESs. To sum up, long-term sustainability requires a greater emphasis on linkages and regional market integration. Power interconnections in the region are generally good for historical reasons (both within the WB region and between the WB region and its neighbouring countries), but they are underutilised, which reflects a combination of regulatory hurdles and concerns about energy security.

However, some steps have been made to expand the grids and new transmission infrastructure is being built, such as the 400 kW line between Kosovo and Albania. In addition, a number of EU-supported projects to upgrade the current infrastructure are planned. For example, the Ionian-Adriatic gas pipeline along the coast will be prioritised, allowing the diversification of the gas supply to WB and beyond; the Fier-Vlora gas pipeline in Albania will be completed as part of the Trans-Adriatic Pipeline; a gas interconnector will be completed to strengthen the gas distribution system by linking Bosnia and Herzegovina with Croatia; the North Macedonia-Greece interconnector will be extended with gas links between North Macedonia and Kosovo; a gas interconnector will be built to connect Serbia and North Macedonia; and Serbia will finish building the Trans-Balkan Electricity Transmission Corridor, which will lay the groundwork for distributing electricity throughout the entire region as well as to the EU.

As can be seen from the proposed and planned projects aimed at improving infrastructure and transitioning away from coal, the plans rely heavily on gas. However, gas is unfortunately not the best solution, as it is a fossil fuel and therefore incompatible with the long-term goals of the Green Agenda. Furthermore, focusing on gas could increase reliance on Russian imports.

**Figure 4 / Market share in the wholesale and retail electricity market in 2018**



Source: Energy Community 2020



### 2.3. Societal awareness and political priorities

The main political priority for all the WB governments is to preserve social peace by offering acceptable energy prices to their populations (Bechev 2023b). Since the entire region suffers from chronic energy poverty, this political approach is not surprising (RES Foundation 2023). In addition, the governments have opted to not invest in modernising their energy systems, as it does not pay off in the short run (i.e. during their political mandate). As a consequence, they are not actively engaged in the coal phase-out.

Another aspect that is important for the energy transition is energy democracy and the liberalisation of the energy market. As mentioned before, the energy market in the WB is basically state-owned and residents de facto cannot participate in this economic sector. For this to be possible, the WB countries would have to put in place an adequate regulatory framework that would create a level playing field for companies and citizens, as prosumers and energy communities. These are individual citizens, small and medium-sized companies (SMEs), and public bodies that both consume and produce renewable energy. They may also supply energy services, such as energy storage and demand flexibility in specific cases. Individual prosumers, such as residences or companies with photovoltaic (PV) panels on their roof, can exist. A group of homes can also become collective prosumers, such as when they work together to install PV panels on the roof of a multi-family structure. Individual families across Europe have banded together to form energy communities, such as cooperatives. These cooperatives can invest in larger-scale projects, such as a wind farm or a large free-field PV installation, or they can engage in a range of activities to make their community as sustainable as possible.

There are many successful prosumer initiatives across the EU, such as the Compile project in the Slovenian municipality of Luče (European Environment Agency 2022) and the green energy cooperative in the Croatian town of Križevci (Perišić 2023), both in the direct vicinity of the WB region. The prosumers and energy communities lower pollution and energy costs while also democratising and decentralising the energy sector. However, since the WB countries have not yet adopted the regulatory frameworks needed to establish these kinds of initiatives, the region is lagging behind in terms of the number of prosumers when compared to the EU member states (Table 4).

**Table 4 / Number of prosumers with installed equipment in the Western Balkans and Romania, as a comparison, in 2022**

	Albania	Bosnia and Herzegovina	Kosovo	Montenegro	North Macedonia	Serbia	Romania
Number of prosumers	249	0	128	29	453	52	23,785

Source: Energy Community 2022

Furthermore, environmental protests have increased dramatically in the Balkans over the last decade. These protests have been driven by worries about the region's ecological legacy and the effects of human activities on natural resources. The most prominent instances of such upheavals are the Jadar River movement in Serbia, which opposes mining one of the greatest lithium sources on the continent (Gourcerol et al. 2019), and the Vjosa River demonstrations in Albania, which are against the construction of hydroelectric units on one of Europe's last remaining wild rivers. These protests, among many others, show that societies in the region are worried about their natural environments and are

displaying a higher level of social awareness than before. Moreover, some of these citizen initiatives have morphed into political parties with a green agenda as part of their programme, such as the 'Ne davimo Beograd/Zeleno-levi front' party in Serbia. These developments show potential for further and more engaged citizens' action and agency in the green transition.

### **3. KEY OBSTACLES TO THE GREEN TRANSITION IN THE WB**

#### **3.1. Expansion of renewables – creating markets and driving sector investment**

Obstacles to the further expansion of renewables can be observed from the perspectives of both the public and private sectors. Public bodies suffer from a lack of experts for implementing new policies and from insufficient capacities at the local government level. Although most WB countries have enacted RES laws, there are still bottlenecks with transmission system operators (TSOs) and unfinished bylaws. Furthermore, the WB governments need to put more effort and resources into grid modernisation (i.e. infrastructure for feeding in the energy generated by RESs), as these need to be restructured as soon as possible and should thus be prioritised. On top of that, it is widely acknowledged that the region is lagging behind in storage development despite the growing need for it. The capital costs of storage have gone up by 20% in 2022 due to increased demand. It is also reasonable to assume that storage will always be a part of the latest wave of RES projects. Similarly, the governments should focus on decentralising electricity generation and supply, as this would allow for the emergence of prosumers, enable the energy systems to become more reliable, and thereby lower energy prices. To ensure implementation, small measures would be needed, such as bank guarantees for grid connections. What's more, funding from foreign donors is often limited and not aligned with the ambitious climate goals proclaimed in the WB region. In addition, funding is often not aimed at the same priorities as those of the local actors, instruments for support are not coordinated, and there are often parallel international projects in the same sectors and with the same goals.

Historically, the WB went through a costly transition period that did not allow for much modernisation of the energy sector. Since the 1990s, the WB governments have not made any noteworthy new capacity expansions or advancements in key energy infrastructure. Similarly, public investment in infrastructure and RES projects in the WB is significantly lower today than in the EU. Additionally, it will become more challenging for state-owned utilities to finance significant investment programs that will guarantee the appropriate degree of supply security while maintaining their competitiveness in the local and regional open markets and subsidising a sizable portion of their domestic markets (i.e. residential consumers).

The private sector, on the other hand, has limited access to adequate funding sources, as public investment is insufficient for a successful transition and more financing security is essential, especially for business case development. Particularly hit are the local SMEs. Another major issue is that, at the current pace, the market will most likely develop faster than the distribution grids, which are to be planned by governments. Finally, private investors are concerned about unreliable laws and policies, both now and in the future. Mixed messages from the governments and a lack of legal and regulatory predictability are the major hindrances for private investors.

Furthermore, in about four to five years, the EU's proposed Carbon Border Adjustment Mechanism (CBAM) will begin levying fees on electricity imports. The proposal from the European Commission states that CBAM will also apply to a number of other carbon-intensive industries, including those for aluminium, cement, iron and steel, and fertilizer. Higher exports, higher emissions and a higher proportion of fossil fuels used to generate electricity will all be impacted more by CBAM. Hence, it is more crucial than ever to plan a just transition and to implement carbon pricing if the countries are to avoid being penalised by CBAM.

The region, just like the rest of the world, is also dealing with disrupted supply chains and rising metal prices. All parties involved consequently face increased uncertainty, and manufacturer margins are lower. Furthermore, the political climate in Europe makes the procurement risks more significant. Taken together, these factors are making it more difficult to predict when a project will be implemented, which puts pressure on all development activities. Finally, finding a sufficient source of income with the tools available is difficult on today's market.

### **3.2. Energy infrastructure for future networks and regional cooperation**

The transmission and distribution networks in the WB region are currently ill-equipped to handle the steadily increasing inputs of RESs. Thus, in order to accept and balance the potential 'new' energy (which, in the case of solar energy, is only generated during the day), there is an increasing need to expand these networks. However, at the moment, there is not a systematic approach to developing infrastructure for the energy transition in the region. For example, even though there is a high level of connection requests, the realisation rates are very low. As mentioned before, bank guarantees are required for grid connections (for utility-scale solar). Regarding the use of land for RESs, there are no clear rules regarding charges and costs for land or regarding the land books. As with the expansion of RESs, since the utilisation of available funding for infrastructure is far too inefficient, it has not been possible to properly absorb it. Similar to other aspects of the green transition, the funds coming from external donors have been inadequate and do not correspond to the climate objectives in the WB region. Here, one could mention the EU's focus on gas infrastructure, which became suboptimal given the current war in Ukraine and the sanctions on Russia. All in all, it can be concluded that the public administration is currently incapable of managing transformational change and that the incentives coming from the EU are inadequate to really advance the green transition.

### **3.3. Energy efficiency – industry, households and the public sector**

In regards to energy efficiency, public policies are not properly communicated, prioritised or implemented. The energy-sector expertise of the local communities and NGOs is not consulted or included to a sufficient extent in the process of implementing energy-efficiency measures. In addition, a persistent issue in this area is the general lack of trustworthy and consistent statistics regarding energy consumption. At the moment, the governments are unable to determine the precise markers of energy efficiency, which effectively means that the authorities are unable to define long-term energy-efficiency priorities or to evaluate the potential for energy efficiency by country or industry. From the point of view of local actors, the funding from WB governments and international donors is often insufficient or not geared towards implementation at the local level. A positive influence on behaviour could thus be induced best from the bottom up, such as through trust in neighbours, as local cases scale up through social trust. Instruments like energy communities would have huge potential.

As for households, they face a range of issues, including energy saving and energy poverty, and they make decisions regarding their use of energy and their choice of energy source based on these issues. Another problem is that households tend not to question their levels of energy consumption. Regarding the financing of house renovations and modifications, the problem is that the majority of homeowners in the WB are not eligible for loans.

### **3.4. Acceptance and awareness – energy transition through energy literacy and energy democracy**

Acceptance and awareness of the green transition in the energy sector has to come from both governments and the grass roots (i.e. from local residents). As far as governments and their official bodies are concerned, there is no adequate foresight and follow-up when it comes to setting policies and implementing (international) projects. The same applies to results, experiences and lessons learned, which are rarely utilised for devising new initiatives and projects.

On the other hand, local residents have very limited access to information regarding the benefits of new technology as well as of the real and potential harm and danger of older technology. In addition, what makes things even more difficult in the WB is the significant lack of trust in institutions regarding all policies (i.e. not only energy-related ones). Given these circumstances, people are more inclined to be influenced by non-governmental institutions, such as their neighbours, as the latter are viewed as the most reliable and trusted source of information.

## **4. POLICY RECOMMENDATIONS (AND AUSTRIA'S POTENTIAL CONTRIBUTIONS TO THE GREEN TRANSITION IN THE WB)**

### **4.1. Promote renewable energy sources more vigorously**

As mentioned earlier, significant potentials for further implementation of renewable energy projects have not been explored yet. For this to be possible, the WB countries would first need to adjust their legal and regulatory frameworks in a way that would allow for more RES projects as well as ones that would be bigger than they are currently (for higher rates of energy transfer), which would in turn have a greater impact on the energy mix. This is especially the case with the wind and solar projects that are privately funded and executed. Hence, the national laws for promoting renewable energy, as well as the implementation guidelines and other administrative acts, must create an attractive regulatory framework for private investments in renewable energies and project development.

Furthermore, a big boost for businesses could result from the introduction of bankable power purchase agreements (PPAs), which are long-term contracts in which businesses are obliged to buy electricity directly from a renewable-energy provider. These PPAs could provide private investors with guarantees and predictability, such as with offtake obligations, balancing obligations and costs, clear rules regarding liability for non-compliance, instruments to ensure payment security, rules on the transfer of obligations in the event of a new central supplier, and specified duration terms. Similarly, other policies to stimulate investor interest should be pursued and implemented, such as reducing import duties for RES technology.

The methodology for calculating tariffs and other mechanisms should be made more transparent, and all relevant actors should be consulted. Tariffs could be reviewed to allow for changes, or other mechanisms could be introduced that would allow for adjustments to inflation, exchange rate movements and other effects, such as a lack of needed resources. When determining tariffs for different RESs, additional factors and aspects could be considered by the regulator when calculating and adjusting tariffs. For example, additional benefits beyond energy (e.g. flexibility, security of supply, fostering the establishment of local industry, and other intangible benefits) could be looked at.

Clear and transparent rules for future renewable energy auctions also need to be put in place. Auctions are competitive bidding processes that decide support levels and beneficiaries of additional RES investments. Governments generally use auctions to allocate supply and demand of additional needed energy. The efficiency and effectiveness of the RES projects are the main features considered in most RES auctions. For governments to be able to measure these, there has to be the kind of transparent auction design and execution that could strengthen business support and investment. Given the perpetual sketchiness of public tenders and calls for auctions (for all sectors, not just energy) in the WB countries, where democratic processes are still not entirely optimised, it is safe to assume that the RES auctions might suffer from a lack of transparency, which should be remedied. Moreover, a registry or database of the existing renewable energy systems should be established and maintained for analysis, planning and forecasting purposes.

A pivotal element in advancing these initiatives could be Austria's active involvement. With its substantial progress in renewable energy development and implementation, Austria represents a valuable source of experience, knowledge and expertise. By sharing its experience, including the challenges it has faced and the solutions it has adopted, Austria could provide crucial guidance and insights to the Western Balkans. This collaboration could encompass a range of areas, from establishing effective regulatory frameworks to implementing transparent auction systems. Austria's expertise in creating environments conducive to private investment in renewable energies, along with its proven strategies in calculating tariffs and managing renewable-energy systems, could serve as a blueprint for the Western Balkans. Engaging in knowledge transfer, technical assistance and policy advice, Austria could play a significant role in helping the WB countries navigate the complex path towards a more sustainable and diverse energy mix. This partnership could not only accelerate the region's transition to renewable energy but also foster stronger economic and diplomatic ties between Austria and the WB countries.

Having said that, since the energy transition is extremely capital-intensive, the WB countries cannot solely rely on private investments. Consequently, the WB governments need to step up and provide more public financing for the RES projects, especially those for solar plants, wind farms and even large hydropower plants. This could be done best with the support of financing instruments provided by international organisations and banks, such as the European Bank for Reconstruction and Development (EBRD) or the KfW, Germany's state-owned development bank.

If the aforementioned measures actually do lead to more RES projects in the WB countries, this would result in more new plants. Consequently, the need would arise to keep an overview of the plants for the sake of transparency, network planning and statistical purposes. Thus, if they want to be ready for a potential new influx of energy generated from renewable sources, WB governments should deal with these issues beforehand.

## 4.2. Stimulate the modernisation and expansion of the energy infrastructure

In order to have a successful energy transition and to be able to effectively use the newly tapped RESs in the near future, the energy infrastructure in the Western Balkans needs to be modernised and expanded. First, governments need to increase investment in aging energy infrastructure, particularly in reducing distribution losses of electricity in the WB region. On average, the region's related infrastructure is 35 years old and would need to be completely refurbished or rebuilt by 2040 (Udovički and Erić 2021). The government measures would be related to both bureaucratic and technical aspects of energy infrastructure. If bureaucratic obstacles are due to insufficient staff or a lack of expertise, capacity-building workshops should be organised with the help of European partners. As a part of these efforts, improving the overall regulatory conditions for attracting private investment would be necessary, primarily by assuring regulatory and procedure transparency and expediting the licensing process (i.e. issuing energy infrastructure permits at both the national and local levels).

If technical problems (e.g. balancing issues) are the fundamental point, workshops on grid integration and balancing could be organised for the responsible party. Concerning the balancing of energy and imbalance management, European partners could provide assistance with implementing the law, for example, in the form of workshops explaining the new rules and benefits to various stakeholder groups in the WB. Another option would be to put the focus on supporting efforts to design and put in place an ancillary market for power reserves, which play an important role in preserving grid stability, particularly in the face of rapid fluctuations in frequency.

Austria's involvement could again be instrumental in addressing these challenges. Leveraging its successful track record in modernising and developing energy infrastructure, Austria could provide invaluable support and expertise, such as by sharing best practices in upgrading aging infrastructure, a challenge that Austria has effectively navigated. Austrian experience in streamlining bureaucratic processes and enhancing regulatory conditions could offer guidance for improving transparency and efficiency in issuing permits and licenses in the Western Balkans. Furthermore, Austria's advanced approach to balancing issues and grid integration could be shared through specialised workshops and technical assistance programs. These could cover a range of crucial aspects, such as managing energy imbalances and setting up ancillary markets for power reserves, areas in which Austria has demonstrated notable proficiency. By offering support in these key areas, Austria could play a pivotal role in ensuring that the Western Balkans effectively harness their renewable energy potential while maintaining grid stability.

## 4.3. Push for more energy efficiency

To expedite and guarantee a long-term green transition that would be affordable, it is imperative to promote change that will encourage investment in energy efficiency and increase public awareness of its benefits. The WB governments should thus focus on formulating and implementing national renovation strategies for buildings that comply with the EU Directive on the Energy Performance of Buildings (EPBD). This would allow for launching and carrying out initiatives to replace domestic stoves, insulate facades, and swap out energy-wasting windows and lights. Furthermore, it is essential to establish the long-term financing programs with affordable interest rates to fund the construction, refurbishment and modernisation of public, commercial and residential buildings with strict energy-efficiency requirements and the extensive use of distributed renewable energy sources and heat pumps. The process of decarbonising urban district



heating networks should be a focus of local authorities. The WB governments should also establish support systems to enable the private sector to produce locally made energy-efficient devices and appliances as well as small-scale renewable energy equipment for homes. Ultimately, it would be advisable to implement mandatory energy audits and programmes founded on Articles 7 and 8 of the EU Energy Efficiency Directive, as these would ensure that governments and large companies save energy and comply with energy audit obligations.

As an EU member state with a strong commitment to energy efficiency and the green transition, Austria is well positioned to assist the Western Balkans in this endeavour. Austria's experience in implementing the EPBD can serve as a valuable model for the WB governments in developing their own national renovation strategies. Austria's expertise in launching and managing initiatives for upgrading building infrastructure – such as replacing inefficient heating systems, enhancing insulation, and installing energy-saving windows and lighting – can provide practical insights and guidance. Furthermore, Austria's successful implementation of long-term financing programs with attractive interest rates for energy-efficient construction and refurbishment projects could offer a blueprint for similar initiatives in the WB region. Austria could also share its experiences in decarbonising urban heating networks and in fostering the local production of energy-efficient devices and small-scale renewable energy systems. By providing support in setting up mandatory energy audits and compliance programs in line with the EU Energy Efficiency Directive, Austria could help to ensure that the WB governments and their large companies not only meet their energy-saving obligations but also reap the benefits of increased energy efficiency.

#### **4.4. Raise awareness among local stakeholders and offer needed trainings**

The local populations of WB countries, like those of many other European nations, frequently have a poor awareness of the advantages of the energy transition. Given this fact, it would be essential for WB governments and civil society to start or push for more awareness campaigns aimed at educating the local population about the key elements of the green transition. Information about the advantages and disadvantages of each option, as well as how to bring about a just transition, should be included in these campaigns.

The latest technological trends and their advantages for the communities must also be known to the local authorities in charge of regulating and carrying out the new RES projects. In addition, they must be knowledgeable about the most recent rules and regulations as well as about the application of the law so they could more easily assist with investments in RES at the local level.

Similarly, more details on the financial and legal issues involved in starting RES projects should be provided to any private-sector players interested in such projects. After all, SMEs that operate locally are more inclined to launch new RES business projects if they are provided with accurate and comprehensive information.

As solutions to these issues, the campaigns to raise awareness among political stakeholders, the business sector, media and citizens could be pursued primarily by national and local governments as well as by the civil society sector. In addition, schools, universities and youth organisations could intensify their awareness-raising efforts geared specifically towards the younger generation. Finally, it is necessary to inform governmental and corporate players about the costs and advantages of RES projects at the local level as well to familiarise local government officials and local SMEs with recently enacted rules governing RES projects.

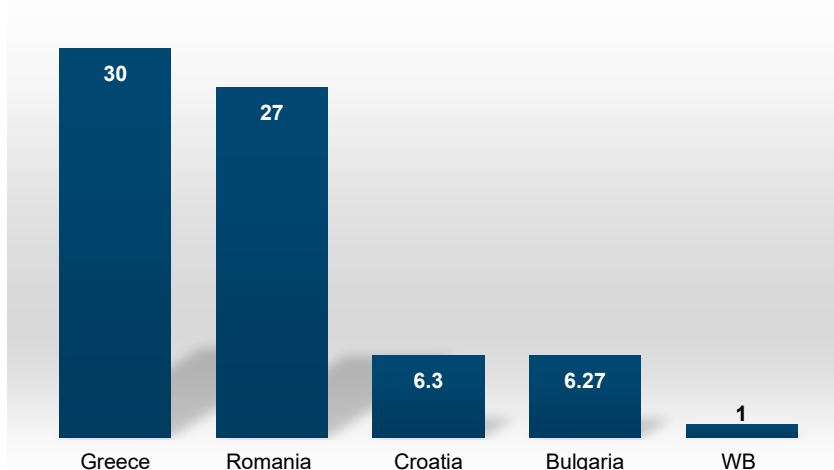
All this could be done with the assistance and guidance of Austria. Drawing from its own experience in promoting public awareness and acceptance of the energy transition, Austria could play a crucial role in aiding the Western Balkans. Austria's successful strategies for conducting awareness campaigns could provide a framework for WB governments and civil society to educate their populations about the green transition. These strategies include effectively communicating the benefits and challenges of various energy options and the concept of a just transition. Austria's approach to keeping local authorities updated on technological trends, legal frameworks and regulatory practices related to renewable energies could serve as a model for the Western Balkans, enhancing the competence of those overseeing RES projects. Furthermore, Austria's experience in providing detailed information to the private sector (especially SMEs) about the financial and legal aspects of initiating RES projects could guide similar initiatives in the WB region. Collaborative efforts could extend to organising training programs and workshops for governmental bodies, corporate entities, local officials and SMEs on the nuances of RES project management and compliance with current regulations. By sharing its comprehensive approach to fostering understanding and engagement among various stakeholders – from political figures and businesses to educational institutions and youths – Austria could make a significant contribution to building a more informed and supportive environment for the energy transition in the Western Balkans.

#### **4.5. Increase financial support from the EU**

The Western Balkans should receive more financial support from the EU to accelerate the transition to renewables. There is a significant disparity in the amount of financial support respectively received by the region and the EU member states to encourage the green transition. This can be seen from the example of the Recovery and Resilience Facility funds allocated to the EU members states, through which Croatia alone is supposed to receive 6.3 billion EUR. For the same purpose, the WB countries only received a combined 1 billion EUR from the Energy Support Package (Figure 5). This lack of resources impedes efforts in the WB region to modernise its aged energy infrastructure, to tackle energy poverty and to kick-start large-scale RES projects. The EU Structural and Investment Fund, the Modernization Fund, the Recovery and Resilience Facility, and the Just Transition Fund are just a few of the EU funds that EU member states have at their disposal to assist them in rapidly transitioning their energy systems, especially in the formerly carbon-intensive regions of Central and Eastern Europe. A number of social cohesion initiatives are also available. Hence, the presence of such a financial ecosystem is thought to be the primary catalyst for accelerated decarbonisation in the EU.

Even though this imbalance is expected given the perks of EU membership, the EU should reconsider its approach to the WB states in terms of augmented accession assistance and possibly an earlier admission of the WB economies to the EU single market. At the moment, through the Instrument for Pre-Accession Assistance (IPA) and the associated Economic and Investment Plan for the Western Balkans, the EU has provided seed money to assist the green transition in the region. However, these funds are insufficient, and the already limited funding for the energy transition is not precisely allocated. What's more, it is unrealistic to expect the WB governments to begin a process as complicated and expensive as the energy transition without long-term plans for financing it and the EU's resolute support mechanisms. In addition to increasing the levels of disposable resources aimed at promoting the green transition, more funding from the EU would also help WB markets to achieve more financial and economic stability, which in turn would attract more FDI geared toward renewable energy projects.



**Figure 5 / Volume of EU financial support for facilitating the green transition (in bn EUR)**

Note: The amounts for Greece, Romania, Croatia and Bulgaria refer to the allocated Recovery and Resilience Facility funds. The amount for the WB refers to the EU's Energy Support Package.

Source: European Commission 2022

The recently introduced New Growth Plan for the Western Balkans, which earmarks an additional 6 billion EUR over four years for the region, is unlikely to be a game-changer in this context. To begin with, this amount represents only a 20% increase in the funding already available to the region under the IPA and the Economic and Investment Plan. Moreover, only 2 billion EUR of this new funding is in grants, with the remainder being loans, and there is significant uncertainty regarding how much of this funding will ultimately be disbursed, due to stringent conditions. Additionally, the funds are not specifically allocated for renewable energy or green transition projects but are intended for general use. Even if all the funds were disbursed and invested in energy projects, they would scarcely meet the region's energy investment requirements. For example, the Chebren hydro power plant recently announced in North Macedonia, with an installed capacity of 333 MW that only partially meets the country's energy needs, is estimated to cost around 1 billion EUR.

#### 4.6. Streamline international decarbonisation policies in the WB

A recent study conducted by RESET concludes that the present policies aimed at supporting the decarbonisation of the energy sector in the WB countries are insufficiently streamlined and often inadequate (Kušljugić et al. 2023). For this reason, the think tank recommends that the EU, Austria and other international actors significantly adjust their policies and support mechanisms for the WB. At present, the EU promotes the energy transition in the WB via the Energy Community. However, the Energy Community treaty, of which the WB countries are contracting parties, established a non-transparent, non-democratic, non-inclusive and top-down mechanism that has failed to secure broad public support for the energy transition processes in the WB countries. Coordination of the WB region's energy transformation is largely being done in partnership with national administrations and ministries, with no participation from national parliaments. This technocratic approach results in a lack of broad public engagement, which makes it challenging to instil a sense of national ownership and to foster the social consensus needed for major socioeconomic transitions like the energy transition. In fact, this is

even a bigger challenge given that the major reasons for the Western Balkans' delay in decarbonising their power sectors have been obstacles put up by big national players, primarily governments and state-owned utilities. For this reason, the international community, including Austria, needs to ensure that NGOs and the expert community from the region are fully integrated into the processes of formulating, implementing, monitoring and assessing energy-transition policies in WB countries and at the local level. Second, the burden of the transition is being placed on the national energy companies. However, owing to their antiquated organisational structures, these companies must first undergo internal reform. Additionally, many organisations lack the financial and expert capacities for such a complex undertaking. To make matters worse, the involvement of other actors – including individuals, SMEs, local governments and private investors – is often disregarded by the European and international energy policies created for the WB region. This needs to be changed and, to do so, there needs to be a policy expansion and more commitment to providing financial and technical assistance geared towards fostering a decentralised energy transition.

Furthermore, as the most important foreign partner of the WB region, the EU needs to reconsider its strategic goals for green investments if it is to challenge the politically undesirable Chinese and Russian investments in the mining and energy industries in the WB region. Rather than advocating for gas, which is only a temporary fix, the EU ought to direct funding towards solar- and wind-energy initiatives in the WB.

Finally, the fundamental prerequisites for a just energy transition in the WB have not been met and, without them, the foreign energy policies will inevitably fail or produce suboptimal results. The main preconditions are: political will on the part of governments to decarbonise the power sector; the legal framework needed to achieve climate neutrality; serious strategies for phasing out the use of coal and shutting down the TPPs; and, of course, proper funding for these activities. These could be remedied by the increased involvement of the local civil sector in these processes as well as by more funding and technical assistance.

## 5. CONCLUSION

Energy shortages and high electricity costs are the biggest problems in the WB region and, as such, they have significant political implications. The current reliance on coal does not comply with the EU acquis or the Paris Agreement, which creates the risk of losing assets or slowing down EU accession negotiations. The goal of energy self-sufficiency and export growth dominates in the EU candidate countries of the region, leading almost exclusively to coal and hydropower, and given the geopolitical instability in Europe, the future investment plans may strengthen this trend. Air pollution in the WB region is the worst in Europe and leads to significant health costs. Nevertheless, an increase in the use of renewable energy sources (other than hydropower) faces major legislative and political obstacles. Boosting energy efficiency would help to advance the transition to green energy, but it is largely underdeveloped. Regional integration would bring enormous benefits, but it is burdened by persistent political differences.

In order to ramp up the construction and use of infrastructure to tap RESs, the WB governments need to increase their related public spending and to redouble their efforts to put in place a reliable regulatory framework, which would attract private investment in RESs. Similarly, it is of paramount importance to modernise and expand the energy infrastructure, which should be capable of absorbing the newly generated energy from RESs in the near future. At the same time, the governments should pursue some

less costly measures, such as fostering energy efficiency in the building and housing sector as well as organising trainings on energy issues geared towards both public and private stakeholders.

On the other hand, the EU and other international partners active in the Western Balkans need to adjust their approach to the region. First, more financial support is necessary, as the WB countries simply do not have the financial means needed to advance a just energy transition. The volume of this financial support would ideally be on an equal level as the funding that EU member states receive from the EU budget. Second, the energy policies towards the WB region need to be streamlined and conceptualised based on the needs and desires of the local population and local stakeholders. More cooperation and coordination between international donors and organisations is also very important for ensuring that the efforts in the region are not rendered futile and aimless.

Austria's involvement in the Western Balkans' energy transition could be highly beneficial, as the country could leverage its experience in sustainable energy development. Austria could guide the WB governments in enhancing public spending strategies for renewable energy projects and reforming regulatory frameworks to attract private investment. Its expertise in energy efficiency – particularly in buildings – could serve as a model for the region, complemented by training programmes to build local capacity. Additionally, Austria could advocate for increased financial support and tailored energy policies from the EU and other international partners, ensuring that any assistance is aligned with the actual needs of the WB countries. With Austria's support, the Western Balkans could move towards a more secure, economical and environmentally sustainable energy future.

The Energy Community, an international organization based in Vienna, unites the European Union and several neighbouring countries, including the WB economies, aiming to establish an integrated pan-European energy market. Its primary objective is to extend the EU internal energy market to Southeast Europe and beyond, offering substantial support to the WB region. This support includes technical assistance for adopting the EU acquis, providing training, aiding project proposal development, and facilitating financing for energy projects. However, there is significant potential to enhance the support provided. Firstly, the organization's capacities could be bolstered, considering its currently limited workforce. Additionally, the assistance offered could be more tailored, with customized technical support that meets the unique needs and capabilities of each member country. Lastly, while the Energy Community presently assists contracting parties in securing financing for their investment projects, it could also take a more direct role in funding critical energy initiatives, particularly in the areas of renewables, energy efficiency, and infrastructure modernization.

If the WB countries care about achieving their climate goals and are serious about ensuring secure and sustainable energy at a socially acceptable cost to their populations, they must carefully assess their current energy mix and prepare themselves for the future. Some combination of the aforementioned recommendations is likely to provide a secure, economical and greener alternative to coal-based power systems in the WB region.

## REFERENCES

- Udovički, K. and M. Erić (2021), 'Decarbonizing the Western Balkans: (Political) Economic Challenges and Opportunities', in: V. Esch and V. Palm (eds.), *Implementing the Green Agenda for the Western Balkans*, Aspen Institute Germany, pp. 8-18, [www.aspeninstitute.de/wp-content/uploads/2021\\_Aspen-Germany\\_Implementing-the-Green-Agenda-for-the-WB.pdf](http://www.aspeninstitute.de/wp-content/uploads/2021_Aspen-Germany_Implementing-the-Green-Agenda-for-the-WB.pdf).
- Bechev, D. (2023a), 'The Green Transition and the Western Balkans', Carnegie Europe, 09 October 2023, <https://carnegieeurope.eu/2023/10/09/green-transition-and-western-balkans-pub-90730> (accessed 13.11.2023).
- Bechev, D. (2023b), 'Energy in the Western Balkans', BiEPAG Background Paper, <https://biepag.eu/publication/energy-in-the-western-balkans/>.
- CEE Bankwatch Network (2019), 'Western Balkans Hydropower – Who Pays, Who Profits?', CEE Bankwatch Network, Prague, <https://bankwatch.org/wp-content/uploads/2019/09/who-pays-who-profits.pdf>.
- Energy Community (2020), 'WB6 Energy Transition Tracker 07/2020', Energy Community Secretariat, Vienna, [www.energy-community.org/dam/jcr:2077a2ba-805a-4ca2-afcb-91c90ecc0878/EnC\\_WB6\\_ETT1\\_072020.pdf](http://www.energy-community.org/dam/jcr:2077a2ba-805a-4ca2-afcb-91c90ecc0878/EnC_WB6_ETT1_072020.pdf).
- Energy Community (2021), 'DISCUSSION PAPER by the Energy Community Secretariat: on Riding the Renovation wave in the Western Balkans – Proposal for boosting energy efficiency in the residential building sector', 25 February 2021, Energy Community Secretariat, Vienna, [www.energy-community.org/dam/jcr:d533ab6e-5c1c-43e6-8c1c-dc03d72e8fa6/DP012021.pdf](http://www.energy-community.org/dam/jcr:d533ab6e-5c1c-43e6-8c1c-dc03d72e8fa6/DP012021.pdf).
- Energy Community (2022), 'Energy Transition Tracker 07/2022', Energy Community Secretariat, Vienna, [www.energy-community.org/dam/jcr:a09255dc-ac8a-47b1-b664-3463705906de/EnC\\_Tracker\\_07\\_2022.pdf](http://www.energy-community.org/dam/jcr:a09255dc-ac8a-47b1-b664-3463705906de/EnC_Tracker_07_2022.pdf).
- Energy Community (2023), 'Governance and National Energy and Climate Plans', [www.energy-community.org/implementation/package/NECP.html](http://www.energy-community.org/implementation/package/NECP.html) (accessed 15.11.2023).
- European Commission (2022), 'The Recovery and Resilience Facility', [https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility\\_en](https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility_en).
- European Commission (2023), 'Implementing a Green Agenda for the Western Balkans', [https://neighbourhood-enlargement.ec.europa.eu/system/files/2023-10/factsheet%20green%20agenda%20oct2023%20final\\_0.pdf](https://neighbourhood-enlargement.ec.europa.eu/system/files/2023-10/factsheet%20green%20agenda%20oct2023%20final_0.pdf) (accessed on 15.11.2023).
- European Environment Agency (2022), 'Energy prosumers in Europe – Citizen participation in the energy transition', *EEA Report* No. 1/2022, [www.eea.europa.eu/publications/the-role-of-prosumers-of](http://www.eea.europa.eu/publications/the-role-of-prosumers-of).
- Eurostat (2021), 'Share of energy from renewable sources', <https://ec.europa.eu/eurostat/databrowser/bookmark/fd845041-e11b-44e4-abc5-34cf7e466a0?lang=en> (accessed on 13.11.2023).
- Eurostat (2022), 'EU energy mix and import dependency', [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Archive:EU\\_energy\\_mix\\_and\\_import\\_dependency](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Archive:EU_energy_mix_and_import_dependency).
- Eurostat (2023), 'Enlargement countries – energy statistics', [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Enlargement\\_countries\\_-\\_energy\\_statistics#Energy\\_consumption](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Enlargement_countries_-_energy_statistics#Energy_consumption).
- Gourcerol, B., E. Gloaguen, J. Melleton, J. Tuduri and X. Galiegue (2019), 'Re-assessing the European lithium resource potential – A review of hard-rock resources and metallogeny', *Ore Geology Reviews*, 109, pp. 494-519.
- HEAL (2022), 'The health perspective of wood burning in the Western Balkans region', Health and Environment Alliance (HEAL), Brussels, [www.env-health.org/wp-content/uploads/2022/01/Biomass\\_brief\\_EN.pdf](http://www.env-health.org/wp-content/uploads/2022/01/Biomass_brief_EN.pdf).
- IEA (2022), 'IEA World Energy Balances 2022', International Energy Agency, Paris, [www.iea.org/data-and-statistics/data-tools/energy-statistics-data-browser?country=WORLD&fuel=Energy%20supply&indicator=TESbySource](http://www.iea.org/data-and-statistics/data-tools/energy-statistics-data-browser?country=WORLD&fuel=Energy%20supply&indicator=TESbySource).

IRENA (2023), 'Renewable capacity statistics 2023', International Renewable Energy Agency, Abu Dhabi, [www.irena.org/Publications/2023/Mar/Renewable-capacity-statistics-2023](http://www.irena.org/Publications/2023/Mar/Renewable-capacity-statistics-2023).

Kurtic, A. (2022), 'Bosnia Greens Celebrate as Federation Bans Small Hydropower Plants,' BalkanInsight, 07 July 2022, <https://balkaninsight.com/2022/07/07/bosnia-greens-celebrate-as-federation-bans-small-hydropower-plants/> (accessed on 23.11.2023).

Kušljagić, M., D. Miljević and N. Rajaković (2023), 'Chaotic and fake decarbonization of power sectors in the Western Balkans', Sustainable Energy Transition CENTER (RESET), [https://reset.ba/images/2023/11\\_novembar/Chaotic%20and%20fake%20decarbonization%20on%20WB%20RESET%20web.pdf](https://reset.ba/images/2023/11_novembar/Chaotic%20and%20fake%20decarbonization%20on%20WB%20RESET%20web.pdf).

Miljević, D. (2020), 'Investments into the past – An analysis of Direct Subsidies to Coal and Lignite Electricity Production in the Energy Community Contracting Parties 2018-2019', European Energy Secretariat, Vienna, [www.energy-community.org/dam/jcr:9548dd16-b9ed-4bcc-a562-4ebd5061b082/Coal\\_Subsidies\\_Study\\_070222.pdf](http://www.energy-community.org/dam/jcr:9548dd16-b9ed-4bcc-a562-4ebd5061b082/Coal_Subsidies_Study_070222.pdf).

OECD (2022a), 'Clean energy transition in the Western Balkans', OECD Publishing, Paris, <https://t4.oecd.org/south-east-europe/programme/OECD-BN-Clean-Energy-Transition-Oct2022.pdf>.

OECD (2022b), 'Multi-dimensional Review of the Western Balkans: From Analysis to Action', OECD Development Pathways, OECD Publishing, Paris, [https://www.oecd-ilibrary.org/development/multi-dimensional-review-of-the-western-balkans\\_8824c5db-en](https://www.oecd-ilibrary.org/development/multi-dimensional-review-of-the-western-balkans_8824c5db-en).

Pavlaković, B., A. Okanovic, B. Vasić, J. Jesic and P. Šprajc (2022), 'Small hydropower plants in Western Balkan countries: status, controversies and a proposed model for decision making', *Energy, Sustainability and Society*, 12, Article No. 9, <https://energysustainsoc.biomedcentral.com/counter/pdf/10.1186/s13705-022-00335-7.pdf>.

Perišić, J. (2023), 'Croatian energy cooperative KLIK is helping citizens produce their own energy', Balkan Green Energy News, 30 May 2023, <https://balkangreenenergynews.com/croatian-energy-cooperative-klik-is-helping-citizens-produce-their-own-energy/> (accessed on 06.12.2023).

RCC (2020), 'SOFIA DECLARATION ON THE GREEN AGENDA FOR THE WESTERN BALKANS', Regional Cooperation Council, [www.rcc.int/download/docs/Leaders%20Declaration%20on%20the%20Green%20Agenda%20for%20the%20WB.pdf/196c92cf0534f629d43c460079809b20.pdf](http://www.rcc.int/download/docs/Leaders%20Declaration%20on%20the%20Green%20Agenda%20for%20the%20WB.pdf/196c92cf0534f629d43c460079809b20.pdf) (accessed on 13.11.2023).

RES Foundation (2023), 'Tackling the Immediate Challenges of Energy Poverty in the Western Balkans: The possible role for the EU', <https://www.resfoundation.org/wp-content/uploads/2023/09/Tackling-the-Immediate-Challenges-of-Energy-Poverty-in-the-Western-Balkans.-The-possible-role-for-the-EU.pdf>.

Ruiz, P., H. Medarac, J. Somers and G. Mandras (2021), 'Recent trends in coal and peat regions in the Western Balkans and Ukraine', JRC Science for Policy Report, Publications Office of the European Union, Luxembourg, doi:10.2760/81752, JRC126154.

Sanfey, P., J. Milatovic and A. Kresic (2016), 'How the Western Balkans Can Catch Up', *EBRD Working Paper* No. 185, [https://papers.ssrn.com/sol3/Delivery.cfm/SSRN\\_ID3119685\\_code2886190.pdf?abstractid=3119685&mirid=1](https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID3119685_code2886190.pdf?abstractid=3119685&mirid=1).

Spasić, V. (2017), 'Power production and distribution companies in the Balkan region – governments still in charge', Balkan Green Energy News, 12 March 2017, <https://balkangreenenergynews.com/power-production-and-distribution-companies-in-the-balkan-regiona-governments-still-in-charge/> (accessed on 13.11.2023).

Spasić, V. (2021), 'Serbia adopts four laws on energy, mining', Balkan Green Energy News, 21 April 2021, <https://balkangreenenergynews.com/serbia-adopts-four-laws-on-energy-mining/> (accessed on 13.11.2023).

Vukadinovic, N. (2023), 'Environmental democracy in the Western Balkans between dependent capitalism and integration into the European Union', ÖgfE Policy Brief 12 2013, Österreichische Gesellschaft für Europapolitik, Vienna, <https://sciencespo.hal.science/hal-04124597v1/file/PB-Article%20Policy%20brief%20NV%2007.06.2023.pdf>.

## IMPRESSUM

Herausgeber, Verleger, Eigentümer und Hersteller:

Verein „Wiener Institut für Internationale Wirtschaftsvergleiche“ (wiiw),  
Wien 6, Rahlgasse 3

ZVR-Zahl: 329995655

Postanschrift: A 1060 Wien, Rahlgasse 3, Tel: [+431] 533 66 10, Telefax: [+431] 533 66 10 50  
Internet Homepage: [www.wiiw.ac.at](http://www.wiiw.ac.at)

Nachdruck nur auszugsweise und mit genauer Quellenangabe gestattet.

Offenlegung nach § 25 Mediengesetz: Medieninhaber (Verleger): Verein "Wiener Institut für Internationale Wirtschaftsvergleiche", A 1060 Wien, Rahlgasse 3. Vereinszweck: Analyse der wirtschaftlichen Entwicklung der zentral- und osteuropäischen Länder sowie anderer Transformationswirtschaften sowohl mittels empirischer als auch theoretischer Studien und ihre Veröffentlichung; Erbringung von Beratungsleistungen für Regierungs- und Verwaltungsstellen, Firmen und Institutionen.

