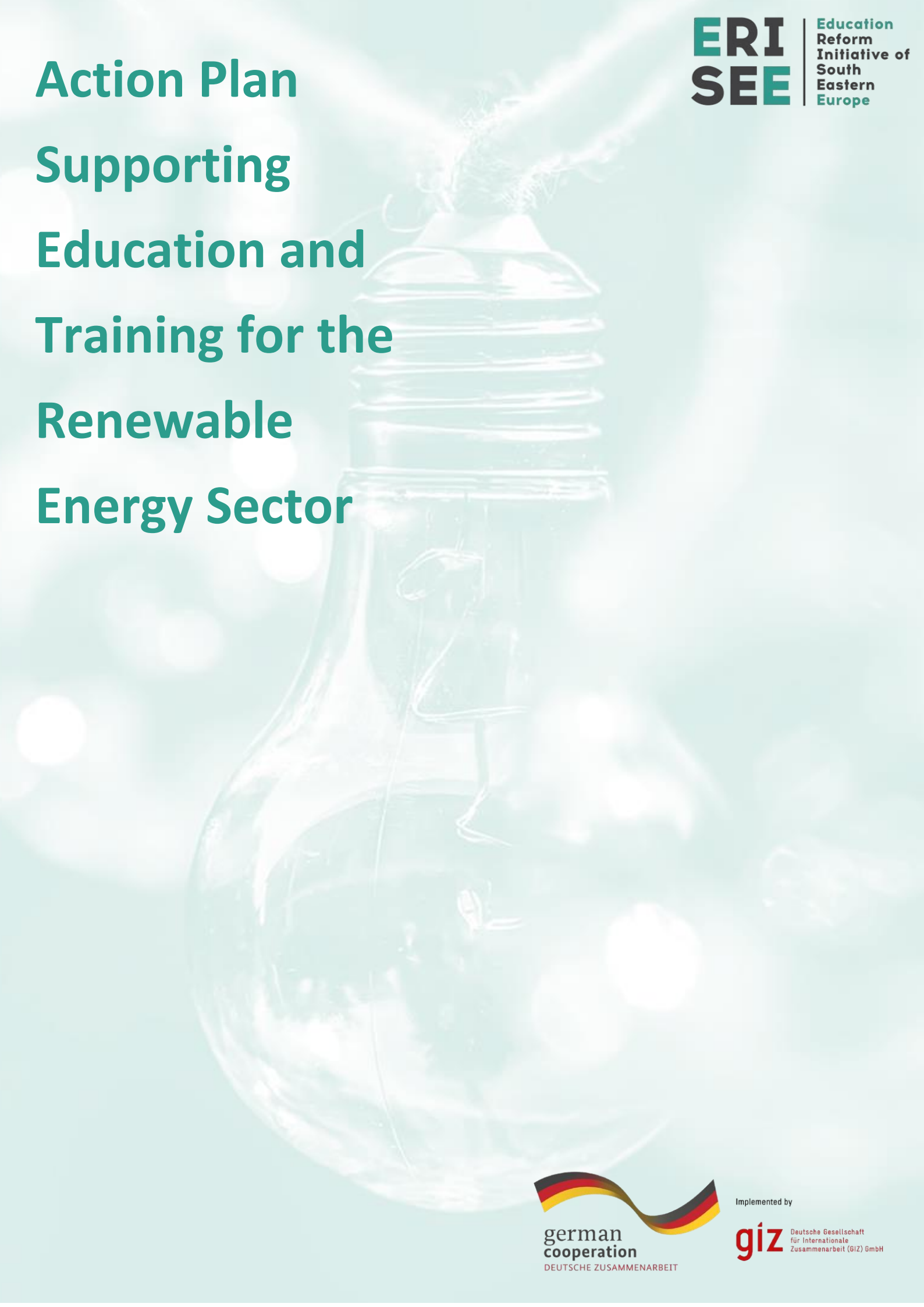
Action Plan Supporting Education and Training for the Renewable Energy Sector



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Abbreviations

CAP	Climate Action Plan
CVET	Continuing vocational education and training
EGD	European Green Deal
ERI SEE	Education Reform Initiative of South Eastern Europe
ESCO	European Skills, Competences, Qualifications and Occupations
EU	European Union
GAWB	Green Agenda for the Western Balkans
ICT	Information and communication technology
ILO	International Labour Organization
IPA	Instrument for Pre-Accession Assistance
IRENA	International Renewable Energy Agency
ISCO	International Standard Classification of Occupations
NACE	Statistical Classification of Economic Activities in the European Union
OECD	Organisation for Economic Co-operation and Development
OS	Occupational standards
PDT	Professional development of teachers
QS	Qualification standards
RES	Renewable energy sources
SES	Socio-economic status
VET	Vocational education and training
WB	Western Balkans
RESET	Renewable Energy Services in Education and Training project - link

Introduction

The Action Plan Supporting Education and Training for the Renewable Energy Sector was developed within the *Renewable Energy Services in Education and Training – RESET* project by the Education Reform Initiative of South Eastern Europe - ERI SEE, in consultations with experts and stakeholders from the Western Balkans.

The RESET project is a component of the *Green Agenda: Decarbonizing of the Electricity Sector in the Western Balkans* regional project commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The main goal of the Green Agenda project is to answer to the increasing demand made by key actors in the electricity sector in the Western Balkans for technological, regulatory and human resources solutions for the implementation of an environmentally and climate friendly energy transition.

The Green Agenda project foresees the threefold action related to

1. renewable energy grid integration,
2. renewable energy regulatory framework, and
3. promoting technical and vocational education and training (TVET) for renewable energy services – RESET project.

The RESET project started in 2023 aiming to accomplish two specific objectives:

1. Development of recommendations to TVET decision makers to accelerate the labour market and energy developments for renewable energy and
2. Raising awareness and promoting TVET/education for renewable energy services.

The RESET project lead partner, the Education Reform Initiative of South Eastern Europe - ERI SEE initiated the policy discussions by joining stakeholders from the education and energy sectors around the topic of energy transition through the series of policy conferences. The first conference, EduEnergy Conference: Building Bridges for Sustainable Energy Learning was organised in March 2024 while the second, EduEnergy 2.0: Towards Shaping the Future of Renewable Energy Transition in the Western Balkans, was organised in October, 2024.

In parallel the ERI SEE implemented the VET education provision mapping aimed at charting the electrical and mechanical sectors educational offer in the Western Balkans. Based on the findings of this mapping and consultations with the partners that resulted in identifying the need for teaching and learning materials, the RESET project supported the development of teaching and learning material on installation and maintenance of solar photovoltaic systems and installation and maintenance of electrical energy equipment in wind power plants.

Building on the lessons learned through both policy dialogue and close cooperation with VET institutions, qualification agencies, chambers of commerce and energy experts, the RESET project undertook the development of the Action Plan Supporting Education and Training for the Renewable Energy Sector together with a set of concrete recommendations and activities for the future development of the vocational education and training sector in the context of the green transition.

The baseline for the Action plan, aside from the education mapping and stakeholder policy dialogs, was the Green Agenda supported analysis on the labour market needs in the context of the energy transition in the Western Balkans and a teacher survey implemented by the ERI SEE in the cooperation with the VET and qualification agencies.

The action plan consists of three main segments:

(1) Segment one: general mapping of the energy sector and the main policy framework relevant for the energy transition
(2) Segment two: contemporary discourse in the education sector on supporting the energy transition viewed as a potential driving force behind both the energy and just transition, the education sector finds itself at a critical juncture. While it holds significant transformative potential, it also faces structural limitations and competing demands that challenge its ability to fully support the transition in a timely and equitable manner. The segment is concluded with a set of recommendations.
(3) Segment three: the results of the expert-based mapping process done by the VET and energy sector experts, representatives of ministries of education, VET and qualification agencies, chambers of commerce and business sector from six Western Balkan economies with the identified set of actions and recommended activities relying on the recommendations from the previous segment.

The Action Plan was presented and endorsed by the VET experts during the regional Energy Transition, Human Capital Development meeting that took place in Skopje in July 2025 and finalized in September 2025.

Part 1: Energy sector overview

I Overview of WB renewable energy deployment

This chapter outlines the current state of renewable energy use in the Western Balkans, focusing on key trends, challenges, and developments across the region. It starts by comparing the overall energy supply per person with the EU average, showing that people in the Western Balkans still have access to less energy, which may affect long-term social and economic development. At the same time, the region uses energy less efficiently and emits more carbon for each unit of economic output, which points to structural problems in how energy is produced and consumed.

The chapter then looks at the share of renewables in total energy use and in specific sectors like heating, cooling, transport, and electricity production. While some economies report high renewable energy shares, especially in heating, these numbers are often based on the use of traditional firewood, which is not efficient or clean. Modern technologies like heat pumps, solar panels, and electric vehicles are still in the early stages of use and often not fully reflected in official statistics.

The growing number of small-scale energy producers, such as households and businesses installing solar systems, is also discussed. These prosumers are becoming an increasingly important part of the energy system, though proper tracking and support mechanisms are still being developed.

By providing this overview, the chapter aims to show both the progress made so far and the key gaps that remain. It highlights where targeted efforts are needed to reduce energy waste, lower emissions, and make better use of modern renewable energy technologies.

1.1 Energy Supply, Efficiency, and Emissions in the Western Balkans

Access to modern energy services is fundamental to fulfilling basic social needs, driving economic growth and fuelling human development. However, as shown in Figure 1., the total primary energy supply per capita in the Western Balkans (WB) remains significantly below the EU-27 average of 116 GJ/capita. Serbia leads among WB economies with 100 GJ/capita but remains bellow EU average. Bosnia and Herzegovina follows with 90 GJ/capita, while Montenegro (73), Kosovo*[1] and North Macedonia (both at 61), and especially Albania (only 33) displays even lower energy availability per person. The conclusion is that the region's total primary energy supply per capita remains below the EU average, The lower energy supply per person suggests that the region might face difficulties in meeting its development and economic goals in a sustainable way.

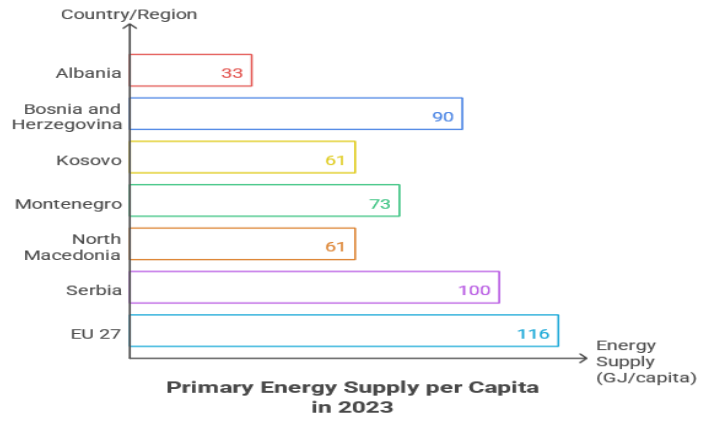


Figure 1: Primary energy supply per capita in 2023 in WB and the EU. Source: IEA

Despite the region's lower per capita energy supply compared to the EU, both energy intensity and carbon intensity in the Western Balkans remain considerably higher than the EU average, reflecting deep-rooted structural inefficiencies in the energy sector (see Figure 2). Energy intensity, defined as the amount of total energy supply required to produce one unit of GDP, is significantly elevated in all six economies. For instance, Bosnia and Herzegovina (12.56 GJ/000 USD) and Kosovo* (11.51 GJ/000 USD) report nearly four times the energy intensity of the EU average (3.06 GJ/000 USD). Likewise, carbon intensity, representing the volume of CO_2 emissions per unit of GDP, is markedly higher across the region. Serbia (0.90 kg CO_2/000 USD) and Kosovo* (1.03 kg CO_2/000 USD) exceed the EU average (0.17 kg CO_2/000 USD) by more than fivefold. These figures clearly indicate that economic activities in the Western Balkans rely more heavily on energy and are more carbon-intensive than in the EU.

[1] Kosovo* as non-UN member committed to the Paris Agreement goals through national strategic framework.

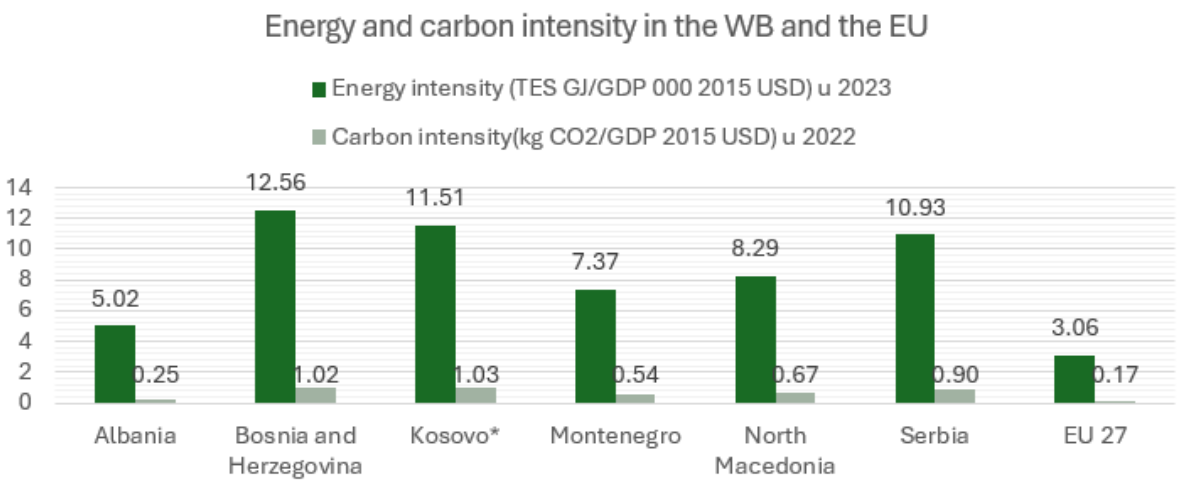


Figure 2: Energy (in 2023) and carbon (in 2022) intensities of WB and the EU. Source: IEA

Such high intensities suggest inefficient energy use, reliance on carbon-heavy fuels, and underinvestment in clean technologies. These inefficiencies not only hinder environmental progress but also reduce economic competitiveness. Addressing them is important for ensuring a successful and just energy transition. In this context, policies should prioritise enhancing energy productivity by achieving more economic output per unit of energy consumed and reducing emissions intensity through clean energy deployment and systemic energy efficiency improvements.

Improving institutional capacity, advancing regional cooperation, and strengthening public understanding of these issues are critical. Education and awareness-raising campaigns can contribute to addressing the implications of carbon and energy inefficiency by supporting both behavioural and systemic changes aligned with the goals of the green transition. By fostering greater understanding of the links between energy use, emissions, and sustainability, such initiatives may help mobilise public support and informed action. Enhancing energy literacy and encouraging responsible consumption patterns can complement technical and policy efforts. In this way, education becomes one of several levers that can help ensure that renewable energy expansion and climate measures generate meaningful socio-economic benefits.

1.2 Renewable Energy Use and Sectoral Distribution

The energy transition in the Western Balkans begins from a context in which renewable energy sources (RES) already contribute a notable share to final energy consumption. In 2023, Albania (46.62%), Montenegro (40.88%), Bosnia and Herzegovina (39.29%), and Serbia (25.43%) recorded RES shares that were equal to or higher than the EU average of 24.55%, while Kosovo* (19.26%) and North Macedonia (20.21%) remained below the EU level (Figure 3).

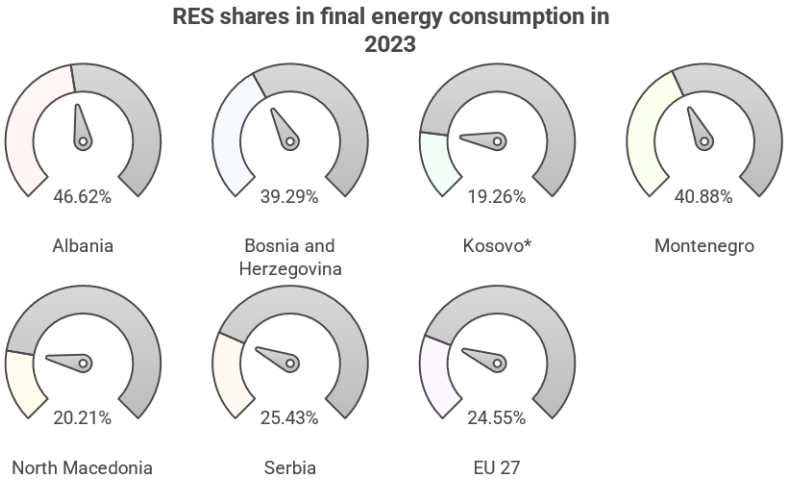


Figure 3: RES shares in final energy consumption in WB and EU in 2023 (Data for Bosnia and Herzegovina for 2022). Source: EUROSTAT, SHARES 2023 summary results

In the heating and cooling sector, Montenegro (66.59%), Bosnia and Herzegovina (57.65%), and Kosovo* (44.53%) also recorded high shares of RES (Figure 4). However, as with final energy consumption, these figures are largely driven by biomass rather than modern and efficient technologies. Without significant improvement in building energy performance and a shift toward technologies such as heat pumps, the contribution of RES to heating and cooling will remain limited in terms of decarbonization and economic productivity.

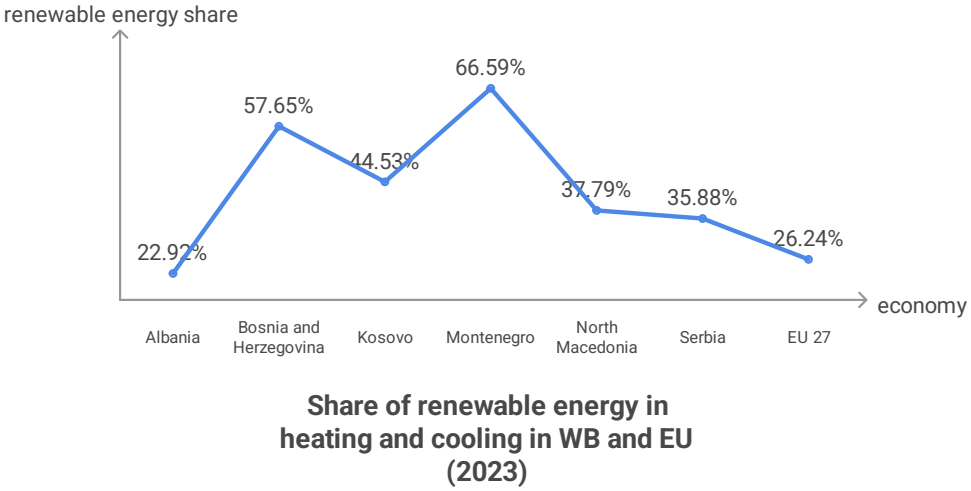
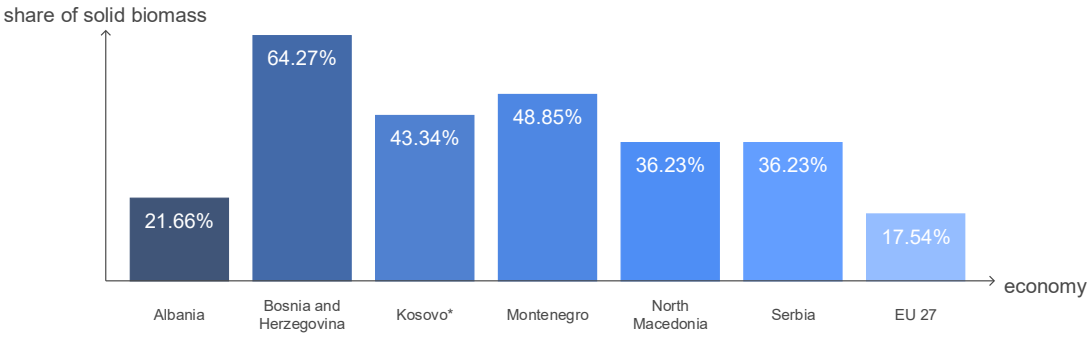


Figure 4: Share of renewable energy in heating and cooling in WB and EU in 2023 (Data for Bosnia and Herzegovina for 2022). Source: EUROSTAT, SHARES 2023 summary results



Share of solid biomass in household energy consumption (2023)

Figure 5: Share of solid biomass in household final energy consumption in 2023 in WB and EU in 2023. Source: EUROSTAT, Energy balance sheets April 2025 edition

While these shares may suggest strong regional performance, they often reflect a structural reliance on traditional biomass, particularly firewood used in residential heating. This type of energy use, although classified as renewable in official statistics, is inefficient and associated with high levels of indoor and outdoor air pollution, offering limited benefits for economic modernization. In 2023, the share of solid biomass in household final energy consumption reached 64.27% in Bosnia and Herzegovina, 48.85% in Montenegro, and 43.34% in Kosovo* – well above the EU average of 17.54% (Figure 5).

Although heat pumps and air conditioning technologies are increasingly present in the Western Balkans, their contribution to RES statistics is currently not captured in national energy balances. Similarly, district heating systems, which are common across the region, rely only minimally on RES. A number of EU and IFI supported projects are under development to promote RES based district heating solutions, including a EUR 6.5 million solar heating project in Kosovo*[2], but most initiatives remain in early stages.

In the transport sector, the integration of RES remains marginal. EUROSTAT data shows that in 2023, the Western Balkans had just over 34,000 electric, plug-in hybrid, and hybrid vehicles registered across a fleet of nearly 5 million passenger cars. Only 158 biodiesel vehicles were reported, with no registered hydrogen or fuel cell vehicles. By contrast, the EU registered 4.4 million electric vehicles in 2023, making up 22.7% of all new registrations.[3] This gap points to an urgent need for strategic interventions that support RES uptake in transport and accelerate market readiness.

[2] RES-DHC Project (2022). EUR 6.5 million provided for solar district heating in Kosovo. Published 18 July 2022. Available at: https://www.res-dhc.com/en/2022/07/18/eur-65-million-provided-for-solar-district-heating-in-kosovo/

[3] European Environment Agency (2024). New registrations of electric vehicles in Europe – Indicator Assessment. Copenhagen: EEA. Available at: https://www.eea.europa.eu/en/analysis/indicators/new-registrations-of-electric-vehicles

1.3 Electricity Sector Transformation: Generation, Growth, and Decentralization

Decarbonizing the electricity sector remains among the region's most difficult challenges. In 2023, RES electricity shares were lower than the EU average in Kosovo*, North Macedonia, and Serbia, while other economies, most notably Albania, recorded higher shares. Albania relies almost entirely on renewable sources, predominantly hydro, for its electricity production. However, when assessing RES progress toward 2030 targets, hydro production is averaged over a 15-year period, which can obscure the real-time contribution of hydro to the electricity mix in any given year.

As of 2023, the region had 13.5 GW of installed renewable electricity generation capacity, representing 65% of total installed electricity capacity *(*Table 1.*)* However, due to the intermittent nature of RES, especially hydropower, annual RES contributions to electricity generation vary year-to-year, influenced by seasonal and climatic fluctuations.

Most Western Balkan economies generated more electricity than they consumed in 2023[4]. Nevertheless, due to daily and seasonal mismatches between demand and generation, all economies remain active participants in regional electricity trade. This balancing need underscores the importance of improved grid infrastructure, enhanced interconnections, and flexible generation assets to support RES integration.

Table 1: Electricity generation capacities and production in 2023. Source: Energy Community Treaty web page

	Installed electricity production capacities in 2023 (MW)	RES electricity production capacity in the Western Balkans 2023 (MW)	Annual electricity generation 2023 (GWh)	Annual electricity consumption 2023 (GWh)
Albania	2,824	2,711	9,012	8,507
Bosnia and Herzegovina	4,770	2,614	15,822	11,635
Kosovo*	1,237	277	5,867	6,750
Montenegro	1,064	839	4,047	3,194
North Macedonia	2,633	1,311	6,552	6,739
Serbia	8,227	3,719	37,689	35,519
Western Balkans	20,755	13,494	78,989	72,344

Tracking the growth of installed RES capacities provides a clearer picture of technology deployment trends. North Macedonia stands out, recording the most significant RES capacity growth in the period till 2023. This trend continued in 2024, with a 30% increase in the number of RES plants, a 27% rise in installed capacity, and a 16% increase in renewable electricity production *(*Figure 6:) in a single year[5]. This case may perhaps provide insights into how labour market provided workforce for this rapid development.

[4] Hydro facilities produced record amount of electricity in almost all economies in this year.

[5] Energy and Water Services Regulatory Commission of the Republic of North Macedonia (2024). Annual Report for 2024. Skopje: ERC. (Available in Macedonian only at the time of preparation.)
Available at: https://www.erc.org.mk/odluki/2025.04.29%20-%20RKE%20GI%202024-final.pdf

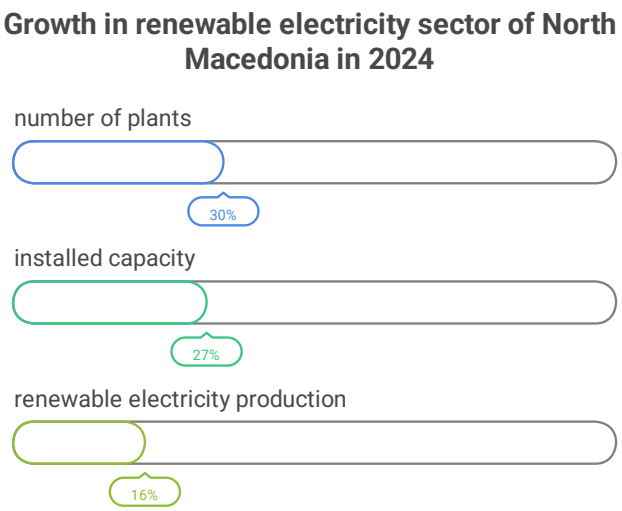


Figure 6: Growth in the renewable electricity sector in 2024 in North Macedonia. Source Energy and Water Services Regulatory Commission of the Republic of North Macedonia

Until now, this report has primarily focused on utility-scale energy systems. However, the Western Balkans is experiencing the emergence of a new trend: energy presumption (Table 2.). Businesses, households, and public institutions, previously passive electricity consumers are increasingly becoming both producers and consumers of energy, particularly through small-scale renewable technologies such as solar photovoltaic systems. These prosumers are now active participants in the energy system, moving beyond the traditional role of end-users.

This shift has been made possible through the transposition of relevant EU legislation into national frameworks via the Energy Community Treaty. While these developments are relatively recent, and prosumers remain dispersed with limited regulatory oversight, monitoring systems are still in the early stages. As a result, reliable and up-to-date data on installed prosumer capacity remains limited. The estimates presented in this section are based on the author's calculations as of mid-December 2024.

Table 2: Installed prosumer's production capacity in the Western Balkans. Source: compiled by the consultant

December 2024 data on existing prosumer capacity (MW)	
Albania	190[6]
Bosnia and Herzegovina	23[7]
Kosovo*	18[8]
North Macedonia	14[9]
Serbia	80[10]
Montenegro	70[11]

As of now, Montenegro leads the Western Balkans in household-level electricity generation, with approximately 1.75% of all households producing electricity. By comparison, in 2023, around 25% of households in Belgium and the Netherlands were generating electricity, while the share reached nearly 8% in Poland and close to 5% in Slovenia (Figure 7.).

[6] *OSF Publication. Publisher website: https://osfwb.org*

[7] *State Electricity Regulatory Commission of Bosnia and Herzegovina (2024). Annual Report for 2023. Tuzla: SERC. Available at: https://www.derk.ba/DocumentsPDFs/BIH-SERC-Annual-Report-2023.pdf (Estimate cited due to unclear status of prosumer reporting.)*

[8] *Energy Regulatory Office of the Republic of Kosovo* (2024). Register of Applications for Self-Consumption Generators (as of 30 August 2024). Pristina: ERO. Available at: https://www.ero-ks.org/zrre/sites/default/files/Publikimet/BRE/Regjistri%20i%20Aplikacioneve%20p%C3%ABr%20gjeneratoret%20per%20VET%20%E2%80%93%20KONSUM%20-30.08.2024...._0.pdf*

[9] *Energy and Water Services Regulatory Commission of the Republic of North Macedonia (2023). Annual Report for 2023. Skopje: ERC. Available at: https://www.erc.org.mk/odluki/ANNUAL%20REPORT%20for%202023%20-ERC.pdf*

[10] *Elektrodistribucija Beograd (2024). Registar kupaca sa statusom kupca-proizvođača – Domaćinstva i Ostali krajnji potrošači. Belgrade: EDB. December 2024. Available at : http://edbnabavke.edb.rs/registar_kupaca/DOMACINSTVA/DOMACINSTVA.pdf*

[11] *EPCG-Solar Gradnja (2023). Elektroprivreda i Solar Gradnja obezbjeđuju dobrobit za državu, građane i zaposlene. Published 18 September 2023. Available at: https://epcg-sg.com/elektroprivreda-i-solar-gradnja-obezbjeduju-dobrobit-za-drzavu-gradane-i-zaposlene/*

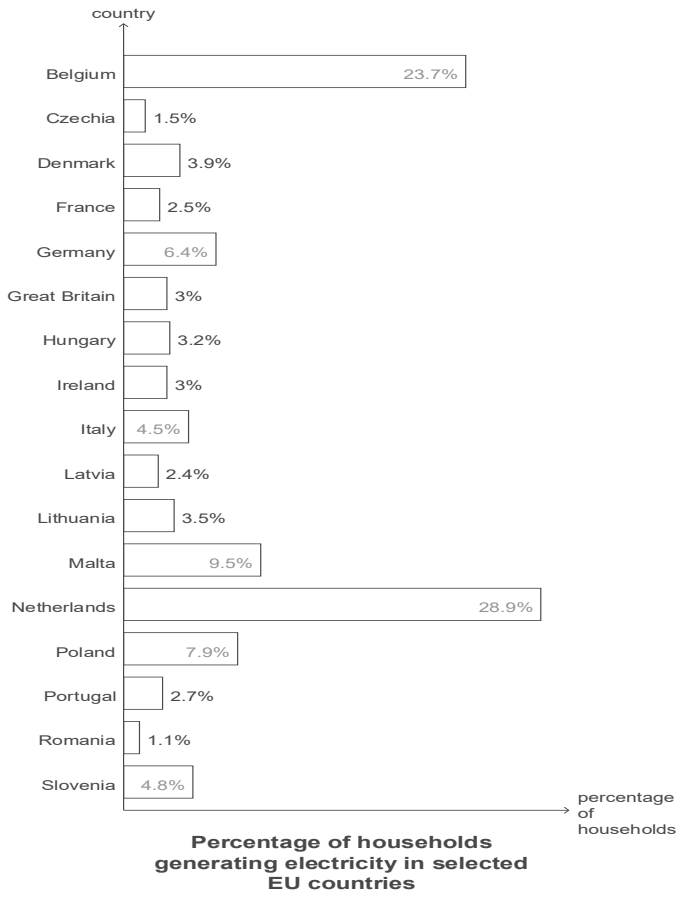


Figure 7: Percentage of households generating electricity in selected EU countries. Source: ACER, 2024 "Energy retail - Active consumer participation is key to driving the energy transition: how can it happen? 2024 Market Monitoring Report

1.4 Conclusions

While the Western Balkans region formally reports high shares of renewable energy in final consumption, much of this is attributed to traditional biomass use, particularly in household heating. Modern, efficient, and low-emission renewable technologies remain underdeveloped across key sectors, especially in heating and cooling, transport, and distributed electricity generation. The reliance on outdated systems, structural inefficiencies, and limited technological diversification highlight a critical gap between statistical performance and substantive energy transition.

At the same time, the regional momentum, evident in the rapid growth of RES capacities in economies like North Macedonia and the emergence of prosumers, demonstrates a tangible potential for accelerated transformation. Investment in grid modernization, smarter planning, and better tracking of new technologies is essential to align RES deployment with long-term climate and development objectives.

Finaly, the complexity and pace of the energy transition outlined in this section underscores the need for a parallel shift in human capital development. As recognized under the Green Agenda for the Western Balkans[12], achieving a green, resilient and inclusive energy transition will require not only technological upgrades but also a systemic reform of education and training systems.

[12] European Commission. (2020). Green Agenda for the Western Balkans. Available at: https://enlargement.ec.europa.eu/system/files/2020-10/green_agenda_for_the_western_balkans_en.pdf

II RES shared commitments in the WB

Western Balkan economies have committed to full decarbonisation by 2050 as parties to the Paris Agreement or signatories of the Sofia Declaration. This commitment was reinforced in 2020 with the adoption of the Green Agenda for the Western Balkans, which aligns the region with the European Green Deal[13] and calls for the integration of climate objectives across all sectors of public policy, especially energy and transport.

To operationalize these commitments, regional governments participate in a series of planning processes that reflect both national legislative mandates and supranational obligations. These include requirements under the United Nations Framework Convention on Climate Change (UNFCCC)[14] and the evolving planning and reporting architecture of the Energy Community.

A major milestone was reached in December 2022, when the Energy Community Ministerial Council adopted binding 2030 targets for greenhouse gas (GHG) emissions reduction, energy efficiency, and renewable energy deployment through Decision 2022/02/MC-EnC.[15] These headline targets represent the most concrete expression of the region's collective commitment to the 2030 decarbonisation pathway.

These targets are to be implemented through National Energy and Climate Plans (NECPs), which serve as the primary instruments for integrated energy and climate planning. While Albania, North Macedonia, and Serbia have adopted their NECPs, though some are under revision, other economies are still in the drafting or consultation phase.

In addition to internal obligations, external policy drivers, such as the EU's proposed rules for Renewable Energy Communities (RECs)[16] and instruments like the Carbon Border Adjustment Mechanism (CBAM)[17] are expected to shape long-term energy planning and investment in the region, reinforcing the urgency of aligning national frameworks with low-carbon development pathways.

This section outlines the institutional commitments, planning obligations, and progress toward achieving the 2030 RES targets across Western Balkan economies. It highlights the role of NECPs as a common policy tool, differences in national ambition levels, and the state of transposition of regional decisions into national policy frameworks.

[13] European Commission. (2019). The European Green Deal. Brussels: European Commission. Avalable at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52019DC0640

[14] United Nations. (1992). United Nations Framework Convention on Climate Change (UNFCCC). Available at: https://unfccc.int/resource/docs/convkp/conveng.pdf

[15] Energy Community Ministerial Council (2022). Decision 2022/02/MC-EnC. Available at: https://www.energy-community.org/dam/jcr:421f0dca-1b16-4bb5-af86-067bc35fe073/Decision_02-2022-MC_CEP_2030targets_15122022.pdf

[16] European Commission (2024). Proposal for a Directive on common rules for Renewable Energy Communities. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52024PC0535

[17] European Commission (2021). Carbon Border Adjustment Mechanism proposal, COM/2021/564 final. Avalable at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0564

2.1 Decarbonisation Targets and the Role of Renewable Energy

To achieve the greenhouse gas (GHG) reduction targets for 2030, Western Balkans economies must significantly increase the share of renewable energy sources (RES) and improve energy efficiency. These targets are framed by Decision 2022/02/MC-EnC of the Energy Community Ministerial Council, which provides the legal basis for binding climate and energy goals across the region. While this decision does not assign fixed GHG targets to each economy, it requires all Contracting Parties to establish national contributions, through their National Energy and Climate Plans (NECPs), that collectively meet the Energy Community's 2030 objectives.

Increasing RES shares is a key pathway for meeting GHG targets. As most emissions in the Western Balkans come from fossil-based electricity, heating, and transport, expanding the use of clean energy is essential to reducing carbon intensity. In parallel, energy efficiency targets are expressed as national limits on primary energy supply and final energy consumption, while RES targets are defined as shares in gross final energy consumption.

The 2030 GHG targets, presented in Figure 8, vary significantly across the region. North Macedonia has committed to the most ambitious target with an 82.0% reduction from the baseline year, followed by Montenegro (55.0%), Bosnia and Herzegovina (41.2%), and Serbia (40.3%). Kosovo* has set a more moderate reduction target of 16.3%, while Albania, due to its already low level of emissions, has a permitted increase of 53.2%.

These differentiated targets reflect each economy's specific circumstances and decarbonisation capacity. Still, across the region, raising RES shares remains a necessary strategy to meet climate commitments, reduce dependence on fossil fuels, and align with both Energy Community and EU climate policy frameworks.

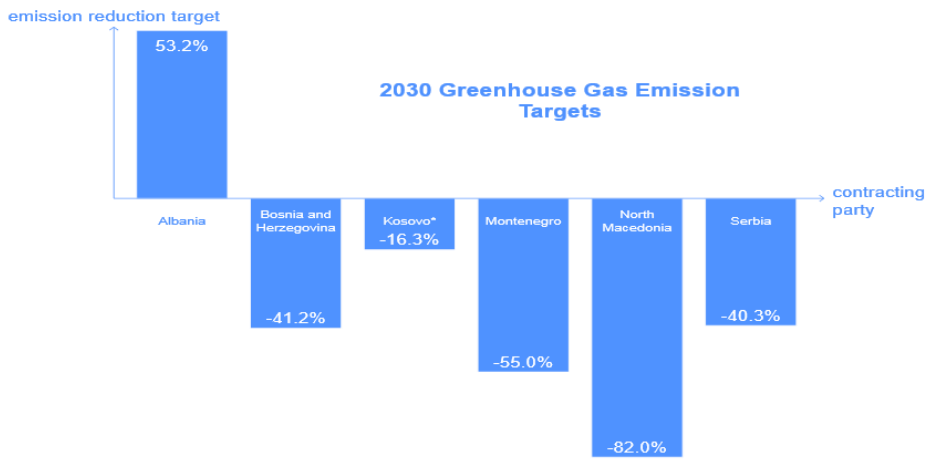


Figure 8: 2030, National Energy and Climate Plans (NECPs) of the Western Balkan contracting parties; compiled by the Energy Community Secretariat, based on targets adopted under Decision 2022/02/MC-EnC

2.2 RES Commitments and National Planning through NECPs

RES share in 2023 and RES targeted share for 2030

What?	Albania	Bosnia and Herzegovina	Kosovo	Montenegro	North Macedonia	Serbia
2023 RES share	46.62%	39.29%	19.26%	40.88%	20.21%	25.43%
2030 RES targeted share	52.0%	43.6%	32.0%	50.0%	38.0%	40.7%

Figure 9: Targeted RES share in in gross final consumption of energy in 2030 and realized RES shares in gross final consumption of energy in 2023. Sources: DECISION OF THE MINISTERIAL COUNCIL OF THE ENERGY COMMUNITY No 2022/02/MC-EnC, EUROSTAT shares

The Governance Regulation in the Energy Community[18] requires Contracting Parties to develop integrated National Energy and Climate Plans (NECPs). The NECPs include national objectives and targets and respective policies and measures for all five dimensions of the Energy Union, which are closely related and mutually reinforcing. Figure 9. illustrates the RES shares already achieved in 2023 alongside the binding 2030 targets set by the Energy Community Ministerial Council under Decision 2022/02/MC-EnC.[19] While Albania and Montenegro reported the highest RES shares in 2023, 46.62% and 40.88% respectively for Kosovo* and North Macedonia recorded the lowest shares, at 19.26% and 20.21%.

All Western Balkan contracting parties have committed to increasing their RES shares by 2030, with the most ambitious targets set by Albania (52.0%) and Montenegro (50.0%). Even economies starting from lower baselines, such as Kosovo* (32.0%) and North Macedonia (38.0%), are expected to significantly scale up renewable energy deployment.

These differentiated national targets reflect not only the diversity of energy system structures and resource availability but also varying institutional capacities. They are essential components of the region's broader effort to meet its decarbonisation and energy transition goals.

As already mentioned, till July 2025, Albania, North Macedonia and Serbia adopted their NECPs while the remaining Wester Balkan economies submitted draft versions and received recommendations from the Secretariat of the Energy Community Treaty but have not yet finalized the adoption process (Table 3).

[18] Energy Community (2023). Governance Regulation, Available at: https://www.energy-community.org/dam/jcr:421f0dca-1b16-4bb5-af86-067bc35fe073/Decision_02-2022-MC_CEP_2030targets_15122022.pdf

[19] Energy Community Ministerial Council (2022). Decision 2022/02/MC-EnC, Available at: https://www.energy-community.org/dam/jcr:421f0dca-1b16-4bb5-af86-067bc35fe073/Decision_02-2022-MC_CEP_2030targets_15122022.pdf

Table 3: Implementation assessment scores and summarized findings on NECP. Source: 2024 Annual Report, Energy Community Secretariat[20]

	Score in the 2024 implementation report	Finding from the 2024 implementation report
Albania	62%	The National Energy and Climate Plan (NECP) of Albania was adopted in December 2021. The work on updating the plan continued in 2024 but has not been finalised. Albania should complete the update process without delay
Bosnia & Herzegovina	36%	Bosnia and Herzegovina submitted an updated descriptive part of its National Energy and Climate Plan (NECP) on 28 June 2024, as well as a summary of how the Secretariat's recommendations had been taken into account. For a complete assessment Bosnia and Herzegovina would need to adopt and submit the full NECP (including the analytical section) to the Secretariat.
Kosovo*	62%	Kosovo* has not notified to the Secretariat an adopted National Energy and Climate Plan (NECP) and thus missed the legal deadline
Montenegro	30%	Montenegro is still finalising its draft National Energy and Climate Plan (NECP).
North Macedonia	71%	The National Energy and Climate Plan (NECP), which was adopted in May 2022, is being updated to ensure full compliance with the provisions of the Governance Regulation.
Serbia	89%	Serbia adopted its National Energy and Climate Plan (NECP) on 25 July 2024 and informed the Secretariat accordingly.

In their NECPs, economies are required to set national targets for 2030, including the share of renewable energy in gross final energy consumption. These targets must align with the minimum levels established in Decision 2022/02/MC-EnC of the Energy Community Ministerial Council. All Contracting Parties have set their national RES targets in accordance with this requirement in their NECPs, or in the currently available draft versions, except Serbia, which has proposed a lower target in its NECP. Targets for the year 2050 are included in the NECPs.

NECPs also contain indicative sectoral targets for year 2030, for RES share in electricity, transport, heating and cooling.

As shown in Table 4., these sector-specific goals revealed key differences in the structure and ambition of energy transition pathways across the region.

Albania, with its hydropower-based electricity system, reported a RES electricity share of over 100% in 2023 and planned to increase this to 178.1% by 2030, largely to enable exports and ensure system flexibility. In contrast, Kosovo* and Serbia, which had RES electricity shares below 10% and 32% respectively, aimed for more moderate growth by 2030.

[20] Energy Community Secretariat (2024). *Annual Implementation Report 2024.* Vienna: Energy Community. Available at: https://www.energy-community.org/dam/jcr:20ddd998-0d13-4117-adb5-532ab699c063/EnC%20IR%202024%20Annual%20Report.pdf

A similar variation was evident in the transport sector, where 2023 RES shares remained negligible across all economies, below 1%, reflecting the early stage of electrification and biofuel use. Nonetheless, targets ranged from 3.9% in Kosovo* to 34.6% in Albania, indicating differentiated ambition levels and planning approaches.

In the heating and cooling sector, 2023 RES shares were comparatively higher, driven largely by traditional biomass use. Bosnia and Herzegovina and Montenegro reported shares above 57%, while North Macedonia and Serbia remained closer to 35%. However, targeted shares for 2030 reflected differing expectations: Bosnia and Herzegovina aimed to further increase its already high share, while Albania planned a decrease, likely reflecting a shift from traditional fuelwood to more efficient or cleaner alternatives.

These sectoral targets provided useful indications to investors, policymakers, and the education sector. They pointed to areas where renewable energy deployment might expand more rapidly and where labour and skills needs could become more pronounced. Gaining insight into these dynamics can support efforts to gradually adapt education and training systems in line with evolving market demands and contribute to a more inclusive and effective energy transition.

Table 4: Indicative targets for RES share in electricity, transport, heating and cooling. Source: NECPs and draft NECPs of the WB economies retrieved from the Energy Community web pages

	RES electricity in 2023	Targeted RES share in electricity in 2030	RES share in transport in 2023	Targeted RES share in transport in 2030	RES share in heating and cooling in 2023	Targeted RES share in heating and cooling in 2030
Albania	105.38%	178.10%	0.46%	34.60%	22.92%	16.60%
Bosnia & Herzegovina	48.00%	70.10%	0.00%	8.40%	57.65%	60.80%
Kosovo*	8.98%	45.00%	0.00%	3.90%	44.53%	49.60%
Montenegro	67.53%	79.40%	0.34%	24.40%	66.59%	49.20%
North Macedonia	32.20%	66.00%	0.00%	10.00%	37.79%	45.00%
Serbia	31.75%	45.00%	0.60%	7.00%	35.88%	41.40%

In parallel with the adoption of decarbonisation and renewable energy targets, Western Balkans economies face significant labour market implications stemming from the restructuring of the energy sector. These implications are particularly relevant for the electricity sector, where the shift from coal-based power generation to renewable energy sources is expected to lead to both job losses and job creation, depending on the economy and technology.

Recent regional Labour Market Effect Analysis[21] supported by the *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)*, conducted within the framework of the *Green Agenda: Decarbonisation of the Electricity Sector in the Western Balkans Project*, estimates that over 41,000 jobs in coal-related sectors, including mining

[21]GIZ (2024). Labour Market Effect Analysis – Energy Transition and Jobs in the Western Balkans. Project: Green Agenda – Decarbonisation of the Electricity Sector in the Western Balkans. IRMO & CETEOR, October 2024. Available at: https://energypedia.info/images/6/6e/Labor_Market_Effect_Analysis_-_Energy_Transition_and_Jobs_in_the_Western_Balkans.pdf

and coal-fired thermal power plants, will be lost by 2030. Bosnia and Herzegovina and Serbia are expected to be most affected due to the size of their coal industries. At the same time, the renewable energy sector is projected to create more than 51,000 direct and indirect jobs across the region, primarily in solar photovoltaics, wind power, and hydropower.

The labour market projections presented below are based on planned renewable energy capacities drawn from national NECPs and draft NECPs. By applying regional employment multipliers to these capacity estimates, the analysis provides technology- and country-specific forecasts of job creation by 2030. Solar PV shows the highest job creation potential due to its labour-intensive nature, particularly in installation and manufacturing phases. Wind and hydro follow, with comparatively lower but still significant employment impacts. Table 5. below summarises projected RES-related jobs by technology and economy by 2030.

Table 5: Projected Job creation in renewable energy sector by 2030. (direct + indirect jobs), GIZ (2024), Labour Market Effect Analysis – Energy Transition and Jobs in the Western Balkans, based on regional employment multipliers applied to projected installed capacities by 2030.

Economy	Solar	Wind	Hydro
Albania	4280	625	0
Bosnia and Herzegovina	12149	1254	2661
Kosovo*	6258	1400	0
North Macedonia	5825	632	1008
Montenegro	2561	397	835
Serbia	11318	1555	2849
Total	42391	5863	7353

The distribution of job creation across technologies reflects regional strategies and resource availability. Bosnia and Herzegovina and Serbia, for example, are expected to benefit from large-scale solar deployment, while wind energy plays a more prominent role in Kosovo* and North Macedonia. Hydropower remains relevant primarily in Bosnia and Herzegovina and Montenegro.

These trends highlight the need for proactive planning to ensure a just transition. This requires closer collaboration with the education sector to support forward-looking adjustments in training pathways, update qualification standards, and align teaching content with emerging skills needs. Rather than merely reacting to labour shortages, coordination between energy and education stakeholders is important for reducing skills mismatches and building a workforce capable of supporting the installation, operation, and maintenance of RES technologies.

Furthermore, renewable energy development depends not only on labour availability but also on the removal of technical, regulatory, and social barriers. Grid limitations, complex permitting procedures, and limited awareness or public acceptance are identified as significant obstacles across the region.

2.3 The Role of CBAM in Accelerating the Green Transition

In addition to shaping energy policy commitments, the Carbon Border Adjustment Mechanism (CBAM) is expected to significantly influence the energy sector and labour markets in the Western Balkans. Introduced by the European Union as part of the Fit for 55 package[22], CBAM entered into a transitional phase on 1 October 2023, requiring importers to report embedded emissions in covered goods without financial obligations. Starting from 1 January 2026, importers will be required to purchase CBAM certificates, effectively imposing a carbon price equivalent to that paid by EU producers under the EU Emissions Trading System (EU ETS).[23]

Electricity is one of the six sectors directly covered by CBAM from the beginning. This has direct implications for economies such as Bosnia and Herzegovina and Serbia, which export electricity to the EU.[24] Under CBAM, exported electricity with high carbon intensity will become increasingly uncompetitive unless emissions are drastically reduced or offset.

Consequently, CBAM creates a powerful market signal that reinforces the urgency of shifting from fossil fuels to renewable energy sources. Electricity generated from solar, wind, or hydropower does not carry an embedded carbon price and is therefore more competitive under CBAM. This mechanism thus complements Energy Community decarbonization goals by financially rewarding clean electricity production.

In addition, complying with CBAM requirements, especially after 2026, will require companies to monitor and report greenhouse gas emissions accurately. This will increase demand for professionals with technical knowledge in carbon accounting, digital reporting systems, life-cycle analysis, and emissions verification. While these roles are currently underrepresented in the labor markets of the Western Balkans, they are likely to expand rapidly. Investing in education and training systems that can prepare individuals for these new functions to ensure a just and skilled transition.

Although CBAM does not directly regulate the education sector, its enforcement makes it imperative to strengthen educational offers in areas such as industrial decarbonization, energy auditing, ESG compliance, and digital carbon tracking. This ensures that local professionals can support companies in maintaining access to EU markets while advancing green transition objectives.

[22] European Commission (2021). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: "Fit for 55" – Delivering the EU's 2030 Climate Target on the Way to Climate Neutrality, COM (2021) 550 final. Brussels, 14 July 2021.
Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0550

[23] European Commission (2023). Carbon Border Adjustment Mechanism: Questions and Answers.
Available at:
https://taxation-customs.ec.europa.eu/system/files/2023-11/CBAM%20Frequently%20Asked%20Questions_November%202023.pdf

[24] Germanwatch (2023). Impacts of the EU Carbon Border Adjustment Mechanism on the Western Balkans and Ukraine. Available at: https://www.germanwatch.org/en/node/88457

2.4 Conclusions

Western Balkan economies have taken important steps toward fulfilling their commitment to full decarbonization by 2050, as reflected in the adoption of regional energy and climate targets and the development of NECPs. While national ambition levels and implementation progress vary, the alignment with the Energy Community framework and international climate objectives has created a shared policy platform for advancing renewable energy deployment. However, sector-specific targets reveal persistent structural differences, with modern RES technologies underdeveloped in key areas such as heating, cooling, and transport. The gap between official targets and actual system transformation highlights the need for deeper institutional coordination, improved data systems, and accelerated investment in low-carbon infrastructure.

At the same time, the energy transition presents both challenges and opportunities for the regional labor market. The expected decline in coal-related employment will be offset by job creation in solar, wind, and hydropower sectors, provided that regulatory, grid-related, and administrative barriers are addressed. Furthermore, the introduction of the EU's Carbon Border Adjustment Mechanism (CBAM), especially its inclusion of electricity from the outset, reinforces the urgency of decarbonizing exports. This development increases the demand for technically skilled professionals in renewable energy systems, emissions monitoring and carbon reporting. Enhancing education and training systems, especially in vocational and higher education, may contribute to supporting a more inclusive and economically balanced energy transition, by gradually responding to evolving labour market needs.

Part 2: Education and training sector overview

I The Green Deal and the Education and Training

By ratifying the Paris agreement, the Western Balkan economies[25] committed themselves to join the global response to the climate change by '*holding the increase in the global average temperature to the increase to well below 2 °C above pre-industrial levels and pursuing efforts to* ***limit the temperature increase*** *to 1.5 °C above pre-industrial levels*'[26]. The Paris Agreement, further commits its signatories '*in order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of* ***greenhouse gas emissions*** *as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of* ***equity****, and in the context of sustainable development and efforts to* ***eradicate poverty***.' (United Nations, 2015)

Building on the Paris Agreement, the European Green Deal[27] (**EGD**) articulates the European Union (EU) goals in areas of climate, energy, environment and oceans, agriculture, transport, industry, research and innovation finance and regional development and New European Bauhaus initiative. Aligning with the EGD, the Western Balkan economies signed ***Sofia Declaration on the Green Agenda for the Western Balkans (GAWB)*** committing to implement actions within five pillars: climate, energy, mobility, circular economy, depollution, sustainable agriculture and food production and biodiversity.

The targets set by the European Green Deal (EGD), and by extension the Green Agenda for the Western Balkans (GAWB), have far-reaching implications across all sectors of society. This strategic shift toward a low-carbon, resource-efficient economy is supported by dedicated funding mechanisms designed to facilitate the achievement of climate and environmental goals. At the EU level, the primary financial instrument is the Green Deal Investment Plan. For the Western Balkans (WB), support is provided through a combination of funding mechanisms, including the Economic and Investment Plan for the Western Balkans, the Western Balkans Investment Framework, the Instrument for Pre-Accession Assistance (IPA), and the Regional Climate Partnership, among others.

Simultaneously, the progress towards the set goals is falling short to the commitments made. The UN Net Zero 2050 goal to '*cut carbon emissions to a small amount of residual emissions that can be absorbed and durably stored by nature and other carbon dioxide removal measures, leaving zero in the atmosphere*' (United Nations, 2015) has been lagging behind as commitments made by governments (Paris Agreement signatories) to date fall far short of what is required. In addition, according to the European Environment Agency, the CO2 reduction can come only so far without a systematic shift towards a circular economy. Lastly, the phasing out of fossil-based energy sources is expected to result in job losses, highlighting the need to consider the human costs of the transition and add to it the concepts of justice and equity.

[25] Kosovo* as non-UN member committed to the Paris Agreement goals through national strategic framework.
[26] Paris Agreement (2015), Article 2
[27] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

The main purposes of this Action Plan is to provide recommendations and possible actions for education sector in the six Western Balkans economies towards implementing actions in support of the green transition. For the purpose of this Action Plan, the green transition is understood as a top-down structural process requiring significant systemic changes across multiple sectors.

However, at the beginning it should be noted that the green transition is not a linear nor fully defined process. Its implementation varies across national contexts, and its long-term effects, while the subject of numerous projections and studies, remain largely uncertain. In addition, arguments are being made that often market-based instruments that are formally encouraging acters to go green, also serve '*to avoid important systemic, profound structural reform to our way of producing and living that are actually needed to promote sustainability*' *(*Cedefop and OECD, 2022*)*. In another words, often mechanisms that formally support and promote sustainability are designed so that no substantial changes of the means of production are made, which are necessary for reaching targets set in the Paris Agreement. On this note, Philipp Gonon questions to what extent the measures introduced have a true effect by mostly relying on consumers than producers, and '*market economy logic that promotes prices, competition and incentives rather than prohibition and constraints'* and says '*There is a gradual recognition and critique that we still have a spirit of 19th century capitalism and industrialism, trying to make money out of natural resources and leaving a devastated landscape. Many measures, like producing dirty and offering a green tree afterwards, are, in this respect, greenwashing. Green acts and greenwashing as nominal support is not backed up by structural decisions; it equals doing something good for having done something bad*' (Cedefop and OECD, 2022). In short, only structural changes that target the production mechanism can fully support economies in reaching the EGD targets, and those are seldom implemented.

Viewed through this lens, a central question arises: what is the role of the education sector in the context of the green transition? More specifically, how can education systems contribute to this process in a sustainable and responsible manner? As Gonon states, '*Regarding climate change, the Agenda 2030 is criticised as being unrealistic and based on a compromise, while the Climate Action Plan (CAP) aims at measurable results: zero emissions by 2030. But these are aims for nations and* ***policy and not primarily a question of education***.'.

Nonetheless, these policies do have direct implications for education - particularly vocational education and training (VET), which is the focus of this Action Plan. Those policies quite strongly, place expectations on education sector to equip individuals with skills and knowledge that contribute to the green agenda. The articulation of this expectation, it's true meaning and measure is a subject of many papers and debates written over the last decade. While uncertainty may indeed characterize the Zeitgeist of early 21st-century societies, one may find grounds in going back to basics: sustainability in its definition implies more than technical advancements and/or economic growth. As Gonon argues, '*education for sustainable development often does not reach a balance between economic, ecological and social interests; at the end of the day, economic concerns come first. It seems that small-scale, incremental updates of VET and apprenticeship curricula do not suffice. Transversal topics should be included in teaching and learning and education should try to reach a concept of Bildung, which links self-development with the broader society, and therefore provides a better basis to not exceed the planetary load limits'* (Cedefop and OECD, 2022).

II Greening of occupations and skills

The EGD scenario indicates that significant changes are expected across a range of existing occupations. These include the gradual phasing out of jobs associated with coal-based industries, as well as the transformation or *greening* of occupations directly or indirectly impacted by the EGD's environmental and climate objectives. This raises a key question: how can such changes be measured in a systematic and evidence-based manner to enable reliable projections of future labour market trends?

The changes in employment patterns and labour market needs can be measured at the levels of industries, occupations or skills. However, each level comes with specific structural limitations. Industry-level analysis typically relies on the Statistical Classification of Economic Activities in the European Union (NACE). While NACE provides a standardized framework, even at its third level (class), it often fails to clearly differentiate between traditional and green economic activities, as many sectors comprise both. Similar challenges arise at the occupational level. The International Standard Classification of Occupations (ISCO-08) does not distinguish between low and high-carbon emission activities within the same occupation, making it difficult to isolate those impacted by the green transition. The same can be argued for European Skills, Competences, Qualifications and Occupations - ESCO[28] classification of occupations. A more detailed analysis at the skill level may offer greater insight into the evolving demands of the green transition. However, skill databases, though often comprehensive, require regular and systematic updates to remain relevant and reflective of new and emerging occupations.

Acknowledging the lack of information on the impact of the labour market on skills demand, the Cedefop introduces the ***next generation' skills intelligence*** that investigates both labour market trends and trends in society at large. In another words, instead of looking at labour market in the search for answers on future trends, the Cedefop suggests a change in approach: to build an outlook that looks at changes that are likely to happen if the EGD targets are met.

> *'In the EGD scenario, the sectors that are expected to see the largest employment gains are utilities (through increased recycling activities), electricity supply (through increased demand for renewable energy), manufacturing of appliances/electrical equipment (e.g. for the renewable electricity generation sector, or more-energy efficient appliances), construction, and the sectors that link to these via supply chains.'(* Cedefop, 2021b)

Alongside the sectors primarily targeted by the EGD (including engineering but also supporting administration) that are expected to have an increase in employment, other sectors are not expected to have the change in the numbers of employees, but rather to redirect existing employment towards *cleaner production.*

In addition to the changes in the employment patterns, the changes in the skill supply are expected. as those entering labour market tend to have higher education level than older workers leaving the labour market. On the other side, the same older workers in the majority of cases, have the sufficient set of skills for a job in hand. In short, the overqualified yet underskilled workers are expected to be the main policy challenge in the future *(* Cedefop, 2021b).

[28] https://esco.ec.europa.eu/en/classification/occupation_main

For workers whose skills become obsolete due to the phasing out of certain industries (coal mining being a prominent example) **reskilling** will be essential to enable their transition into alternative forms of employment. In contrast, workers in occupations that remain structurally intact, but are undergoing transformation due to the integration of green technologies and practices, will require **upskilling** to adapt to new demands. Several studies highlight the need for targeted training programmes in occupations such as solar photovoltaic installers and other renewable energy technicians. Furthermore, entirely new curricula will be necessary for emerging occupations linked to the development of green products and services, including roles in hydrogen-based energy production, sustainable marketing ("green marketers"), and green-oriented information and communication technology (ICT) consultancy (Cedefop, 2021a).

Upskilling and reskilling of workers are also expected to take part in the transition to circular economy, as circularity is more likely to fuel the transformation of the existing occupations than to affect the employment patterns, i.e. it is more likely to place a demand on existing occupations to become equipped with the skills supporting circularity, rather than to induce a promotion of new occupations that would affect the employment rates. Cedefop's skills forecast goes so far as to declare VET as '***possible champion the circular economy by showcasing its job and business opportunity creating potential'***(Cedefop, 2023).

> *'VET will be expected to supply skills for core circular economy jobs in repair, agri-food, paper, mining, the energy and pulp sectors, handcraft, waste management, recycling, and construction. It will also be essential to train teachers and trainers in charge of circular economy education at all levels, and for upskilling and reskilling public sector workers. (…) Cedefop's skills foresight experts acknowledge the role of initial and continuing VET in building circular economy skills and shaping mindsets. To accelerate change, VET should prioritise courses that blend face-to-face classroom sessions and online learning, place an emphasis on short training courses or modules and ensure that programmes lead to certification or qualification (e.g. microcredentials). Tapping the potential of CVET in upskilling and reskilling people for the circular economy requires a focus on transition-focused and practical learning, stakeholder involvement and support for learners.'* (Cedefop, 2021a).

In addition to upskilling and reskilling related to the professional skills, circularity puts emphasis on transversal skills that will be needed across sectors. Those skills are most notably communication skills and empathy and problem solving that are grounding for the team work and collaboration that are much required by circularity.

III Education and training in the Western Balkans

The pre-university education systems in the Western Balkans share significant structural similarities: systems are dual tracked offering general and VET programmes (both open to higher education track provided 4-year programme completion), qualifications are referenced in national qualification frameworks, and developed based on occupation standards[29], curriculum is competence-based and regularly updated, the professional development of teachers (PDT) is determined and regulated, while the systems are subject of continuous evaluation as part of the quality assurance mechanisms that aim at following European quality standards in teaching and learning in VET. All economies have developed school-based practical learning and in-company student training (also referred to as dual/corporative model). The connection with the labour market in all economies is articulated through the development of labour market analysis as the basis for occupational standards, active participation of business representatives in the development of occupational and qualification standards and cooperation with chambers of commerce that at various extents support the in-company student training.

The education system in the Western Balkans continue with the modernisation process, contemporary being focused, albeit to varying degrees in different economies, on: the systems of recognition of prior learning, introduction of microcredentials, social dimension of education (primarily career guidance and student support centres), increasing the quality of education provision, collecting and using the data on students and graduates for developing informed education policies, continuing support to adult education including reskilling and upskilling programmes, and, relevant to this Action Plan, developing response mechanism to measure and react to the demands of the green transition.

The green transition and more specifically, the demands arising from the phasing out of traditional energy sources and the expansion of renewables, may challenge the education sector, perhaps more uniquely than previous macro-level transformation. According to the recently implemented study, there are currently 138000 jobs[30] associated with coal-related sectors in the WB countries (GIZ, 2024). In the case of coal phasing-out, the authors estimated that the following percentage of the total workforce may be affected:

Table 6: The share of workforce affected by coal phasing-out

Economy	%
Bosnia and Herzegovina	1.3
Kosovo*[31]	1.4
Montenegro	0.4
North Macedonia	0.5
Serbia	0.6

[29] Granted with some differences: Kosovo* follows national methodology of developing curricula from occupational standards. Serbia is yet to fully implement the occupational standards that are recognised by the legislation however not implemented in practice.

[30] While not stated by the authors of the study, it is reasonable to infer that not all jobs are done by the VET graduates.

[31] *This designation is without prejudice to positions on status and is in line with UNCSCR 1244 and the ICJ Opinion on the Kosovo* declaration of independence.

The same authors estimate that the job generation in WB in the renewable energy sector shown in Table 7 (GIZ, 2024).

Table 7: The number of new jobs in RE sector by 2030

RES	Number of new jobs
Solar jobs	18878
Wind jobs	16148
Hydro jobs	4490
Total	39516

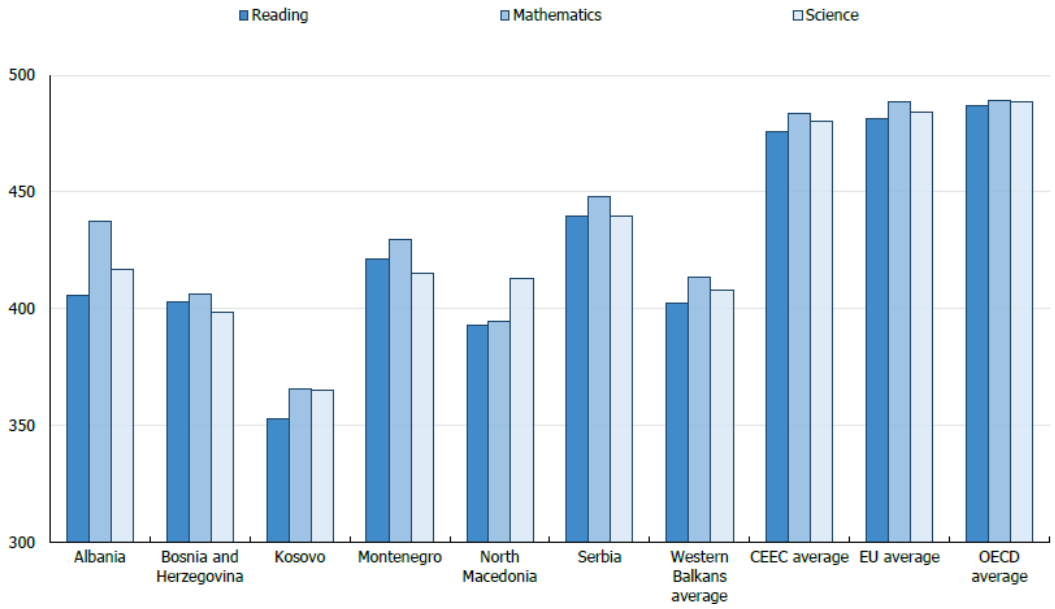
Alongside 39516 direct jobs, the authors add additional 11000 indirect new jobs to be created until 2023 in the RE sector which bring the total of 55000 new jobs in total. Authors refer to these projections as conservative, suggesting that the number of new jobs might be even higher (GIZ, 2024). However, it should be noted that the method behind these calculations considers planned growth rates according to the national climate plans as well as projections based on International Renewable Energy Agency (IRENA) and International Labour Organization (ILO) methodologies. Therefore, they should be taken as rough estimates, not as definite projections.

In addition to uncertainties regarding sectoral growth (particularly the number of new direct and indirect jobs) the extent to which new and emerging skills are required remains unclear. It is also uncertain to what degree the acquisition of these skills can be addressed through formal education systems, and to what extent they will need to be delivered through non-formal or alternative learning pathways.

What remains clear however, is that, with all-encompassing structural transformations, the question of human costs of the green transition must remain central to the policy and public discourse. The calls for just transition, that will support workers in occupations affected by the transition, seems to have broad consensus across sectors. This unity stems not only from ethical and social considerations of human cost of the transition, but also from the economic perspective: the continued functioning of economies depends on the availability of a skilled workforce across all levels. In other words, ensuring that workers, regardless of their qualification level, can continue to contribute to the economic activity is essential for maintaining productivity and supporting economic development. To that end the key question becomes, to what extent are the education systems in the Western Balkans prepared to support the just transition, or more precisely, to what extent can these education systems function as channels of vertical social mobility i.e. effective instruments for supporting those most in need.

Data on social dimension of education and effects on of the students' socioeconomic background to their education achievement can be looked at through the PISA results that show that student outcomes in WB economies improve over the years (measured 2 decades back), while continuously being lower than the international benchmarks. Differences however can be measured between the WB economies, with Serbia having higher scores in reading, mathematics and science than other economies, most notably, Kosovo*.

Figure 10: Performance in reading, mathematics and science in WB education systems, 2018



Source: OECD, 2020

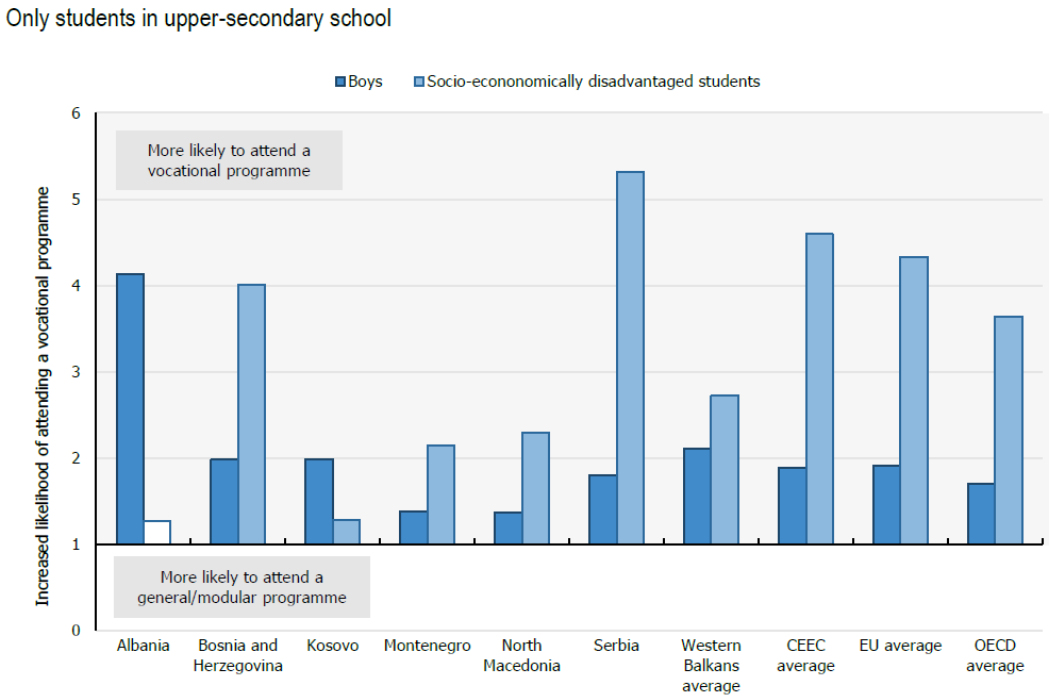
In addition to student performance in the Western Balkans being consistently below both EU and OECD averages, available data indicate a strong correlation between academic achievement and students' socio-economic background.

This suggests that education systems in the region are failing to function effectively as mechanisms of equity; the mechanisms that would mitigate the effects of inequalities that stem from the differences in socio-economic backgrounds of students, not students' innate cognitive abilities or learning potential.

This is not solely an ethical concern; it is also an economic one. When education fails at mitigating the effects of inequalities, it becomes a mechanism of providing options only for those who were born with options (privilege), while for the (majority) of others, closes the promotion channels regardless of their talent, abilities or effort. As a result, high-potential individuals are left behind, leading to inefficient use of human capital. Furthermore, the long-term effects of such exclusion can extend beyond the education system. Persistently closed pathways to vertical social mobility tend to intensify social tensions and foster resentment, increasing the risk of instability as individuals who perceive the system as fundamentally unjust become more likely to disengage and/or resist.

In comparison to the general education, the VET systems in the region are far more likely to attract individuals with disadvantaged backgrounds. According to the PISA data, students with low(er) socio-economic status (SES) are more likely to be male and attend vocational than general tracks. In Western Balkans, VET students are almost twice as likely to be boys and almost three times as likely to be socio-economically disadvantaged. In Serbia, socio-economically disadvantaged students are almost 5.5 times as likely to attend a VET school (Figure 11).

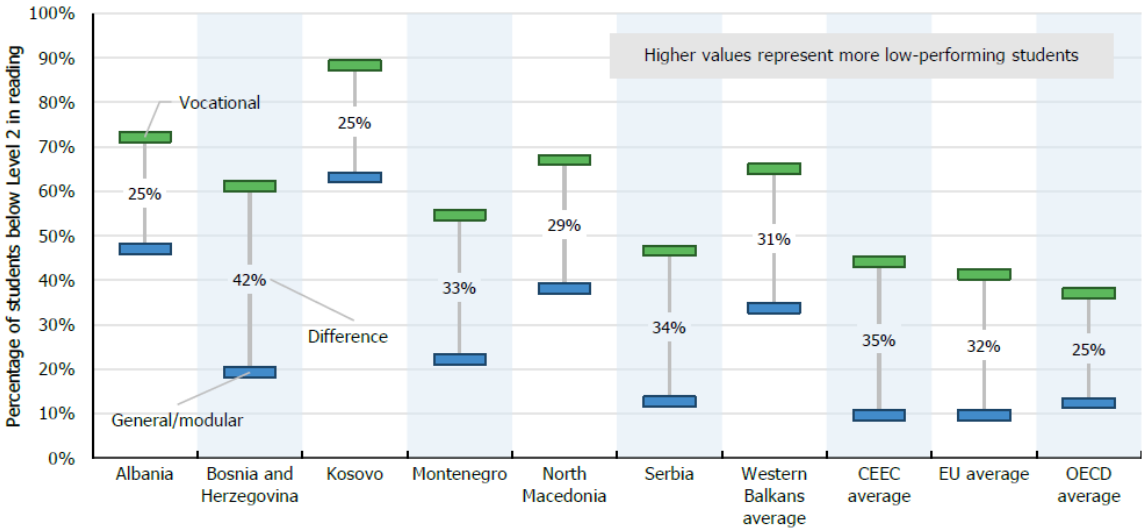
Figure 11: Increased likelihood of attending a vocational programme according to gender and SES



Source: OECD, 2020

Secondly, the VET students have lower performance scores compared to their general tack peers. Looking at the percentage of students that are at level 2 in reading (Figure 12), the EU average is at 10% for general and 42% for VET tracks. The difference between VET and general tracks is evident and holds at around 30% between the tracks (apart from Bosnia and Herzegovina where the difference between the tracks is larger). Looking solely at the data on social dimension of education, an argument could be made that VET systems in the region are not lagging in providing labour market relevant qualifications but rather in supporting students with disadvantaged backgrounds to gain sufficient knowledge and skills during the education process.

Figure 12: Low-achieving students and educational programmes



Note: All differences are statistically significant.

Source: OECD, 2020

How are these figures relevant in the context of the education systems' response to the green transition? First, an inadequate response to the challenges associated with the social dimension of education places additional strain on VET systems. These systems are not only expected to support the green transition by equipping individuals with labour market-relevant skills, but also to serve as key instruments in ensuring that the transition is *just*. If VET systems are unable to effectively support students from disadvantaged backgrounds, their ability to contribute to an inclusive and equitable green transition is fundamentally undermined.

On the other hand, VET systems in the Western Balkans have made notable progress in developing both formal and non-formal education programmes. Curricula and adult training programmes for upskilling and reskilling are regularly updated, based on occupational and qualification standards developed in cooperation with employers, business associations, and chambers of commerce. However, these efforts may not be sufficient to fully support the green transition in the absence of comprehensive and detailed data on macroeconomic trends, structural investments, and broader social policies.

As previously noted, the objectives of the European Green Deal and the Green Agenda for the Western Balkans are not primarily the question of education. At the same time, there should be little doubt that education systems have the general capacity to respond to change. However, given the persistent inequalities in access and performance/outcomes, and the limited ability of current systems to function as mechanisms for reducing socio-economic disparities, the extent to which they can meaningfully contribute to a ***just transition*** remains uncertain.

IV The Action Plan Supporting ET for the RES - sectoral mapping

4.1 VET institutional mapping

Over the past two decades, education and training systems in the Western Balkans have undergone extensive reform processes. These reforms, initiated by the ministries responsible for education, have been implemented primarily by the VET, qualifications, and quality assurance agencies. While institutional structures and mandates vary across economies, the VET and qualification agencies are responsible for developing occupational and qualification standards, as well as curricula and adult education programmes. In this capacity, they are expected to bear much of the responsibility for future reforms associated with the growing demand for greener and more sustainable occupations.

To develop the Action Plan that addresses the green transition outlined in the *Sofia Declaration on the Green Agenda for the Western Balkans*, the first step involved conducting a baseline education mapping. This process was carried out with the support of VET experts employed at VET and qualification agencies across the Western Balkans. The purpose of the mapping was to assess the current state of education provision in sectors relevant to the green transition, specifically electro-technical and mechanical fields linked to renewable energy, and to identify gaps in curricula and educational resources.

The main questions guiding this exercise were:

> *Q1: What is the educational offer in the electro and mechanical sectors (connected to the renewable energy sources) at the pre-university level in the WB6?*
>
> *Q2: What are the needs of the education sector related to the development of educational material in electro and metal sectors?*

Based on information received from the VET experts, an estimated 20% to 50% of the total number of qualification standards within electro-technical and mechanical sectors, include knowledge and skills related to renewable energy sources (Table 8).

Data on the total number of qualification standards should be taken with caution. Due to the differences in methodologies for developing qualification standards (QS), the numbers of qualification (column one in Table 8) are not directly comparable. Differently phrased, more qualifications in one economy doesn't reflect on the development of a specific sector or education interest, but more on the methodology behind developing standards.

In addition, while a proportion of qualification standards in the electro-technical and mechanical sectors incorporate knowledge and skills related to renewable energy (Table 8 column three), it is important to acknowledge that a 100% inclusion rate may not be feasible for most qualification standards. Certain qualification standards are intentionally narrow in scope, focusing on specific occupational activities that are not directly linked to renewable energy technologies or processes.

Lastly, while the questionnaire did not provide definition of knowledge and skills related to renewable energy sources, it can be assumed that the respondents calculated only those ***directly*** related to RES, excluding skills related to environmental protection that are part of each and every qualification standard and green transversal skills.

Table 8: Qualification standards in electro-technical and mechanical sector

Economy	Total QS reported	QS that include knowledge and skills related to RES	
		n	%
Albania	29	14	48%
Bosnia and Herzegovina	53	18	34%
Kosovo*	11[32]	/	40%
Montenegro	56/18[33]	11/4	20%/22%
North Macedonia	33	6	18%
Serbia	32	6	19%
Total	213/175	59/52	28%/3%

Based on these numbers a conclusion could be made that the education systems are already actively contributing to the RES transition by incorporating relevant knowledge and skills. It is likely that this stems mainly from the involvement of the business sector and individual education experts' efforts in the process of developing occupational and qualification standards.

The VET experts provided additional input on the teaching and learning material (including school and work-based learning material) that would be needed in their economies in mechanical and electrical sectors. While all experts expressed the need for developing teaching and learning material supporting VET curriculum, two main topics of those materials stand out:

1. Material/manuals that directly target RES and contemporary occupations that are expected to be in a rise (photovoltaic system installers, Installation of electrical systems in wind (aeolian) systems etc).
2. Digital tools and material supporting digitalisation of two sectors, with the emphasis on the application of artificial intelligence.

Given that VET and qualification agencies bear the primary responsibility for implementing reforms, while ministries of education are tasked with steering these processes at the policy level, additional system-level support may prove essential. Such support should focus on strengthening both the institutional and human capacities of VET and qualification agency staff. Specifically, agencies involved in the development of occupational standards, qualification standards, curricula and adult education programmes would benefit from professional resources (mainly manuals and technical guidelines and capacity building activities) focused on developing new green occupations, greening existing ones, and identifying and integrating green skills into standards and curricula.

Moreover, VET and qualification agencies in the region would benefit from enhanced cooperation within each other, as well as through structured peer learning activities with counterparts in Europe. These forms of collaboration can facilitate the exchange of practical knowledge, promote alignment with European trends, and contribute to more coherent and responsive education and training systems in the context of the green transition.

[32] Kosovo* reported on occupational standards as the system doesn't recognise qualification standards. The Kosovo* expert reported that the system is looking at developing four occupational standards that directly target RES.
[33] A VET expert from Montenegro reported on professional qualifications that are basis for adult education programmes (the first number) and education level qualifications i.e. education programmes (the second number) .

4.2 Teacher Needs Mapping

In addition to consultations with VET experts, the RESET project team conducted a quantitative survey targeting teachers in vocational education and training schools across the Western Balkans. The primary objective was to identify the types and scope of support teachers require in implementing curricula that incorporate topics related to renewable energy, environmental protection, and ecological sustainability. The survey aimed to gather empirical data on teachers' preparedness, resource needs, and perceived challenges in integrating green transition-related content into their instructional practice.

A total of 364 teachers from the six Western Balkan economies participated in the survey. The distribution of teaching subjects per economy is shown in Table 9. The majority of teachers included in the sample are indeed teaching technical subjects which could be, dependant of the programme, directly or indirectly related to green skills.

Table 9: Distribution of teachers per economy according to the teaching subjects[34]

		Electrotechnics	Mechanics	Informatics	Transport and Civil Engineering, Agriculture, Mining	Social Sciences	Other	Total
Albania	n	8	12	5	6	5	0	36
	%	22.2%	33.3%	13.9%	16.7%	13.9%	0.0%	100.0%
Bosnia and Herzegovina	n	6	5	2	6	2	3	24
	%	25.0%	20.8%	8.3%	25.0%	8.3%	12.5%	100.0%
Kosovo*	n	3	2	2	1	0	0	8
	%	37.5%	25.0%	25.0%	12.5%	0.0%	0.0%	100.0%
Montenegro	n	7	6	8	2	5	6	34
	%	20.6%	17.6%	23.5%	5.9%	14.7%	17.6%	100.0%
North Macedonia	n	10	15	15	18	1	1	60
	%	16.7%	25.0%	25.0%	30.0%	1.7%	1.7%	100.0%
Serbia	n	25	4	6	0	3	5	43
	%	58.1%	9.3%	14.0%	0.0%	7.0%	11.6%	100.0%

It should be noted that, while the sample is not representative at the level of individual economies, certain generalised observations can nonetheless be drawn from the results. Most notably, the data offer insights into teachers' knowledge of renewable energy sources related topics and their perceived needs for professional training and development.

[34] This information is not available for a third of a sample.

When asked about the extent to which they incorporate broad topics related to the Green Agenda into their teaching, there was general consensus among respondents that subjects such as climate change, green economy, and environmental protection are (significantly) addressed. However, the degree of inclusion varies, most likely reflecting differences in teachers' ability to adapt or extend beyond prescribed curricula to cover broader themes.

Table 10: Topics included in teaching

	Valid	Missing	Mean[35]	Median	Mode	SD[36]
Climate change	291	73	2.96	3.00	3	1.268
Green economy[37]	291	73	3.15	3.00	3	1.242
Environmental protection	301	63	3.61	4.00	5	1.227

Regarding self-assessment of knowledge on the Green Agenda topics, teachers generally reporting relatively high levels of knowledge, particularly notable given that most are, likelihood is, not subject-matter experts in renewable energy sources. Their perceived proficiency across specific topics is summarised in Table 11. From one perspective, these data are encouraging, suggesting that teachers feel prepared to address issues related to decarbonisation and renewable energy in their instruction. However, the extent to which they are equipped to consistently deliver a coherent and comprehensive understanding aligned with the Green Agenda for the Western Balkans (GAWB) warrants further investigation. This depends in part on whether professional guidelines, instructional materials, and curricular frameworks that accurately reflect relevant policies are adequately developed and disseminated within education systems and available to teachers.

Table 11: Knowledge on the RES related topics

	Valid	Missing	Mean[38]	Median	Mode	SD
Renewable energy sources used in my country (solid biomass, wind, sun, hydropower, biogas).	270	94	3.82	4.00	4	1.002
The effects of the increase in the use of renewable energy sources on the natural environment.	266	98	3.70	4.00	4	0.976
The effects of the increase in the use of renewable energy sources on social development.	265	99	3.65	4.00	4	0.950
International obligations that my country has in terms of increasing the share of renewable energy sources in total energy production.	279	85	3.11	3.00	3	1.080
The international obligations that my country has regarding the reduction of greenhouse gas emissions.	278	86	3.10	3.00	3	1.105

[35] From 1 to 5 on a Likert scale ranging from 1 - Not at all to 5 - to a large extent.
[36] Standard deviation
[37] Defined as sustainable agriculture and tourism, importance of forests and natural resources, renewable energy sources, industrial development and environmental consequences, sustainable tourism, etc.)
[38] From 1 to 5 on a Likert scale ranging from 1 - Not at all to 5 - to a large extent.

Finally, teachers reported a strong need for additional support in areas such as teaching organization, further professional training, and access to comprehensive teaching materials (Table 12) This finding aligns with earlier results indicating that, although teachers generally feel confident in their grasp of relevant topics, there is a clear demand for more detailed instructional resources and targeted training that effectively link specific curriculum content with broader green agenda themes.

Table 12: Self-assessment of the support needed

	Valid	Missing	Mean[39]	Median	Mode	SD[40]
I need support for a better organization of extracurricular activities that are thematically related to renewable energy sources.	290	74	3.84	4.00	5	1.083
I need additional training for a more successful implementation of the curriculum of teaching and learning related to renewable energy sources	290	74	3.64	4.00	4	1.151
I need additional professional literature on topics related to renewable energy sources.	291	73	3.99	4.00	5	1.044
I need additional professional literature on topics related to environmental protection.	292	72	3.89	4.00	5	1.079

[39] From 1 to 5 on a Likert scale ranging from 1 - Not at all to 5 - to a large extent.

[40] Standard deviation

V Recommendations on supporting education and training sector for the renewable energy transition in the Western Balkans

1. Foster Cross-sectoral and Multi-level Policy Coordination

- Strengthen coordination between ministries of education, labour, environment, and economic development to align education and training reforms with climate and green economy policies.
- Embed education and training sector plans within national climate and energy strategies, ensuring education and training are part of integrated green transition frameworks.
- Leverage regional and EU funding instruments effectively to finance green education initiatives, capacity-building, and infrastructure modernization.

2. Improve Data Collection, Monitoring, and Labour Market Intelligence

- Develop comprehensive data systems that monitor student and graduate outcomes, disaggregated by socio-economic background, programme type, and subject area to inform policy.
- Establish mechanisms for continuous labour market and skills forecasting specific to the green economy and renewable energy sectors, including indirect job creation and emerging occupations.
- Use this data to regularly update qualification standards, curricula, and training programmes to remain responsive and relevant.

3. Address the Social Dimension of Education to Ensure Equity and Inclusion

- Implement targeted support mechanisms for socio-economically disadvantaged and vulnerable learners, especially those in VET, to improve their access to quality education and green skills.
- Strengthen career guidance and student support services.
- Develop policies and programmes that explicitly link equity goals with the green transition, ensuring that education systems contribute to vertical social mobility and do not exacerbate existing inequalities.

4. Support Flexible Learning Pathways and Recognition of Prior Learning

- Develop and scale up systems for the recognition of prior learning (RPL) to facilitate the reskilling and upskilling of workers affected by the green transition, especially those displaced from coal and fossil-fuel sectors.
- Introduce and promote non-formal and informal learning, including adult education, reskilling and upskilling programmes and continuing vocational education and training (CVET), tailored for green skills development.
- Encourage modular learning and microcredentials to provide flexible, accessible upskilling options that meet labour market needs.

5. Enhance VET and Qualification Agencies' Capacities

- Provide targeted institutional and human capacity building for VET and qualification agencies responsible for developing occupational and qualification standards, curricula, and adult education programmes focusing on the integration of green skills and building preconditions for just transition.
- Develop and disseminate professional manuals and technical guidelines on greening existing occupations and creating curricula for emerging green jobs (e.g., solar photovoltaic installers, wind energy technicians).
- Support existing regional cooperation frameworks and peer learning platforms among VET agencies within the Western Balkans and with EU counterparts to share knowledge, harmonize approaches, and stay updated on European trends and standards.

6. Strengthen Teacher Professional Development and Support

- Design and implement continuous professional development (CPD) programmes that:
    - Deepen teachers' technical knowledge on renewable energy and sustainability topics.
    - Enhance pedagogical and didactical skills to effectively integrate transversal green skills and complex systemic themes (climate change, circular economy) into teaching practices.
- Develop and provide structured professional guidelines and lesson plans aligned with the Green Agenda to ensure consistent and policy-coherent teaching.
- Create teacher support networks and communities of practice to foster ongoing collaboration and peer support in green education topics.

7. Develop Comprehensive and Adaptive Teaching & Learning Resources

- Prioritise creation of modular, practical teaching materials for VET that cover renewable energy sources, green technologies, circular economy principles, and digital skills like AI integration relevant to mechanical and electrical sectors.
- Ensure these materials are designed to support blended learning approaches, combining face-to-face and online delivery, to enhance flexibility and reach.
- Promote integration of microcredentials and modular certification to facilitate continuous upskilling and reskilling in response to fast-evolving green sector demands.

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Part 3: Identified actions and recommended activities for Western Balkans education and training systems on supporting renewable energy sector

Overall objective:

Increase the readiness of the education and training sector in the Western Balkans to respond to the strategic priorities, societal and labour market changes caused by implementation of the Green Agenda and increased use of Renewable Energy Sources in the Western Balkans.[41]

[41] All the Actions and recommended activities are dependent on ensuring the adequate financial resources, to be potentially secured by Governments, ministires, international donors, international and regional projects, own sources etc.

I Specific objective 1: Strengthening teachers' and other school staff capacities (both initial and continuous VET) regarding sustainable development (SD) and renewable energy sources (RES) through:

	Actions		Recommended Activities:	Regional/national actors potentially involved
1.1.	**Implementing training needs analysis among the teaching and other school staff (career guidance practitioners/coordinators of practical learning/other expert staff at school level) regarding SD and RES**	1.1.1.	Developing the analytical tool for specific target groups	ERI SEE in cooperation with national agencies for VET
		1.1.2.	Creating the database of contacts for specific target groups	National agencies for VET, teacher training agencies, ministries of education from the region
		1.1.3.	Implementing the training needs analysis and analysing the results for specific target groups	National agencies for VET, teacher training agencies and ERI SEE
		1.1.4.	Planning further training activities based on the analysis	ERI SEE in cooperation with national agencies for VET, ministries of education, teacher training agencies, national agencies for VET
1.2.	**Implementing teacher training and other school staff training programmes to enhance technical knowledge, pedagogical and didactical skills to effectively integrate SD and RES themes into the teaching and working practices**	1.2.1.	Developing the trainings for teachers and other school staff, meeting their needs with regards to SD and RES	ERI SEE in cooperation with national agencies for VET and teacher training agencies at regional level, or national agencies for VET and teacher training agencies at national levels
		1.2.2.	Implementation of the training programmes through national systems (national digital platforms or face-to-face)	National agencies for VET, teacher training agencies
1.3.	**Providing support to schools in their**	1.3.1.	Developing guidelines for the organization of extracurricular activities	ERI SEE in cooperation with national agencies for VET

	development of extracurricular activities	1.3.2.	Organizing various extracurricular activities in cooperation with the business sector, or with other schools (such as “Green debates” by inviting the business representatives to schools to discuss the SD and RES topic, “Green competitions” between schools on their understanding of SD and RES topics; “Green day” open activities that include students, business community, teaching and other school staff, school boards, students from other schools, and others).	National agencies for VET and teacher training, schools in the region, companies dealing with RES and SD
1.4.	**Introducing measures for enhancing cooperation among teachers, schools and and companies in SD and RES topics**	1.4.1.	Promotion of RES and sustainable development within companies and raising their awareness for sustainable economy through visits, lectures and campaigns.	National agencies for VET, chambers of commerce at national levels
		1.4.2.	Open day for companies to host teachers and students, parents and for schools to host company representatives.	National agencies for Vet, chambers of commerce at national levels, national companies, schools
		1.4.3.	Training of teachers in using the new technology and green skills and digital competences.	ERI SEE for regional training programmes, national agencies for VET
		1.4.4.	Further enhancements in the dual system through nominations of business mentor, building their capacity and certification, larger number of cooperation contracts between schools and companies, improved lines of communication in defining learning outcomes and teaching methods.	National agencies for VET, chambers of commerce, schools and companies at national level
		1.4.5.	Creating teacher support networks and communities of practice for peer learning and exchanges	National agencies for VET, chambers of commerce, schools and companies at national level

I Specific objective 2: Enhancing the quality of teaching and learning tools and instruments available for Renewable Energy Sources (RES) and sustainable development (SD) teaching through:

Actions	Recommended Activities:	Regional/national actors potentially involved
2.1. Updating the existing materials for teachers and students at national level with RES and SD elements	2.1.1. Developing the methods and tools for the analysis of existing materials and needs analysis	ERI SEE, national VET agencies, national teacher training agencies
	2.1.2. Implementation of the surveys among teachers and students	National VET agencies, national teacher training agencies
	2.1.3. Including the academic community and community of VET practitioners into the development of the materials for teachers and students, in line with the teachers and students' needs	National VET agencies, national teacher training agencies, academic community, community of VET practitioners
2.2. Developing regional professional literature for teachers in the RES and environmental field in general	2.2.1. Development of the survey on the teachers needs	ERI SEE, national VET agencies, national teacher training agencies
	2.2.2. Analysis of the existing literature	National VET agencies, national teacher training agencies
	2.2.3. Including the academic community into the development of the professional literature for teachers, in line with their needs	National VET agencies, national teacher training agencies, academic community
	2.2.4. Developing the professional literature in line with the existing RESET materials and with 3D simulation	National VET agencies, national teacher training agencies, academic community
	2.2.5. Developing modular, practical teaching materials that allows for blended learning approaches and integrates digital skills and AI	National VET agencies, national teacher training agencies, academic community
2.3. Developing different instruments for increasing the quality of teaching in the area of SD and RES	2.4.1. Organizing regional exchanges of good practices among teachers	ERI SEE, ministries, national VET agencies, schools, municipalities, international donors
	2.4.2. Organizing mobility of staff within the region	ERI SEE, ministries, national VET agencies, schools, municipalities, international donors
	2.4.3. Organizing study visits for VET experts	ERI SEE, ministries, national VET agencies, schools, municipalities, international donors

II Specific objective 3: Foster cross-sectoral and multi-level policy coordination and cooperation to align education and training reforms and processes (including the development of occupational and qualification standards) with SD and RES-related policies, while addressing the social dimension of education

Actions	Recommended Activities:	Regional/national actors potentially involved
3.1. Continuing developing cooperation mechanisms between various for development of occupational and qualification standards in RES related areas	3.1.1. Organizing trainings and round tables among relevant bodies for the revision of sectoral boards selection, structure and operating procedures	Ministries, National agencies for VET/qualifications, National agencies for education, Chambers of commerce
	3.1.2. Organizing dissemination and information activities	Ministries, National agencies for VET/qualifications, National agencies for education, Chambers of commerce
	3.1.3. Ensuring the participation of business sector as experts in the sectoral boards through public calls and dissemination of information	Ministries, National agencies for VET/qualifications, National agencies for education, Chambers of commerce
	…	
3.2. Stronger involvement of business sector in developing and updating occupational standards and qualification standards	3.2.1. Organizing wider discussions and presentations involving Chambers of commerce, Union of employees, professional associations and other stakeholders on the importance of the involvement of business sector	Chambers of commerce, Union of employees, professional associations, national agencies for VET/qualifications, Sectoral councils
	3.2.2. Developing the material promoting the importance of the SD and RES to the business community	ERI SEE, Chambers of commerce, Union of employees, professional associations, national agencies for VET/qualifications, Sectoral councils
	3.2.3. Organizing information activities explaining the importance of SD and RES to employees	Chambers of commerce, Union of employees, professional associations, national agencies for VET/qualifications, Sectoral councils
	...	

3.3. Revision of procedures for initiation and development of occupational standards and qualification standards (timelines, digitalization, clarifications of roles)	3.3.1. Analysis of the current state of affairs	ERI SEE, VET/qualification agencies, Sectoral committees, ministries, Chambers of commerce
	3.3.2. Organizing consultations, presentations, and round tables at the Chambers of commerce and Union of employees	Ministries, VET/qualification agencies, Chambers of commerce
	3.3.3. Developing the material promoting the importance of SD to the business community	VET/qualification agencies, Chambers of commerce
	3.3.4. Developing the up-dates of procedures according to the results of the analysis and consultations	VET/qualification agencies, Sectoral committees, ministries, Chambers of commerce
	...	
3.4. Capacity building for the stakeholders within the education, labour, environment, and other sectors	3.4.1. Developing supporting materials	ERI SEE, VET/qualification agencies, Chambers of commerce
	3.4.2. Organizing round tables, focus groups, presentations and public discussions	VET/qualification agencies, ministries, Chambers of commerce
	…	
3.5. Awareness raising and communication campaign to the stakeholders about relevance of standards and their roles in developing and updating occupational standards and qualification standards	3.5.1. Ensuring financial resources for the campaign	Governments, Ministries, national agencies for VET/qualifications, Chambers of commerce
	3.5.2. Developing the awareness raising campaign concept for various target groups	ERI SEE, Governments, Ministries, national agencies for VET/qualifications, Chambers of commerce
	3.5.3. Developing the awareness raising materials (videos, clips, leaflets etc.) and methods (social network presence, famous personalities as ambassadors, participation at fairs etc.)	Governments, Ministries, national agencies for VET/qualifications, Chambers of commerce
	…	
3.6. Improve data collection, monitoring and labour market	3.6.1. Developing comprehensive data systems that monitor student and graduate outcomes, disaggregated by socio-economic background, programme type and subject area	Governments, ministries

intelligence to inform policy making	3.6.2. Developing mechanisms for continuous labour market and skills forecasting specific to SD and RES	Governments, ministries
	3.6.3. Implementation of the instruments and mechanisms among the teachers, students, employers, local community, NGOs etc.	National VET/qualification agencies, chambers of commerce, unions of employees, professional associations
	3.6.3. Developing procedures to use the collected and analysed data to regularly update qualification standards, curricula and training programmes	Ministries, VET/qualification agencies, chambers of commerce
3.7. Address the social dimension of education and training to ensure equity and inclusion in access to quality education for SD and RES	3.7.1. Implement targeted support mechanisms for socio-economically disadvantaged and vulnerable learners, especially those in VET	Governments, ministries
	3.7.2. Develop policies and programmes that explicitly link equity goals with the green transition	Governments, ministries
	3.7.3. Strengthen career guidance and student/learners support services	Governments, ministries, VET/qualification agencies, employment agencies, schools

III Specific objective 4: Continuing building capacities of national VET agencies for identification and responding to the strategic priorities and labour market needs regarding the SD and RES.

Actions	Recommended Activities:	Regional/national actors potentially involved
4.1. Providing technical expertise in RES to VET agencies	4.1.1. Ensuring technical/expert/consultancy support in developing analytical instruments identifying competences needed for SD, green transition and RES	Governments, ministries, ERI SEE, international donors, projects and other sources
	4.1.2. Ensuring technical/expert/consultancy support in implementing analytical instruments and analysis of the results	Governments, ministries, ERI SEE, international donors, projects and other sources
	4.1.3. Developing a digital platform for digitalizing processes from submitting an initiative for a qualification to adopting and registering a qualification into the Register	Governments, ministries, ERI SEE, international donors, projects and other sources
	…	
4.2. Enhancing international and regional cooperation and peer learning platforms among VET agencies, within the WB and with EU, to share knowledge and harmonize approaches on RES and SD topics	4.2.1. Analysing the international good practices in the processes of greening of qualifications	ERI SEE, VET/qualification agencies, Chambers of commerce
	4.2.2. Organizing exchanges of experiences and good practices (study visits, twinning projects, mentorships, bilateral/regional/international projects...) with countries having developed systems and practices of greening of qualifications	ERI SEE, VET/qualification agencies, Chambers of commerce
	...	
4.3. Providing other types of support to VET agencies in RES and SD topics	4.3.1. Analysis of the latest developments in the OS, QS, curricula, training programme development, labour market monitoring etc.	ERI SEE, VET/qualification agencies, Chambers of commerce
	4.3.2. Capacity building of the VET/qualification agencies on the OS, QS, training programme development, labour market monitoring etc. aligned with the latest trends and developments	Ministries, Chambers of commerce, VET/qualification agencies, ERI SEE

	4.3.2. Developing regional guidelines for the implementation of the latest trends and practices in OS, QS, curricula, training programme development	ERI SEE, VET/qualification agencies, Chambers of commerce
	4.3.4. Developing regional guidelines/methodology for analysis of trends in the RES and green sector	ERI SEE, VET/qualification agencies, Chambers of commerce
	4.3.5. Ensuring access to data, labour market analysis and analysis of trends within the RES and green sector	Ministries, statistical offices, chambers of commerce, VET/qualification agencies
	...	
4.4. Capacity building for developing flexible learning pathways and recognition of prior learning (RPL)	4.4.1. Analysis of the existing systems for the recognition of prior learning internationally and within the region	ERI SEE, VET/qualification agencies, Chambers of commerce
	4.4.2. Developing regional guidelines for the systems for the recognition of prior learning in the region	ERI SEE, VET/qualification agencies, Chambers of commerce
	4.4.3. Developing regional guidelines for modular learning programmes and microcredentials meeting the labour market needs	ERI SEE, VET/qualification agencies, Chambers of commerce
	4.4.4. Implementing promotional activities for RPL. non-formal and informal learning, including the re-skilling and up-skilling programmes, tailored for green skills development	Ministries, VET/qualification agencies, Chambers of commerce