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JUST TRANSITION ROADMAP

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CONTENT

GLOSSARY

The following table summarizes the abbreviations and acronyms used in this document.

Abbreviation	Full description
European Union	European Union
EIB	European Investment Bank
EBRD	European Bank for Reconstruction and Development
BESS	Battery Energy Storage Systems
RES	Renewable energy sources
CO_2	Carbon dioxide
EE	Energy efficiency
FGD	Flue Gas Desulphurization
KEEF	Kosovo Energy Efficiency Fund
GIZ	German Agency for International Cooperation
GET	German Economic Team
HPP	Hydropower plant
IFI	International financial institutions
IED	Industrial Emissions Directive
IPA	Instrument for Pre-Accession Assistance
European Commission	European Commission
KEK	Kosovo Energy Corporation JSC
KfW	German Development Bank
KOSTT	Transmission System and Market Operator
ktoe	Thousand tons of oil equivalent
LPG	Liquefied petroleum gas
ME	Ministry of Economy
MoF	Ministry of Finance
MESP	Ministry of Environment and Spatial Planning
MLFLWV	Ministry of Labour, Family and Liberation War Values
MRVA	Monitoring, Reporting, Verification and Accreditation
NECP	National Energy and Climate Plan
NERP	National Emissions Reduction Plan
Nox	Nitrogen oxides
GDP	Gross Domestic Product

Abbreviation	Full description
GOK	Government of the Republic of Kosovo
SCADA/EMS	Energy Monitoring and Management System
SO_2	Sulphur dioxide
TPP	Thermal power plant
WBIF	Western Balkans Investment Framework
ERO	Energy Regulatory Office

1. Executive summary

The Just Transition in the Republic of Kosovo is a strategic process of economic, social and institutional transformation, which aims to support the sustainable development of the country in the context of gradual decarbonization and European integration. This process is not limited to the transformation of the energy sector; it includes a broader approach to economic development, social protection, industrial transformation, regional development and improving the quality of life of citizens.

In this regard, the just transition represents an opportunity to build a new model of economic and social development, which combines the modernization of the energy sector with the creation of new economic opportunities, the development of workforce skills, social inclusion and sustainable regional development.

The transition must be gradual, just and inclusive, ensuring that no one is left behind during the process of economic and energy transformation. For this reason, security of energy supply, job protection and local economic development remain essential priorities throughout the process.

The Just Transition Roadmap has been drafted in line with the Energy Strategy of the Republic of Kosovo 2022–2031, the Green Agenda for the Western Balkans, the European integration process and national priorities for economic and social development. The document aims to create a coordinated framework for central and local institutions, the private sector, development partners and local communities, so that the transition can take place in a planned manner.

In terms of energy, the transition will be based on the gradual development of new capacities from renewable energy sources, the modernization of existing capacities, the advancement of energy storage systems, the increase of energy efficiency, the expansion of district heating systems and the strengthening of regional energy market integration. In parallel, it aims to create new economic opportunities through the development of sectors related to the green economy, clean energy, energy efficiency and innovation.

The just transition also aims to address challenges related to energy poverty, social inequalities and the need for greater inclusion of vulnerable groups, women and youth in the process of economic and energy transformation.

The just transition in the Republic of Kosovo will be implemented in three (3) time periods:

- short-term period (2026–2028);
- medium-term period (2029–2032);
- long-term period (2033 onwards).

In the short term, the focus will be on establishing institutional mechanisms, developing supporting policies and initiating priority investments. In the medium term, the aim is to accelerate economic and energy transformation, develop supporting infrastructure and implement social and economic programs. In the long term, the aim is to consolidate a new economic and energy model, based on sustainability, economic diversification and regional and European integration.

This Roadmap is based on three strategic pillars:

Economic development – diversification of economic activities and creation of new employment opportunities;

Environmental responsibility – reducing emissions and improving air, soil and water quality;

Vocational rehabilitation and social protection – supporting affected workers, families and communities.

Through these pillars, the Republic of Kosovo aims to build a just and inclusive transition that supports long-term economic development, increases social sustainability, and contributes to the country's gradual transformation towards a modern, competitive, and sustainable economy.

2. Introduction

2.1 Context of the just transition in Kosovo

For decades, energy sector of the Republic of Kosovo has relied mainly on the generation of electricity from thermal power plants, where even today around 90% of local production continues to be provided by the lignite-based thermal power plants "Kosova A" and "Kosova B".

However, this sector faces numerous challenges, which are related to the age of the existing infrastructure, environmental and health impacts, the need for the gradual reduction of greenhouse gas emissions, as well as the ever-increasing demands for approximation with European Union policies and legislation in the field of energy and climate.

In this context, Kosovo has embarked on its energy transition through the establishment of a modern legal and regulatory framework. This process has been marked by the adoption of the Law on the Promotion of the Use of Renewable Energy Sources as well as the advancement of legislative reforms and intensive work on the transposition of the Clean Energy Package through the Law on Energy, the Law on Electricity and the Law on the Energy Regulator. These reforms, together with the Energy Strategy 2022–2031, constitute the basis for the gradual transformation of the energy sector from a lignite-based model towards a system based on renewable, sustainable and competitive sources.

This Roadmap aims to ensure that the energy transition and the redesign of the entire energy sector chain create new opportunities for economic development, investment, innovation and employment, while ensuring that the benefits of this transformation are distributed fairly and that no one is left behind.

2.2 What does just transition mean?

Just transition is an integrated approach to managing economic, energy and industrial transformations, so that they are implemented in a fair, inclusive and socially and economically balanced manner. This concept is based on the principle that the transition to a more sustainable and low-carbon economy must take place while protecting workers, communities and citizens who may be affected by these changes.

The objectives of this Roadmap are designed in line with the European Commission's concept of a just transition, which encompasses the social, demographic, economic, health and environmental dimensions of the transition towards a sustainable and green economy. This approach is reflected in the regulatory framework of the European Union, including Regulation (EU) 2021/1056, for the Just Transition Fund constitutes one of the main support instruments.. The Roadmap also draws on the Action Plan for the implementation of the Sofia Declaration on the Green Agenda for the Western Balkans 2021–2030.

In the context of Kosovo, a just transition is a long-term and gradual process, which must balance the need for modernization and decarbonization of the economy with the need to maintain energy security, economic stability, and social cohesion.

2.3 Purpose of the Roadmap

The purpose of this Roadmap is to create a strategic and guiding framework for planning and implementing a just transition in the Republic of Kosovo. More specifically, the document aims to:

- identify strategic priorities for just transition;
- orient investments and public policies towards sustainable development;

- support gradual economic, social and energy transformation;
- promote local economic development and economic diversification.

The Roadmap also aims to create a common basis for inter-institutional and societal dialogue on the strategic priorities and long-term direction of the country's economic and energy development.

2.4 Guiding principles of just transition

The just transition process in the Republic of Kosovo is guided by principles that aim to ensure a sustainable and inclusive transition:

Inclusiveness The transition must ensure that workers, local communities, vulnerable groups and affected areas are actively supported during the process of economic and energy transformation.

Security of supply

The transformation of the energy sector must be implemented gradually and in a planned manner, while maintaining the security of energy supply and the economic stability of the country.

Social dialogue and participation

The transition process must be based on continuous dialogue with affected workers, local communities, the private sector, civil society and development partners.

Sustainable development

Policies and investments should contribute to long-term economic development, environmental protection, and improved social well-being.

Equality and social inclusion

The transition must promote gender equality, youth inclusion, and support for marginalized groups and vulnerable communities.

Institutional coordination

Effective implementation of the transition requires close inter-institutional coordination and cooperation between the central and local levels.

International partnership and cooperation

The transition process will be supported through cooperation with international partners, international financial institutions and development organizations that support the green transition and sustainable development.

3. Strategic and legal framework

The just transition process in the Republic of Kosovo is implemented in accordance with national priorities for economic and social development, strategic objectives of the energy sector and the country's international obligations in the field of energy and climate. In this context, the just transition is based on a broad strategic and legal framework, which guides the gradual transformation of the economy and strategic sectors towards a more sustainable and competitive model.

3.1 Energy Strategy of the Republic of Kosovo 2022–2031

The Energy Strategy 2022–2031 is the main strategic document for the development of the energy sector in the Republic of Kosovo and sets the medium-term direction of the country's energy transition. It is based on five main objectives:

- improving system reliability;
- decarbonization and promotion of renewable energy;
- increasing energy efficiency;
- strengthening regional cooperation and market functioning;
- consumer protection and empowerment and workforce development.

In this regard, the Strategy foresees the development of new generating capacities from solar and wind energy, the advancement of energy storage systems, the expansion of district heating systems and the modernization of energy infrastructure. It also emphasizes the importance of a planned and gradual transition, while maintaining security of supply and addressing the social and economic impacts of the transformation of the sector.

3.2 Green Agenda for the Western Balkans

The Republic of Kosovo is part of the regional green transition process within the framework of the Green Agenda for the Western Balkans, which aims to gradually align the region with the climate objectives of the European Union. The Green Agenda includes five main pillars:

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

In this context, the just transition in Kosovo is an important instrument for supporting the implementation of the Green Agenda and promoting sustainable economic and social development.

3.3 Energy Community Treaty

As a contracting party to the Energy Community Treaty, the Republic of Kosovo is obliged to harmonise of energy legislation with the acquis of the European Union and for the development of an integrated and functional energy market. The just transition process is closely linked to these developments, as the gradual

transformation of the energy sector requires significant investments in infrastructure, system flexibility and institutional capacity development.

3.4 Legislation

The just transition process is supported by a series of complementary laws and policies that address its key dimensions, including:

- Law on Energy;
- Law on Electricity;
- Law on the Energy Regulator;
- Law on Thermal Energy;
- Law on Energy Efficiency;
- Law on the Promotion of the Use of Renewable Energy Sources;
- Law on Climate Change.

The upcoming legislative reforms will create the legal basis for strengthening the governance of just transition in Kosovo. In this context, the development and establishment of the Monitoring, Reporting, Verification and Accreditation (MRVA) system is envisaged as a supporting mechanism for the planning, implementation and monitoring of transition policies, providing reliable data on emission reductions and economic instruments related to the decarbonization of the energy sector.

The development and integration of the MRVA system will be directly linked to the amendment of the Law on Climate Change. These amendments will create the legal basis for the inclusion of the MRVA in primary legislation.

4. Analysis of the current situation

4.1 Energy sector structure

The energy sector in the Republic of Kosovo is organized into the main links of generation, transmission, distribution and supply, supported by a regulatory and market framework. Domestic electricity production remains mainly based on lignite, with a complementary contribution from hydropower plants and new capacities from renewable sources. Electricity transmission is managed by the Transmission System and Market Operator (KOSTT), while electricity distribution and supply are implemented by companies licensed for these activities. Market functioning and regulatory oversight are ensured by the energy regulatory authority, which licenses operators and regulates network access and tariffs. Within this structure, domestic generation is dominated by the Kosovo Energy Corporation (KEK), which combines coal mining with electricity generation.

The Kosovo Energy Corporation (KEK) JSC is the main energy production enterprise in the Republic of Kosovo. It is fully owned by the Government of the Republic of Kosovo. The primary function of the Corporation is the extraction of coal and the generation of electricity. To fulfill these two functions, KEK is organized into four production divisions: the Mining Division, the TPP Kosova A Division, the TPP Kosova B Division, and the Renewable Energy Division, which was established in 2024. The Corporation operates with surface mining of lignite (Southwest Sibovc Mine) and with two thermal power plants, TPP "Kosova A" and TPP "Kosova B". It currently has around 4,000 employees in various fields of operation, which makes KEK one of the largest employers in the country and the economic axis of the municipalities of Obiliq and Fushe Kosova.

In the current production structure, the two lignite-fired power plants cover about 90% of local electricity production, while the rest is provided by hydropower plants, still limited wind and solar capacities and imports. This lignite-focused structure is also the main source of greenhouse gas emissions and local air pollution, and is therefore the starting point for the transition. Table 1 summarizes the sector's core indicators, which serve as a benchmark for measuring progress in the coming years.

Basic indicator	Value	Year / source
Participation of lignite in domestic electricity production	≈ 90%	2023–2024 · KEK / Energy Community
Number of employees at KEK	≈ 4,000	2026 · KEK
Installed solar capacity	≈ 26.002 MW	2024 · ERO Annually Report
NOx emissions of thermal power plants towards the NERP ceiling	2.73 times above the ceiling	2023 Energy Community
Consumption in the buildings sector to total consumption	> 40%	Energy Strategy 2022–2031
Target for the participation of RES in electricity consumption	≥ 35% by 2031	Energy Strategy 2022–2031

Table 1. Core indicators of the energy sector (starting point for measuring progress)

Production unit	Installed capacity (MW)	Net capacity (MW)
Kosovo A power plant	610	432
Kosovo B power plant	678	528
Hydropower (HP)	135,904	132,004
Wind power plant	137.16	137.16
Photovoltaic power plant	26,002	26,002
Biomass	1.12	1.12
Prosumers	26,238	26,238
Total	**1,614,424**	**1,282,524**

Table 2. Installed electricity production capacities

Both power plants are located in the municipality of Obiliq. TPP "Kosova A" was built in the period 1962–1975 with five units; the first two units are now out of use, while three units with a capacity of about 200 MW each remain in operation. TPP "Kosova B" consists of two units of 339 MW each, put into operation in 1983–1984. The high age of these capacities, especially of "Kosova A" units, largely determines the sequence of the transition: the oldest units are approaching the end of their technical lifespan, while TPP "Kosova B"is undergoing modernization to meet the standards of the Industrial Emissions Directive (IED) and to serve as a base capacity during the transitional phase.

The transmission and market system operator, KOSTT, has a 2025–2034 development plan that focuses on strengthening the grid. The plan outlines strategic investments to improve the transmission grid, enabling increased integration of renewable energy sources (RES) and indirectly supporting a just transition. Key projects include the construction and upgrading of high-voltage transmission lines, which support grid capacity for variable RES such as wind and solar. Investments in smart grid technologies – such as SCADA/EMS upgrades and smart metering – improve grid management and enable customer participation, while Battery Energy Storage Systems (BESS) address RES intermittency and ensure reliable supply.

These improvements could facilitate the achievement of the target of a 35% share of RES in electricity consumption by 2031 and promote a just transition, creating green jobs in regions like Obiliq, historically dependent on coal, and supporting economic diversification. KOSTT has projects financed by the European Union and by international financial institutions (IFIs), such as the European Bank for Reconstruction and Development (EBRD) and KfW.

The plan's focus on regional interconnections – such as integration with the Albanian Energy Exchange (ALPEX) – supports cross-border trade in renewable energy, increasing energy security and the integration of RES into the grid. Flexible grid assets, such as dynamic line assessment systems, optimize the infrastructure to accommodate higher integration of RES. For a just transition, these investments indirectly mitigate social and economic impacts by providing infrastructure for small-scale RES projects, empowering energy communities and creating employment opportunities in the renewable energy sector.

The Energy Regulatory Office (ERO) is an independent regulatory body. Its main function is to regulate activities in the energy sector : electricity and district heating in accordance with the obligations arising from the Energy Community Treaty. ERO's mandate includes issuing licenses and monitoring their implementation, approving tariffs for public service activities, imposing public supply obligations,

providing dispute resolution and drafting secondary legislation. ERO is also responsible for establishing the regulatory framework that ensures the transparent and non-discriminatory functioning of the energy market.

4.2 Investment potential in renewable energy

Kosovo has significant potential for investment in renewable energy. The Energy Strategy 2022–2031 targets a total cumulative capacity of around 1,600 MW from RES by 2031, of which around 1,320 MW is new capacity. This includes 600 MW from wind, 600 MW from solar, 20 MW from biomass and at least 100 MW from self-producer consumers (prosumers).

With high solar radiation (around 1,500–1,600 kWh/m² per year) and favorable wind corridors, Kosovo offers attractive opportunities, supported by a competitive business environment, low tax rates (10% corporate profit tax) and a transparent framework for foreign investment. Overall, the Strategy aims to cover at least 35% of electricity consumption from renewable sources by 2031 and, in parallel, reduce greenhouse gas emissions in the energy sector by at least 32% compared to 2020 levels. These objectives will be achieved mainly through auctions and private investments.

In 2024, Kosovo completed its first solar energy auction, from which the winner emerged for the construction of a 100 MW solar park in Kramovik (Municipality of Rahovec), at a price of EUR 48.88/MWh. The auction ensured a transparent and fair process for qualified bidders and demonstrated the growing interest of investors in the vast potential of RES. At the end of 2024, Kosovo also launched its first wind energy auction, to support wind energy with a target capacity of 50 to 100 MW.The second phase of the process (Request for Proposals) is currently open.

KEK is also advancing its own RES initiatives. The first large-scale project envisages a grid-connected photovoltaic power plant with a minimum capacity of 100 MW on the former ash dump sites near TPP "Kosova A", with a total cost of around EUR 104 million. The financing is structured as a grant-loan combination: a grant of around EUR 32 million from the EU-funded Western Balkans Investment Framework (WBIF), a loan of EUR 33 million from the European Investment Bank (EIB) and a loan of EUR 29 million from KfW. The power plant is expected to produce around 150–170 GWh per year and avoid over 150,000 tons of CO_2 per year, increasing the country's solar capacity from around 10 MW to over 110 MW. A dedicated Project Implementation Unit has been established to manage this and future projects, along with a specialized Division for Renewable Sources, which represents an important capacity building for the just transition.

4.3 Energy efficiency in Kosovo

Energy efficiency is one of the main instruments for reducing consumption and improving energy performance at the national level. So far, efficiency measures have been implemented in public and residential buildings, in line with the goals of the Energy Strategy 2022–2031. In parallel, households and micro, small and medium-sized enterprises have been supported through dedicated programs aimed at increasing efficiency and using renewable sources. In order to reduce consumption, investment in efficiency measures in public and residential buildings will continue, including through donor support and the Kosovo Energy Efficiency Fund (KEEF).

5. Strategic vision, objectives and the path towards a just transition

Based on the context and strategic priorities, this chapter defines the long-term vision, strategic objectives and main directions for implementing a just energy transition in Kosovo, serving as a guiding basis for the transformation of the energy sector.

The just energy transition in the Republic of Kosovo takes place in a context where the energy sector has historically relied on lignite, creating a high dependency not only in terms of energy production, but also in the economic and social structure of the municipalities where KEK operates. The corporation is expected to play a key role in the transition process: beyond its role as a public enterprise, it is an entity with intensive mining activity that has generated employment for local communities for decades.

In this context, the just transition is not only a technical transformation of the energy sector, but also a broad social and territorial process, which requires careful addressing of economic and social impacts. KEK JSC is expected to contribute through the rehabilitation and modernization of its existing units and the diversification of the production structure, enabling the development of new generation capacities and supporting the gradual transition from lignite to renewable sources, without jeopardizing the security of supply during the transition phase.

One of the main pillars of the Energy Strategy of the Republic of Kosovo 2022 - 2031 is the decarbonization of the sector. This process is based on the development of new capacities from renewable energy sources, the gradual reduction of the capacities of the units of TPP "Kosova A" to the point where they remain as a strategic reserve, as well as the gradual reduction of the use of electricity for heating through cleaner alternatives. In this context, the development of district heating systems at the municipal level, based on renewable sources and low-emission technologies, is a key instrument for reducing the demand for electricity, reducing pollution and strengthening the security of supply, especially during the winter months.

The transition process requires close inter-institutional cooperation and coordination with the local level, as RES projects and supporting infrastructure will be developed in municipalities and will have a direct impact on the lives of citizens. Importance will also be given to increasing the ability to meet the growing demands of the labor market, through skills development and preparation of the workforce for new sectors related to clean energy and the green economy.

VISION

The vision of a just transition in Kosovo is to build a clean, secure and inclusive energy system that contributes to sustainable economic growth, environmental protection and improved well-being of citizens. This transition is not only a structural transformation of the energy sector but also a broad national commitment to sustainable development, equity between regions and social protection.

The vision is based on the need to gradually reduce dependence on lignite, diversify energy sources and promote innovation in energy-related economic sectors. By integrating the economic, social and environmental dimensions, the just transition aims to strengthen the country's sustainability and enhance Kosovo's role in regional and European developments in the field of sustainable energy.

The vision is based on three main strategic directions:

- **Economic development.** The just transition creates the basis for a new development model, enabling the diversification of economic activities beyond traditional lignite-related sectors. This

process contributes to the transformation of existing sectors, especially in the field of RES, energy efficiency and green economy services, generating new employment and investment opportunities.

- **Environmental responsibility.** This approach aims to reduce greenhouse gas emissions, improve air, soil and water quality, and rehabilitate damaged natural and industrial areas. The development of the sector will be based on the principle that economic growth and environmental protection go hand in hand.
- **Vocational rehabilitation and social protection.** A just transition places the citizen at the center of the process, guaranteeing social protection, economic security, and equal opportunities. The main focus is on workers, families, and communities affected by changes in the sector.

Through inter-institutional cooperation, the transition will be accompanied by social support measures, active employment policies and special measures for vulnerable groups. Particular attention will be paid to gender equality, marginalized groups and the inclusion of young people, ensuring that the transition is inclusive and does not create new social inequalities.

Together, these directions create a balanced and integrated approach, where economic development, environmental protection and the social dimension support each other. This vision is realistic and future-oriented, emphasizing that success depends on inter-institutional cooperation, private sector engagement and active citizen involvement.

5.1 Strategic objectives

The just transition, in accordance with the strategic documents and legislation in force, is implemented through three strategic objectives that together define the national framework for achieving a just and inclusive transition. These objectives link environmental protection with social and economic needs, creating a sustainable basis for a viable transition for citizens. The objectives of this Roadmap are directly aligned with the Energy Strategy 2022–2031.

5.1.1. Decarbonization of the energy sector

In line with the strategic decarbonization objectives, Kosovo will follow a balanced approach that combines the development of new RES capacities with maintaining security of supply and system stability during the transition period.

a) Specific objective: Increase new generation capacities from RES

The increase in new generation capacities from renewable sources is the main pillar of decarbonization. The aim is to develop and integrate new capacities from solar and wind energy, accompanied by energy storage systems and flexibility mechanisms, to increase the share of clean energy and gradually reduce emissions. In the short term, the commercial operation of a 100 MW photovoltaic plant from the solar auction, the construction of around 100 MW from the wind auction, and the development of new solar capacities of 100 MW in KEK areas are foreseen. In the medium term, further expansion of capacities from wind and solar is expected, towards a cumulative target of around 1,600 MW from RES by 2031.

The integration of battery energy storage (BESS) capacities is essential for the efficient operation of a system with a high share of RES. By addressing the variability of solar and wind generation, these systems contribute to balancing production and consumption, reducing peak loads and improving grid stability.

b) Specific objective: Improving environmental performance and phasing out lignite

To ensure security of supply during the energy transition phase, investments will be made in the rehabilitation and modernization of existing capacities and the gasification of coal based on a preliminary feasibility study for the utilization of this technology in accordance with European Union standards. During this period, the focus will be on the application of more efficient technologies, with lower emissions and better environmental performance, enabling more sustainable use of local resources and the progressive reduction of environmental impact. This approach will create space for the integration of new technological solutions that support decarbonization, system flexibility and long-term energy security.

TPP "Kosova B" (units B1 and B2) will be rehabilitated and modernized to meet the mandatory standards of the Industrial Emissions Directiveit is foreseen to install electrostatic precipitators, reduce particulate matter (PM) emissions to below 20 mg/Nm^3, reduce nitrogen oxides (NOx) emissions below 200 mg/Nm^3 and install flue gas desulfurization (FGD) equipment to reduce sulfur dioxide (SO_2) emissions to 200 mg/Nm^3. The modernization of the turbines extends the useful life of the units by about 20 years, enabling TPP "Kosova B" to serve as a cleaner base load capacity throughout the transition phase.

For TPP "Kosova A", the approach is the combination of rehabilitation and modernization to reduce emissions in two units in accordance with the Energy Strategy, and the gradual reduction of their use so that they shall ultimately remain as a strategic reserve for periods when demand is high or in case of crisis.. Further reduction of the use of the remaining TPP "Kosova A" units to the point where they remain as a strategic reserve will be done after ensuring the basic replacement capacity and sufficient reserve from alternative sources, so that the security of supply is not compromised at any time. The indicator table (Chapter 7) links this sequence with measurable time targets.

The concrete steps, deadlines and investments for this sequence are detailed in KEK's Long-Term Green Transition and Decarbonization Strategy, which operationalizes the decarbonization foreseen in this Roadmap at the corporate level.

c) Specific objective: Development of district heating systems and integration of clean sources

The district heating sector plays an important role in reducing the demand for electricity, especially during the winter season. The main sources of heating are biomass (mainly firewood) and electricity, while coal, liquefied petroleum gas (LPG) and oil are used to a more limited extent. Currently, district heating systems cover about 289 MWth of the total heating demand. A feasibility study has been implemented for the development of new heating systems in several municipalities, where the need for significant thermal capacities and the potential for expansion of existing networks have been identified.

In parallel, investments have been undertaken to improve the performance of existing systems. Termokos has made significant investments in the expansion and rehabilitation of the heating network, which have contributed to increasing the quality of service for customers. In order to diversify resources, it is developing a project that includes the construction of a solar thermal plant of about 30 MW and its integration into the existing central heating system of Prishtina, along with the expansion of the network with a capacity of up to 50 MWth; the project is expected to connect up to about 38,000 new residents to the heating network.

In this regard, the aim is to expand and modernize the district heating infrastructure through the use of clean sources and low-emission technologies. The focus will be on expanding existing systems and developing new systems in municipalities, based on RES.

d) Specific objective: Improving energy efficiency in buildings

Improving energy efficiency is a key step towards a just energy transition, as foreseen in the Energy Strategy and in this Roadmap. It directly contributes to improving the security of supply, lowering costs for consumers and reducing greenhouse gas emissions and air pollution. The implementation of efficiency measures reduces consumption in the public, private and commercial sectors.

The overall objective is to limit final energy consumption to 1877 ktoe by 2031 through continuous growth of investments and projects in all consumption sectors. The buildings sector is a key priority, as it accounts for over 40% of total energy consumption in the country. Increased efficiency will be achieved through the establishment and implementation of minimum energy performance standards, the application of energy performance certificates for new and renovated buildings, as well as through dedicated support schemes managed by the Energy Efficiency Agency.

Key measures include the promotion of buildings with near-zero energy consumption, the use of high-efficiency technologies (such as heat pumps and solar thermal systems), and the implementation of a building energy performance certification system.

5.1.2 Just transition for workers and communities

The second objective aims to support workers, families and communities affected by the energy transition, especially in the municipalities of Obiliq and Fushe Kosova, where the concentration of KEK's activities has created high economic and employment dependence. KEK employs around 4,000 people, most of whom are directly or indirectly linked to the lignite production chain. Any transition measure must start from this concrete reality: the exit from lignite cannot precede the creation of sustainable employment alternatives.

The guiding principle is "jobs first": new jobs and retraining programs must be operational before lignite capacities are taken out of production. To this end, a just transition for workers relies on a set of concrete instruments, summarized in Table 3.

Instrument	Description	Source of funding
Retraining and professional training	Targeted programs for the transition towards RES, efficiency, district heating and green services sectors, with measurable participation and employment targets after training.	Donors (GIZ, ILO, IPA) / FTD
Direct employment in new projects	Priority for local workforce in RES and rehabilitation projects.	Private investors / KEK
Economic diversification of the Obiliq region	Implementation of the socio-economic roadmap, including the reuse of former mining and landfill areas.	Donors/budget / private investments
Support for vulnerable consumers	Measures against energy poverty.	State budget

Table 3. Just transition instruments for workers and communities

The process will be implemented in close coordination with the transformation and decarbonization of the sector, including the drafting and implementation of the KEK Long-Term Green Transition and Decarbonization Strategy. Given the central role of KEK, the gradual transformation of this enterprise is a key element for the transition at the national level. KEK's strategy will define the gradual transformation

path: diversification of activities, development of new capacities from RES, identification of new business opportunities and gradual transformation of existing lignite-based capacities, in order to maintain security of supply.

A particular dimension of the just transition is gender equality. In line with the Energy Strategy, it is aimed that by 2031 at least 25% of employees in the energy sector will be women, through dedicated education, training and employment programs, with support from partners such as UN Women. Special attention will also be paid to young people and marginalized groups, to ensure that the transition does not reproduce existing inequalities.

5.1.3 Governance and institutional framework

Effective implementation of just transition requires strong institutional coordination, clear governance mechanisms, and continuous cooperation between central and local institutions, the private sector, development partners, trade unions, civil society, and local communities.

Given the cross-cutting nature of the transition, this topic will be addressed within the institutional mechanisms for climate change and green transition established by the Law on Climate Change. Strategic and institutional coordination will be developed through the National Council for Climate Change, which serves as the coordinating body for climate policies in the Republic of Kosovo and will be responsible for overseeing the implementation of this Roadmap.

The Council will enable coordination between the institutions responsible for energy, economy, employment, environment, finance, regional development and social policy, so that the transition takes place in a coordinated, planned and inclusive manner. The responsible institutions will ensure the active involvement of municipalities, the private sector, international partners, trade unions and civil society organizations in the planning and implementation of the transition, through structured and documented consultations.

6. Financial framework and investment priorities

The just transition will be financed through a combination of domestic and international resources, the state budget, private investments, and loans and grants from international financial institutions, which will be managed in a coordinated and transparent manner. The Energy Strategy 2022–2031 foresees overall investments of around EUR 1 billion for the sector, financed by the state budget, private investments and international donations; the financial framework of this Roadmap builds on this foundation and complements it with the social dimension of the transition.

Through this mechanism, it is intended that financing will be implemented in a structured manner and in line with national priorities. Financial resources will be directed towards measures that address social and economic impacts, with the aim of ensuring that the transition is inclusive and planned. Each investment will be assessed according to its social, economic and environmental impact.

6.1 Financing principles

All financing sources should be managed according to clear rules for the use, control and reporting of funds, supported by monitoring mechanisms that enable progress to be tracked. Priority will be given to projects that directly contribute to:

- developing new capacities from RES and increasing system flexibility;
- creating new jobs at the local level and improving environmental conditions;
- development projects in former mining areas or KEK landfills;
- vocational training and retraining programs for the affected workforce;
- investments in municipal infrastructure that improve public services and quality of life.

6.2 Sources and indicative structure of financing

Kosovo will continue to benefit from technical and financial support from international financial institutions and development partners. The main grant framework is the Western Balkans Investment Framework (WBIF), through which Kosovo has benefited from around EUR 298.9 million in grants in the period 2008–2025, supporting investments estimated at around EUR 2 billion. The WBIF combines EU grants with loans from the EIB, EBRD and KfW, and is part of the EU Economic and Investment Plan for the Western Balkans (around EUR 9 billion in grants, aiming to mobilise up to EUR 30 billion in investments).

The Solar4Kosova project offers a concrete model of grant-loan structuring: for a 100 MW solar power plant costing around EUR 104 million, the financing consists of a grant of EUR 32 million (WBIF/EU), a loan of EUR 33 million (EIB) and a loan of EUR 29 million (KfW). This cost ratio of approximately EUR 1.0–1.1 million per installed MW serves as a reference point for the indicative assessment of the cost of developing new solar capacities. Table 4 presents the indicative cost and financing structure by main areas of investment.

Investment field	Indicative cost	Main sources of financing
New RES capacities (≈ 1,320 MW: wind, solar, biomass, prosumers)	≈ EUR 1.0–1.5 billion (indicative estimate)	Private and public investments; IFI loans; WBIF grants

Investment field	Indicative cost	Main sources of financing
Battery energy storage (BESS, ≈ 170 MW)	USD 236.7 million	US Government MCC / State budget
Environmental modernization of TPP "Kosova B" A3 unit and one unit of TPP "Kosova A" (FGD, electrostatic precipitators, NOx)	EUR 275.4 million	KEK
Prishtina district heating (additional 50 MWth solar and network expansion) New central heating systems in at least two new cities Doubling heating capacities from cogeneration at KEK	Part of the WBIF package	WBIF grants / KfW–EIB loans / donors
Energy efficiency (up to 865.8 ktoe savings)	Indicative assessment	Donors / IPA / KEEF / State budget
Just transition for workers and communities	Indicative assessment	State budget/donors

Table 4. Indicative cost and financing structure by investment areas

Methodological note: *Cost values are indicative estimates, anchored in the costs of the Energy Strategy and the real costs of the reference projects.*

Key partners include the World Bank, the European Bank for Reconstruction and Development (EBRD), the EIB, KfW and GIZ, the European Commission (IPA funds), United Nations agencies (UNDP, UN Women, ILO), the Luxembourg Development Agency, as well as other development partners. The private sector is expected to play an important role, especially in the field of RES and innovative technologies, mainly through competitive auctions.

7. Implementation plan, monitoring framework and key performance indicators

The implementation of the Roadmap requires a clear organization of time frames, responsibilities and mechanisms for monitoring progress. This chapter sets out how the envisaged measures will be implemented, how institutions will be coordinated and how results will be ensured to be measurable and sustainable over time. The approach is based on a clear separation between strategic planning and practical implementation, ensuring that the objectives listed in the previous chapters are translated into concrete actions, followed up through a regular monitoring and evaluation system.

7.1 Implementation phases

The transition will be implemented in three successive phases, ensuring gradual and sustainable implementation. The first phase, short-term (2026–2028), will establish the legal and institutional framework. The second phase, medium-term (2029–2032), will focus on implementing programs and scaling up investments. The third phase, long-term (2033 onwards), will aim to consolidate results and fully integrate them into long-term policies. Each phase will define deadlines, institutional responsibilities and measurable results. The process will be reviewed as necessary, so that measures adapt to new challenges, country priorities, international commitments and market developments.

7.1.1 Short-term phase (2026–2028)

This phase lays the foundations for implementing a just transition. The main focus is on creating a functional framework that enables institutional coordination, sustainable financing, and the initiation of concrete activities on the ground.

Field	Main actions
Governance	Expanding the mandate of the National Council for Climate Change with new responsibilities in relation to the Just Transition; drafting the Long-Term Green Transition and Decarbonization Strategy of KEK; integration with the NECP 2025–2030.
Development of new capacities	Preparation and implementation of projects for RES, BESS, central heating and building renovation.
Social protection	Documenting the affected workforce and the impact of the transition on them; creating a register of vulnerable consumers and supporting them with support measures according to the legislation in force.

Table 5. Main actions in the short-term phase

At the end of this phase, Kosovo is expected to have a functional transition management structure, a clear legal and financial framework, and the first projects ready for implementation.

7.1.2 Medium-term phase (2029–2032)

This phase is the main implementation period, where the focus shifts from preparation to the concrete implementation of investments and measures. During this period, new RES capacities will be developed, energy conservation projects will be implemented, and the district heating infrastructure will be expanded. An important element is addressing social impacts through measures for employment, retraining and local economic development, especially in the affected areas.

Projects	Main actions
BRE	Building new capacities from renewable sources.
Energy conservation	Implementation of BESS projects.
Renovation of buildings	Implementation of public building renovation projects and renovation of buildings in the residential sector.
Central heating systems	Implementation of district heating projects.
Social measures and employment	Documenting the affected workforce and preparing training and retraining programs, with the aim of preserving and creating new employment opportunities.

Table 6. Key actions in the medium-term phase

At the end of this phase, a significant increase in energy capacities, local economic development and a significant improvement in environmental conditions are expected.

7.1.3 Long-term phase (2033 onwards)

The long-term phase focuses on consolidating results and ensuring the sustainable operation of the energy system. The system will be characterized by a high share of RES, modernized capacities, and advanced operation and management mechanisms.

The capacities of TPP "Kosova B" will continue to operate as basic capacities of the system, modernized and adapted to the environmental standards in force, guaranteeing stability and security of supply. Meanwhile, the capacities of TPP "Kosova A" will gradually cease active production after ensuring replacement capacities and will be transformed into strategic reserves, activated only in high-demand periods, for heating needs through cogeneration and in cases of energy crises, in line with the commitment to gradually eliminate coal by 2050.

In parallel, the development of new RES capacities, the integration of BESS, the expansion of district heating and investments in efficiency will continue. Based on the planned interventions, the following results are expected to be achieved:

- gradual reduction of production in the units of TPP "Kosova A", to remain as a strategic reserve;
- further development of RES projects and energy storage systems;
- expanding central heating in the remaining municipalities, to reduce electricity demand during winter;
- social inclusion and equality, aiming to reduce poverty and unemployment in the affected municipalities;
- mainstreaming gender equality and the inclusion of marginalized groups of young people in the labour market;
- developing a skilled workforce through reforms in vocational education, training and retraining;
- implementing inclusive financial instruments for affected businesses, workers and communities;
- significant improvement of the environmental situation through the rehabilitation of former mining areas and landfills.

7.2 Performance indicators

A limited set of strategic indicators reflecting the main results of the just transition will be used to assess the progress of implementation. These indicators will be monitored on an annual basis and are directly linked to the strategic objectives of Chapter 5 and the implementing measures of this Chapter. The baseline values refer to 2026 or the latest available data.

Indicator	Unit	Baseline (2026)	Target (2032)
RES capacities	MW	370	1,200
Battery power storage	MW	0	170
Participation of RES in electricity production	%	8	35
Women in the energy sector workforce	%	< 20	25 (until 2031)
Expansion of central heating in Prishtina	MWth	–	50 solar panels 140 from cogeneration
Central heating from RES	–	Feasibility study completed	Implementation of projects in two municipalities
Emission reduction	Mt CO_2	≈ 7	≤ 5
Cumulative energy savings (public, residential, commercial buildings)	ktoe	26.64	279.72

Table 7. Key performance indicators (KPIs), with baselines and targets

7.3 Risk management

The main risks have been assessed according to likelihood and impact and assigned to a responsible institution (risk owner), to enable their prioritization and follow-up.

Risk	Likelihood	Impact	Risk owner	Mitigation measures
Insufficient budget allocations or delays in funding from donors	High	High	Ministry of Finance / ME	Early planning of needs, mobilization of funds from partners and reserve mechanisms for priority projects.
Risk to the security of supply during the lignite phase-out	Moderate	High	ME / KEK / KOSTT	Sequence "works and replacement capacity first"; keep units as a strategic reserve until BRE+BESS are sufficient.
Insufficient coordination and unclear responsibilities	Moderate	Moderate	National Council for Climate Change	Strengthening coordination mechanisms, defining roles and standard procedures for implementation and monitoring.
Lack of involvement and support of communities and workers	Moderate	High	ME / MoF / MLFLWV	Early consultations with affected parties, a compenzation scheme and open and transparent communication.

Risk	Likelihood	Impact	Risk owner	Mitigation measures
Delays in implementation of RES projects	Moderate	Moderate	ME / KOSTT	Simplification of permit procedures, regular planning and monitoring, and clear definition of responsibilities.
Insufficient rehabilitation of areas affected by mining activities	Low–Moderate	Moderate	MESPI / KEK	Environmental compliance audits and independent verification for relevant projects.

Table 8. Risk register, with likelihood, impact, owner and mitigation measures

7.4 Main implementation measures

To ensure that strategic objectives are translated into actionable actions, the following table summarizes the main just transition measures, identifying responsible institutions, timelines, funding sources, and targets.

Measure	Responsible institution	Time limit	Source of financing	Targets
Development of new capacities from RES	Ministry of Economy	2026 onwards	Private investments / IFI / WBIF grants	2,650 MW installed
Installation of energy storage capacities (BESS)	Ministry of Economy	2026–2029	Private investments / IFI / budget	170 MW
Environmental rehabilitation and modernization of TPP "Kosova B" and TPP "Kosova A" units in accordance with the Energy Strategy	KEK	2026–2029	KEK	Compliance with IED standards; NO_x and SO_2 at 200 mg/Nm³
Gradual reduction of production in the units of TPP "Kosova A"	ME / KEK / KOSTT	2031 onwards	Budget / KEK	Transition to strategic reserve
Expansion and modernization of central heating	Municipalities / Ministry of Economy	2026 onwards	WBIF / KfW–EIB grants/donors	4–9 municipalities
Improving energy efficiency (buildings, public and private sectors)	Ministry of Economy / KEEF	2026 onwards	Donors / IPA / KEEF	865.8 ktoe saved
Fair transition for workers (retraining, exit scheme, diversification)	ME / MF / MLFLWV / KEK	2026 onwards	donor	Employment before capacity reduction: 25% women in the sector
Progress monitoring and reporting	National Council for Climate Change	2026 onwards	State budget	Annual reports: progress towards objectives

Table 9. Main just transition measures

7.5 Continuous improvement of policies and implementation

The implementation of this Roadmap will be a dynamic process. Based on the results of monitoring and market developments, institutions will have the opportunity to review and improve the measures so that the transition remains sustainable and adapted to the real needs of the country. Any review will be reflected in the periodic reporting to the NECP and the Energy Community.

Continuous policy improvement is also supported by complementary documents at sectoral and corporate levels. In particular, the KEK Long-Term Green Transition and Decarbonization Strategy complements this Roadmap, setting out concrete measures, timelines and investments for the transformation of KEK's generation capacities. While the Roadmap establishes the national just transition framework, the KEK strategy operationalises it at the corporate level. Both documents will be reviewed in a coordinated manner, ensuring coherence between national objectives and operational planning.

References

The following sources constitute the legal, strategic and data basis of this Roadmap.

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[9] Energy Community / Financing Framework (IPF 10), *Kosovo, District Heating Systems: Feasibility Study. ESIA*: feasibility study for district heating systems in Kosovo.

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Note: *key figures in the tables refer to the respective year and source; cost estimates in Table 4 are indicative and will be confirmed in costed action plans.*