



Pathway Summary Report: Albania

Project: Reducing emissions in power and emissions-intensive sectors in the Balkans.

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'This project is part of the European Climate Initiative (EUKI) of the German Federal Ministry for Economic Affairs and Climate Action (BMWK).'

The opinions put forward in this study are the sole responsibility of the author(s) and do not necessarily reflect the views of the Federal Ministry for Economic Affairs and Climate Action (BMWK).

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Introduction and purpose of the workshop

As a signatory to the Paris Agreement, Albania has committed to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.” Crossing this 1.5°C threshold will, according to the UN’s Intergovernmental Panel on Climate Change (IPCC), risk unleashing a range of severe climate change impacts, including more frequent and intense droughts, heatwaves and precipitation.

In its Sixth Assessment Report (AR6), the IPCC found that every increment above 1.5°C would produce far more intense climate impacts. To limit warming to 1.5°C, global greenhouse gas emissions must peak before 2025 at the latest and decline 45% below 2010 levels by 2030.

The concept of Common but Differentiated Responsibilities, first coined in the Framework Convention in 1992 and reiterated in the 2015 Paris Agreement, means that a country’s financial and technological capacity, along with its historical responsibility for producing greenhouse gases, affects its share of the global mitigation burden. Ergo, while the *world* must cumulatively reduce emissions by 45%, some countries can be expected to cut emissions by a lot less than others.

The IPCC uses a wide range of integrated assessment models (IAMs) to produce scenarios which assess how the world could feasibly limit warming to the 1.5°C threshold. This project first assessed 24 of the IPCC’s 1.5°C compatible scenarios based on compatibility with the Paris Agreement and feasibility considerations (the selection criteria is expanded on in the attached Annex). Then, the scenarios are downscaled to the national level in order to develop a range of 1.5°C emissions pathways for Albania based on the best available science.

Each IAM encapsulates a range of different assumptions about how energy, economic and social systems interact with each other as well as with the environment. We highlighted three of these initial 24 scenarios in order to illustrate different approaches (stories) that Albania could take to decarbonise. Policymakers and civil society would then be able to assess which pathways are most appropriate to their national circumstances and use them to develop and interrogate future policy development.

At the workshop on **3 April 2024**, these pathways were presented to government and civil society stakeholders as a basis for discussion and debate. Subsequently, inputs and critiques from the workshop have been integrated into the pathways analysis to provide a strong input to national stakeholders’ efforts to align Albania’s climate and energy policy with the science.

Key outcomes

1. Key priority areas for action in Albania’s energy and climate policy were identified and analysed in the context of aligning with 1.5°C.
2. A dialogue was fostered between representatives of different levels of government and representatives of NGOs.
3. Key policy issues were identified through stakeholder engagement, and recommendations were shared for overcoming barriers to energy transition and climate action in Albania.

Albania's national context and priority areas

Albania is a highly biodiverse country with a mountainous topography, different geological strata, soil types, and a Mediterranean climate with some continental influence. The country possesses important water resources which, through their contribution to hydropower generation, form the backbone of the Albanian power supply.

The overarching goal of Albania's National Strategy for Development and Integration 2015-2020 (NSDI-II) is accession to the European Union (EU). As part of this process, the country is designing environmental legislation to align with EU policies and directives. Albania is also considering EU strategies and plans for the Western Balkans, such as the EU Economic and Investment Plan, the EU Green Deal, and the National Plan for European Integration 2021-2023.

Albania submitted its first Nationally Determined Contribution (NDC) in 2015, committing to reduce CO₂ emissions by 11.5% compared to the baseline scenario between 2016 and 2030. The NDC covered only CO₂ emissions from the energy and industrial processes sectors, excluding agriculture, forestry, and waste sectors.

Albania has minimal fossil fuel resources and relies heavily on renewable energy sources, particularly hydropower, which accounts for the majority of electricity generation. In 2023, Albania's installed electricity production capacity was approximately 2,675 MW. Total electricity generation reached 8,795,634 MWh, with public hydropower plants contributing 5,123,417 MWh, private/concession producers generating 3,582,493 MWh, and photovoltaic (solar) energy production reaching 89,724 MWh.¹

The Draft National Energy and Climate Plan (NECP) includes scenarios for emissions reductions by 2030, such as the With Existing Measures (WEM) scenario targeting a 15% increase in emissions compared to 2018, and the With Additional Measures (WAM) scenario which aims for a 6% reduction.

Albania is involved in creating a supportive domestic energy market, ensuring energy security, energy efficiency, environmental protection, and GHG emissions reductions through various planned measures and investments identified in policy documents such as the National Strategy of Energy, Action Plans on Energy Efficiency, Consolidated Renewable Energy Action Plan, National Plan for the Mitigation of GHG, and the Strategy of Transport.

The main challenges currently facing the Albanian energy sector include:

- Meeting energy demand for sustainable economic development
- Improving energy intensity reduction
- Enhancing energy supply security through increased energy efficiency and renewable energy sources
- Regional cooperation and integration
- Continued investments to reduce distribution losses and improve collection rates.

Albania has paid special attention to environmental protection and climate change, with the Albanian Constitution including "a healthy and ecologically adequate environment for present and future generations" as a social objective. The country is in the process of changing its status from a developing country to a developed country in the context of the UNFCCC, which involves developing capacities for GHG monitoring, reporting, and policy formulation for emission reduction and climate change adaptation, as well as transposing and implementing the EU Acquis on climate change.

¹ Energy Regulator Authority, "Raporti Vjetor 2023," 2023.

While Albania is making progress with transposing and implementing the Acquis, crucial points remain, including improving the reliability of the energy database and access to detailed macroeconomic data, enhancing the implementation of legislation and strategic documents, and establishing a financial framework for implementing policy measures.

The main energy-related policy documents in Albania include the National Sector Strategy for Energy 2018-2030, the Strategic Plan for Reform in Energy Sector in Albania (2018-2020), Albania's Economic Reform Programme (2020-2022) related to energy sector reforms, the National Energy Efficiency Action Plans (NEEAPs), the National Consolidated Renewable Energy Action Plan (NCREAP 2019-2020), and the Energy Strategy for Albania 2018-2030, which is fully coherent with other national policies and the European Green Deal's objectives.

The most significant institutions in setting policy and regulation in Albania's power sector are the Ministry of Infrastructure and Energy (MIE) and the Energy Regulatory Authority (ERE), with several other ministries and government agencies playing smaller roles.

The Albanian Energy Strategy, in line with the EU's Low-Carbon Economy Roadmap, encourages low-carbon investments for the period 2017-2030 which promotes energy efficiency, renewable energy sources, and, more controversially, natural gas investments. The strategy's policy objectives and energy action plans support the levels of ambition expressed in EU CO₂ reduction targets and climate change political goals. Stakeholder inputs from the April workshop considered the role of these different fuels in a 1.5°C compatible Albanian energy mix, which will be further explored in the preceding sections.

Note on Methodology

The pathways used in these workshops are taken from the IPCC Sixth Assessment Report (AR6). This report consists of the highest quality climate science and the 'Statement for Policymakers' which is agreed on – line by line - by all IPCC member governments, including Albania.

IAMs combine models of multiple systems (energy, land-use, economic, climate) to produce scenarios which show how these systems could evolve and interact under different futures. They are valuable tools for understanding the challenges and opportunities associated with limiting global warming to 1.5°C and for guiding efforts to transition to a low-carbon future.

We selected pathways which are compatible with the 1.5°C Paris Agreement goal, choosing the most recent pathways in order to represent the latest evidence. Scenarios which rely too much on carbon dioxide removal (CDR) are excluded, as these will almost certainly be impossible to implement in reality due to land use and economic considerations.

The IPCC AR6 pathways are global pathways, with emissions scenarios at the world and macro-regional levels. In order to have them at country level, we need to downscale them. We use the Emissions Intensity Convergence method to downscale the emissions, where the emissions intensity of a country (the ratio of emissions per GDP) in the base year (2022) is projected to equal the macro-region's emissions intensity by 2100. This follows an exponential - rather than linear - path.² We use this method for all gases and sectors and finally aggregate the results to find a country's overall GHG emissions.

Albania's historical emissions are derived from its Fourth National Communication and PRIMAP-Hist 2023 database. For a deeper explanation of this project's underlying methodology, see Annex 1.

² Matthew J. Gidden et al., "Global Emissions Pathways under Different Socioeconomic Scenarios for Use in CMIP6: A Dataset of Harmonized Emissions Trajectories through the End of the Century," *Geoscientific Model Development* 12, no. 4 (April 12, 2019): 1443–75, <https://doi.org/10.5194/gmd-12-1443-2019>.

1.5°C compatible trajectories for Albania

Applying the methodology to Albania allows us to see what emissions reductions are needed to align with the Paris Agreement’s 1.5°C limit. Currently implemented measures, or With Existing Measures (WEM), will lead to emissions of 12 MtCO_{2e} in 2030. This equates to 15% above 2018 levels.

Albania’s draft national energy and climate plan (NECP) lays out a 2030 emissions reduction target of 10 MtCO_{2e}, effectively remaining the same as 2018 levels. This is also referred to as ‘WAM’, or With Additional Measures, in Figure 1 as achieving this target would entail additional emissions reduction policies.

To be 1.5°C compatible, Albania’s 2030 emissions would be 31-39% below 2018 levels, excluding land use, land use change, and forestry (LULUCF), or 6-7 MtCO_{2e}/yr. Taking the upper (i.e. least ambitious) end of Albania’s 1.5°C range, **Albania’s 2030 ambition gap is therefore 3 MtCO_{2e}.**

By 2050, Albania’s emissions would be 71-80% below 2018 levels, or 2-3 MtCO_{2e} (excl. LULUCF).

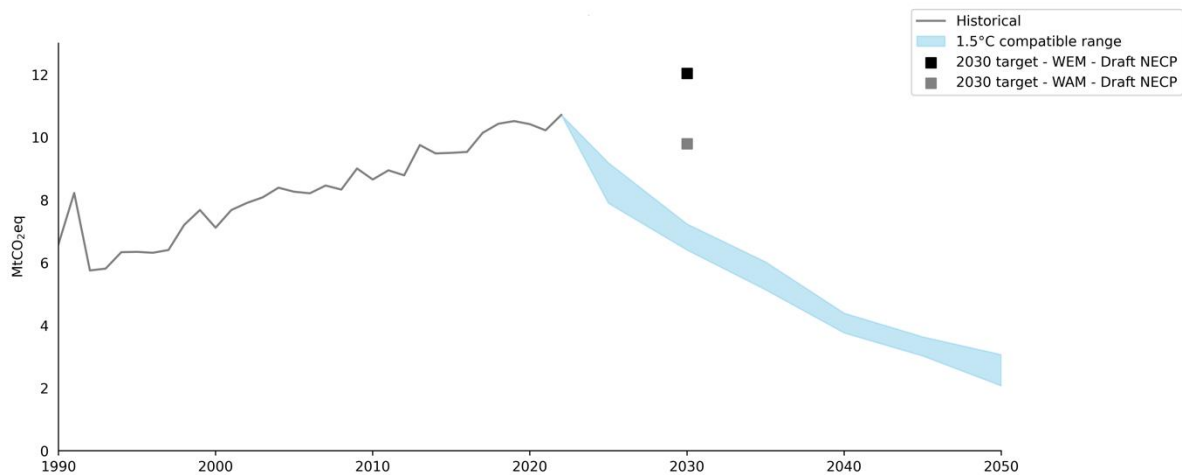


Figure 1: Albania’s 1.5°C compatible GHG emissions range (excluding LULUCF)

In strengthening its NECP, Albania shaved 2 MtCO_{2e} off its ambition gap. This is commendable, and can be understood as completing 40% of the work necessary to achieve 1.5°C. Building on this initiative by strengthening its national climate documents in line with 1.5°C compatible pathways will allow Albania to fulfil its Paris Agreement commitments based on the best available science.

Model	Scenario	Gas	Sector	Comments	2030
AR6 1.5 range	1.5C range - Max	GHG	Total excluding LULUCF		-31%
AR6 1.5 range	1.5C range - Min	GHG	Total excluding LULUCF		-39%
2030 target - WEM - Draft NECP		GHG	Total excluding LULUCF	WEM: With Existing Measures Scenario	+15%
2030 target - WAM - Draft NECP		GHG	Total excluding LULUCF	WAM: With Additional Measures Scenario	-6%

Figure 2: Relative reductions in % compared to 2018 levels by 2030 for four scenarios

Decarbonisation narratives

There is no one way to achieve 1.5°C. Numerous decarbonisation pathways exist, all with their own narratives as to how to enhance climate action and cut emissions. Nevertheless, a common formula exists: a rollout of renewable energy, a fossil fuel phase out, and energy efficiency measures to reduce final energy demand. The precise blueprint, however, can vary and may depend on what is best suited to Albania's national context, as determined by those involved in the policy process.

The three illustrative pathways chosen for this project are the Deep Electrification, Net-Zero Commitments, and Minimal CDR Reliance pathways.

Deep Electrification: Best captures the rapid cost reductions seen in wind and solar over the last decade and the potential for future progress. Due to the advanced cost analysis, this pathway generally sees the deepest electrification rates.

- Levelised cost of electricity falls to <US\$10/MWh by 2050
Transport electrified through strong support for EVs and rollout of charging infrastructure

Net-Zero Commitments: Assumes some of the major net zero commitments announced by major economies are met, thereby reaching net zero CO₂ by 2050.

- Strong policy coordination, e.g. through early introduction of climate policies which become more stringent over time, thereby avoiding potential shocks to business as usual

Minimal CDR Reliance: Prioritises limiting carbon dioxide removal technologies due to their extremely high costs and unproven ability to work at scale.

- Decoupling of emissions and GDP is central, whereby high socioeconomic development is achieved at the same time as significant emissions reductions

Stakeholder inputs

Productive discussions took place among stakeholders who attended the workshop, both directly related to the scientific findings as well as climate policy more broadly. Integrating the results of the scenarios with stakeholder expertise helped to identify opportunities to implement the scenarios, as well as how to overcome barriers to climate action and the energy transition in Albania.

1. Historical responsibility

- Albania is a non-Annex I country and is not expected to financially support other countries in decarbonising their economies. Regarding the financing of Albania's own energy transition, stakeholders raised concerns around how much should be financed by the EU.
- 1.5°C pathways show an immediate peaking in emissions, which stimulated discussion around Albania's fair share. The 1.5°C compatible emissions range indicates a country's share of the mitigation burden in line with limiting warming to 1.5°C. Depending on a country's level of development, these reductions may need to be supported with finance from wealthier countries.
- While the question of who pays is an important one, aligning with 1.5°C would see Albania decouple economic growth from carbon emissions. Contrasting sustainability with economic growth is thus misleading. Instead, investing in renewables over fossil fuels and improving energy efficiency can power economic growth without a commensurate increase in emissions.

2. The role of gas

- There were mixed opinions on the role of gas, with some seeing a need to develop gas as a base load to respond to demand with the aim of repurposing these assets into hydrogen at a later date.
- Others view gas as a carbon intensive fuel which risks carbon lock-in and would develop a domestic industry which would resist change, whereas investments in renewables can create more high-quality jobs, safeguard Albanian industry from policies such as the EU's Carbon Border Adjustment Mechanism, and align economic growth with emissions reduction goals.
- Aligning Albania's energy sector with 1.5°C would see a rollout of renewables, and no increase in gas. Buildout of gas capacity would mean that Albania would not be aligned with the Paris Agreement.

3. Implementation challenges

- Albania struggles to implement policies and targets that have been committed to on paper. This is partly due to data reliability and lack of environmental monitoring. Regarding the industry sector, for instance, there are few reliable monitoring stations when it comes to industry emissions. In most cases the reporting is done manually by the industry sector, allowing the possibility for companies to change the data to be more favourable to them. In a few cases there are automated monitoring systems in place, such as the case of TITAN Antea Cement Factory, where the reporting is done automatically, and the data cannot be manually altered prior to the report.

- Another obstacle to the implementation of climate policies arises from the government's inconsistent commitment to its own policies. One example is the approval the government gave for the operation of the two floating thermal power plants in Vlora, which would introduce carbon emissions to the electricity sector, locks Albania into a more carbon-intensive future and puts additional pressure on other sectors to reduce their emissions in order to align with 1.5°C.

4. Exclusion of LULUCF data

- During the workshop it was brought up that exclusion of LULUCF data may lead to an incomplete picture of the overall carbon balance, as LULUCF activities significantly influence emissions and sinks. LULUCF emissions could not be included in the pathways because downscaling requires a different, more challenging methodology than for other sectors. This is due to data limitations (difficulty in finding reliable and consistent historical data, as well as model limitations) and the complexity of land use dynamics.
- In the Albanian context, there is poor management when it comes to forestry, bordering on complete negligence. Deep rooted issues exist regarding land ownership and fragmentation since the communist regime. Land fragmentation makes it uneconomical for people to use it for agriculture or forestry, while there is also a deep rooted societal opposition to the creation of cooperatives. Land ownership issues also include issues with the land belonging to someone else on paper, while other people claim ownership due to inheritance and that also leads to issues in using the land.
- Given issues surrounding Albania's LULUCF sector, excluding LULUCF data offers the benefits of simplifying the modelling process and allowing for a focused analysis on direct emissions from non-LULUCF sectors, particularly energy.

5. Applying proven good practices

- Stakeholders raised the importance of connecting percentage reductions with specific recommendations to achieve those reductions. Good practices which have been implemented in other countries' industrial sectors can be used to form decarbonisation strategies for Albanian industry.
- Specific recommendations can thus be used to build on the 1.5°C pathways presented in the workshop and help to achieve those pathways in reality.
- Discussion took place around the cement industry and how legislation affects the measures the industry can take. For instance, opportunities and issues surrounding the cement industry importing fly ash from other countries, e.g. Kosovo, as it is not available in Albania. Current legislation considers fly ash a waste product and not allowed to be imported, although it can be added into the cement mix and thereby reduce the carbon emissions associated with cement.

6. Priority areas identified

- Building out gas capacity would put Albania off-track in aligning with 1.5°C. Instead, a rollout of renewables can decouple emissions from economic growth;
- Implementation of climate policies can be supported by stronger environmental monitoring which reduces the risk of emissions data being manually altered;
- Greater integration of climate policy with other government objectives is critical. The government's inconsistency in factoring in its own climate policies and targets to other

policy decisions, as was the case when approving thermal power plants in Vlora, impedes implementation;

- Applying good practices from other countries important to providing Albanian industry with clear blueprints which they can follow in order to reduce their emissions.

Conclusions

Aligning with 1.5°C necessitates a combination of top-down and bottom-up analyses. The top-down modelling conducted for this project aims to develop 1.5°C compatible pathways for Albania that show where and when emissions reductions should take place to meet the goals of the Paris Agreement. In other words, in the case of Albania, how decarbonisation can feasibly occur and over what time span, thus providing clear 2030, 2035, 2040 and 2050 targets which policymakers can aim for.

What models do not account for are national specificities such as institutional, social, and political barriers (and opportunities) to decarbonisation. Bottom-up analyses from stakeholders who are intimately aware of Albania's particular national context is therefore crucial to supporting the integration of 1.5°C compatible pathways into national policy.

Stakeholder inputs provided in the April 2024 workshop have therefore helped to bridge a gap between climate science and Albania's political, social and institutional realities. In particular, institutional barriers such as a lack of transparency in emissions reporting, criticism of the government's commitment to integrating its climate policies into other policy decisions, and the need to apply good practices from other countries were highlighted as necessary to fully implement 1.5°C compatible pathways in Albania.

The priority areas identified in subsection 6 of the stakeholder inputs are thus the culmination of the bottom-up processes provided by stakeholders' expertise from the April 2024 workshop. Addressing these priority areas, while strengthening climate strategies to align with 1.5°C compatible pathways, can ensure that Albania meets its Paris Agreement obligations while overcoming its specific political, social and institutional barriers.