



EUROPE AND
CENTRAL ASIA

EXECUTIVE SUMMARY MONTENEGRO

World Bank Group

COUNTRY CLIMATE AND DEVELOPMENT REPORT

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Executive Summary

Montenegro is a small country in the Western Balkans that has significantly improved the living standards of its people in the past decade, but this has come with environmental and health impacts that are not altogether favorable. Among the six Western Balkan countries (WB6), Montenegro has the highest GDP per capita at purchasing power parity (PPP). With substantial investments in transport and tourism, the country's recent investment growth is roughly on par with that of the fast-growing East Asian economies. But its growth has been resource-intensive. Montenegro's carbon and energy intensities are both higher than the European Union (EU) average because of its reliance on the Pljevlja coal-fired power plant and inefficient practices in the industrial, building, and transport sectors. While its energy balance is mainly supported by hydroelectricity and wind power, the continued use of coal and firewood in heating has led to significant greenhouse gas (GHG) emissions and poor air quality, exacerbated by heavy vehicle traffic in populated areas. Although total GHG emissions have declined since 1990, with significant forested areas contributing to that decline, the country will need additional investments and policy measures to meet its climate targets.

Montenegro's climate change policies are, in part, shaped by various external drivers and international commitments; internally, it needs to make more progress by not only intensifying its own climate ambition but strengthening its capacity to actualize that ambition. Externally, the country is party to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement. As a contracting party to the Energy Community Treaty, Montenegro has also committed to harmonizing its energy and climate legislation with the EU acquis.¹ Montenegro is one of the most advanced Energy Community contracting parties in its adoption of legislation related to climate change mitigation, but implementation and enforcement need further improvement. While the country has expressed its intention to take steps, along with the rest of the EU, toward achieving a carbon-neutral continent by 2050, it has not yet set an individual net zero target. Montenegro lags other WB6 countries in the development of its national energy and climate plan (NECP), but it leads the region in its ongoing development of a Low Carbon Development Strategy, and its membership in the Powering Past Coal Alliance (PPCA) is a sign of its commitment to joining other EU nations to transition away from coal. Montenegro has also been the frontrunner in carbon pricing with the implementation of an emissions trading scheme (ETS) in 2020, but the system has had significant challenges around price discovery and market liquidity. The World Bank's Climate Change Institutional Assessment (CCIA) for Montenegro states that the country is "emerging" in its institutional readiness to respond to climate change. Although it has legal and regulatory structures in place, policies need to be better integrated across ministries to ensure effective implementation. Additionally, the government needs to stress the importance of human capital because declining educational outcomes, persistent inequalities in education, and a high share of long-term unemployment undermine the country's ability to implement a green transition smoothly. Developing its human capital will be critical to ensure that Montenegro has the skills needed to respond to the evolving demands it will encounter on the path toward net zero.

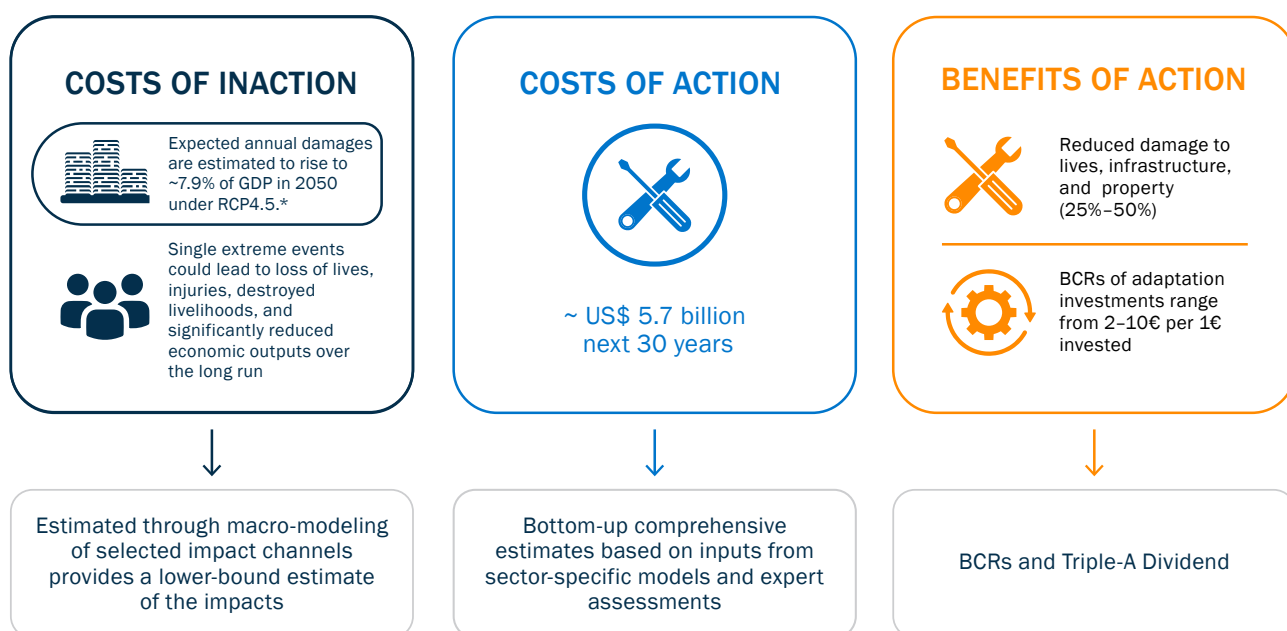
Montenegro is a small, predominantly mountainous country with high climate variability and frequent extreme weather events. Numerous parts of the country show high exposure to floods, earthquakes, and landslides. Between 1991 and 2013, Montenegro had six devastating floods, a worrisome pattern because 60 percent of its population reside in areas with a high probability of magnitude 8 or greater earthquakes on the Richter scale. Flooding affects about 10,000 people a year and cause an average of US\$90 million in damage; earthquakes affect around 9,000 people and average US\$70 million in damage. As much as 51.0 percent of the country's total area is susceptible to high or very high landslide risks. Because of climate change, heat stressors are also rapidly intensifying: droughts, wildfires, and heatwaves are already affecting an increasing number of people and sectors of the economy. Weather- and climate-related disasters have

¹ The *European Union acquis communautaire*, or "EU acquis" – French for that which has been acquired, received, or obtained – refers to the accumulation of common rights, legislation, court decisions, policy objectives, directives, principles, treaty provisions, resolutions, regulations, and obligations that constitute the body of European Union law. It is currently made up of 31 chapters.

already generated significant physical and economic losses in Montenegro, especially in major sectors such as agriculture and transport. The 2010 flood affected some 30,000 hectares of agricultural land, with losses of about €44 million. If no investments are made to adapt to the changing climate, natural hazards could lead to up to a 5.1 percent reduction in GDP, depending on the climate change scenario. The most significant economic damage will result from floods, but it is also expected that other impact channels like droughts and heat stress will negatively impact the economy, albeit at lower magnitudes.

The costs of investing in adaptation are undoubtedly high, but the costs of inaction are even higher, as are the benefits of action. Montenegro would need to invest in US\$5.7 billion (in 2020 dollars, undiscounted) over the next decade to protect people and property from the damaging and escalating impacts of climate change (Figure ES.1). This initial comprehensive adaptation investment package would cost equivalent to around 1.5-2.3 percent of GDP per year until 2050. Investments in adaptation would yield a “Triple-A Dividend” of three types of benefit: (i) avoided losses, (ii) accelerated economic potential, and (iii) amplified social and environmental co-benefits. Implementing adaptation climate actions at the national level would greatly reduce the human and economic losses from disasters and climate events and facilitate human capital development.

FIGURE ES.1: Summary of adaptation investment narrative



Source: World Bank analysis.

Note: GDP = gross domestic product, RCP = representative concentration pathway, BCR = benefit-cost ratio.

* The macroeconomic model yields annual estimates for damages based on the expected annual loss from each climate hazard. The expected damages are projected to grow over time, reflecting increasingly unpredictable and volatile climate conditions. Combined damages from the drought impact on maize and wheat, heat stress on labor productivity, and riverine floods, are estimated to be 7.9 percent of GDP under RCP 4.5 in 2050 for Montenegro.

Adaptation investments and projects could also lead to employment growth, an improvement in skills, and increased trade opportunities. Investments such as enhancing urban adaptation would likely strengthen cities’ resilience in the face of floods and other climate events while generating social and environmental co-benefits like enhanced energy efficiency, better air quality, spatial attractiveness, and protection of public health. In the capital city, Podgorica, a series of adaptation measures have been implemented, including both structural measures including green infrastructure, water system, urban structures, and building designs and nonstructural measures such as regulations and awareness raising campaigns. Moreover, investing in nature-based solutions (NBS) promotes adaptation while yielding substantial co-benefits for the ecosystem and local communities, especially the vulnerable and those in mountainous and downstream areas. NBS for

flood prevention can yield high net benefits, with benefit–cost ratios that are generally greater than 2, up to 12 for peatland restoration, and up to 18 for floodplain restoration. Lastly, investing in human capital helps adapt systems through improved education and productive skills, assists in identifying health issues early, and protects vulnerable populations from impoverishment.

With Montenegro’s natural assets, in particular its large forestry carbon sinks, accelerating the energy transition to achieve economy-wide, net zero emissions by 2050 is feasible, but it will still require significant transformation and decisive action. An energy system modeling analysis carried out as part of the WB6 Country Climate and Development Report (CCDR) to assess sectoral decarbonization pathways for the WB6 countries showed that achieving economy-wide, net zero GHG emissions by 2050 would require a moderate to small expansion of investments (depending on the year) to decarbonize the power sector, compared to what would be expected without a net zero target. Electricity generation from coal would be substantially reduced but could still account for a small share of electricity generation by 2050 (offset by the carbon sink). Most of the electricity would be generated by wind and solar, with grid balancing supported by the country’s existing hydroelectricity capacity. This hydro capacity will offset the intermittency of wind and solar, limiting the need for investment in battery storage. Achieving net zero would require ambitious policies to support significant energy efficiency improvements across all sectors, especially in buildings and industry. The transition of the heating and transport sectors toward electricity-based technologies will be critical in reaching this goal.

The target of net zero by 2050 can be achieved with a small macro-fiscal impact on the economy’s current potential growth. Overall, compared to a reference scenario (RS),² Montenegro would need to invest in the energy system an additional US\$235 million until 2050 (expressed in present values and 2020 dollars) to achieve economy-wide net zero, equivalent to about 0.2 percent of GDP per year on average. This will be distributed unevenly over time, at around 0.1 percent of GDP on average until 2030, 0.4 percent of GDP during 2031-2040 and 0.1 percent of GDP during 2041-2050. Most of the incremental investment until 2050 would go to the power sector and would be directed mostly toward the scale-up of solar PV and wind capacity. The next major investment will be in transforming the transport sector, with significant investment needed in rail infrastructure. The impact of decarbonization investments on domestic output would be modest relative to the significant emissions reduction: GDP per capita would be only 0.7 percent lower in 2050 compared to the RS under trend growth.

More than 70 percent of the additional capital investments needed to meet the decarbonization target could be undertaken by the private sector. Raising capital to finance climate change-related investments also requires creating an enabling regulatory environment. Mobilizing financing for the green transition would require issuing green bonds, accessing public–private partnerships (PPPs), and tapping into EU pre-accession financing, IFI financing, and guarantees.

The green transition will have to be designed and implemented in a just manner. Transitioning to cleaner energy sources would also require ensuring a just transition for coal-affected communities. It is important to implement policies and initiatives that support workers and regions heavily reliant on coal mining and related industries as countries move toward more sustainable energy solutions. Moreover, the net zero transition will have a distributional impact on household consumption due to variations on generation and supply costs, potentially leading to changes in the prices of energy and non-energy products. The government should focus on targeted support to households, incorporating revenue recycling, to soften potential effects on those who are less well-off. Therefore, careful consideration is needed to ensure a Just Transition for all and to prevent the worsening of energy poverty.

² This modeling scenario represents an unconstrained least-cost evolution of the energy system. No specific assumptions are made on the introduction of new policies supporting decarbonization, and the evolution of the energy system is purely driven by economic considerations. This scenario is incompatible with the WB6 countries’ aspirations of EU integration and their existing climate change commitments, but it provides a comparable baseline across the six countries for the other decarbonization scenarios.

Adaptation and mitigation can be part of a sustainable growth strategy that delivers higher productivity.

Montenegro can use the climate change adaptation and mitigation measures as opportunities to achieve a more sustainable growth model with higher productivity. To do so, it will need to (i) strengthen competition and improve the business environment (including improving the SOE governance), (2) better leverage foreign trade, (3) improve the quality of human capital, and (4) strengthen public sector capacity. The public sector's response needs to be three-fold. First, to adopt policies that mitigate the economic and social impact of climate change by incentivizing private sector and household action (i.e. zoning, insurance, financing instruments, carbon pricing, incentives for research and innovation, etc.). Second, strengthening efficiency of public spending (i.e. social assistance, education, pharmaceutical spending, etc.). Third, increase fiscal space by bolstering domestic revenue mobilization through, inter alia, taxation of environmentally- and health harmful products and activities, while reducing tax expenditures and increasing the tax base by reducing the informal economy. These would allow Montenegro to actively monitor and manage fiscal risks from climate change.

The report ends with a summary of recommendations for policy reform and investments, along with the complexities and timelines likely to be associated with implementation.

The recommendations focus on what could and should be done in the short term (until 2030), with an eye to laying the groundwork for the scale-up of climate action in the subsequent decades. The recommendations span (i) resilience and adaptation, (ii) decarbonization and mitigation, (iii) macroeconomy and financing, and (iv) regulatory/institutional frameworks, education, and labor.

